Race Management Handbook

Fifth edition

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Mix a little foolishness with your prudence:
It's good to be silly at the right moment.
—Horace

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Foreword

Over the past few years both the ISAF and US SAILING have spent considerable time in efforts to improve race management practices. Nowadays it is much more likely that a visiting sailor will find the sailing instructions produced in an easily understood and familiar layout.

The Rule 26 starting system is the standard which sailors all around the world expect to be used.

The majority of races are still run by volunteers to whom sailors owe a debt of gratitude for the time and effort which these volunteers put in by learning and practicing good race management techniques.

This new edition of the Race Management Handbook has been carefully revised and updated once again by Pat Seidenspinner to be consistent with *The Racing Rules of Sailing for 2009-2012*. As with any system, we are always looking out for improvements so if you have any suggestions, please send them to www.raceadministration@ussailing.org.

Inevitably as soon as any book is published, something will happen that requires an update, so please check the Race Management section of the US SAILING web site at intervals. This web site also has a wide range of forms that may be of help to race officials.

May your time on the water be straightforward and redress free!

Robin Wallace
Chairman, Race Management Committee

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Introduction

This hand book is dedicated to the competitors who expect race committees to provide the best in racing, who constantly remind us when we need to improve, and thank us when we have; to the outstanding race officers from whom we have learned and whom we try to emulate; and to those striving mightily to make the racing experience just a little better each weekend.

The first edition of this handbook was published in the late 1970's. It was revised in 1988-89 by then chairman Larry White, Executive Director John Bonds and members of US SAILING's Race Management Committee. It was not a comprehensive text, but it included many helpful articles and forms. In 1993, the entire text was reorganized by Terry Harper who was, at the time, chairman of the Race Management Committee. It is now divided into logical aspects of the organization and conduct of a race or regatta. The articles were incorporated into the substantially augmented text. Extensive references to the racing rules were added. In 1997, the book underwent a significant number of changes to accommodate the then "new" rules and also got a "new look". For that edition, and the three subsequent editions, Patricia Seidenspinner, a member of the Race Management Committee, has served as editor.

The Table of Contents is designed for use as a check list for organizing regattas, preparing notices of race and sailing instructions, and planning race operations. We have endeavored to address many types of racing, and to discuss why one type is run differently from another. The primary purpose of suggesting systems, techniques and equipment for conducting a wide variety of racing is to develop quality race management. If this handbook helps to accomplish that goal, it will have been well worth the time and effort expended.

Complete standardization of the methods for conducting races is not possible. Certain criteria, techniques, and equipment are common to all race committee work. Some clubs run races for small dinghies on lakes, while others run offshore regattas, team races, or multihull events. This handbook attempts to present material so that race committees can adapt it to local conditions and circumstances.

This book assumes that you are a good enough seaman to handle your boat in all conditions, that you know how to dress for those conditions, that you know first aid and CPR, that you can read the weather conditions, navigate, swim, moor, use firearms safely, count and do all of those other things that anyone associated with water sports should be able to do.

The handbook is intended for use with *The Racing Rules of Sailing* and with the *US SAILING APPEALS AND ISAF CASES* (one book). The best thing about race committee work is that it is an "open book" test of your skills. Take this handbook to the race course with you.

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About this Edition

This edition of the Race Management Handbook brings its content into conformity with The *Racing Rules of Sailing 2009-2012*.

A number of years ago, the Race Management Committee developed and implemented a comprehensive training and testing program for race officers. That experience helped all of us to sharpen our own skills while helping others gain the knowledge and confidence required of a race officer. This book is a vital part of that program.

My thanks go to Paul Ansfield (Oskosh, WI), Bruce Bingman (Arlington, VA), Darline Hobock (Tulsa, OK) and staff members Dan Nowlan, Jim Teeters and Eric Baittinger for their work in updating the handicapping section.

The amazing world of desktop publishing is available to anyone with a computer. This book was designed and composed in Adobe InDesign CS4, a sixth-generation page layout and design application, on a Macintosh computer. It was transformed (with the click of a mouse) into a Portable Document File (PDF) and was then launched electronically to the printer. The process was almost as much fun as sailing!

Included in the book (here and there), are some philosophical reflections of the like not found in ordinary manuals—just for fun!

Patricia H. Seidenspinner, Editor
St. Petersburg, Florida
July 2009

Three rules for life:
Your attitude is your life.
Maximize your options.
Never take yourself too seriously.

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1 Objectives, Responsibilities and Authority

What do sailors expect of race committees? What should race committees expect of themselves? Who has the authority to organize and conduct regattas? How is that authority divided among the various groups involved? How should race committees be structured to achieve the best results? This chapter addresses those, and related issues.

Objectives

What do sailors expect of race committees?

In most locations, race committees are comprised of people who race, but have agreed to take the time to run some races for their home club. Or they may be the wives, husbands, or friends of the competitors who, in order to spend some time enjoying their spouse's or friend's sport, help with a weekend race.

Almost all race committee members throughout this country are volunteers. At the same time, most competitors have spent considerable time and money preparing their boats and equipment for competition, making their crews ready, and, often, simply getting to the regatta.

As the desire to compete in sailboats has increased, so have the demands on those people who conduct the competition. The number of significant regattas has increased, and so has the quality of race management at most of those regattas.

Having witnessed good race management at many regattas, competitors have come to expect certain standards for race committee work. People who devote their time to running races do so because of their own interest in the sport, and the pleasure it brings to them and to the competitors.

Race committees perform a valuable service to their constituents—the racers—which few racers can or are willing to buy. The members of the committee take pride in providing the best service possible. Both sailors and race committees should have the same expectations:

Perfection—little short of it!

Competence. Competitors need clear, concise, sailing instructions. So do race committees. Both want the race committee to be comprised of knowledgeable people. Both want the race

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committee personnel to have good equipment—appropriate to the type of racing involved, and well maintained, so that running the race can be accomplished without error.

Knowledge of the sport, the class, the locale and the event. Persons involved in running races should understand the sport of sailboat racing, the tactics involved, and the reasons sailors compete. Competitors also expect the race committee to understand the characteristics of the boats which are competing.

As important, all boats which race either have class organizations or sail in accordance with performance or measurement rules, because such a structure ensures a particular level of racing—equalization of construction and equipment, or theoretical equalization of performance. A race committee which ignores, or fails to recognize, the desires of the class may not provide the best racing for the type of boat or skill level of the competitors.

A race committee which does not understand local sailing conditions will find it difficult to set fair courses, and may be unable to anticipate dangerous weather conditions. It may also cause the competitors to experience long periods of sheer boredom, waiting for the wind to fill in because the race committee scheduled the start too early for the local weather conditions to provide good sailing.

The club which conducts a regatta without assuring that its race committee has the proper equipment—adequate mark-set boats, sufficient safety boats, appropriate marks, proper facilities, and the like—will find that the race committee will have a difficult time doing a good job.

Fair competition. Everyone wants square lines, good courses, and reasonable, practical time limits. When the lines are good, starting line discipline becomes a simple matter. The racers also expect the race committee to know how to provide discipline to an aggressive fleet of starters. Knowledge of alternative methods of control is critical to good starts. For a competitor, few things are worse than a race committee which recalls his or her best start of the series for a new start.

Adaptability to and anticipation of changes of conditions make the racing more fair. The sailor has far less opportunity to anticipate a wind shift than a race committee. When the race committee changes the course to keep the next leg square to the wind, the competitors will believe that the race committee is doing its best to make the racing fair for everyone.

Flexibility is very important. A race committee which has performed its functions in a certain manner for years may find it difficult to adopt a new procedure which the class, or the racers, request. Old habits are difficult to change, but there are many excellent, relatively new race management techniques, and sailors and class associations are beginning to feel the need to experiment in order to maintain interest in the boat or class. The first time a race committee is asked to use courses with leeward gates, or a three minute sound signal starting sequence, instead of its "traditional" isosceles triangular course and ingrained five minute interval starting sequence, there is a true test of the race committee's flexibility.

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Safety and good sense. Although the rules place upon the competitor the sole responsibility to decide whether to start or continue to race, the race committee should know when to abandon or not start. A race committee which places young competitors in the predicament of having to make the determination whether it is safe to race, or to continue, fails to recognize the limitations of the competing boats, and the age and experience of the sailors.

Decisiveness. Sailors have the right to expect that the race committee will make decisions when necessary and appropriate, and have the courage to support those decisions when questioned.

Fun. Who among racers or race committees does not want to have a good time on the water? Sailors will have less fun if they have reason to spend their recreational hours complaining about the starting line, an improper course change, or race results which are not posted until well after everyone has gone to sleep. Those same circumstances, and many more, can ruin an otherwise beautiful weekend for the volunteer members of the race committee.

These objectives apply to all events, large or small. The scale of the event and its importance determine the complexity of organization. The principles remain the same.

Primary elements of success

How do you accomplish these objectives?

Plan and prepare. Nothing is more critical. In designing the race or regatta, think about giving satisfaction to your competitors. At the end of the event, most of the competitors should feel that, allowing for the vagaries of wind and weather, they had fun, ashore and afloat. This requires foresight and detailed planning. Early symptoms of an unsatisfactory event are confused competitors and harassed race officials.

Understand the rules affecting race management. Know the proper race management techniques for choices you must make on the water. Be ready to conduct the race before you leave the dock.

The rest of this handbook is devoted to these simple principles.

Teamwork is vital. No race or regatta is the product of one individual. The race organizer needs shoreside assistance, as well as an on-the-water race committee. The race officer on the water needs signallers, timers, mark-setting personnel, recorders, and many others. Most important, each needs the others. The race and the regatta are team efforts. Use the opportunity to build a team which, at the end, can take pride in its accomplishments and look forward, as a group, to the next event.

Change is inevitable—except from a vending machine.
–Robert C. Gallagher

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Know the wind. Then, use your intuition. It is much easier to have superior intuition if you know what the wind patterns are in your racing area. Get out to the race course early and find out!
Local knowledge . Knowledge of current, wind shifts and weather patterns is essential. The more you know about the characteristics of the locale, the easier it will be for you to deduce what will probably happen on a given day.

Know the weather forecast. Local knowledge tells you what has happened. A weather forecast tells you what the local weather service believes will happen in the immediate future.
Know the fleet. Participation in the fleet as a competitor is the best source of information. If you do not sail that type of boat, ask someone who does. Does it plane? Surf? At what wind velocity? How old are the competitors? What types of courses are they used to? What do they consider too little wind to start a race? Too much wind? What is their reputation on the starting line? Are they aggressive? Prone to numerous right-of-way protests? If you know these things, you have a decided advantage in determining how to conduct the race.

Select a good location for racing. It is very important to anchor the signal boat in the best possible position. An entire chapter is devoted in this handbook to selecting racing areas and setting the course (see Chapter 10, "Setting the Course").

Select good courses. Make certain you have several courses from which to choose. Try some new ones occasionally. Make certain that it is possible to sail the course in the time allowed. Another chapter in this handbook is devoted to designing the course (see Chapter 6, "Course Configuration"). Stay "ahead of the power curve" at all times. Keep your head out of the race committee boat. Observe what is going on.

Everyone makes mistakes. The mark of a good race committee is its ability to take corrective action when something goes wrong. The best part of race committee work is that, on the water, it is always "open book."

A few words about race officials and alcohol

Competitors view the use of alcohol by their race officials very negatively. Although competitors in youth events are probably the most vocal, it is highly undesirable that competitors of any age prejudge the effectiveness of a race committee by watching how much beer is loaded aboard the race committee signal boat.

Racing has become more intense, and the competitors expect equally intense and expert race management. Over the last several years, we have made enormous strides in the development of techniques which have directly improved the quality of racing for most competitors.

Racers are serious, and they expect the race committee to be equally serious. Many of the competitors do not allow any alcohol on their boats at all, and nearly all restrict the use of alcohol to post-race periods. Racers know that alcohol use detrimentally affects performance and judgment.

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Most race committees today prohibit the use of alcohol and controlled substances while conducting races. All race committees should. In addition, the personal conduct of US SAILING Race Officers must be above reproach at all times before, during and after an event as a condition of continued certification. Inappropriate conduct by a US SAILING Race Officer may become the subject of an investigation and possible decertification or other disciplinary measures by the US SAILING Race Management Committee.

Wait until after all of your race committee duties are over (including showing up in the protest room) for the beer or drink. Certainly, wait until you are in an adult environment, rather than drinking alcoholic beverages in the company of organized juniors (who are denied the right to join the adults by law and good sense).

Definitions and rules

Terms used in this handbook

Throughout this handbook, the words "rule" and "racing rules" refer to *The Racing Rules of Sailing 2009-2012* and any prescriptions to those rules published by our national authority for the sport, the United States Sailing Association (US SAILING). The word "rule" , followed by a number (such as "rule 30.1") is a reference to a specific rule.

When reference is made to "Appendix ___" it is to one of the appendices to the rules, and is generally so indicated.

A regatta means a series of two or more races conducted on consecutive days (lay days excluded). Each race may consist of several classes or fleets, whether starting separately or at the same time.

Rules governing regattas and race management

Offering fair competition begins with an understanding of the responsibilities and duties of organizing authorities, race committees, and protest committees, as prescribed in both the rules and the appendices to those rules.

Most of those responsibilities are set forth in the Definitions, Part 3 (Conduct of a Race), Part 5 (Protests, Redress, Hearings, Misconduct and Appeals), Part 6 (Entry and Qualification), and Appendices A (Scoring), B (Windsurfing Competition Rules), C (Match Racing Rules), D (Team Racing Rules), M (Recommendations for Protest Committees), N (International Juries), Q (Sound Signal Starting System) and rule 44 (Penalties for Breaking Rules of Part 2).

In addition, there are helpful appendices on sailing instructions and notices of race (Appendices J and K).

The organizing authority and the race committee establish the rules for the event. There are only six sources of those rules. They are set forth in the definition of "Rule".

- The rules in the RRS, including the Definitions, Race Signals, Introduction, preambles and the rules of relevant appendices, but not titles;

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- ISAF Regulation 19, Eligibility Code; Regulation 20, Advertising Code; and Regulation 21, Anti-Doping Code;
- the prescriptions of the national authority, unless they are changed by the sailing instructions in compliance with the national authority's prescription, if any, to rule 88;
- the class rules (for a boat racing under a handicap or rating system, the rules of that system are 'class rules');
- the notice of race;
- the sailing instructions; and
- any other documents that govern the event.

The organizing authority

Who may act as an organizing authority?

Three bodies share the authority for most regattas: the organizing authority, the race committee, and the protest committee.

Rule 89 requires that an "organizing authority" be one of the following:

- the ISAF;
- a member national authority of the ISAF (in the United States, the national authority is US SAILING);
- a club or other organization affiliated to a national authority;
- a class association either with the approval of a national authority or in conjunction with an affiliated club;
- an unaffiliated body in conjunction with an affiliated club (where the body is owned and controlled by the club. The national authority may prescribe that its approval is required for such an event or
- if approved by the ISAF and the national authority of the club, an unaffiliated body in conjunction with an affiliated club where the body is not owned and controlled by the club.

In three of the six instances, either a club or another organization affiliated to a national authority must be involved. A class association, acting alone, cannot act as an organizing authority, but it may do so by forming its own organization affiliated to US SAILING. Nor can an advertising agency, private or public corporation, or other commercial entity, organize a regatta unless it acts in conjunction with such a club or organization.

The national authority itself may act as the organizing authority, and usually does for its championship events. As such, it coordinates the dates and venues, and may approve or select certain members of the regatta committee, the race committee, or the protest committee (or all three).

For most events, however, a yacht club or other local sailing organization acts as the organizing authority, and appoints both the race committee and the protest committee.

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As the organization of regattas has become more complex (even overwhelming to a small club), some clubs have tended to seek assistance from other entities. A club may not wish to bear the financial responsibility for a major event, because of the potential impact on its members. The club's members may not be able to provide the necessary time, or have the experience, to organize a major regatta.

One alternative to the financial burden is for the host club to seek commercial sponsorship to offset regatta costs. Corporate sponsorship of events is difficult to obtain in any sport. Most clubs are organized for sport and social activities, not as fund-raisers. Organizations which have access to potential sponsors, or hold the rights to sponsorship, are always in demand. The key is to determine whether the organizing authority is able to provide the commercial sponsor with sufficient exposure to ensure that the sponsor will feel that it has received a reasonable return on its investment.

At the same time, sponsors are seldom in the business of organizing events. Yacht clubs have, historically, been organized specifically for that purpose. It is for that reason that yacht clubs have traditionally been the event organizers.

Because of the magnitude of some events, or because they have funds which are not available to the host club, some associations of yacht clubs have undertaken to organize particular regattas. The association creates a "regatta committee" which assumes the responsibility for planning as the organizing authority.

In such instances, a host club may provide the shoreside venue for social and organizational functions, and arrange for its race committee to conduct the event on the water, while the "regatta committee" provides the organization and planning, and the sponsor provides the financing.

Similarly, a class association, or other entity outside the yacht club structure (for example, a boat manufacturer), which wants to conduct an event, may ask a yacht club to act as host, and delegate the responsibility to organize the event to the host club. Although the class association will want to ensure that its class rules are observed, both in terms of measurement and its established practices for race organization, most classes tend to leave the regatta organization to the host club.

Responsibilities of an organizing authority

In each of these circumstances, it is very important to define who is the organizing authority. Appendix J1 requires that the notice of race contain the name of the organizing authority. The position carries with it significant responsibilities. It may also carry significant cost and legal exposure.

If your club is considering association with others to conduct a regatta, make certain that the rights and responsibilities are clearly defined in writing. The club affiliated with US SAILING

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can obtain insurance to cover many possible circumstances (see Chapter 4, "Insurance and Legal Issues").

Rule 89 provides that it is the responsibility of the organizing authority to appoint the race committee and publish a notice of race that conforms to Appendix J1. That sounds like a simple task. It is not.

The organizing authority determines the philosophy of the event. When a class association is involved, but does not act as the organizing authority, the club or other organization should work closely with the class to design the event. In addition, it is becoming more common to create new events and formats. A manufacturer may wish to promote its boats. A sponsor may want to have its name associated with a unique event.

Selection of the format becomes critical to the event's success. The organizing authority must work closely with the sponsor to develop the format best suited to achieving the sponsor's goals.

Designing the event

In each case, the format must address:

Who should race?

Do you want a regatta directed toward youth sailing? masters? boardsailors? women? people of all ages?

Do you want a regatta which combines various skill levels—expert, intermediate, novice? How do you entice them to come?

Do you want to direct the regatta toward different classes? If so, which classes do you want to include? Are there special class rules or other considerations which are involved? Are there modifications to the rules which are necessary to make the regatta more inviting?

Do you want to include or exclude professionals and persons who are involved in the marine industry? Do you want to require that the owner of the boat steer? How do you want to limit the participation of professionals if they are on the boats? How will you address the provisions of ISAF Regulation 19 regarding competitor eligibility? ISAF Regulation 22 regarding competitor classification?

What is the size of the fleet you expect to compete? Do you intend to limit the number of entries? Are there other alternatives, such as using heats or eliminations?

Should there be special conditions of entry, such as experience level or special safety equipment? Some regattas, for example, require a particular level of experience before being allowed to race. Long distance offshore races usually require that skippers provide information regarding the experience level of each crew member. Many regattas require that boats carry minimum levels of safety equipment. Is this appropriate for your regatta?

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What boats should race?

If this is an event for particular classes, the decision is easy. Should there be variations in the type of equipment the class requires or not? Will there be a separate class for non-spinnaker boats? Is this a "bring your own boat" race? Or is this a regatta where the boats, even if considered "one design", are equalized, as in match racing or team racing? Do you intend to borrow boats to supply to the competitors? Will the boats be supplied by a manufacturer? What modification to borrowed boats will be allowed?

Will the boats be measured? If so, to what extent? If they are supposed to be equalized, how will you make them equal? Will there be a spare parts program where the manufacturer provides spare equipment or extra boats? Will the factory supply personnel to maintain them?

What type of racing is desired? Do you want fleet racing? Match racing? Both? Do you want a team racing format? Should you have closed course racing? Or do you want to race point-to-point?

How should the boats be equipped?

For most races conducted outside very protected waters, minimum levels of construction and safety equipment should be specified. For one-design boats, these may be contained in the class rules. For offshore races, (IOR, IRC, ORR, IMS, PHRF, and perhaps Portsmouth Handicaps), invoke US SAILING's "Recommendations for Offshore Sailing" at a suitable level. Following the "ISAF Special Regulations Governing Offshore and Oceanic Racing", events can select Category "0", "1", "2", "3", or "4" ("0" for transoceanic, "4" for protected waters, and the others in between), and the requirements are specified accordingly.

A statement in the notice of race and sailing instructions (such as: Offshore boats shall comply with the requirements of ISAF Special Regulations , Category "3") will suffice.

Organizing authorities should carefully consider whether to alter any of these internationally and nationally approved requirements. An accident could require you to justify the exceptions, and lead to serious liability issues for the regatta organizer.

Where should the boats race?

Where do you want the regatta venue? Why do you want to hold it there? Are the wind or sea conditions appropriate? Are there good facilities for launching? Is it a great place to have social events? Where is the desired race area? Is it free from current? Less affected by local knowledge? Is it affected by commercial shipping traffic?

When do you want to have this regatta?

Does it conflict with other local events? If the competitors are expected to come from other parts of the country or the world, are there other events already scheduled which may compete and limit your ability to attract those competitors?

How long should the regatta be? If it is scheduled for a week, will it be affected by school schedules? Other events? Vacation time available to the competitors?

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When should you start each day? Is the wind most suitable at that time of day? How many races do you expect to conduct each day? How important is it to have the fleet ashore by a certain time, whether for weather, safety or social considerations?

How do you intend to start each fleet? Do you want to finish them all together, as closely as possible (starting on handicap time)? Do you intend to have multiple starts? How much time do you plan between starts? Do the competitors have to go to the beach after each race to find out when their next start is? Should the competitors expect to be able to have lunch between races?

Why should the competitors attend?
How should the regatta be scored? Do you want low point scoring? bonus point scoring? Should it be scored separately for novices, intermediate-level competitors, and experts? Separated by gender, age? Should you have excluded races ("throwouts")? Should there be an elimination series or repechage (single, double, triple elimination)?

What event classification (advertising) should be in effect? Do you expect that the competitors will have individual sponsors? Do you require that competitors carry some form of event sponsor advertising on their boats?

What will be the authority of the protest committee? Do you want an international jury, so that decisions are final? If the racing is to be match racing, how will you select and invite the umpires?

Should there be direct judging on the water? If not, do you expect that the judges should be on the water for any purpose, such as enforcement of the propulsion rule (rule 42)?

What alternative penalties do you want to apply? Should there be some alternative to protests, such as arbitration prior to a protest hearing, so that fewer protests may be heard?

What types of courses do the competitors want to sail? Should the course should be completed within a particular time? Should it be a distance course? What should be the time limits for finishing?

How much will it cost to enter and to stay at the venue for the event? What social events should be included? What do the competitors get if they win (what are the prizes)? What do they receive if they simply show up? Participation awards are highly valued by competitors.

The host club

Providing the environment

For most races in this country, a yacht club is the organizing authority. For some of the reasons mentioned above, it sometimes may act simply as host for an event.

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As a host, the yacht club provides the venue and facilities for the regatta, and may or may not be responsible for the duties of an organizing authority. When it is not the organizing authority, it usually provides the facilities, the equipment, and the race committee to conduct the racing for the organizing authority, and may also provide finances, trophies and other services as agreed with the organizing authority.

The regatta chairman

Yacht clubs often appoint a "regatta chairman" or "regatta organizer" who is responsible to the club for organizing its seasonal races or a particular regatta. He or she creates and implements the regatta's operational aspects, prepares a budget for submittal to and approval by the club's flag officers or board of directors, works directly with the class(es) to formulate the concept of the regatta, and selects and organizes a group of people (usually volunteers) who will be responsible for the planning and day-to-day conduct of each regatta's events.

Although the manner in which these tasks are performed varies from club to club, the regatta chairman is responsible for reporting to the club's board or flag officers on the status of the preparations for the event and its cost.

The position of regatta chairman requires certain traits. A person who is unsurpassed at fund-raising may not understand enough about the conduct of a sailing event to perform the job adequately. Similarly, an experienced racer who understands the demands of a class may not have the organizational skills, or the desire, to address such issues as registration, social events, and fund-raising.

In general, the chairman must be a leader, able to maintain the organization necessary to manage the event to a successful conclusion. The ability to obtain volunteer assistance, to recognize and encourage dedication, and to sustain the group over a significant period of time, are critical elements of his or her success.

Organizational skills are equally important. The chairman must be able to create the organizational structure, then delegate the details to others, and allow them to plan and execute their assigned tasks. At the same time, the chairman must offer supervision and guidance to ensure that the people planning the various elements of the regatta continue to understand how their tasks fit into the overall structure of the event.

Thirdly, the chairman must be financially responsible. Every person involved in organizing any event perceives that his or her part is a key element of the event's success, and wants to do the best possible job, sometimes regardless of cost. The chairman must be able to put the various elements in the proper financial perspective, so that everyone understands how the parts fit into the financial whole.

The operational aspects of regatta organization are discussed in further detail in Chapter 2, "Organizing the Event."

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The race committee

What is the race committee?

The term "race committee" is only very generally defined as including "any person or committee performing a race committee function." It is appointed by the organizing authority (rule 89.2).

In the United States, race committees generally consist of a group of volunteers who have agreed to work together to conduct the races. The committee's duties and functions are set forth in rules 90.1 and 90.2:

The race committee shall conduct races as directed by the organizing authority and as required by the rules.

The race committee shall publish written sailing instructions that conform to rule J2.

Race committees are chaired by one or more persons, usually referred to as the "race committee chairman." In various places, the duties and titles of the chairman differ.

At some clubs, the "chairman" is an administrator, who assigns to various race officers the responsibility to conduct a particular race or regatta, but does not necessarily personally conduct the races. In others, he or she is designated by the yacht club to conduct all of the club's racing for the year, and is responsible for all of the operational aspects of the race committee.

For reasons of either expertise or time availability, some clubs have several such chairmen, and divide the responsibilities for different aspects of the club's racing among them. For example, one person may be responsible for "offshore," another for "one-design," and a third for "special events."

Duties and functions of a race committee

In the traditional sense, the race committee is the team which goes on the water to carry out the planned sailing activities, including laying marks, setting the starting and finishing lines, signaling, timing and scoring. Its duties and functions are, however, much greater. How the race committee may accomplish them on the water is generally set forth in Parts 3 and 7 of the rules, and is covered throughout this handbook. The basic duties are:

Notices of race and sailing instructions

Most regattas are not of the scale to require a "regatta chairman." They consist of a weekend of racing, with no formal registration, little or no ceremony, and no structured social events. In such instances, the host club (the organizing authority) generally delegates to the race committee the responsibility to prepare and issue the notice of race. Whether or not the notice of race is prepared by the race committee, the race committee should insist on reviewing it before it is issued. The sailing instructions and the notice of race must be coordinated. The sailing instructions cannot be inconsistent with the notice of race, and the race committee must conform to both while conducting the race.

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It is also the responsibility of the race committee, under rule 90, to publish the sailing instructions. "Publish" as used in that rule usually means that the race committee is also responsible for writing the sailing instructions.

For some events, the sailing instructions may be written by a person who is not a part of the race committee, but is affiliated with, for example, a class organization, or a national governing body. Some clubs and local sailing associations use standing sailing instructions which are published for the season, and which are used for all regattas, and include a list of courses from which the race committee may choose. Nevertheless, the sailing instructions are published under the authority of the race committee.

Chapter 7 is devoted to notices of race and sailing instructions, but as you read this handbook, you will find suggestions on various topics which should, in some circumstances, be included in the sailing instructions.

Safety

Safety on the water is of paramount importance. While the race committee does not decide whether a boat should start or continue to race (that is the responsibility of the boat under rule 4), it is the race committee's responsibility to provide a safe environment within which to race. Sailboat racing involves inherent risks. There are, however, methods for reducing those risks which are available to the race committee, and it should do its best to use them. This includes safety on the race committee boats themselves, as well as exercising proper risk management on the course. There are suggestions for both throughout this handbook.

Measurement and "authority responsible"

It is ordinarily not the duty of the race committee to either conduct or be responsible for the measurement of boats. This is usually left to the class measurer, or other "authority responsible for interpreting the rules" (see rule 64.3(b)). However, it is not uncommon in informal regattas for the race committee to be designated as the "authority responsible," in the absence of a class measurer.

Measurement procedures, if used, must be specified in both the notice of race (Appendix J 1.2 (7)) and the sailing instructions (Appendix J 2.2 (9)), and the sailing instructions must include any inspection procedures (Appendix J 2.2 (9)). For such regattas, it is the responsibility of the race committee, when publishing the sailing instructions, to identify the "authority responsible," if it is not to be the race committee itself.

Selection of protest committees

In many smaller regattas, the protest committee is either the race committee itself, or a subcommittee of the race committee. These types of protest committees are authorized by rule 91. While it is now more common (and preferred) for the protest committee to be separate and independent from the race committee, it must, nevertheless, be appointed by either the race

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committee or the organizing authority. It is incumbent upon the organizing authority to determine how the protest committee will be selected.

Selection and maintenance of equipment

The race committee must also ensure that all equipment which it requires to conduct the races is both available and in good working condition. This handbook devotes a chapter to that specific topic (see Chapter 8, "Race Committee Equipment").

Selection of race committee personnel

Finally, it is the responsibility of the race committee to select and train the people who will conduct the races. This is not an easy task. What types of people should you look for? How do you train them? What should they be expected to do before they show up on the day of the race? Before the committee boats leave the dock?

Other, in general

There are a number of functions essential to the conduct of authorized, safe regattas. These include obtaining necessary permits (and assistance as necessary from governmental authorities), accurate weather forecasts, and the like, which are incidental to the general duties and functions of the race committee. Many of these are discussed in Chapter 2, "Organizing the Event."

Race officers

Selection and characteristics

The person in charge on the water is called by various titles ("race committee chairman", "race manager," "principal race officer" (or PRO), "line captain," etc.). Selection of a qualified PRO is one of the most important aspects of conducting successful, safe races. He or she is responsible for all decisions made on the water, and for directing the actions of race committee personnel during the race.

The PRO sets the standard for the race committee's conduct, and is generally responsible for representing the race committee in requests for redress which involve the race committee. As a result, he or she should be extremely knowledgeable of the rules, as they pertain to the conduct of the races, and of good, safe, race management procedures. It is preferable that he or she be an experienced racing sailor. Other desirable characteristics include leadership, mature judgment, decisiveness, organization, and composure under stress.

All active members of race committees, especially principal race officers, should be members of US SAILING to stay informed on rule changes, appeals decisions, and new information on race management.

✍Be careful about reading health books, You may die of a misprint.
—Mark Twain

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US SAILING Race Officer Certification Program

Race Officer Programs

In 1982, US SAILING introduced its Senior Race Officer recognition program. The Club Race Officer program followed in 1988. These programs were designed to recognize qualified race officers throughout the country and to promote quality race management. The Race Management Committee established qualifications, and recognition was granted for the lifetime of the individual. As of February 2005, there were 325 recognized Club Race Officers and 343 Senior Race Officers. These people are identified in the on-line directory as "Race Officer, Recognized Club" or "Race Officer, Recognized Senior."

During the time these programs were active, over 1000 individuals were recognized. They have, collectively, made immense contributions to the sport by providing race management for countless races. Competitors throughout the country have benefited significantly from these volunteer services.

In 1994, US SAILING introduced the Certified Principal Race Officer program to certify highly qualified race officers – people who were capable of running any level of regatta. These certifications were for four year terms, and renewable. At the end of 1998, when the program was replaced, there were 31 CPROs. The last of these certifications expired at the end of 2002.

In 1998, a working group was formed to recommend a comprehensive program of race officer training and certification. This program replaced the three existing programs in 1999, and since the end of 1998, no additional people have been or will be recognized under the old Club and Senior Race Officer Programs. Current Club and Senior Race Officers will retain that recognition for their lifetimes, as long as they remain members of US SAILING.

Race Officer Training and Certification Programs

The goals of this program are:

- to improve the quality of race management at all levels throughout the country to make racing more enjoyable for all;
- to increase the standardization of race management practices, making it less confusing for the competitors;
- to provide structured training for upgrading the skills of race officers;
- to identify the most qualified active race officers throughout the country;
- to make event organizers aware of the availability of highly qualified and certified race officers.
- to provide coverage under US SAILING's general liability insurance to properly qualified and certified race officers;
- to replace the prior programs with expanded programs in order to serve the sport more effectively.

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The program has three levels: Club, Regional and National Race Officer. All appointments are for four-year terms, and are renewable. In addition to meeting criteria similar to those of the prior programs, participants in the new program must attend an approved seminar and demonstrate their knowledge of race management rules and procedures by passing a test. The requirements, including the seminar and test, must be met for initial certification and for re-certification (see below for some exceptions). All race officers that are certified under the program are covered under US SAILING's general liability insurance. This benefit can be provided because the programs include specific terms rather than lifetime appointments, and because the program includes training and an objective measurement of each individual's knowledge.

This program is for US SAILING members. In order to be certified, remain certified or be re-certified, you must be an individual or family member of US SAILING.

Applications can be downloaded from the race management page of the US SAILING Web site.

Club Race Officer

A Club Race Officer is expected to be able to properly run any race normally conducted at his or her local sailing organization, including organizing the race committee, writing correct sailing instructions, and doing the scoring.

In order to qualify as a Club Race Officer, a person must:

- be an individual or family member of US SAILING;
- be at least 18 years old;
- be recognized as having outstanding personal character;
- have experience as a racing sailor (no time limit);
- own a copy of the current version of *Join the Race Committee Team!;*
- own a copy of the current version of the *Race Management Handbook;*
- have served at least twice in each race committee job;
- have been the principal race officer at least four times in the United States;
- be recommended by a flag officer (or equivalent) of his local sailing organization, which must be affiliated with US SAILING;
- have attended a complete, approved one-day or advanced race management seminar;
- have successfully passed the basic race management test, or the advanced test at the Club Race Officer level.

All of the experience (except the racing) must be during the four years ending at the time the application is submitted. The minimum experience requirements must be met at events in the United States. In addition, it is recommended, but not required, that applicants be qualified in CPR and small boat handling. In order to be re-certified, a Club Race Officer must submit an

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activity report detailing his race management experience since last being certified, and must continue to meet the other program requirements, including attending a seminar and passing the appropriate test. An on-line reporting system (SOARS, an acronym for Sailing Officials Automated Reporting System) is available on the US SAILING Web site. Using SOARS is required. If you need assistance, contact your Area Race Officer.

Re-testing: A person who has taken the basic race management test and not passed it can take another test only after completing another approved seminar.

The certified Club Race Officer program is administered within each of US SAILING's geographic areas by the Area Race Officer. The current Area Race Officers can be found by searching on "Area Race Officer (ARO) Working Group" in the US SAILING on-line membership directory. The Area Race Officers may certify people as Club Race Officers whenever all of the material necessary for certification has been received.

As of July 2009, there were 606 certified Club Race Officers. They are identified as "Certified Race Officer, Club" in the US SAILING on-line membership directory.

Regional Race Officer

A Regional Race Officer is expected to be able to go anywhere in his or her area and serve as the principal race officer with any race committee to properly run any race or regatta normally conducted in that area, including regional championship events. This includes organizing the event and the race committee, writing correct sailing instructions, and doing the scoring.

In order to qualify as a Regional Race Officer, a person must:

- be an individual or family member of US SAILING;
- be at least 21 years old;
- be recognized as having outstanding personal character;
- have experience as a racing sailor (no time limit);
- own a copy of the current version of *Join the Race Committee Team!*;
- own a copy of the current version of the *Race Management Handbook*;
- own a copy of the current *US SAILING Appeals and ISAF Cases* (one book);
- have been the principal race officer at least five times in the United States, including at least one regional or higher level event (a "regional" event is a major regatta that includes competitors from a broad geographic area or determines a regional or higher level championship);
- have been the principal race officer at two or more venues;
- be recommended by a flag officer* (or equivalent) of his local sailing organization, which must be affiliated with US SAILING;
- be recommended by a competitor* (who is not a member of the local sailing organization that is recommending him) in an event at which he was the principal race officer;

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- be recommended by a US SAILING Regional or National Race Officer, Judge or Senior Judge or ISAF Race Official* (who is not a member of the local sailing organization that is recommending him) who has observed his work as a principal race officer;
- be recommended by his Area Race Officer;
- have attended or been the primary instructor at a complete, approved advanced (two-day) race management seminar;
- have successfully passed the advanced race management objective test at the regional level [not required for people who have been the primary instructor at an advanced (two-day) seminar].

All of the experience (except the racing) must be during the four years ending at the time the application is submitted. The minimum experience requirements must be met at events in the USA. In addition, it is recommended, not required, that applicants be qualified in CPR and small boat handling. It is also recommended that applicants have been active in teaching race management, either seminars or on-the-water training. In order to maintain certification, a Regional Race Officer must continue to meet the program requirements, and submit an annual activity report to US SAILING and his Area Race Officer by March 1 of the following year. An on-line reporting system (SOARS) is available on the US SAILING Web site. Using SOARS is required. If you need assistance, contact your Area Race Officer.

Both the Area Race Officer Working Group and the Race Management Committee consider applications for Regional Race Officer certification or re-certification at the semi-annual US SAILING meetings in March and October. Only complete application packages will be considered. Applicants should be sure that all of the supporting material, including references, is in the hands of their Area Race Officer one month before the meeting at which the application will be considered. This permits the US SAILING staff to assemble a package of applications and circulate it to the committees in time for them to carefully consider each application before the meeting.

Re-certification: In order to be re-certified, a Regional Race Officer must submit an application and continue to meet the other program requirements, including attending a seminar and passing the appropriate test. Applicants for re-certification are not required to submit references unless requested to do so by their Area Race Officer

A person who has taken the advanced race management objective test and not passed at the desired level must attend another advanced seminar in order to take another test.

As of July 2009, there were 95 certified Regional Race Officers. The current list can be produced by searching under Certification for "Certified Race Officer" in the US SAILING on-line membership directory and then selecting "Regional" as the certification level.

* Neither an Area Race Officer nor a member of the US SAILING Race Management Committee may serve as this reference.

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National Race Officer

A National Race Officer is expected to be able to go anywhere in the country and serve as the principal race officer or race management consultant with any race committee to properly run any race or regatta, including national championship events. This includes organizing the event and the race committee, writing correct notices of race and sailing instructions, and doing the scoring.

In order to qualify as a National Race Officer, a person must:

- be an individual or family member of US SAILING;
- be at least 21 years old;
- be recognized as having outstanding personal character;
- have experience as a racing sailor (no time limit);
- own a copy of the current version of *Join the Race Committee Team!;*
- own a copy of the current version of the *Race Management Handbook;*
- own a copy of the current *US SAILING Appeals and ISAF Cases* (one book);
- have been the principal race officer or race management consultant at least five times in the United States, including at least one national or higher level event (a "national" event is a major regatta that determines a national or higher level championship);
- have been the principal race officer at two or more venues, including one with current;
- be recommended by a flag officer* (or equivalent) of his local sailing organization, which must be affiliated with US SAILING;
- be recommended by a competitor* (who is not a member of the local sailing organization that is recommending him) in an event where he was the principal race officer;
- be recommended by a US SAILING National Race Officer, Senior Judge or ISAF Race Official* (who is not a member of the local sailing organization that is recommending him) who has observed his work as a principal race officer;
- for initial NRO certification, be evaluated in detail and recommended by a US SAILING National Race Officer who has observed his work as a principal race officer throughout a regatta;
- be recommended by his Area Race Officer;
- have taught at least two race management seminars (not necessarily approved;
- have attended or been the primary instructor at a complete, approved advanced (two-day) race management seminar;
- have successfully passed the advanced race management objective test at the national level [not required for people who have been the primary instructor at an advanced (two-day) seminar];

* Neither an Area Race Officer nor a member of the US SAILING Race Management Committee may serve as this reference.

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- have successfully passed the National Race Officer essay test (note that the test graders do not know whose essay tests they are grading).

All of the experience (except the racing) must be during the four years ending at the time the application is submitted. The minimum experience requirements must be met at events in the United States. In addition, it is recommended, not required, that applicants be qualified in CPR and small boat handling. In order to maintain certification, a National Race Officer must continue to meet the program requirements, and submit an annual activity report to US SAILING and his Area RaceOfficer by March 1 of the following year. An on-line reporting system (SOARS) is available on the US SAILING Web site. Using SOARS is required. If you need assistance, contact your Area Race Officer.

Both the Area Race Officer Working Group and the Race Management Committee consider applications for National Race Officer certification or re-certification at the semi-annual meetings in March and October. Only complete application packages will be considered. Applicants should be sure that all of the supporting material, including references, is in the hands of their Area Race Officer one month before the meeting at which the application will be considered. This permits the staff to assemble a package of applications and circulate it to the committees in time for them to carefully consider each application before the meeting.

Re-certification: In order to be re-certified, a National Race Officer must submit an application and continue to meet the other program requirements, including attending a seminar and passing the appropriate tests. An applicant for re-certification may substitute for the NRO essay test a detailed evaluation and recommendation by a US SAILING National Race Officer who has observed his work as a principal race officer throughout a regatta. However, once a re-certification applicant has either taken an essay test or arranged for an NRO evaluation, he cannot change to the other requirement. Applicants for re-certification are not required to submit references unless requested to do so by their Area Race Officer.

Retesting: A person who has taken the advanced race management objective test and not passed at the desired level must attend another advanced seminar in order to take another test. A person who has taken the National Race Officer essay test and not passed may take another test once without participating in another advanced seminar. The re-testing must be completed between 60 and 365 days of the original test. To request another opportunity to take a test, you must contact the principal instructor within 15 days of receiving your original test results. If a person takes the same essay test again (generally possible only at another seminar), only the original result will be considered valid.

As of July 2009, there were 31 certified National Race Officers. The current list can be produced by searching under "Certification" for "Certified Race Officer" in the on-line membership directory, and then selecting "National" as the certification level.

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Additional references and program modifications

The Area Race Officers or the Race Management Committee may, at their sole discretion, seek additional references, and utilize information from those references when making recommendations and decisions regarding certification. Because the program is dynamic, ongoing changes to both procedures and certification criteria are to be expected.

Reviews of certification decisions

Anyone who feels that he has been denied certification inappropriately may request a review of that decision. Such requests must be in writing and submitted, with any supporting material, within 30 days of receipt of the letter denying certification. They must be sent to US SAILING, Attention: Race Administration Director. The full Race Management Committee will review the request and make a final decision no later than its next regular semi-annual meeting.

International Sailing Federation (ISAF) Race Officer Program

People who have been National Race Officers for at least two years and have significant international experience may apply to become certified as International Race Officers by ISAF. Such applications require the endorsement of US SAILING. The current ISAF Yearbook and the ISAF Web site (www.ussailing.org) contain information regarding the qualifications and the application procedure. As of July 2009, there were 12 ISAF certified International Race Officers in the United States.

Personal conduct of race officers

The personal conduct of Race Officers must be above reproach at all times, before, during and after an event. Race Officers must be mature and temperate, moderate in their use of alcohol, especially careful of medications, and in full control of the faculties. Inappropriate conduct by a US SAILING Race Officer may be the subject of investigation and possible decertification by the US SAILING Race Management Committee.

Other race officer duties

The race committee is comprised of many essential race offcer positions. No one is more important than any other. The purpose of the structure is to create a team which can effectively perform all of the functions required to conduct a race. Although one person may assume more than one of those positions, or one position may be split among many people, the positions are:

Signaller

The signaller is responsible for all visual signals given by the race committee signal boat before, during and after the race. Visual signals are the official communications to competitors.

Sounder

The sounder is responsible for all sound signals (gun, horn or whistle) that draw attention to the signaller's visual signals.

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Timer

The timer must keep the time before and after the start, and precisely call out the starting sequence to those persons on the race committee, particularly the signaller and sounder, whose functions are governed by the time. The timer also calls out the finish times based on the line sighter's announcement of each boat finishing.

Spotter/recorder

The recorder logs all boats starting and finishing, including competitors who do not complete the course. The recorder, who is sometimes called the scribe, also records much of the information being communicated to the race officer, including wind readings, bearings to marks, apparent rules breaches by competitors, alternative penalties taken, protest flags and "I" flags observed, and the time of each.

Committee boat operator

The boat operator drives the race committee signal boat and may handle radio communications as directed by the principal race officer.

Line sighter

The line sighter is responsible for sighting the starting line to identify boats on the course side, and tracks boats returning to start. He or she also sights the finishing line to determine the order and time of finishers.

Scorer

The scorer determines the points for each boat and each race in one-design racing, and calculates corrected times for handicapped racing using handicaps and finish times.

Wind reader

The wind reader observes and records (if the recorder does not) the wind velocity and direction before and after the start.

Mark setters

Operating from a mark boat, the mark setter works with the race committee signal boat to position, set, and relocate the marks of the race course. He or she also reports changes in wind direction and velocity to the race committee signal boat.

In many events there is a need for additional positions, such as crowd control, rescue boats, etc. (see, for example, Chapter 3, "Risk Management"). The number of race committee personnel needed depends on the kind of event, the numbers of boats, classes and races involved, and local variables such as how many marks must be set. Having too many people causes confusion. Having too few can make things more hectic when unforeseen things happen.

US SAILING has produced an excellent entry level training manual for race committees entitled *Join The Race Committee Team!* It contains descriptions of each of the above functions in detail

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and provides an overview of how each of the positions works with the others. It is highly recommended for personnel who are new to the race committee. Later chapters in this handbook describe the equipment required or recommended for each of these positions, and certain chapters deal specifically with certain positions (for example, mark setters should carefully review Chapters 6, 9, and 11 ("Course Configuration," "Race Committee Equipment," and "Setting The Course," respectively).

Recruiting

Be certain that anyone who will operate a boat is capable of handling it in any kind of wind and sea conditions that may occur. For reasons of safety and practicality, a boat should always have at least one crew member in addition to the operator.

Mark setting is hard work. Navigation skills, knowledge of race courses and mathematics, knowledge of anchoring techniques and knot tying, strength, endurance, and a willingness to follow orders are important characteristics for persons being considered for setting marks.

People who handle firearms must be experienced in firearm safety and use, and be willing and prepared to maintain them. Do not rely solely upon what the person recruited says about his or her knowledge of firearm safety. Too many injuries occur each year on race committees through careless use of firearms. Know firearm safety yourself, then make certain the others on your committee learn it too.

Recruit people who have experience in radio communications, and who know what to do and what not to do. Licensed radio operators are not required, but knowledge of communications techniques and etiquette are also important.

Avoid people who get seasick. Being on the water all day while seasick is a terrible experience. Such people will be unable to perform as you planned.

Obtaining the necessary personnel

Rotation of club members

One method for recruiting volunteers is to create a list of club members whose experience qualifies them for the job, and then rotate duties as often as necessary to complete the season. The advantage of this system is that no individual is too heavily burdened.

The principal disadvantage is that few gain enough experience to become expert at running races. Infrequent committee assignments may also lead to inadequate preparation for the job, and a less responsible attitude toward repair and maintenance of equipment. You can overcome some of these disadvantages with good checklists and training.

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Annual assignment

Under this method, the principal race officer is an appointed position of the club, responsible for all aspects of running races for the year, and the members of the race committee may also be assigned for the year. The success of this method depends largely upon whether the club provides sufficient authority and status to the position to compensate for the sacrifices involved.

The advantages are that the race committee should become quite good at the job, will feel a direct responsibility for the overall success of the program, and will be able to provide continuity during the season and to their successors.

The disadvantage is that the principal race officer and his or her committee must give up a large portion of their free time for an entire year, or at least an entire season's racing. This method ordinarily requires that the race officers devote a great deal of time to the continual operation of the club's racing program. Some people find this very satisfying. Others simply do not. Locating the right people for the job becomes a significant challenge.

Professional personnel

When a club runs many races a year, especially to high standards or in difficult conditions, paid help can be the best approach. Paid positions may include a secretary, personnel to maintain and operate race committee boats and equipment, or a race manager. Once any person is paid, however, it may become more difficult to recruit volunteers.

Larger clubs often employ a race secretary. A full-time secretary can add quality and continuity to the club's racing program, by dependably providing such essentials as processing entries, publicity and file maintenance.

Maintaining race committee equipment in good condition can be a full-time task. If you are going to hire someone to do this job, make the job description clear and specific, and set up an effective troubleshooting system. A checklist on which the race officer can note equipment problems is useful.

When the race officer is a permanent paid position, he or she becomes very good at running races, beyond what one could expect from volunteers. A professional race officer should also be expected to assist volunteer regatta chairmen with all aspects of a regatta, and oversee maintenance of the race committee's equipment. The race officer will have to use the equipment time after time and cannot expect the racers to be sympathetic if something goes wrong.

If paid hands operate boats, be sure to check on requirements for maritime licensing and insurance. Some of these issues are addressed in Chapter 4, "Insurance and Legal Issues."

Evaluate whether the added cost of paying race committee personnel is offset by improved race quality. If the club imposes too much responsibility to realistically expect volunteers to handle the job, or if there is insufficient club support staff, the quality of the racing, and the

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club's reputation for conducting high quality racing, will suffer. The more the club expects of its race officers, the more consideration should be given to either dividing the responsibility among several race officers, or to hiring a professional.

The professional race manager

For major events, a tendency has developed to delegate the management of the on-the-water activities to a person variously known as the "race director" or "race manager."

In some areas, the title may refer to a person who is, in essence, the regatta chairman. In others, the race manager may be responsible for the activities involved in the conduct of the races, acting as the traditional "race committee chairman." The race manager may act in an administrative capacity only, or may be the person actually in charge on the water.

The term "race manager" seems to be describing the person who, for major regattas, is responsible for all of the on-the-water activities, which may involve several race committees. In that capacity, he or she is distinct from the regatta chairman, who organizes the entire regatta on shore, and from the principal race officer, who is responsible for a particular race committee.

As an example, the principal race officer may be in charge of the race committee on the course, and make decisions regarding postponement, abandonment, setting and changing the course, and the like. At the same time, the race manager may be responsible for all race committees at the venue, for crowd control, for coordination of radio traffic control (in certain major regattas), for liaison with governmental agencies on the water, and the like.

Some race managers are true professionals, but the concept of their use still varies substantially from one locale to another. In some places, the professional race manager takes the place of the traditional volunteer race committee chairman, and both administers the racing and organizes the volunteer personnel necessary to staff the race committee. As more major regattas look to professional management, this person's role has tended to expand. How the professional race manager is perceived depends largely upon the authority given to him or her. Many clubs have determined that they do not want to be responsible for the day-to-day organization of the regattas they agree to conduct, and that volunteer regatta chairmen are either not available or would be overburdened.

Throughout the remainder of this text, however, the traditional term "regatta chairman" is used for the person responsible for organizing the regatta, and the term "principal race officer" or "PRO" is used for the person who is in charge of the race committee on the water. Note that the International Sailing Federation (ISAF) may define these terms differently.

Training race committee personnel

Whichever method you use for recruiting personnel, they must be trained. Even the best race officers need periodic "refresher" courses to keep current.

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Classroom training is essential for new volunteers, and on-the-water training should be conducted every day the race committee boat leaves the dock.

Classroom training need not, and should not, be simply lecture. Use drills on shore (for example, using flags and whistles, and breaking into groups of 4 or 5 to conduct starting sequences). Use situational problems to discuss the proper methods of responding.

Include just about everything that could happen to a race committee: errors in starting sequences, use of flag "I" , flag "Z", abandonment, shortening course, general recalls, postponements, individual recalls, recording, observation of rules breaches, results of poor lines, setting of starting and finishing lines, flag "M" use, and so on.

As mentioned above, US SAILING's *Join The Race Committee Team!* is an excellent entry level book. In addition, the US SAILING Race Management Committee has developed two race management seminars that are a part of the race officer training and certification program. These seminars can be hosted by any local or regional sailing association affiliated with US SAILING. The one-day seminar is designed to help prepare people to become certified Club Race Officers. The two-day advanced seminar is designed to help prepare people to become certified Regional or National Race Officers. A group of qualified instructors has been identified. For more information, see <www.ussailing.org/racemgt/>.

Finally, this handbook contains a significant amount of information which should be useful in training. Use it, and if it does not address areas which you believe are important to you, write to US SAILING so that additional topics can be considered.

The protest committee

Responsibilities and authority

A protest committee is the body appointed to hear and decide protests in accordance with rule 91. It is responsible for receiving, hearing, and deciding protests and requests for redress.

The protest committee shall be :

- a committee appointed by the organizing authority or race committee or
- an international jury appointed by the organizing authority or as prescribed in the ISAF regulations and meeting the requirements of Appendix N. A national authority may prescribe that its approval is required for the appointment of international juries for races within its jurisdiction, except ISAF events or when international juries are appointed by the ISAF under rule 89.2(b). [US SAILING does not so prescribe.]

A protest committee may be an international jury if it meets the criteria in Appendix N. Protest committees may be appointed either by the race committee or the organizing authority.

Nothing you can't spell will ever work.

—Will Rogers

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International juries must be appointed by the organizing authority, or as prescribed in the ISAF regulations.

The protest committee, however appointed or constituted, does not have the authority to supervise or direct the race committee, unless the organizing authority has specifically directed that the protest committee have such authority (Appendix N).

As it affects the race committee, the protest committee is responsible for hearing and determining requests for redress under rule 60. Such requests may be made by a boat (rule 60.1(b)), or the race committee (rule 60.2 (b)), or, the protest committee may consider giving redress under rule 60.3 (b). It is through these mechanisms that the protest committee determines whether a boat has been materially prejudiced by an improper action or omission of the race committee.

If the protest committee determines that such prejudice has occurred, it may take evidence in order to make as fair an arrangement as possible for all boats affected (rule 64.2). In the course of this determination, the protest committee may request evidence from the race committee in order to decide what arrangement should be made.

When it is a "party" (see "Definitions" in the rules) the race committee can request that the protest committee reopen a hearing if it appears that the protest committee may have made a significant error or when material new evidence becomes available within a reasonable time (rule 66).

A race committee can appeal the decision of a protest committee in accordance with rule 70.1. In order to do so, however, the race committee must have been a party to the hearing ("party" is defined in the rules; see "Definitions").

The race committee as a "party" to a hearing

Should the race committee become involved in a protest unless a competitor requests redress? Should it become involved if it witnesses a rules breach by a boat and no competing boat protests?

Under certain circumstances, the race committee should become involved. The protest committee may not have been on the water, or at the site of the incident, or may have been concentrating on other events. It may have become aware of the incident only after notice from the race committee and, therefore did not see the entire incident. Testimony from nearby competitors may not be entirely accurate, because they were involved in the maneuvers of their own boat at the time, or may be biased.

If the race committee remains a "witness," the parties (or the protest committee) may call only certain members of the race committee to testify, and a suggestion by the witness that, perhaps, others on the race committee may be able to provide more complete information may go unheeded by the protest committee or the parties.

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A decision of the protest committee which does not reflect accurate facts may not be fair to all competitors. Has the race committee, by purporting to be "neutral," actually been unfair to the majority of the competitors?

Suppose, for example, the race committee observes that one or more boats did not sail the course properly? The race committee cannot disqualify a boat for a breach of rule 28 .1 (sailing the course) without a hearing (see rule 63.1). Appendix A5 allows such action to be taken only where the yacht fails to "start" or "finish." The definition of "finishing" does not include sailing the course.

The appropriate procedure is for the race committee to protest the boat under rule 60.2. If the race committee protests, it becomes a "party" to the hearing. As such, the race committee has the right to be present throughout the hearing and may question witnesses (rule 63.3).

As a party, the race committee is also entitled to call witnesses (rule 63.6) to provide an accurate picture of the events, and to present its own perspective to the protest committee.

However, by becoming a "party " to the hearing the race committee does not remain neutral. It becomes an advocate—in this case for the competitors who it believes have been prejudiced by the rules breach (we assume here that the race committee acted properly in any action it took on the water, so it is not its own advocate).

When you observe a problem, take action. It keeps the racing fair, and sailors expect the race committee to do it.

To avoid misunderstanding and provide consistency throughout the event, the organizing authority should provide direction to the race committee regarding when the race committee should protest.

The International Jury

International juries are appointed by the organizing authority in accordance with Appendix N (see rule 91(b)). Some national authorities require that their approval is required for the appointment of an international jury. US SAILING does not.

International juries must, by definition, be independent of, and separate from, the race committee. In fact, race committee members are specifically excluded from membership on the international jury for the event (Appendix N1.1).

Normally, international juries are used for international regattas, in which boats from different countries participate, or for regattas under the jurisdiction of the ISAF, an international class, or a national authority. They are also used when it makes sense to limit the right to appeal.

An international jury consists of at least five persons, the majority of whom must be international judges certified by the ISAF (Appendix N1.2). In addition, except in certain parts of the world,

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no more than two members may be from the same country, which means that judges from at least three countries must be involved (Appendix N 1.3).

The use of international juries can be expensive because normally, the organizing authority pays all or a part of the jury members' transportation costs. However, where such a jury is properly constituted, the right to appeal is automatically denied (rule 70.5).

Appendix N2 contains certain "default" provisions with respect to the authority of such a jury and includes certain authority which the jury may have if requested or directed by the organizing authority (Appendix N2.3). For the international jury to operate effectively, the organizing authority should clearly define its functions.

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It's a funny thing about life, if
you refuse to accept anything but
the best, you very often get it.
–W. Somerset Maugham

Organizing the Event 2

Regattas come in many sizes and types. The weekend get-together for a few classes may be extremely informal—essentially limited to a race committee to conduct the races and, sometimes, a simple prizegiving ceremony.

At the other end of the spectrum are events which are complex in their organization (for example, a national, continental, or world championship) or infinitely intricate (the Olympics or the America's Cup). Regardless of size or complexity, the basic organizational guidelines are the same for all.

Race operations planning is covered in several other chapters (see, primarily, Chapters 3, "Risk Management", 8, "Race Committee Equipment," and 9, "Race Day"), so it is discussed only briefly here. Event classification and advertising on boats and sailboards is covered in this chapter because the subject is so closely tied to event sponsorship.

The annual racing schedule

In one form or another, virtually all regattas are planned a year or more in advance. Even in those parts of the United States where racing does not continue year-round, clubs, associations and one- design classes have developed a "season" concept. Racing schedules and handbooks are prepared, races are planned and personnel are recruited on a regular yearly schedule.

This benefits both the competitors and the organizers and helps avoid conflicts with other sailing or non-sailing events.

Meet within the club

Conduct a meeting of committee personnel, club officers, and fleet captains to determine what regattas should be retained for the next year, to determine what went right, or wrong, with previous regattas, to eliminate bad practices or mistakes, and to make decisions about the upcoming season. This is the time to consider adding or eliminating classes and events. It is also a perfect time to consider personnel and equipment needs for planned regattas.

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Coordinate with other clubs

One of the functions of your regional sailing association is to facilitate and coordinate scheduling. Find out when and where your association holds its meetings to coordinate the calendar. Have your club's officers or board of directors appoint a calendar liaison who is knowledgeable about the classes which race and the regattas to be planned (it helps if the liaison is a member of your race committee).

Make certain that the calendar liaison has all necessary information regarding your proposed schedule so that he or she can communicate whatever details are necessary to achieve a good racing calendar, free from conflicts and disputes.

Contact other organizations affected

Contact other water users, especially commercial fishing and sport fishing groups, the Army Corps of Engineers, local Power Squadrons, and the United States Coast Guard in your area. Navy shipping transit and operations are planned much farther in advance than most boating calendars.

Find out about planned power boating events and fishing tournaments. Check with commercial shipping lines (or pilots) to determine schedules for arrival and departure of tugs with barges, container ships, and, as necessary, cruise ships. Most commercial and Naval shipping transit and operations are planned well in advance of their execution.

Consider other factors affecting the regatta

For specific regattas, consider the weather. Are the winds likely to be too light to have a good event at that time of the year? How far will the competitors have to travel? You may want to end early on Sunday if many people have a long drive home.

For events involving international classes, check with the class to determine if other events will diminish participation if your event is held at a particular time. This is discussed in more detail in Chapter 1, "Objectives, Responsibilities, and Authority"—see page 8, "Designing the Event".)

In busy waters used by many pleasure craft, midweek racing sometimes works better. Consider scheduling seminars, guest speakers or films in conjunction with a racing event.

Maintain continuity

If possible, keep events at the same time from year to year. It improves attendance and allows other area clubs to anticipate the continuation of an obviously successful regatta.

Marine event permits

All regattas within the United States which have an impact on commercial and other shipping must request a marine event permit from the United States Coast Guard. The Coast Guard may determine that a permit is not required, and so inform you. In most cases, a permit is not

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difficult to obtain. However, they are ordinarily granted in the order that the applications are received, and they do require some advance planning. The permit application requires the event organizer to describe the event, the support boats it will supply, the number of competitors expected, the radio frequencies which will be used, and so forth.

Applications for permits for recurring marine events must be made at least sixty (60) days in advance of the event, provided it was approved by the Coast Guard the previous year and met with no objections. The Coast Guard will evaluate the event, approve it, and publish appropriate Notices to Mariners prior to the regatta.

For new events, or where the permit application requests creation of a safety zone for the racing area, the Coast Guard generally requires that the application be submitted up to 135 days in advance. This allows the Coast Guard time to draft the proposed rule making required, obtain legal staff approval, issue the required public notice, afford 30 days for public comment, draft the final rule, and publish it in the Federal Register at least 30 days prior to the event.

In addition, certain events involving the natural habitat of endangered species may require environmental analysis before the permit is granted, so you must anticipate additional lead time to complete such an analysis when submitting the permit application.

Once you have the basic annual schedule, determine which regattas will require special organization because of their size or significance. Make certain that your club (or other organizing authority, if it is not your club) has appointed someone to chair those events which require more than simply having the race committee show up for the race.

Major or "principal" events, in general

Venue selection

Most major event venues are selected well in advance. Sometimes venue selection is done by bid—various clubs submit proposals to be the host, or site, of the event. In other situations, the class invites a club to accept the responsibility to organize the event. In a third situation, the proposed host club may suggest a regatta to be held under its auspices at a particular time and location. In any of these circumstances, a timetable is established for the event organization, and the class plays a major role.

The regatta committee—basic organizational structure

The regatta committee can be the organizing authority (see Chapter 1, "Objectives, Responsibilities, and Authority"), or a committee of the host club. In either event, it is generally responsible for creating the entire organization of the regatta, both on and off the water.

The structure of this committee depends upon the needs of the club or other organizing authority. For simple events, the structure should be equally simple. For major events, the structure or organization tends to expand.

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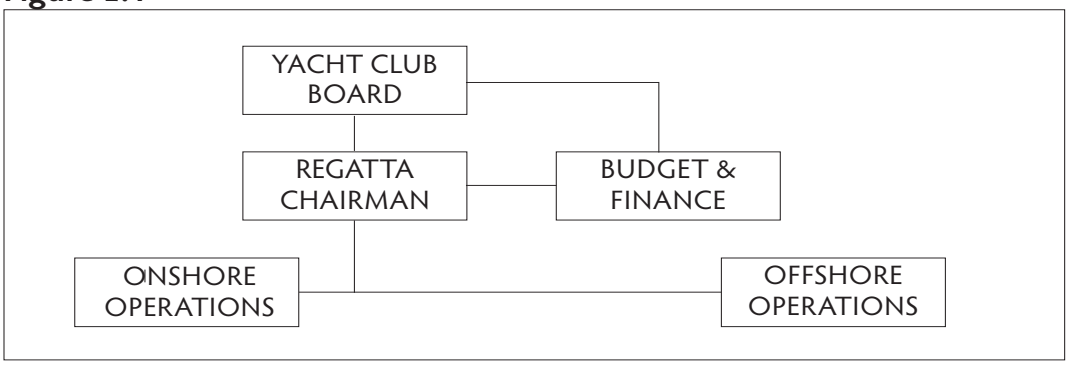
Make the committee structure suit the event. When the regatta is a simple one, or will be run by professionals, the tendency is to create a small upper-level structure, and fill in with volunteers (Figure 2.1).

Figure 2.1



In this structure, the organizing authority is at the top (in the following example, it is a yacht club, but it could be any authorized organizing authority; see Chapter 1 for more detail. The principal operations are simply divided among the regatta chairman, "onshore" and "offshore."

The difficulty with the small upper structure is that if the underlying group is large, and the top level is professional, it tends to discourage some people who realize that they have no chance to advance to that upper level.

Major regattas run by volunteers tend to have a more lateral structure. Functions are divided into areas of responsibility which a volunteer can be in charge of, so that no one person is responsible for organizing more than one major function.

However each person is referred to in the local event organization, there are certain elements of the conduct of the regatta which must be addressed.

Figure 2.2 outlines each of the basic functions of a major volunteer-based regatta.

The rest of this chapter concerns itself with why those functions exist, how they interrelate, and how, depending on the magnitude of the regatta, other factors must also be considered.

Each of these operations plays a major role in the regatta organization. Each is, at the same time, dependent upon the others. The reasons are not always obvious.

The regatta chairman's responsibilities are discussed in Chapter 1, "Objectives, Responsibilities, and Authority". The reasons for the various subcommittees are sometimes more difficult to locate (or do not exist) in the racing rules.

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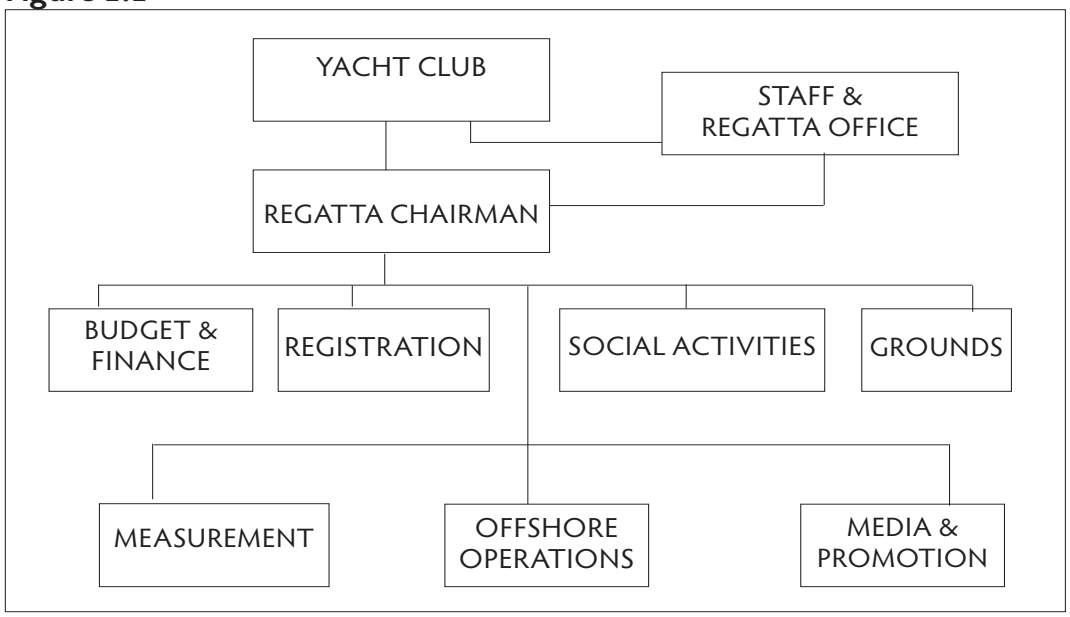
Figure 2.2



Budget and finance

Although sometimes overlooked by the people organizing regattas, budget and finance are two of the more important aspects of a regatta. The regatta chairman who organizes a regatta which the club or venue cannot afford jeopardizes the success of the regatta, and the future of the event.

Preparing, and adhering to, a budget are critical to the regatta's success. Every aspect of the regatta is governed by the availability of money and personnel to make the event work. Creation of a preliminary budget early in the development of the event helps you to determine how the event will evolve, and whether it can be self-sustaining. If it cannot, you must look for ways to make it so, or it may take place only once (if at all).

In order to create the budget, and to make certain that you have the necessary financial resources to make the event happen, you must understand the nature of the operations which will take place, their significance to the regatta, and their cost. Some clubs rely upon the regatta chairman to do all of this. The wise regatta chairman asks the organizing authority to appoint a budget/finance person to assist the regatta chairman's budget coordinator in the creation of the regatta from the outset.

If questions arise as to the feasibility of the regatta, or the cost of a particular aspect, the chairman has the support of a person approved by the organizing authority. The budget/ finance person should routinely provide detailed information to the regatta chairman regarding the current financial status of the regatta planning.

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The functions of the budget and finance coordinator continue throughout the planning and execution of the regatta. Different subcommittees may be appointed to plan certain aspects of the event. It is incumbent upon budget/finance to ensure that each subcommittee provides the detail, cost estimates, and other information necessary to allow an evaluation of the efficacy of each subcommittee's plan.

A party which ruins the budget for the rest of the regatta is the fault of the chairman who allows it to take place, and of the budget/finance coordinator who fails to adequately oversee its planning.

At the same time, the best planning anticipates the need for some method of emergency procurement. Create a budgetary structure which allows for the obtaining of some minor items on short notice without too much administrative resistance.

At the end of the regatta, it is incumbent upon budget/finance to accumulate all billings and expenses, and to render a final accounting of the event for the organizing authority.

Eligibility, entry and registration

Eligibility and conditions of entry

Rule 75.1 says, "To enter a race a boat shall comply with the requirements of the organizing authority of the race." Every event has some conditions of entry, even if they consist only of the designation of the classes to race.

Appendix J1.1(4) requires that the notice of race contain the conditions of entry and any restrictions on entry. Restrictions may be based upon age, number of boats, or other factors. Each limits the number of competitors in some fashion, so the conditions of entry are significant factors for the person dealing with entry and registration.

Similarly, Appendix J1.1(4) requires that the notice of race contain, when appropriate, any limitations on crew based on the ISAF competitor classification system.

Rule 75.2 provides that competitors shall comply with Appendix 2 (ISAF Eligibility Code, ISAF Regulation 19).

Always determine, early in your planning, whether your event falls into one of the categories of event listed in Regulation 19.3. If it does, then all competitors (skippers and crew members) must meet the requirements of regulation 19.2. Be sure to check the ISAF Web site <www.sailing.org> for the current version of this Regulation. Changes to it are permitted any time the ISAF Council meets.

Events that require ISAF eligibility include:
(a) the sailing regatta of the Olympic Games;
(b) the sailing regattas of regional games recognized by the International Olympic Committee;
(c) events including "ISAF" in their titles;

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(d) world and continental championships of ISAF classes and of the IMS, major events and other events approved by ISAF as a world championship;
(e) any event at which the organizing authority, ISAF member national authority or ISAF has appointed an international jury, international umpires, international race officer(s), international measurer(s) or ISAF technical delegates to serve in the capacity to which they have been appointed for that event;
(f) any event approved by a member national authority of the ISAF as an Olympic qualifying event; and
(g) any event designated by a member national authority within its jurisdiction as requiring ISAF eligibility.

Paragraph 19.3(e) is the one that may cause confusion. If any ISAF race official (judge, umpire, race officer or measurer) is serving in his appointed capacity at the event, then ISAF eligibility is required for all competitors.

ISAF Sailor Classification Code (Regulation 22) exists as a free service to provide events and classes with an international system of classification for sailors. Events and classes are not under any obligation to use a classification system but should they wish to do so the ISAF code is now available. When the code is selected for an event it shall be stated in the notice of race. If it is not invoked, everyone is eligible to participate. The classification code is used by some classes in their class rules to limit the number of Category C people ("professionals") on each boat, or to prohibit Category C people from steering the boat.

For those sailors entering events which require an ISAF sailor classification, ISAF provides a free online system. The ISAF sailor classification is the one international system of classification used around the world. To apply for a classification one must first register with the ISAF Sailor.

Exclusion of competitors

Rule 76.1 permits the organizing authority or the race committee to reject or cancel the entry of a boat or exclude a competitor, subject to the restrictions of rule 76.2. However, such action must be taken before the start of the first race, and the reason for the action must be stated. US SAILING has added a prescription to rule 76.1 that prohibits such actions for "arbitrary or capricious reason or for reason of race, color, religion, gender, sexual orientation, age or national origin." The age and gender restrictions do not prohibit events for juniors, masters or other age-limited groups, or events for women or men only, provided such limitations are stated in the notice of race. If such action is taken, the boat or competitor excluded is entitled to a hearing conducted by the event's protest committee (see rule 76.3, a US SAILING prescription).

Advance registration or entry

Appendix J1.2 (5) requires that the notice of race contain, when appropriate, the procedure for advance registration or entry, including closing dates when applicable, fees, and the mailing address.

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For the person responsible for registration, this means that:

1. he or she must work closely with the person who writes the notice of race to ensure that essential details as to how entry or advance registration will be handled are included and accurately stated;
2. entry forms should be prepared along with the notice of race, and some procedure must be developed for receipt of inquiries regarding advance registration, mailing of entry forms, declarations, and the like;
3. a procedure must be developed for processing entries received by the deadline. This procedure should include methods for determining whether entry forms and declarations are complete, and for notifying competitors whether their entry is somehow deficient (and what they need to do to complete or correct it); and
4. a plan must also be developed to ensure adequate staffing to handle such details in a timely manner.

It is now possible to put the notice of race and entry forms on a web page, and accept completed entry forms and payment (via credit cards) electronically. This can make the process much easier for all concerned.

Entry forms

Appendix J1.2(6) requires that the notice of race include, when appropriate, an entry form, to be signed by the boat's owner or owner's representative, containing such words as: "I agree to be bound by *The Racing Rules of Sailing* and by all other rules that govern this event."

It is the responsibility of the organizing authority to determine whether such entry forms will be required. It generally falls to the person responsible for registration to obtain or create the form and to ensure that it is properly completed before the competition begins.

It is not uncommon for the organizing authority to require some form of release in the entry form by which the competitor releases the organizer from liability for injury or damage. Such clauses can significantly affect both the competitor and the organizer. They are discussed in detail in Chapter 4, "Insurance and Legal Issues." Read that chapter carefully before preparing such a document. It is prudent to have an attorney review any such document.

Rule 82 is a US SAILING prescription which prohibits the organizing authority from requiring a competitor to assume any liabilities of the organizing authority, race committee, protest committee, host club, sponsors, or any other organization or official involved with the event. (This is commonly referred to as an 'indemnification or hold harmless' agreement.)

Declarations

Appendix J2.2(13) requires that the sailing instructions include, when appropriate, whether declarations are required.

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Declarations may involve citizenship, residency, insurance, age, group classification under the ISAF Sailor Classification Code (see above), or any other condition of entry. The person responsible for registration must work closely with the regatta chairman and the person responsible for writing the notice of race to determine what declarations will be required, and what they should contain.

If declarations are to be required, they should be sent with the entry form for advance registration. In that way, competitors can make them available to their crews in advance of arrival at the site. Extra declarations forms should be available at on-site registration.

Registration

On-site registration tends to be both a social event and a formal procedure. It is usually the competitor's first contact with the host organization after arrival and, therefore, the first opportunity the organizers have to meet the arriving competitors and make them feel welcome. It is also the competitor's first opportunity to see friends who have also entered the regatta.

At the same time there are other reasons for registration, including safety issues on the race course. It is used to confirm that entered competitors will actually compete, to collect entry or social fees, if not collected in advance, and to distribute the sailing instructions and other necessary information concerning the conduct of the regatta.

Appendix J2.2(8) requires that the sailing instructions include the registration procedure. This means that to the extent the items listed above with respect to advance registration have not been accomplished, they must be completed during on-site registration.

The person responsible for registration must also compile and provide lists of entrants to the race committee, scorer, measurer or handicapper, regatta office personnel, and all other members of the regatta committee who must know who the competitors are.

If entries are incomplete, it is the responsibility of the registration personnel to try to collect the missing information or fees. This can be done by posting notices to competitors on the official notice board. State specifically the items which are required to complete each entry. It is important to have effective communication among registration and the various other operational groups involved in conducting the event.

Registration is also the most logical location to provide competitors with information as to when and where their boats and sails will be measured. The person responsible for registration must coordinate with the measurer or the local measurement coordinator to first determine how many boats and sails can be measured each hour. Then develop a measurement schedule which can be filled out at registration and provided, periodically updated, to the measurer during measurement.

Humor is a rubber sword—it lets you make a point without drawing blood.
—Mary Hirsch

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Registration should also be used to disseminate informational materials which were not sent with an entry or advance registration package. This information should be logistical in nature: slip or mooring assignments, location of dock facilities (such as telephones, trash containers, etc.), maps of the locality, location of banks, information on available lodging and local restaurants, location of boat supply, boat repair, and sailmakers and sail repair facilities, boat trailer and vehicle identification decals, yacht club guest cards, and so forth. Include a regatta schedule which lists both the schedule of racing activities and details about social functions. If invitations or tickets are required for admission to social functions, include them.

Promotional material concerning the above items may also be included in the registration package, as may any promotional gift.

Housing

Housing is normally provided to judges, umpires and race officers who are not resident in the local area. If the regatta budget permits, local hotels may be used. More frequently, accommodations in the homes of club members are offered.

At some regattas, in-home housing is offered to competitors as well. The coordination of housing is a major task, and the project should be started well in advance of the event. Often, this service is offered only to competitors from other countries, or those whose homes are far from the venue.

Grounds Coordination

Few introductions to a regatta produce a more profound and lasting impression of the quality of the regatta's organization on the competitor than when he or she arrives at the venue and is immediately directed where to dock the boat, or park the van and boat trailer. Grounds organization for all regatta-specific shoreside space and facilities is the responsibility of the grounds coordinator.

Most clubs which have docks, moorings or shoreside boat trailer parking use a part-time or full-time dockmaster. However, the dockmaster must usually deal with the day-to-day problems affecting all members of the club. He or she may be helpful in planning regatta operations, but may not be able to devote sufficient time to act as the regatta's grounds coordinator. As a result, the regatta chairman usually finds a volunteer to coordinate grounds planning for a specific regatta.

In "off-the-beach" sailing you may want to consider the addition of a "beach captain." The beach captain usually has the most direct contact with the sailors and is in a position to promote good will with them and to reflect the quality of the management team.

Boat trailer parking

Assign a specific area where boat trailers must be parked. With a regatta of any magnitude, you should have developed some form of advance registration procedure which will give you an

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idea how many boats and trailers to expect. Plan a parking area suitable for the expected number and types of entries. Also plan room to expand, if necessary. If you place the car and van parking area next to the boat trailer parking, you should be able to adapt easily.

Check the area for electrical hazards, particularly overhead power lines which may come into contact with masts (see Chapter 3, "Risk Management," for additional details).

If the number of entries will be large, assign a space to each competitor and attach a decal to the trailer when the competitor arrives at the club.

Make certain there is adequate room between rows of trailers for easy and safe movement of the trailers. If you keep the boats in each class together, you can more effectively plan your available space, and at the same time keep traffic lanes in the parking area clear.

If the boats are to be dry-sailed, the trailer parking area should also include power facilities so that the competitors can work on their boats.

Many competitors use their vehicles for storage of equipment and tools. The closer the trailer/boat storage area is to car and van parking, the easier it will be for the competitors.

If you do not have water hoses in the launching area, make certain that they are available in the trailer parking area. In close quarters, one hose should be able to service several boats.

For safety and convenience, make certain that the trailer parking area is well lighted. Competitors frequently must work on their boats at night to be ready for the next day's race. In addition, there tends to be less vandalism, and less chance of injury, if there is plenty of light.

Unfortunately, some venues suffer from problems with vandalism and theft. Security may be a concern in those areas, and is dealt with in Chapter 3, "Risk Management" .

Finally, provide plenty of trash receptacles and make arrangements for them to be emptied regularly.

Vehicle parking

Large regattas always have an impact on club members' parking and use of club facilities. If trailerable boats are involved, the inconvenience is more than doubled. Much of this inconvenience can be eliminated by developing a parking plan for the regatta and informing club members in advance by using mailers, signs, and the like.

Advance registration will help to estimate the amount of space required. It is more difficult to assign designated spaces for parking vehicles than for trailers, simply because much of the space will not be utilized all of the time. However, designating certain areas for participant vehicle parking will help to reduce the problem to manageable levels. Measurers carry tools and equipment needed to conduct their function. It is more important to provide space near

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the measurement facility for them than it is to provide designated space for other functions, such as jury members, race committee members, and the like.

If you create designated parking areas, you must somehow enforce them. Attaching an event decal to the vehicle when the competitor first arrives, or providing it at registration, will allow an attendant in the parking area to determine whether the unattended vehicle belongs to a competitor.

Sailboard storage

In boardsailing events where the boards are not sailed off the beach, some sort of storage system should be considered. A lawn area usually works fine for most regattas, so long as there is some form of protection from vandalism and theft. Many boardsailors store their boards on a rack on their car or van.

If some more formal system is desired, consider either vertical or horizontal storage racks for the boards. Construction of such racks may be cost-prohibitive unless boardsailing events are commonplace at your venue.

Boat slips and moorings

As with ground storage, it is important to know the number of boat slips or moorings which will be required to accommodate the competitors. Once again, advance registration will assist. The grounds coordinator should meet with the dockmaster well in advance to plan the number of existing boats which may have to be moved to make room for the racers.

The dockmaster, who usually has a good rapport and working knowledge of current slip or mooring users, can begin to notify the boat owners that their boats may be moved for the duration of the regatta.

Do not forget to include extra race committee boats, safety boats, and coach boats in the list. If classes can be placed together along dock or mooring space, so much the better.

Make a diagram of the docks or moorings for each competitor, showing the assigned location of each visiting boat. Include the diagram, and any informational details (location of trash receptacles, telephones, etc.) in the registration package and post a copy on the official notice board.

Boat hoists

Trailerable keel boats usually require some method for hoisting the boat from the trailer and lowering it into the water. The same is generally true of rigid hulled inflatable and other support boats.

To be effective for various types of boats, hoists should have a rated capacity in excess of the boat's weight. Make certain that the hoists are in good working order prior to the regatta, that electrical connections are in good condition, and that cables or other lifting mechanisms are

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sound. If the hoists must be operated by approved personnel (e.g., club employees), be sure they will be available when needed.

Many trailerable fleets dry-sail. This puts a significant demand upon the use of hoists for large fleets. Determine the speed at which your hoists will launch and retrieve a boat, including the time necessary to hook up lifting rings or other equipment. Add a factor for maneuvering the boats into position to rig for hoisting, and for properly placing the trailer prior to launching and retrieval. Then calculate approximately how much time it will take to launch and retrieve the fleet with your hoist facilities.

If it will take too much time to launch the entire fleet and get them to the racing area, consider two options:

1. You may want to limit the fleet to hauling out every other day. Divide the fleet in two, and allow one-half to haul out on even-numbered days, and the other half to haul out on odd-numbered days.
2. You may determine that it is better, and affordable, to provide additional portable or permanent hoists. Portable hoists are expensive to rent, and require professional and expensive personnel to operate. In addition, risks of injury or damage are increased by the use of portable hoists. Weigh the risks, address the issue with the host club's commodore or board of directors, and allow them to satisfy themselves that insurance for any occurrence is adequate.

Experience levels of competitors in the use of hoists vary widely. In addition, unless they are very familiar with the equipment, each undergoes a learning curve in the use of the equipment. Let the competitors worry about handling their boats and trailers during launching and retrieval.

Assign knowledgeable persons from your club to operate the hoists during those busy times. Always make sure that you have two people to operate the hoist.

Sail drying areas

For small boat regattas, sailors prefer to have available an area where they can wash and dry their sails daily. Access to running water, and a clean, nonabrasive surface, are the only significant requirements. Lawn areas work well for the latter.

Loudspeaker systems

It is preferable to have some sort of loudspeaker system in the boat/trailer parking, launching, dock and measurement areas, so that announcements during the regatta can be effectively communicated. Check the system to determine whether announcements can be heard over wind and ambient noise.

Use the loudspeaker system sparingly, or no one will pay attention. Develop a system where personal calls for competitors are announced once every thirty minutes or so, and only official announcements occur randomly. Or use a recognizable signal or tone to draw attention to official announcements. Provide the announcement format at registration.

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When conducting a round-robin series with boat rotations (see Chapter 5, "Competition Formats"), some of the fleet may be on the beach or dock for some period. Use the public address system to assist sailors with boat rotations.

Also consider using a good public address announcer who, working with the race committee via radio, can relay mark roundings and other information from the race course so that people on shore can follow the racing activities.

Flagstaffs

Visual signals made ashore by the race committee must be displayed from some highly visible location. Almost every club has a flagstaff. In locations remote from clubs, however, the need for a flagstaff should not be forgotten.

Make certain it is visible from the launching ramp, dock, or mooring areas, so that boats about to leave the harbor can see whether some signal has been made which may affect their decision to leave for the racing area.

Measurement facilities

The significance of the regatta usually determines the extent to which measurement of boats, sails or equipment will be required. Many class rules specify what measurement must occur for a particular level of regatta.

Advance coordination between the grounds coordinator and the measurer is critical. If hulls are to be measured, the class or the measurer should have details as to what equipment is necessary, and who will provide it. The amount and nature of the space required must also be determined.

In most cases, special areas where measurement will take place do not exist, and must be created. Level ground and a tent will usually suffice for hull measurement of smaller boats. Larger boats may be measured on their trailers.

Sail measurement requires separate space. Local sailmakers are usually quite cooperative for larger regattas, and may solve the problem if they are nearby. The floor of a portion of the yacht club is frequently used when other facilities are not available.

Determine what is necessary, and for how long, then plan the facility far enough in advance that it can be in place one to two days before measurement begins.

Protest rooms

Protest rooms have been a necessary element of virtually any regatta for so long that most clubs have set aside space for that function. If the club has such a space, make certain that it is available when required.

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Coordinate with the chairman of the protest committee or jury secretary to determine whether more than one protest committee or panel is planned, and whether adequate space will be available if more than one protest will be heard at the same time.

It is helpful, but not essential, to have a separate room where parties to a protest, and witnesses, can be placed pending the hearing of their protests. It will save time. No one will have to spend time looking along the docks or in the yacht club bar for the next group of parties or witnesses.

Arriving equipment

For many regattas, competitors will ship (or tow) their boats and related equipment to the regatta site in advance of the event. Likewise, for some regattas, race committee and safety vessels, and related equipment, must be imported to the regatta site. When the yacht club's security personnel are first confronted with an arriving container loaded with gear, boats, and the like, it is best that they already know what should be done with it.

Try to determine when competitors will arrive and whether they will be bringing additional equipment (this can be done with a questionnaire during advance registration). Plan a space at the facility where such items can be stored or placed pending arrival of the competitor. Develop a system for notifying appropriate club employees, regatta officials, and the competitor, as appropriate, that the equipment has arrived, and where it has been placed.

Cleanup

The work of the grounds coordinator is not finished when the racing is finished. He or she must develop a cleanup plan, by which the regatta-specific items will be broken down and stored or discarded appropriately. Measurement equipment may have to be returned to the class association. Borrowed boats and equipment must be inspected, cleaned up, and returned to the rightful owners in "as-good" condition.

The same list which you used to obtain the equipment and materials may be used to dispose of it, but someone must be placed in charge of each element of the cleanup process.

Offshore coordination

The race manager or principal race officer is generally responsible for all offshore coordination—those aspects of the regatta which will take place on the water. The responsibility is greater than it sounds. Usually, it includes all race committee logistics and equipment, race operations, safety boats (especially for junior events), scoring, and spectator control (both surface and air). It can also include spectator, media, coach, medical and other boats.

Time flies like an arrow. Fruit flies like a banana.
—Groucho Marx

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References to other chapters of this handbook

Race committee equipment is covered in Chapter 8. Race operations are covered in various chapters, but particularly Chapters 9 through 12. Spectator control and rescue plans are also covered to some extent in Chapter 3. Scoring is covered in Chapter 13.

Meal delivery plan

Competitors and race officials, alike, must eat. For many regattas, competitors are expected to fend for themselves for lunches to take on the water. For others, the club prefers to generate revenue for itself by providing lunches, soft drinks, and bottled water for the competitors. For some major regattas, the club facilities are incapable of providing the necessary services, and a private catering company must be hired to provide them

Usually, however, at least the race committee must be provisioned.

Some plan must be developed to have food, beverages, and ice available at a specified time and location for race operations personnel and, as appropriate, the competitors. The larger the order to be filled, the more important it is to develop the details of the plan. The planning must fit into the "sortie plan" for race operations vessels (for sortie plans, see Chapter 9, "Race Day").

Appoint someone whose responsibility it is to determine how many officials and race committee personnel are scheduled to be on the water each day of the regatta. Race committee personnel planning should always be done weeks in advance in any event.

Scoring

Scoring is covered in Chapter 13. It is sufficient, here, to say that when the event is being conceived, it is important to define the scoring procedure which will have to be prescribed in the notice of race, to make certain that the computer scoring program, forms, and other equipment which will be used are identified, available and thoroughly tested well before the regatta begins.

Fuel sources

Some regattas are of sufficient magnitude that the availability of fuel, and the time to fuel the boats, are sources of concern. If you are running a major regatta, identify the nearest sources of fuel and oil. Determine how many boats you will be using, and what their fuel and oil consumption will be.

Contact the local fuel docks and advise them that you will need to refuel your boats at a particular time of the day, and make certain that you will have access to their fuel docks at the required time. Establish an account with the fuel dock(s) if necessary, so that a support boat driver does not have to carry cash or credit cards. Then identify for the fuel dock the boats authorized to obtain fuel and oil on the account. Monitor the account daily, and make sure that the bills are being paid.

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Some regattas have sufficient support boats that an organized refueling schedule must be developed. Determine how long it takes each boat to refuel, and make up a schedule for each of the support boats so that each knows whether it should refuel in the morning or evening. Make certain that each boat checks its fuel level every day. When possible, support boats should refuel each evening to facilitate an early start the next day.

Have additional oil (including 2-cycle oil, if appropriate) available at the race operations base, and make certain that each boat has spare oil on board.

Measurement coordination

In general

The authority and responsibilities of the measurer under the racing rules are discussed in Chapter 1, "Objectives, Responsibilities and Authority." Measurement requirements vary greatly, and both the requirements and the procedures must be described in the notice of race (see Appendix J1). Measurement and inspection procedures must also be described in the sailing instructions (Appendix J2).

Requirements for measurement

Inspection procedures include inspections for the presence of safety equipment. Lists of required equipment are usually set forth in the class rules, or in the ORC Regulations. In addition, rule 1.2 requires that every boat shall carry adequate lifesaving equipment, and the US SAILING prescription to rule 40 requires that such equipment conform to government regulations.

The racing rules also contemplate the need for owners to provide measurement or rating certificates (rule 78), carry appropriate class insignia, national letters and numbers (rule 77 and Appendix G), and carry adequate personal buoyancy (rule 40). Weight of personal clothing and equipment is restricted by rule 43. This is a measurement function regulated by Appendix H. All of these functions must be considered in planning for measurement.

Communication with others

It is incumbent upon the measurer (and if he or she is from out of town, the person coordinating measurement for the regatta committee) to determine what will be required for the process of measurement and safety inspections. The measurer should also advise the regatta committee of those requirements, so that the notice of race and sailing instructions can be properly drafted.

Further, the measurer should provide detailed information to the regatta committee as to specifications for measurement facilities, who will provide the necessary measurement equipment, and what that equipment is. Logistics details, such as arrival of equipment and its storage and care, are the measurer's responsibility. It is the responsibility of the local person coordinating measurement to ensure that the measurer provides that information.

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In events that use handicap scoring, the current rating certificate must be used by the race committee's scorer to prepare a "scratch sheet" (see Chapter 13, "Scoring and Handicapping"), to establish divisions or classes if they will start at different times, and to calculate corrected times after the boats have finished. The measurement coordinator (or measurer) must provide that information.

As mentioned above, measurement also affects registration. The measurer must coordinate with the person responsible for registration, to determine what must be provided at registration to conduct effective, efficient measurement.

Measurement facilities and development of a measurement schedule are discussed earlier in this chapter.

Measurement forms

If measurement forms will be necessary, it is the responsibility of the measurer to determine which forms will be required, to generate them to his or her satisfaction, and to provide them to the regatta committee.

Support personnel

It is equally important for the measurer to determine whether additional personnel will be required to assist with measurement, so that a schedule of volunteers can be developed by the regatta committee to provide adequate staff for the measurement period.

The same is true of inspections and equipment checks during the regatta. The measurer should determine the extent to which they are deemed necessary to ensure fairness in racing. If additional personnel are required to assist with inspection, their qualifications to assist should be determined by the measurer, since the measurer acts as the "authority responsible for interpreting the rule" under rule 64.3(b).

Protest committee coordination

The protest committee coordinator (often called the protest committee secretary) is responsible for the logistics of the protest committee, from the scheduling of arrival of visiting members through their departure.

Protest rooms are discussed in "Grounds coordination" above, but the duties of this person include matters of protocol (including meeting arriving members, if appropriate), disseminating information and making arrangements for lodging and transportation, and arranging necessary meeting locations.

Planning also includes arrangements for a boat, if the protest committee will be on the water, and ensuring that the committee is provided with all necessary documentation and equipment. The need to provide to each protest committee member a copy of the notice of race, sailing instructions, and an entry list in advance are obvious. In addition, the protest committee also

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needs some method of completing protest decisions—a computer, printer and paper—and may need someone to input decisions and protest notices for them while they hear other protests.

The protest committee will undoubtedly want have its own organizational meeting in advance of the racing to agree upon its own procedures for handling protests, review its authority, select a chairperson if one has not been selected in advance, determine the schedule for departure from the dock on race days, and review the availability of, and need for, additional logistical support.

Some method must be developed in advance for the protest committee to notify the race committee and measurer of its decisions, because the decisions affect either further measurement or race results. It is helpful to establish mailboxes in the regatta office for information to be disseminated to the protest committee, race committee and measurer.

At large regattas the protest committee will want to arrange an organizational meeting with the race committee, so that they can understand where further coordination is necessary. They may also wish to discuss with the organizing authority whether the protest process will include arbitration

It is essential that the organizing authority tell the race committee and the protest committee the circumstances, if any, under which they will be expected to initiate protests.

Most protest committees in large regattas like to be on the water for the racing, in order to observe the manner in which the racing is being conducted, the weather conditions, and the need for enforcement of the rules.

Except where umpires or direct judging on the water is used, protest committees begin their work after the races for the day have been completed. It is then that support for their operations is required. The secretary who usually leaves the club at 6:00 PM does little good for the protest committee. Determine what the needs are, then obtain the necessary support

Social events

Whether organized social activities are a part of the regatta depends upon the nature of the regatta, the budget, and the disposition of the organizing authority and regatta chairman. Sailors will get together informally whether or not social events are planned, but affording the competitors an opportunity to gather in a planned, festive environment is usually appreciated. Social functions are an adjunct to racing. They are not always perceived that way by the persons who organize them, because organizing them is hard work. But the sailors come to the venue, first, to race, and only afterward to enjoy the party.

Try to anticipate when the racing will be completed. The person planning a social event must learn from the race committee something about the nature of the wind conditions which will

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prevail, duration of transit from the race course, and other factors which will affect the competitors' ability to attend the social function.

Allow sufficient time between the anticipated end of the day's races and the scheduled time for the social event to accommodate the vagaries of a light air day, and to afford the competitors time to shower and change clothes.

Plan social functions appropriate to the regatta. Make certain that you include your sponsors, if the regatta is sponsored.

Make certain, also, that whatever you plan will not run afoul of local regulations or state laws. For example, in some states the Department of Alcoholic Beverage Control (or equivalent) has very strict laws concerning the provision of alcoholic beverages by sponsors.

As with other regatta organization functions, determine the need for staffing for the social function well in advance. If admission to the event is to be charged, make the information, and the tickets, available at registration.

Media relations and promotion

Press relations off site

Legitimate publicity is good for the club, class and sport, and most competitors like to see their names in the paper or in periodicals.

One person should be responsible for contacting the sports desk of the local paper and the sports department of the local radio and television stations. Build a rapport and keep the appropriate persons on their staffs well informed about any major event if they are willing to provide coverage about your local series. Reporters are looking for a good story just as much as you are, and the easier you make it, the more likely you will receive coverage.

Invite your contact out for a race or regatta. Encourage him or her to bring a photographer or cameraman. Have a powerboat at their disposal manned by someone who knows the ropes and can answer questions. The operator of this boat may require a United States Coast Guard (USGC) license. Check with your local USCG office. Provide food and drink, and treat them as VIPs. Supply them with an information package which includes background material on the event, participants, class and club, and any other information which might encourage them to turn a short report into a major feature.

Make arrangements to e-mail, phone in, fax or deliver results, and do so promptly after each day's racing. Always remind reporters that results are provisional until all protests are over and scoring is final.

Before a championship, ask the participants to give you a brief summary of their sailing background. ISAF introduced a service in early 2002 that provides access to brief biographies prepared

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by the sailors, www.sailing.org. Get the names of their hometown newspapers, so you can provide the results on a daily basis, especially to the sports editors whose local sailors are doing well. Please call or fax results to US SAILING daily, too!

After a championship, send out a press release on the event immediately. Briefly describe what took place and neatly list the results. Editors are delighted to receive glossy 8 x 10 action shots (especially of the winners). Include US SAILING in this distribution, www.ussailing.org.

Use care in your releases. Editors will not sift through sloppy copy full of useless information. Write with simple declarative sentences. If you need guidance, follow a suitable regatta report in one of the boating magazines.

Be sure to include the name of the event, the organizing authority and host club, the dates, the title and name of the trophy being competed for, type of boats, how participants qualified, further competition they may have qualified for, a description of the weather and sea conditions, the total number of races and competitors, and the type of course(s) and scoring system. Try to add a quote from the winner (and possibly from a regatta official), and any other significant information. Be sure you list the name and phone number of a person to be called for further information.

Attach a list of the results. List finishing place, name of boat if appropriate, full name of skipper and crew, hometown, organization represented (club, class, regional sailing association, country, region, etc.) if appropriate, and points scored.

Press facilities on site

Some regattas draw sufficient media attention that facilities are needed at the regatta site to accommodate the media. A few suggestions:

Develop some method of identifying legitimate news media. A formal credentialing structure is addressed in Chapter 3, but a media registration and information desk will usually suffice. The desk should be staffed by one person exclusively assigned to that task. Another person can be assigned to disseminate race results and provide further information concerning the regatta.

If you anticipate sufficient media, set aside a space within the club dedicated as a press room. Make sure that you provide sufficient power outlets for the press to use their computers. Most writing press use portable computers to prepare their stories, and modems for transmitting their reports. Race results can easily be transmitted by fax, if available. Do not tie up your regatta office fax machine for media transmittal.

The size of the press room needed, and its furnishings, depend upon the number of accredited media expected.

A rumor without a leg to stand on will get around some other way.
—John Tudor

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Media on the water

Media personnel present at the venue may want to go out on the water to write about or photograph the event. This presents several difficulties.

First, the United States Coast Guard may consider such persons "passengers for consideration," which can create serious legal consequences for the organizer who provides the boat (see Chapter 4, "Insurance and Legal Issues," particularly, "Chartering and passenger for hire issues").

Second, you can almost never accommodate all media who desire to go out. Develop a priority system for categorizing those who are invited (for example, boating magazine and sports photographers first, then boating media writers and local sports writers). Accommodate other human interest writers from relevant magazines, etc. on another boat, and schedule the day they may go out, if necessary.

If television camera personnel want to go, create access for them, but still watch for "passengers for consideration" issues. The general public watches television news/sports programs more often than they read about boating in the sporting pages.

The regatta office

The regatta office is the nerve center of the event—computers, word processing, communications network, photocopy and fax transmission, operations center, central switchboard, etc. It is also the place where everyone will look for general information.

Keep the office free from unnecessary tasks. If possible, provide a separate regatta information booth, a separate message center for the competitors, and keep unofficial traffic to a minimum.

Keep a log of incoming calls, then pass the information on through an established system to competitors, jurors, race committee, etc.

At the same time, the regatta office should be the repository from which a competitor, the race committee, the protest committee, the measurer, and other officials can obtain the forms and information necessary for use during the regatta. Whatever information is generated by the regatta committee, from social schedule to protest forms, should be available at the regatta office, if it can be found nowhere else.

It is incumbent upon the regatta organizer to make certain that the regatta office has what it needs (from sailing instructions to race results to pencils to computers), and to assure that there is at least one person always available who knows where everything is located in the office.

The regatta office should open early in the morning on race days, and should remain open until at least the end of protest time. Protests should usually be filed there, since it is the most fully and professionally staffed of regatta facilities.

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Use a "pigeon hole" system of boxes for messages and information for the various members of the regatta committee, measurer, race committee and protest committee. It provides a known location where information can be left and easily retrieved. It also, informally, causes the members of the various committees to communicate with one another.

A regatta planning timetable

Establish a timetable for your organization. What follows is a basic outline.

Regatta—12 months:

1. Choose regatta dates
2. Select steering committee (regatta chairman, class representative, host club liaison, etc.) and conduct organizational meeting
3. Determine each class' advertising category

Regatta—9 months:

4. Select key members of regatta committee and conduct initial organizational meeting (meetings should be held at least once monthly thereafter)
5. Complete preliminary detailed budget
6. Confirm major sponsorships, if applicable

Regatta—6 months:

7. Confirm remaining major project assignments
8. Publish notice of race (major events—for smaller events, publish at Regatta—3 months) and Appendix put it on your Web site, with links to other sites (class, US SAILING, ISAF, etc.)

Regatta—3 months:

9. Complete competitor advance registration packets
10. Issue initial publicity
11. Complete initial grounds plan, social plan, housing plan (and any ceremonies plan)
12. Order all necessary outside equipment
13. Submit marine event permit (if not done previously)

Regatta—2 months:

14. Housing, dinner, trophy, entertainment reservations and orders
15. Dignitary invitations

Regatta—1 month:

16. Final sailing instructions printed and put onto Web-site
17. Entry deadline for major regattas
18. Confirm personnel schedule
19. Confirm all equipment
20. Confirm chartered/borrowed boats

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21. Confirm final social, grounds, housing, and ceremonies plans
22. Initiate media contact (earlier for long lead-time publications, such as magazines)

Regatta—1 week:

23. Final regatta committee organizational meeting
24. All printed material available at regatta office
25. All on-site "look" materials ready for display
26. Set up venue
27. Confirm receipt of prizes
28. Send updated publicity to media
29. For handicap regattas, prepare class or division breaks by ratings and prepare final scratch sheets and lists of competitors by rating

Race day—1 day:

30. Race committee organizational meeting
31. Race committee/protest committee/organizing authority joint organizational meeting
32. Competitors' meeting

Special considerations

Competitors' meetings

The racing rules do not require a pre-race meeting of any kind. In fact, ISAF Case 32 holds that the sailing instructions cannot require competitors to attend an oral briefing. However, most competitors appreciate an official welcoming, especially in more formal events, and a competitors' meeting is the perfect format.

Invite all competitors (skippers and crews) and other interested individuals, parents, friends, the press, and of course, officials. The regatta chairman normally opens the meeting with a few brief comments. The regatta chairman should introduce the principal race officer, the protest committee, and other officials, none of whom need say a word.

Make last minute organizational announcements. Point out the location of the official notice board. Provide any information necessary regarding the identification of official boats (rescue boats, tow boats, gear collector boats, check-in boats, etc.) and the appearance of race marks.

If there are hazardous or prohibited areas between the dock facilities and the racing area, point those out. Make any announcements concerning food, beverage and ice distribution, and social arrangements. Address any pertinent rules of the host club.

Do not discuss the contents of the sailing instructions, except to announce that an amendment has been posted. Do not attempt to "clarify" the sailing instructions, or any amendments, at the competitors' meeting . Changes to the sailing instructions must be communicated in writing, by posting on the official notice board.

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If competitors have questions about the sailing instructions, ask them to put the questions in writing and submit them to the race committee. They can then be carefully reviewed by the race committee and, if necessary, the protest committee, before the answer is given.

Ordinarily, questions regarding the sailing instructions should be answered only in writing, and posted on the official notice board. List the question, then answer it with a simple "Yes," or "No," "See racing [or class] rule… ," or "See sailing instruction… ." Temper your approach to the event. Juniors or novices need more help than seasoned campaigners. Just do what you said in writing you would do.

The official notice board

The presence of an official notice board is anticipated in the racing rules (Appendix J2.2(10)). Although it is not required, it is the customary location for posting official notices to competitors.

If used, it should be subdivided into the following sections (or separate boards should be used)

1. notices to competitors (official notices from the race committee, protest committee and measurer);
2. protest notices and protest committee decisions; and
3. race results.

Place the notice board(s) in a location which is readily accessible to the competitors, is well lighted, and close to the regatta office, but place them away from any board where competitors receive personal messages. Keep notice boards away from areas of merchandise sales, telephones, and other distractions.

Posting on the notice board(s) should be restricted to the race committee, protest committee, measurer, and a knowledgeable person from the regatta office. If possible, it should be covered with a clear plexiglass material (glass breaks too easily) so that notices posted cannot be removed by competitors or others.

Volunteer recognition

In small regattas, volunteers are usually drawn from the existing race committee structure, or from friends of those persons assigned to the various organizational subcommittees responsible for coordinating regatta functions. In large regattas, it is sometimes necessary to recruit members of the general public who may not be members of the host club.

In either event, volunteers are asked to devote substantial amounts of their time to the organization and implementation of the regatta. A failure to recognize their efforts tends to diminish their desire to participate on a continuing basis, and increases the need for continual recruitment for other regattas.

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On the other hand, volunteers are usually not particularly demanding. They participate because they enjoy the sailing environment and the opportunity to meet new and interesting people. Introduce them and ask them to stand at any opening ceremony. Be sure to invite them to social functions. If possible, give them a memento of the regatta. Make the volunteers feel welcome and needed. They will return.

Advertising and event categories

Advertising is as closely tied to event sponsorship as it is to sponsorship of competitors. To understand what you can receive from a sponsor, you must understand what you can promise.

In most cases, the class (or the national authority of the competitor racing under a handicap or measurement system) determines what level of advertising will be permitted for all events of that class. The rules that govern advertising are now in ISAF Regulation 20. This means that the advertising rules can be changed whenever ISAF decides to change them. Be sure to check the ISAF Web site, www.sailing.org, for the latest version of Regulation 20, and the class rules, when you are organizing an event.

Event sponsor advertising on boats is also governed by Regulation 20. Regulation 20 also governs advertising on sails, hulls, equipment and clothing. Competitors are required to compete in conformity with the regulation (see rule 80).

Determine the philosophy of the host club

What you can provide depends, in part, upon the philosophy of the host club. If the sponsor wants on-site visibility for its products (for example, signage, automobiles on display in the parking lot, a booth in the club's lobby), and the host club is not willing to provide that type of sponsor fulfillment, you will not only embarrass yourself with the sponsor, but waste your time, by approaching the sponsor. If the host club has a policy against tobacco advertising, why approach a tobacco sponsor?

What is "advertising"?

For purposes of Regulation 20 , "advertising is the name, logo, slogan, description, depiction, a variation or distortion thereof, or any other form of communication that promotes an organization, person, product, service, brand or idea so as to call attention to it or to persuade persons or organizations to buy, approve, or otherwise support it." (ISAF Regulation 20.1). The definition is extremely broad. In essence, any commercial visibility is advertising, even a class logo would constitute advertising.

Advertisements (and anything advertised) are restricted by Regulation 20.2.1 to those which meet "generally accepted moral and ethical standards." This regulation cannot be changed by prescriptions, sailing instructions or class rules (see rule 86.1).

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The terms "generally accepted moral and ethical standards" are not defined. Tobacco products, while controversial in some parts of this country, have generally been considered to be acceptable subjects of advertising for boats and events for adults. So have beer, wine, and spirits.

The advertising categories

There are now only two categories of advertising: A and C. Regulation 20.4 describes how each class' advertising category is determined. Olympic classes are all unrestricted Category C. Other classes may decide to be either A or C; if they make no decision, they default to A. If a class selects Category C, it can decide how much advertising will be permitted (see Regulation 20.4.4). For Category A, the limits are in Regulation 20.3. There are no "national classes" in the US. Regulation 20.5 describes how the category is determined for boats racing under a handicapping or measurement system.

Exceptions to Category C

Regulation 20.4.3 permits the organizing authority, with the approval of the national authority (US SAILING in the United States), to limit advertising to Category A for a class that has decided to permit Category C advertising for "club or invitational events." These terms are defined in Regulation 20.10(d).

Entry fees

Regulation 20.8 says that: "There shall be no variation of entry fees based on the competitor's category of advertising for the boat in which he is competing."

Obtaining sponsorship

As mentioned in Chapter 1, "Objectives, Responsibilities and Authority", as the organization of regattas has become more expensive, yacht clubs and other organizing authorities have tended to seek financial assistance in the form of sponsorship for certain regattas.

Sponsorship helps to offset regatta costs. At the same time, sponsorship does not come free of charge. Companies which sponsor sporting events do so as part of their business, and the event organizer must recognize that fact. Corporate sponsorship is difficult to obtain because of the number of events in various sports competing for the same advertising budgets. The event organizer must understand and be able to explain to the potential sponsor why this event benefits the sponsor's business. If it does not, why approach them?

Each company has a budget for advertising and promotion, and spends a considerable amount of time each year deciding how to spend it. Each company must look at both the cost and the benefit received for the money it spends. Each is subject to criticism by management if the expenditure does not demonstrate a return on the investment.

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As mentioned in Chapter 1, sponsors are not in the business of organizing events. They agree to sponsor events because those events provide the company a particularly good opportunity to promote the company or its products.

As a result, sponsorship takes many forms. When you solicit a potential sponsor, you must know at least four things:
1. what do you want or need;
2. what can the prospective sponsor provide;
3. what are the sponsor's needs; and
4. what can you provide to the sponsor?

Approach sponsors early. Their budgets are usually set one year in advance. If you wait too long, they will either have committed or spent their budgets, or will have little left to assist, no matter how interested they may be.

Determine what you need from the sponsor

Make a list of what you need. Do you need money, or has the club provided you with enough to cover the cost of normal operations? Do you need airfare and hotel rooms for members of an international jury? Do you need computers for race results, word processing, etc.? Printing services for the official program and the notice of race? How about communications (radios, etc.) and navigational equipment (GPS) for the race committee? Fuel for the committee boats? Automobiles for officials and dignitaries to get around? Clothing or souvenirs for the competitors? Trophies? Cash prizes? The list can be seemingly endless.

The key is determining what you should seek from the sponsor. Some items are easily obtained locally or inexpensively. Do not ask a sponsor to provide something for which it perceives it will get little or no value.

Before you contact a prospective sponsor, know how much it will cost you for each service or product for cash. In that way, you know the retail value of what you are asking, and can put in perspective the value you must give away. The printer who is willing to provide your official program, but wants advertising on the boats in exchange for the service, or its logo on the race marks, may not have realistic expectations.

Determine what the sponsor is willing to provide

Sponsors generally provide cash, their own products, promotional items with their name or company logo on them, or all three. Many sponsors are interested in providing their products as part of the sponsorship package, because product visibility is a key to their success.

In-kind donations also allow the sponsor to value the sponsorship package at wholesale or retail value for their own purposes, while their actual cost is manufacturer's cost. As a result, the package the sponsor offers you may look larger than the actual cost to the sponsor, so the sponsor may ask for more benefit (fulfillment) from the regatta organizer.

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There is nothing wrong with that approach—you would otherwise have to pay retail anyway. However, you must compare the cost of fulfilling your commitments to the sponsor with the amount of money you have to provide that fulfillment. If you have received products, but the fulfillment will cost you cash, know where that money will come from.

Can the sponsor provide what you need? If not, why approach it? Save it for another regatta where you need the service or product.

If you need fuel for race committee boats, should you ask someone unconnected with that industry for money? What will the sponsor receive for paying you the money? Is a local automobile dealership interested in providing a trophy for the winner of the first race? Can a local hotel donate the rooms you need for the international jury? If so, why approach a national hotel chain to provide the rooms, and promise event exposure or national advertising opportunities in exchange?

Determine what can you provide to the sponsor

You must also decide what you are willing to offer to the sponsor. Are you willing to offer a "title sponsorship," in which the sponsor's name is included in the title of the event (such as the "AT&T Cotton Bowl")? While this may be an extremely valuable asset of the event, there are serious tax and other consequences to offering such exposure (see below).

The event organizer has, in all events, some opportunity to provide visibility to the sponsor during the regatta. Can you offer on-site banners? Advertising space in the official program? Produce a poster for the event? Include the sponsor's name in the notice of race, or in press releases, etc.? Can you provide advertising space on the competing boats? The organizer must determine what is appropriate for the regatta.

The same is true of placing logos or sponsors' names on racing marks. Some sponsors perceive this to be a valuable opportunity. If there is little or no photographic opportunity during your regatta, the value of this advertising space to the sponsor will be limited.

Can you offer some form of valuable suppliership, such as "Official Timer," "The XYZ Media Center," and so forth? The key is determining what you have of value to offer the sponsor.

Consider offering the sponsor barter, such as an exchange of free advertising in your official program for equipment you need.

Determine what the sponsor needs in return

Find out how the prospective sponsor has promoted itself or its products before. Companies may be interested in on-site visibility, signage, serving or providing its products at parties during the regatta, or offering its products as trophies or prizes. A car dealership may recognize the significance of the demographics of boat racing; people who can afford to buy boats can afford their cars. The same is true of companies selling beverages or food.

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Companies who provide products which are not readily visible to the persons attending the event (such as computers, navigation and communications equipment) are not usually looking for on-site visibility. They may be more interested in off-site advertising opportunities—a photograph of racers, or the race committee, wearing its clothing, watch, or other product, which they can use in an advertising campaign.

They may want the right to display their own product in their own advertisements with the designation "Official Sponsor" or "Official Product" or "Official ..." of the "XYZ Regatta." Still other companies are more interested in on-site venue entertainment opportunities. They want to invite their top salespeople to the regatta venue for a party, or to see the racing.

If you offer the prospective sponsor an opportunity in which it has no interest, you will have no success in committing it to the event. Try to offer the sponsor what it feels it needs for its investment.

Make certain that what you are offering is commensurate with what you are asking the sponsor to provide. If you need race marks, does the company which supplies race marks get enough visibility to make it worth its donation? Or can you achieve a better result from selling advertising space on the race marks to someone who will pay a substantial sum for the opportunity to use the photograph of a champion rounding the mark with the sponsor's name on it?

Define your responsibilities, and those of the sponsor, in writing. Sponsorship contracts protect both parties to the agreement. Where there are multiple sponsors, the potential for conflicts and unrealized expectations on the part of both parties (but particularly the sponsors) arises. Avoid these by specifically defining the relationship. Make certain that the lawyer for the organizing authority is consulted before the contract is prepared or signed.

Tax consequences of sponsorship

The Internal Revenue Service has, generally, taken the position that organizers of sporting events are in the business of organizing sporting events, not selling them to others. The IRS has also made several rulings that companies providing sponsorship revenues to sporting events do not do so from a sense of charity.

The IRS's position, recently, has been that the provision of money or product by commercial companies to sporting events may be taxable to the event organizer as "unrelated business income" (income not related to the business of putting on the sporting event), if the sponsor receives any form of advertising opportunity in return. This can include on-site visibility.

Sailing event organizers have traditionally been volunteers, not professionals, and have not considered the effect of tax. They have generally considered that sponsorship revenues or products are available for use in connection with the regatta. If tax is due on both the value of the products and the money received, it should be included in the regatta organizer's budget.

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In addition, products received may be valued and a tax assessed on the value which the sponsor has attributed to the consideration it gave to obtain advertising or other rights. This has a serious effect upon you, the organizer. You may pay tax on much more than the net cost to the sponsor of what it provided to you.

Before you plan a sponsored event, consult a tax lawyer to determine the possible impact of your planning, then include those consequences in both your budget and your possible approach to a sponsor.

Sponsor fulfillment

A sponsor who feels that it has been treated fairly is more likely to return. One who feels that, for just a little more money, it could have achieved a better position will seriously consider participation in future regattas. But one who feels that it did not receive what was promised, even in spirit, will devote its attention to other opportunities. The event organizer's chance for a continuing relationship will have been ruined. For those reasons, sponsorship fulfillment becomes a major task in sponsored regattas.

Assign a sponsorship fulfillment person. The primary purposes of this person are first, compliance with the contract, and second, sensitivity to the sponsor's perception of how its contribution is treated by the event organizer.

Treat the sponsor as your best friend. Introduce the sponsor, and its representatives, at social functions as your best friend (for example, see below, "Prizegiving"). Spend the time to educate the sponsor about the event, and the significance of its involvement. Treat the sponsor, as well, as your business partner. The effort will be worth your time.

Prizegiving

Poorly planned trophy presentations can be embarrassing for competitors, host, and spectators alike. The sport of sailboat racing has a long and dignified history and there are many traditions associated with it. None is more important than the presentation of trophies at the conclusion of the regatta.

Plan a prizegiving ceremony appropriate to the event

Ideally, the prizegiving should take place as soon as possible after the last race is completed and the competitors have returned to the dock. Attendance will be better, and the competitors will appreciate the opportunity to show their prizes to their friends during and after the ceremony.

However, the more complex the scoring for the regatta, and the less sophisticated the race committee's scoring system, the longer it will take the race committee to provide accurate results. Protest hearings may also cause delays.

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Plan a prizegiving that will occur as soon as practicable after the last race, while giving the race committee and protest committee adequate time to provide the necessary information. Include the awards ceremony in the schedule of events that is published or posted.

If the regatta is limited to local sailors, it is easier to be informal in the method of presentation at the prizegiving. However, where the event is regional, national, or international in scope, plan a prizegiving which fits the dignity of the event, and the efforts which the competitors have made to attend.

Bear in mind that where the competitors have travelled to an event, they have taken additional time to arrive, and will have to spend additional time to return home. They will want to pack up their boats and equipment for the trip home as soon as possible. If the prizegiving is delayed too long, they will simply not attend even if they are entitled to a prize.

Order of presentation

Don't ad-lib. Prepare an outline of how the presentation will proceed. If there are dignitaries who must be recognized, know who they are in advance and introduce them first. Unless there is a very good reason to do so, do not invite them to speak.

Take care of the necessary "thank you" letters and regatta announcements next. Hosting a major regatta takes a lot of planning. So, too, does hosting a small one. Most regattas in the country are planned and executed by volunteer members of the host club or members of its surrounding community and those persons should be thanked for their effort. It is generally enough to introduce the persons responsible for key aspects of the planning and executing of the regatta on behalf of their assistants.

Presenting the prizes

Dress appropriately to establish the degree of decorum or ceremony preferred. While yachting has lost much of its formality, it is not uncommon for the representative of the host club who is in charge of the trophy presentation to wear a coat and tie while presenting the prizes.

The presenter should not be hurried. He or she should be dignified and businesslike, while at the same time adding the sense of "ceremony" appropriate to the occasion. Little in-club jokes are rarely appropriate. Glasses with drinks in them on the trophy table tend to show prominently in the photographs taken by the prize recipient's friends and family, and are not appropriate.

Presentation by sponsors

During the last few years, sponsors have become more involved in hosting regattas. Whether it is a matter of lack of available funds within the host clubs, or simply the fact that the sailors have come to expect more than an individual club can support, sponsorship funds are sought by an increasing number of yacht clubs and other organizing authorities throughout the world.

The coldest winter I ever spent was a summer in San Francisco.
—Mark Twain

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Each sponsor may be looking for a different form of return for its support of a regatta, but every sponsor is looking for some return. Sponsorship is a business proposition. The demographics of the sailing are highly desirable to companies whose products appeal to the "high-end user." On the other hand, sailing is not a high-visibility sport for those who wish wide public appeal.

As a result, two of the most common goals for regatta sponsors are visibility at the racing site (signage, product visibility, and the like) and photographic opportunity—the chance to have the picture of a representative of the sponsor taken presenting the winner with his or her prize.

Be certain to include the sponsor in any prizegiving ceremony. As with any other person involved in the prizegiving, plan the ceremony ahead, so that the sponsor's representative will be prepared for its presentation. Afford the representative an opportunity to make a short speech as part of the ceremony. Make certain that someone is taking photographs of the presentation, and that appropriate copies are provided to the sponsor.

Make the prizes appropriate

Prizes do not have to be elaborate or expensive, but they should be appropriate for the type of sailor who might win one. A wine carafe might be welcomed by an Etchells 22 sailor. It would not be of much use to a 10-year-old Optimist sailor.

Also bear in mind that in some instances, pending protests may affect the persons entitled to receive awards. Coordinate in advance with the race committee, when the sailing instructions are being prepared, so that protest time is short enough after the last race so that it will interfere as little as possible with the appointed time for the prizegiving, but long enough to allow the competitors to file proper protests. Consider limiting, for the last day of the event, the time allowed for requesting reopening a hearing or requesting redress from the protest committee's decisions.

Coordinate with the protest committee or jury, so that it knows which protests may affect the awards, and attempts, if possible, to have those protests heard and determined first.

Promote attendance of the members

Another way to build the importance of the prizegiving ceremony is to ask all of the club members who are on the premises to attend, and to applaud the winners. It is a nice gesture and only takes a few minutes of their time.

Announcing over the club public address system, at intervals of 20, 10, 5, etc. minutes, that the prizegiving will take place at a designated location, and asking club members on the premises to attend, will generate a surprising amount of attendance. It does not hurt to add to the announcement the nature of the regatta and to stress its significance.

A well attended ceremony makes the occasion seem much more significant than if just the winners and a few parents and crew members are there. Do not forget to invite the club's offi-

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cers to attend the ceremony, and if the occasion calls for it, they should be reminded to be in uniform.

To promote attendance, some clubs and fleets plan special after-regatta parties for their prizegivings. Such functions enhance the importance of this traditional ceremony and make receiving an award that much more gratifying,

Be prepared for the prizegiving

The person presenting the prizes should be at the dock when the race committee boat docks — or if the results are being computed ashore, at the room where the results are being computed immediately after the conclusion of the last race.

The race committee should be absolutely certain that the results are correct. It has happened, and it will happen again, that a trophy has been given to the wrong skipper. Few events can be more embarrassing for the club, its officers, its race committee and the prospective recipients.

The presenter should meet with the race committee chairman and the persons completing the race results, to make sure that the results are correct. The presenter should also try to get the original entry forms for those who are to receive trophies, so that he can be certain his information about the competitors is correct.

If the entry form does not include the names of the crew members, the presenter, the race committee chairman, or both, should try to meet with the skippers to whom prizes are to be awarded. Ascertain the names of the crew members, their home towns or clubs. Make certain the presenter can correctly pronounce their names.

It may initially seem like a lot of work to the presenter, and he may not appreciate how positive an impression can be made on the competitor. If the presenter is the "ambassador" for the host club, the club will be held in much greater esteem by the competitors for the effort.

The objective

The prizegiving ceremony should not simply be intended for those few who are to receive the awards that day. It should be designed to encourage others to want to compete, and to hope that, next time, they will be accepting the prizes.

After the regatta

Cleanup

Every subcommittee of the regatta committee should have its own plan for cleanup of its areas of responsibility, and these should be coordinated within the regatta committee to avoid duplication of effort and confusion in such matters as storage. Make certain that you arrange a "walk-through" with the host club, to ensure that all areas have been left in clean and good condition.

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Letters of appreciation

Consider the need to write letters of appreciation to those persons who devoted their time or efforts to the regatta. A letter from the host club, from the regatta chairman, or from the person responsible for coordinating that particular function, on the letterhead of the club or other organizing authority is generally well received.

Develop a list of those persons to whom such letters should be sent. Put them on a database, if possible, so as to eliminate duplicates, and to retain their names and addresses for future events.

Get the letters out promptly—preferably within one week of the conclusion of the regatta. This means, of course, that the letter should be drafted in advance, tailored as necessary during the event, and printed by the conclusion of the regatta.

Letters to competitors

Consider writing letters to competitors thanking them for racing in the event and including a complete scoring breakdown.

Regatta post mortem

There will be mistakes made in the organization of any regatta. Learn from those mistakes, and record the proposed solutions for others.

Hold a meeting of the regatta committee after the conclusion of the event. Ask the committee members to prepare, in advance, a short summary of how their activities were organized, what went right, what went wrong, what solutions are proposed for what went wrong, and how matters could be better coordinated among the subcommittees.

Distribute copies of each report to the various members of the regatta committee in advance of the meeting. Then review the reports at the meeting to determine if there are further suggestions for improvement.

Prepare a final summary which reflects those topics resolved at the meeting, attach the committee's independent summaries, and place the package in a book or file at the host club for future reference. You will be surprised how much information can be quickly and efficiently accumulated.

Before you begin the next racing season, take the best of these ideas and begin to develop an organizational checklist of regatta organization within your own club.

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Bureaucracy defends the status quo long past
the time when the quo has lost its status.
—Laurence J. Peter

Risk Management

3

Scope of the chapter

Basic risk management is the identification, reduction, avoidance (where possible), and transfer of risks. Sailboat racing involves inherent risks as does conducting sailboat races, working with machinery, and operating various types of boats in adverse weather conditions. The management of risks when planning and conducting races encompasses many activities that are, to some extent, treated elsewhere in this handbook.

Certain basic concepts are discussed here. This chapter identifies elements which are either not addressed elsewhere, or bear repeating. Whether some of the subjects treated here are applicable to a particular regatta, race, clinic or instructional class will depend upon the nature of the event—its location, the age and experience of the competitors or attendees, the number and types of competing boats, and so forth. Other subjects discussed here may apply to only a few regattas, but if you need information about them, it might be difficult to find.

Insurance, and other methods of transferring risks of loss, do not directly reduce the risk of physical harm to persons or boats. They are, nevertheless, elements of the management of risk to the organizing authority, host club and race committee, because they help protect those entities from undue financial hardship if a covered claim for damages is made. The subjects of insurance coverage and limitation of liability through waivers and releases are covered in Chapter 4, "Insurance and Legal Issues."

Five basic safety subjects

Safety on and off the water is of paramount importance, and planning should include determining what procedures are necessary for the safe conduct of the racing or clinic events scheduled. Risks attendant to sailboat racing fall into five basic areas:

1. safety of the venue premises;
2. safety of the competing boats;
3. safety of the support boats and equipment;
4. safety of competitors on the water; and
5. safety of race committee and other support personnel on the water.

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The venue premises are the responsibility of the owner of the property (usually the host club) and the event organizers. While the host club is responsible for the maintenance of the premises, the event organizers have responsibilities regarding the venue. First, they are responsible for selecting a regatta location that is appropriate for the event. Second, they have a responsibility to provide a safe environment for the competitors and others (race officials, visitors, guests and press) and to make the competitors aware of any unsafe conditions.

General safety guidelines for club facilities are beyond the scope of this handbook. However, some suggestions for dealing with electrical hazards which may affect competitors and their boats are included below.

Establishing guidelines for the safety of the boats is generally the responsibility of the class association. Using measurement procedures at the regatta venue to determine whether the boats meet their class requirements is usually not done except for major regattas, and then it is to ensure fair competition.

It is not the responsibility of the event organizer to determine that the boats are seaworthy. It is the responsibility of the owner to ensure that the boat complies with both class rules and governmental safety requirements. However, the organizer may have some responsibility to define the rules so that minimum standards are set for carrying safety equipment adequate to meet the conditions anticipated by the organizer. These are discussed in Chapter 1, "Objectives, Responsibilities and Authority".

The race committee does not decide whether a boat should start or continue to race—that is the responsibility of the boat (rule 4).

It is, however, the race committee's responsibility to provide a safe environment for the race. There are various methods for reducing risks which are available to the organizing authority, the host club, and the race committee, and they should do their best to use them.

Electrical hazards

Electrical hazards are a serious consideration in the organization of regattas. On shore they include roadways leading to areas which sailors will use, driveways, yards, parking areas, rigging areas, launching areas and beaches.

Hazards over water include those over any navigable water—across harbors, entrances to harbors, channels, rivers or creeks, and nearby anchorages and beaches. Hazards around docks include power lines facing docks, overhead lines along docks, lighting, and outlets for power to boats.

Identification of electrical hazards

Appoint a knowledgeable person to identify all electrical hazards around the facilities, access ways, and sailing areas to be used. Record and photograph all overhead lines. Include those along

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the boundaries of approach roads, rigging areas, parking areas, and other areas where sailors may be involved in stepping or unstepping masts, or tilting or carrying boats with masts stepped.

Check all areas for height clearances. Remember to account for high water when you are measuring areas where the boat will be afloat. Make absolutely certain that there is adequate clearance for all boats that will be in the area. The sag of power lines changes with temperature, so err on the safe side.

Action to eliminate electrical hazards

Eliminate identified hazards if possible. Ask people within your organization who may have some influence to meet with you and local authorities (your local power supplier, municipal officials, and others involved in the decision-making process) about the need to eliminate them.

Meet with neighboring groups who face common hazards, and enlist their support for a joint effort.

Make presentations to the highest officials possible. Encourage them to survey the hazards. Attend the survey with them, to be certain they understand the details and appreciate the magnitude of the exposure to each hazard. Utilities and municipalities do not necessarily understand boats.

Be prepared to discuss the alternatives for each solution (burying the wires, rerouting them, raising them out of reach, or elimination of the lines). Work with the utility or municipality to show "safe clearance height" at a given water level, including suitable water level indicators near signs located on all power poles in water. Ask that "warning buoys" be strategically located all along the hazard to call attention to it.

Urge the utility or municipality to act immediately. The cost of eliminating the danger will be the same before or after an accident occurs (it is less before, if there is a subsequent suit for injuries or death).

Precautions regarding electrical hazards

As long as any hazard exists:

1. identify and describe each hazard on a chart. Make the chart available to all prospective participants or make sure it a part of the notice of race. Post the chart on the notice board;
2. call attention at organizational and competitors' meetings;
3. mark the hazard with conspicuous signs showing:

   "DANGER" and "SAFE HEIGHT, _____FEET";

4. if the hazard is on the club's property, fence it off to prevent cars, trailers and hand carried boats from getting close to it, and to prevent boats with raised masts from being pushed, trailed or carried under it. Put a beam across the roadway, driveway or launch ramp that is

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not safely below the hazard's height, or add poles and string a safety line on each side, but below the hazard, to intercept a mast before it could come into contact. Paint the driveway under the hazard suitably (for example, with orange or yellow stripes). Spray paint grass or dirt under the hazard. Mark poles and towers with radar reflectors where large offshore boats are involved;

5. if necessary, assign a safety director to act as a "watchdog", or assign a patrol boat, to warn sailors about critical areas during regattas (from when you expect the boats to start arriving to when you have advised the boats to remain clear of the area).

Docks and electricity

Check electrical connections along docks and near ramp areas for proper condition, and make sure that lighting along docks provides adequate illumination.

The National Electrical Code of the National Fire Protection Association has specific regulations regarding wiring and outlets on and serving docks. Contact your local electrical inspector, your insurance underwriter, or a competent local electrical contractor to inspect wiring to and around your docks. Correct any hazards he points out.

Check electrical connections along docks, and near ramp areas for proper condition, and make sure that lighting along docks provides adequate illumination.

Other Hazards

Make certain that launching ramps are in good condition and safe for use. If carpet or nonskid used on the ramps is in poor condition, replace it immediately. Check whether the ramp areas and docks contain nails, rocks, or other items which might constitute a hazard while launching, retrieving, or docking.

Security and accreditation

Security, in general

Security and accreditation involve the same subject: access to facilities, equipment, and people. At events such as the Olympics, the overriding concern may be terrorism. At most regattas, however, the concerns are vandalism, theft and interference with the smooth conduct of the event.

What constitutes adequate security will depend upon the type of regatta and where it is conducted. At private yacht clubs, security is generally confined to the establishment of an outside perimeter (the yacht club premises), and occasional patrols by the club's security personnel. The purpose is limiting of access to reduce vandalism and theft.

For regattas which are held off club premises, or where the boats or boards are stored off premises, some security arrangements may be necessary for the same reasons. This is usually done

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by either establishing a perimeter (such as a fenced-in area) or by patrolling the storage area, or both.

Chapter 2 includes a discussion of the organization of grounds and dock facilities during a regatta, by which boats and trailers, and associated vehicles are assigned specific locations for more effective use of the available premises (see "Grounds coordination"). Such organization should make security measures easier and more effective.

Credentialing, in general

Apart from security, the principal function of credentialing is to identify persons associated with the event for the purpose of controlling access to certain areas or functions. For example, admittance to social functions for specified groups (whether a result of participation in the regatta, or the payment of entry or social fees) can be controlled by some form of credentialing and minimal security. In addition, access to docks can easily be controlled by credentialing, keys, or security.

The more access must be controlled, and only certain types of event-associated personnel admitted, the more intricate both security and credentialing become. Different forms of credentials can be created for easy recognition of categories of personnel (regatta officials, judges, participants, media, visitors, etc.). The question is: Why differentiate?

If the answer is limiting access, determine who will be allowed into a particular area and issue the same type of credential to all who must have access.

Part of credentialing is purely social. Credentialing creates a perception of differential status. Once one person has been issued one form of credential, people who perceive that they are in the same group (or should be) will want the same credential or will want to know why they cannot have it. As a result, credentialing can easily get out of hand, and can create intense pressure upon the person issuing the credentials for little or no reason.

Credentialing plans

If you intend to use credentials, first determine what the reason for them truly is. Itemize each function or sector for which a credential will be required, and identify the categories of people who will need access. There is usually no purpose for differentiating regatta officials from protest committee members or race committee members, other than for instant social recognition.

Likewise, there is usually no purpose for issuing different types of credentials to participants, team leaders and coaches. On the other hand, there may be good reasons to credential media personnel, or only some of them who will have access while others will not. You may have room on a boat for a limited number of media people. If the local social writer's credential keeps a boating writer from covering the race, you have defects in your access system.

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Set standards for who will be accredited, and adhere to them unless it is clear that there has been an oversight in planning. A credential issued to a protest committee member to allow her access to a boat or to a party does not necessarily entitle her husband to a credential. The protest committee member's credential may be used to allow access to the party for both of them.

If access is truly a concern, adopt a "day list" system in addition to credentialing. The credential gives the bearer the right to be listed on relevant days or for particular occasions. The day list determines whether the person is given access that day (or for that occasion). For example, race committee personnel may be invited to all social functions, but may not be scheduled to work every day. The credential admits them to the social function. The day list gives them access to the race operations area on the day they are scheduled, but not otherwise. Such a system can substantially reduce the possibility of theft where access brings many persons in contact with expensive equipment or with desirable regatta-oriented paraphernalia.

Where access concerns are social, credentials can be very simple. The traditional yacht club "guest card" or something similar is usually adequate. Media usually carry their own press credentials. Where the only concern is to identify media, accept their credentials. Where the concern is to limit media access, use a "day list" system.

If access control requires better identification, a second step is a laminated card with a photograph. Truly sectorized regattas use a far more complex system of colors, numbers, or magnetic strips.

Liability

The organizer must work with the host club to determine where responsibilities lie. If event organizers make changes to the premises (erecting a stage, sound system or dance floor, exhibitors or sponsors' booths, the use of caterers, celebrities, temporary docks or moorings) it is likely that the host club will deny responsibility relating to the changes. If there is an incident, the injured party will no doubt file a claim against both the organizers and the host club. It is better to decide ahead of time who will be responsible.

There are many aspects of a large regatta that may involve contracts between the organizers and the host club, caterers, food service, sponsors, and other vendors. The event organizers should set up a procedure for reviewing and approving all contracts. Particular attention should be paid to the contractual liability (waivers, hold harmless and indemnity agreements) and insurance provisions. Contracts with caterers, bartenders, providers of alcoholic beverages, entertainment, facilities rental and so on should assign legal responsibility or liability to the appropriate party. An insurance professional, experienced in contract review, should review all contracts. If possible this should be the insurance professional who is providing the insurance policies covering the event.

You can't have everything.
Where would you put it?
—Steven Wright

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Another big concern should be liquor liability. In some states, the risk of being held responsible for the actions of an intoxicated person is nil and in other states it is very high. Event organizers and venues need to know the laws in the state(s) where their event will be held and take the appropriate action. Even if the state does not hold the organizers responsible, there is a "moral" responsibility to minimize the chance of an incident. Even without legal responsibility, the resultant bad publicity for an incident could do irreparable harm to the host club, class association and event organizers.

Equipment and firearms

This handbook contains an entire chapter on race committee equipment (Chapter 8). It suggests procedures for equipment checks on race days. Basic equipment checklists are also included in the chapter. Considerations when operating boat hoists are covered in Chapter 2, "Organizing the event".

The need for training in the proper use of firearms by race committees is of the utmost importance. This handbook is not intended to include a course in proper firearms safety (check your local area for the availability of such courses). It is sufficient here to say that there have been far too many incidents where one member of the race committee has accidentally shot someone else.

The principal race officer should make certain that the person who is to act as the gunner is thoroughly versed in firearm safety before he or she is assigned to the task. Other persons aboard should not be allowed to use guns unless the race officer knows that they are equally well trained.

Shotguns are safer than cannons because shotguns can easily be fired straight up. Double barreled shotguns are less likely to jam than pump models. But even an inexpensive single shot model will work better and more safely than a cannon.

Saluting cannons perform satisfactorily if kept in good condition. However, for starting fleets where a competitor may forge up alongside the signal boat, cannons may be dangerous. The gunner may accidentally fire towards the competitor, or his crew or sails.

Some clubs use a pair of cannons mounted side by side on a board so the gunner can hold a lanyard in each hand. If a cannon is used, it must be secured so that if it is fired accidentally no one will be hurt, and so that the discharge from its muzzle is dissipated by a shield. Consult an expert in firearms about the design and location of both. Do not forget a rammer for ejecting shells in case the mechanical ejector fails.

Never carry live ammunition on board.

Guns must be cleaned after each day's use. This is especially important if using black powder blanks because they are corrosive.

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Boats

Another aspect of risk management is the control of boats associated with the conduct of the race. Race committee work places demands upon boats and personnel for experience which the general boating population may not possess. The right to control the boat becomes a factor in ensuring the safety of those on board during the racing. Chapter 4, "Insurance and Legal Issues," addresses this issue.

Similarly, the presence of nonworking guests on board race committee boats, whether they are simply visitors, or are photographers or other members of the press, involves legal issues concerning their status. Chapter 4, "Insurance and Legal Issues", discusses those concerns. A related consideration is the ownership of the boats associated with the conduct of the race. See Chapter 4 for that discussion, as well.

Weather considerations

The decision whether to send a fleet out in heavy weather conditions, or to abandon a race in progress when conditions have worsened, is difficult and requires experience, judgment and sensitivity. Though all race committee personnel must take seriously the possibility of injury to people or property, each competitor must decide for himself when to race.

The availability, use, and limitations of weather forecasts are discussed in Chapter 9, "Race Day".

Whether to start, postpone, or abandon prior to the start are all discussed in Chapter 11, "The Start". Whether to abandon or shorten the course during the race due to foul weather is discussed in Chapter 12, "The Race".

In deciding to postpone, shorten, or abandon for foul weather, the race committee's job is to exercise good judgment, not win a popularity contest. Make your decisions based on consideration of all competitors, especially the least experienced or least capable competitors. Don't worry if conditions moderate later and make you look overcautious. Your concern is the safety of participants.

Consider devising safety guidelines for when a race will not be started, covering such subjects as maximum wind speed, sea conditions, and lightning in the area. Be realistic; a formula which allows a race to start in 40 knots of wind because the water is flat is not realistic.

Consider the circumstances under which life jackets should be required. See Chapter 9, "Race Day", for a discussion regarding the race committee's use of flag "Y" ashore or afloat.

For offshore races, or at times of the year when foul weather is likely, the sailing instructions should provide a special telephone number which competitors may call to determine whether the race is postponed, and obtain details of the race committee's intentions. In offshore events,

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where boats carry radios, announcements by radio may be used to communicate notice of a postponement. In Appendix L, the Sailing Instructions Guide, such a sailing instruction would be added to Instruction 4, "Signals Made Ashore."

Communications

Good communications are critical in obtaining information about weather conditions, accounting for competitors, coordinating activities of patrol and rescue craft, and contacting the Coast Guard or other authorities in an emergency. Communications equipment is discussed in Chapter 8, "Race Committee Equipment." Communications checks, including roll calls, are discussed in Chapter 9, "Race Day."

Accounting for competitors

One of the keys to managing risks on the water is knowing who is on the water and approximately where they can be found. This is particularly important in classes that are not self-rescuing, in single-handed classes, and when dealing with young or inexperienced competitors. Competitors can be accounted for in several ways.

The sailing instructions can require that each skipper collect a tally from the official notice board or regatta office, and return it within a specified time after the last finish each day for the boat to be scored as a competing boat for that day's races.

"Check-in" systems are described in Chapter 11, "The Start". It has several variations: with and without entry lists; with and without class eligibility lists; radio check-in (and checkout when withdrawing or if broken down); check-in before or at the starting line; etc.

Accounting for competitors immediately after the start and observing the course during the race, by use of support boats, lead boats, stake (or mark) boats, and mark-set boats, are covered in Chapter 12.

Accounting for finishers and monitoring the progress of competitors returning to shore are also covered in Chapter 12.

Crisis management

A crisis management plan is a plan for how the organizers will deal with any type of crisis—a medical emergency, serious injury or death, severe weather conditions, theft or any other adverse situation. It details how to obtain medical assistance, how to contact the Coast Guard if required and where to take injured people. It outlines how the organizers will deal with the media, who will be the spokesman, what message should be conveyed, and who should be informed. A crisis management plan, once prepared, probably will need only minor changes for subsequent events at the same location. Additionally, the venue should have an adequate

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medical kit and a portable defibrillator with personnel trained to use them properly on hand at the event site.

Rescue plan

In some events it is desirable, or even necessary, to have rescue boats to assist capsized or disabled boats. Inflatable rubber boats are ideal since they have low freeboard, can come alongside without causing damage, and are quick and maneuverable. In open water, rubber boats operate from a lead rescue boat which contains necessary facilities and supplies for all other support boats and for the competitors in the event. The inflatable boats, and their equipment, are discussed in Chapter 8, "Race Committee Equipment."

The need for rescue boats depends upon the size of the competing boats, whether they are single-handed, and the age and experience level of the competitors. For school sailing and inshore boats, the Interscholastic Sailing Association ("ISSA") recommends one rescue boat for each ten participants.

Each rescue boat should have a capable operator and at least one knowledgeable crew member aboard (two are suggested for larger regattas). The crew members should be at least 16 years of age and good swimmers, have a working knowledge of rescue operations, be experienced in the operation of both motor boats and sailboats, and, preferably, be racing sailors.

The lead rescue boat should have, in addition, at least one person knowledgeable in first aid (a doctor should be considered), and one additional person to assist with line handling and any other task.

The person in charge of rescue operations (sometimes called the "rescue chief") should ordinarily be aboard the lead rescue boat to coordinate rescue plans and give directions to all rescue boats. He or she should, if a need to rescue arises, keep the race officer advised of the status of the rescue.

The rescue chief should also be responsible for all planning and logistics for the rescue boat operations. Those aspects of planning mentioned in Chapter 2, "Organizing The Event", Chapter 8, "Race Committee Equipment" and Chapter 9, "Race Day" are equally applicable to the rescue chief. The rescue chief should attend all race committee briefings, and conduct his or her own briefing thereafter with rescue personnel, so that each day's plan is coordinated.

The concept of a rescue plan is to observe the competing boats for possible injury or distress, from the time they leave the dock until they return, and to respond quickly and effectively to emergencies.

An accepted method is to divide the rescue boats into thirds before they leave the dock, and assign each a sector to patrol during transit to the racing area, during the race, and while returning to shore.

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On the way to the course, each group is attached to one third of the fleet of competitors (front one-third, middle one-third and last one-third), and accompanies that portion of the fleet to the racing area. The rescue boats remain to leeward of the fleet, and direct any participant who wanders too far from the fleet.

At the warning signal, all rescue boats are stationed to leeward of the starting area. Some plans call for them to be grouped around the lead rescue boat. Others separate them parallel to the starting line, to respond in case of an accident during the pre-start maneuvering.

After the start, for a traditional triangular course with marks to port, the rescue boats are again divided into three groups. One third, usually on the right, follows to leeward of the competing boats until two-thirds or more of the way to the weather mark, then clears the fleet and proceeds to the weather mark to assist with any incidents at the mark.

The second one-third, usually on the left, follows the competing boats approximately two thirds of the way to the weather mark, then proceeds toward the reach mark, to render assistance at the completion of the second leg of the course.

The final one-third (usually in the middle) accompanies the fleet to near the windward mark, then spreads itself along and to leeward of the first reaching leg, to assist during that leg.

As the boats round the reaching mark, the second (reach mark) group, follows the competing boats, to leeward of the reach, and is joined by the first group from the windward mark. The middle group proceeds, clear of the competing boats, to the leeward mark to begin the process again.

In another approach, rescue boats proceed along the laylines (to leeward on a windward leg, to windward on a downwind leg), and respond into the course when necessary.

After the finish, each group of rescue boats again assumes observation of one third of the fleet transiting back to the starting line for another race or for the return to shore.

Except for extremely good reasons (such as life-threatening injury), the lead rescue boat should be the last to depart the racing area and the last to return to shore.

In case of limited visibility, or if a competitor is missing, the rescue chief and his or her personnel, in conjunction with all available race committee personnel, should organize and conduct the search. As necessary, bring into the search the Coast Guard or other officials.

As mentioned in Chapter 12, "The Race", the priority is to save lives, not boats. Drifting boats can later be picked up at the leeward end of the course and attached to the start mark or the leeward mark, or a separate buoy set for the purpose of tethering the boats.

The rescue boats should tow all disabled boats ashore at one time following the completion of the race(s).

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After the day's races, follow the procedures for cleanup and preparation for the next day; see Chapter 9, "Race Day".

Confirm the arrival of all the participants and rescue boats with the race officer .

Crowd control

Most regattas do not require detailed crowd control plans. A very basic discussion of crowd control at the championship level is contained in Chapter 12, "The Race".

If you require more, you will probably have to deal not only with surface crowd control, but with media control.

Crowd control plans can be divided into access groups: photographic media, television camera boats, print media, general spectators and coach/support boats. Crowd control plans vary with the event and the number of spectators and other craft anticipated. Some also include navigable channel restrictions, communications requirements, briefing requirements, access agreements, and the like. Only very complex events require this.

Medical

As noted above, the risk of injury is inherent in sailboat racing. It is generally incumbent upon the sailors to deal with injuries aboard their boats. However, for certain regattas, especially those where young, inexperienced sailors are competing, it is important to have some form of first aid available.

The rescue plan mentioned above assumes the availability of first aid aboard the lead rescue boat. If a doctor is not available, a person knowledgeable in first aid is recommended.

Consider whether you need to provide a method for dealing with serious injuries on the water. In venues where heavy air is common, the chance of injury is increased.

Make certain that your regatta planning includes a list of local hospitals offering emergency services, local physicians in various specialties, and the numbers of local ambulance services.

Skin protection has become a serious concern. Use sun block or other skin protection. Wear hats and sunglasses where appropriate. Encourage others to do so as well. Dermatologists or the local branch of the American Cancer Society may be willing to provide free samples of sunscreen products.

In addition, hypothermia is a significant concern in boat racing. Operators of rescue boats should be alert to the signs and know the treatment of this potentially fatal condition.

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Hurricane preparedness plan

The Landings Yacht Club (Savannah, Georgia) Hurricane Preparedness Plan is a comprehensive plan for actions developed jointly with management and a committee of volunteer members providing input. The plan's actions will be implemented by TLYC's management triggered by preset storm criteria. Initial actions commence ninety-six hours ahead of predicted storm landfall.

The plan is intended to prepare the marina facilities for the impact of severe weather and to assist members in protecting their boats and equipment. Even with the full implementation of the plan, there is no guarantee of the safety of your vessel. The plan's execution demands the full cooperation of boat owners and the help of many volunteers as well.

This plan can be used as a model for any club or marina in hurricane-prone areas.

Plan summary

Phase I — Alert (96 to 72 hours to landfall)

Management will activate a Hurricane Alert approximately 96 hours prior to landfall based on the decision of the Hurricane Committee who will monitor the severity and track the storm. A Communication Center will be established at TLYC's Delegal Creek Marina offices and will serve as the message center during pre-storm preparations. All information, evacuation orders, etc. will be disbursed from the Communication Center. TLYC personnel will monitor VHF channels 16 and 68 as usual. TLYC personnel will attempt to contact all wet slip captains or alternates early in Phase I. Only two attempts will be made. Please keep TLYC informed of your whereabouts.

Phase II — Watch (72 to 24 hours to landfall)

Evacuation orders will be given early in Watch Phase, and shuttle schedules will be established and communicated to captains for return from selected anchorages. Deadline for forklift movements at Landings Harbor will be set at approximately T-48 hours to allow tie-down to commence. Marinas will be closed to spectator traffic as facility preparations proceed

Phase III — Warning (24 hours to landfall)

Marina slips should be empty by this time and secured. TLYC personnel will no longer be available as they will evacuate in accordance with current Emergency Management Agency instructions.

Hurricane and tropical storm guidelines

TLYC's comprehensive insurance does not include coverage for your vessel should it be damaged on our premises by high winds or storm surge.

As severe weather approaches, early action in evacuation of wet slip vessels and/or tying down dry rack boats is essential. No boats will be removed from dry rack storage after tie-down proce-

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dures have started. If the owner of a wet slip boat or designated alternate captain fails to evacuate, the Club will take whatever action is necessary to remove the vessel. In preparing for severe weather, it is the Club's intention to limit damage to facilities and vessels and to protect life and limb in so far as possible. When major storms approach rapidly our efforts may or may not be adequate, but must be completed quickly in order to give personnel time to evacuate the island.

Boats in dry racks

If your boat cannot be removed and taken to a secure location:

- Remove all canvas;
- Secure or remove all loose objects, remove drain plug(s);
- Remove or disconnect battery;
- All preparations must be completed before tie-down order is given.

Boats in wet slips

- Upon evacuation order — remove your boat to a sheltered anchorage of your choice.
- Anchor lines should be of adequate length (several hundred feet per line) and sized to your vessel.
- Chafing gear should be rigged at all wear points.
- Adequate fenders should be rigged to help protect you from other vessels.
- Anchors should be oversized and set in such a way as to secure your vessel in all directions. Should you tie to trees along creek banks, be sure that they are alive and well rooted.
- Storm tides and surge may well reach heights of ten to twenty feet above normal. When securing lines to fixed objects and estimating anchor line scope, be sure to consider these factors.
- Strip your boat of all movable objects, i.e.: canvas, sails, dinghies, antennas, cushions. Lash down tillers, wheels, booms, etc.
- Seal all openings with duct tape. Make the vessel as watertight as possible. Clear scuppers and make sure they are functional.
- Fuel tanks should be kept full during hurricane season.
- Radio equipment suitable for communications and receipt of NOAA weather reports should be at the ready with batteries fully charged. Hand-held VHF radios are ideal.
- Leave early for your preferred anchorage. Anchor in such a way as to leave free passage for vessels wishing to go further inshore. An area chart is available from the Club showing some of the possible anchorages.
- Do not stay on board! Even small hurricanes have sustained winds of seventy-five miles per hour, and may have gusts in excess of one hundred miles per hour, which would easily blow anyone off the deck. Seek safe shelter ashore.
- Be prepared and keep us informed! Wet slip boaters should reevaluate their personal preparedness each summer in anticipation of the annual hurricane season (June through October).
- Notify management in writing of any changes in your insurance coverage, alternate captain and evacuation readiness.

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- Owner shall be responsible for damage caused by his boat in dock, flats or other TLYC facilities.
- Owner is fully responsible for safety of boat. However, in the absence of Owner, TLYC is authorized to take any and all measures it may consider necessary in its sole discretion to save the boat including, but not limited to, removal to a more protective harbor, in the case of a boat in dry storage, tying it down. Costs incurred by such service shall be borne by the Owner. TLYC assumes no obligation to move a boat in the event of dangerous weather conditions. Please refer to the attached Hurricane Guidelines for instructions in the event of a hurricane or tropical storm.

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Diplomacy is the art of saying 'Nice doggie' until you can find a rock.
—Will Rogers

4 Insurance and Legal Issues

Insurance

US SAILING believes that knowing, understanding and appreciating the inherent risks of the sport enables race organizers and officials, sailing venues, and sailors to respond appropriately to the dangers and hazards of sailing. Insurance is one method of addressing some of sailing's risks by transferring some, if not all, of the risk of loss to the insurance company.

US SAILING has endorsed insurance programs for the benefit of its members. These include insurance protection for race organizers, sailing schools, yacht clubs, and many one-design classes. In this handbook we will focus on protection for the race organizers and officials.

Breadth of coverage, pricing, financial stability and marine specialization are all important criteria to assess when developing an insurance program for your organization. Marine insurance is a specialized area with its own unique risks. *Standard insurance forms provide inadequate protection*. US SAILING, in partnership with Gowrie, Barden & Brett and Chubb, have developed a range of insurance options that address the full scope of sailing exposures. Collectively these coverages are referred to as The Burgee Program™.

The US SAILING endorsed programs offer the following protection for race organizers and officials:

- Regatta Liability
- General Liability
- Hull and P & I (liability)
- Borrowed Boat Insurance
- Directors' & Officers, Insurance
- Liquor Liability.

Regatta liability insurance

The regatta liability policy protects the sponsoring organization, officers, directors, race committee members, judges, umpires and other officials for claims arising from bodily injuries occurring to participants in a regatta. The injury must take place on the water and in conjunc-

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tion with the running of a race. Regatta liability does not cover injuries aboard boats owned or borrowed by the race organizer. That coverage is available as part of the hull and P & I policy.

Governmental divisions (park districts, water control boards, cities, states, etc.) can be added to this policy as additional insureds.

General liability

Although most race organizers believe the biggest risks are on the water, claim history shows that the predominance of injuries occur on land in conjunction with the running of a regatta. General liability protects the race organizers from bodily injury or property damage arising out of their operations ashore anywhere in the world. This protection is not limited to the running of races, but for all activities that the organizers may be involved in throughout the year. This could include award banquets, après-race parties, or the hauling and launching of boats.

Hull and P & I

Hull insurance is available to protect the race organizers from damage to boats they own. Protection and indemnity (P & I) protects the race organizer for bodily injury or property damage arising out of the operation of a boat they own, including bodily injury to persons on board.

Borrowed/chartered boat Insurance

If a race organizer borrows or charters boats (sail or power under 85 feet) for use in running regattas, these boats are covered for hull and P & I, just as thought the boat were owned.

Directors and officers liability

A racing organization's directors and officers are accountable for administering the event safely and within the race charter. What happens when an applicant sues the club officers for discriminatory admission practices? What happens if the officers fail to enforce the liability insurance standards stated in a notice of race? A directors and officers liability policy ensures that the officers are protected from liabilities assumed in the course of managing their organization. D & O does not protect the directors and officers from bodily injury claims, as this coverage is afforded by the general liability policy and P&I policy.

Liquor liability

If the race organizer serves alcohol, whether it is a cash bar or a free keg of beer, it is exposed to potential liquor liability claims. These claims usually arise from an intoxicated person leaving the regatta site and being involved in an accident. Liquor liability coverage is available.

US SAILING corporate insurance program

The various insurance policies issued by Chubb to protect US SAILING for its operations are extended to cover certain certified people (CP's). US SAILING certified instructors, judges, race officers and umpires are included as named insureds.

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There are actually four policies where CP's are named:
1. General liability (bodily injury and property damage on land including personal injury)
2. Hull and protection & indemnity (liability for the operation of a boat)
3. Umbrella (excess liability over the two above policies)
4. Director's and officer's liability (liability for wrongful acts).

The general liability policy pays for sums US SAILING (or the CP if named personally in the lawsuit) becomes legally obligated to pay for bodily injury or property damage caused by the CP performing duties for US SAILING anywhere in the world. "Bodily injury means physical injury, sickness or disease sustained by a person, including resulting death, humiliation, mental anguish, mental injury or shock at any time. All such loss shall be deemed to occur at the time of the physical injury, sickness or disease that caused it." The cost to defend the lawsuits is in addition to the per occurrence limit. Each policy has a $1,000,000 limit per occurrence.

There is also protection for personal injury claims. This protects the CP from lawsuits "arising from alleged libel, slander, defamation of character, false arrest, and wrongful eviction." Included are claims for "discrimination, harassment or segregation based on a person's age, color, national origin, race religion, sex, or sexual orientation." It is important to note, however, that there is no coverage if the personal injury is either "expected or intended."

The protection and indemnity policy pays for sums US SAILING (or the CP if named personally in the lawsuit) becomes legally obligated to pay for bodily injury or property damage caused by the operation of a boat up to 85 feet. It also includes primary hull insurance up to the value of the boat. This would include boats owned, chartered, or borrowed by US SAILING. The P&I policy also carries a $1,000,000 limit per occurrence and applies anywhere in the world. If the boat used by the CP is borrowed or chartered by a yacht club (or similar entity hosting the event), there may be primary insurance provided by the yacht club. NOTE: If the yacht club is insured in the Burgee Program, the coverage is automatic for borrowed boats, and a CP would meet the definition of insured because the CP is a volunteer of the club. This is a good thing, as it may provide another source of coverage for the CP.

The umbrella policy carries a $10,000,000 limit which works in excess of the above underlying policies.

The directors and officers liability policy protects US SAILING (or the CP if named personally in the lawsuit) for damages (not bodily injury or property damage) from wrongful acts committed by the CP. Wrongful act means: "any error, misstatement, misleading statement, act, omission, neglect, or breach of duty committed, attempted, or allegedly committed or attempted by any insured person in his or her capacity as such."

There is a $5,000,000 limit on the D & O policy which includes defense costs.

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CPs might ask, "What other insurance protection might be available to me personally beyond what US SAILING offers?" Sailing venues and organizations that carry insurance might ask, "Which insurance policy is primary and responds first?" There are several possible answers:

1. If there is no insurance carried by the venue or organization where the event is being held and the CP is a non-paid volunteer, the US SAILING insurance covers him or her for occurrences while performing his or her duties.
2. If there is insurance carried by the venue or organization where the event is being held and the CP is a non-paid volunteer, the venue or organization's coverage is primary and the US SAILING coverage is excess over the venue or organization's coverage.
3. However, if the event being held is sanctioned by US SAILING such as the ladder events leading to US SAILING national championships, the coverage of US SAILING is primary, and that of the venue or organization is excess over US SAILING's coverage.
4. If the CP has a so-called personal umbrella policy, it may protect him for his activities on behalf of a not-for-profit organization.

The insurance that provides for certified people is quite adequate, but they may find comfort knowing that there may also be other coverage available for their volunteer efforts.

ONE DESIGN™ Insurance

US SAILING has endorsed a unique One-Design Insurance Program for racing sailors and their boats. This cost-effective program covers one-design classes that are designed for inshore racing and have no auxiliary power. Currently, all 10 Olympic-class boats and many additional classes are covered in the program, with more classes to be added.

The extensive and comprehensive coverage includes various aspects that are important to sailors. The program offers:

- racing coverage,
- worldwide coverage or in the U.S. only,
- coverage for overland transportation (trailering),
- charter coverage (if the owner charters the boat included in the policy, as well as if the owner charters a different boat of the same class),
- coverage provided by an insurance provider that has the highest possible rating, A++, by A.M. Best.

Sailors often rely on their homeowners policies for their boat coverage, not knowing that these policies contain many restrictions. Often the limits of liability are insufficient to cover the requirements posted in the Notice of Race. The one-design insurance program meets the specific needs of the one-design sailboat owners.

For more information about US SAILING's new one-design boat insurance program, visit www.ussailing.org, call Gowrie, Barden & Brett at 1-800-BOAT-911, or e-mail one-design@gowrie.com.

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Safety at Sea organizers

As a Safety At Sea organizing authority, US SAILING requires you to furnish a certificate of insurance showing general liability with $1,000,000 limits for bodily injury and property damage. If on-the-water demonstration is part of the seminar, appropriate marine liability of $1,000,000 is a requirement as well.

US SAILING does provide liability protection specifically for the moderators of the seminar.

If you are already insured in The Burgee Program™ (the insurance program endorsed by US SAILING for sailing organizations), liability coverage for the seminar will be automatic. If you would like information regarding this program, or if you have insurance questions regarding these requirements, please contact Gowrie, Barden & Brett at 1-800-262-8911.

Applications for insurance

Applications for the US SAILING insurance programs can be found and downloaded from the US SAILING website, www.ussailing.org.

The information contained in these paragraphs is advisory only. For detailed information concerning the US SAILING endorsed insurance programs call Gowrie, Barden & Brett, Inc. at 1-800-BOAT-911.

Legal Issues

Legal issues in the context of a sailing regatta or races include the method by which those involved divide or assign the responsibility for damages and/or injuries among themselves. While no one wants to be responsible for claims, time spent in lawsuits or being charged with negligence, a reasonable division of responsibilities must be defined. This section will undertake to do so.

Although some people believe that each person should be responsible for his own actions, insure himself against any possible claims and/or judgements and not require any exculpatory releases or waivers, there is a list of documents that might be used and protections that are available to regatta participants (competitors, organizers , volunteers, etc.), on the Legal Committee's section of the US SAILING Web site, http://www.ussailing.org/legal/. Click on "Risk Matrix".

The parties to a regatta generally include:

1. the hosts (may be a single yacht club or may include a sponsor, boat class, or other organizations);
2. the persons who conduct and carry out the event (race officers, judges, measurers and other support personnel);
3. the competitors (boat owners and crew).

Spectators and the press may constitute a fourth group which is discussed later in this chapter. Groups 1 and 2 generally are, or should be, covered by the same insurance and documents.

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In general, in dividing the legal liabilities among the parties, the idea of fairness and reasonableness comes into effect. Most of the parties are members or may be members of US SAILING, so the division here weighs the interests of all. There are three legal clauses or defenses which should not be required by the host(s) in their documents:
1. indemnity clauses, including the "hold harmless" words;
2. assumtion of risk clauses; and
3. unlimited waivers or releases.

Indemnity clauses

When a host club has made it a policy not to use them, a written statement to that effect should be given to all event chairmen so that people new to organizing will not reinstitute them by mistake. Basically, indemnity clauses are a contractual obligation on the person(s) signing them without the benefit of their insurance (covering negligence). The indemnity requires the signer (for example, a boatowner) to reimburse the beneficiary (for example, the host club and its volunteers) for all expenses and claims against the beneficiary, from his own assets, even if his boat was in a collision for which he was not at fault! US SAILING has taken a clear position that such indemnity agreements constitute an unreasonable restraint of competitors to compete, and should not be used. They are also discriminatory in that persons with assets and insurance must pay while those with few or no assets (perhaps even the person who is at fault) will be unable to make the indemnity beneficiary whole.

Assumption of risk clauses

In these, a competitor is required to assume the risks of competition which may be all right if limited to the host club and volunteers only (see rule 4, "Decision to Race"). In some cases, such clauses have been misapplied so as to include competitors. In one case, a claim and lawsuit was dismissed even though the right-of-way boat was damaged and the owner injured. A US SAILING prescription to RRS 68, "Damages", states that a boat "… shall not be governed by the legal doctrine of 'assumption of risk' for monetary damages resulting from contact with other boats."

Unlimited waivers and releases

While waivers and releases are a staple of race registration documents, too many cover all matters although they may not relate to the on the water events being hosted. For example: suppose a boat has finished racing, is on its trailer and leaving the host premises when it is struck by a car driven by the commodore of the host club and sustains damage. Should not the commodore (or his insurer) be responsible for the damage? The boat was there for the race but the damage had nothing to do with the race. The burden should fall upon the negligent party.

Recommended exculpatory clauses

There are clauses which may be used to protect the host(s) and volunteers. They include:
1. limited waivers;

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2. limited releases; and
3. covenants not to sue.

These clauses, doctrines of law, etc. provide good balance in the assignment of legal liabilities which then may be addressed by appropriate insurance coverages, acceptance of reasonable risks and/or proper activities by the host and its volunteers.

Limited waivers and releases

The words "waive and release" are frequently used interchangeably. The reason for them is to protect the host club and its workers (paid and volunteer) against those activities over which they have little or no control during the actual racing without requiring boat owners and crew to give up all rights in order to race.

Covenant not to sue

This kind of clause gives the host club and its workers most of the benefits of an indemnity provision without the unacceptable indemnities too often required. In such covenant (contract or term of agreement), the signor agrees not to sue for those obligations undertaken by him/her or properly his/her responsibility, and covenants (agrees) that if he/she does sue, he/she will reimburse and pay to the beneficiary of that clause, all of that beneficiary's expenses including legal fees and any judgement arising out of such lawsuit.

Sample waiver, release and covenant not to sue

Figure 3.1, is an example of a limited waiver, release and covenant not to sue. *It is printed here with a warning that you should not use it unless a local and knowledgeable sailing attorney has approved it and deemed it enforceable in your state.*

Luck is what happens when preparation meets opportunity.
—Darrel Royal

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Figure 3.1

THIS AGREEMENT CONTAINS A RELEASE AND WAIVER
READ FIRST

RELEASE, WAIVER AND COVENANT NOT TO SUE.

The undersigned acknowledges that in consideration of the efforts of the host organization(s), for being allowed to participate in this regatta/races and the acceptance of this application to race, HE DOES HEREBY WAIVE AND RELEASE ANY AND ALL CLAIMS THE UNDERSIGNED MAY HAVE AGAINST THE HOST(S), ITS OFFICERS, DIRECTORS, OR TRUSTEES AND ITS COMMITTEE MEMBERS, MEASURERS, JUDGES, AGENTS AND REPRESENTATIVES ARISING OUT OF THE ACTIVITIES REQUIRED FOR THE RACES ON THE WATER, AND DOES FURTHER COVENANT AND AGREE NOT TO SUE OR TO BRING ANY CLAIM OR CLAIMS OF ANY NATURE WHATSOEVER AGAINST THE HOST ORGANIZATION(S) OR ANY OF THE PERSONS AND OFFICES NAMED, OR UNNAMED, ABOVE WHO MAY BE ACTING ON THE HOST(S)' OR ITS/THEIR BEHALF.

SIGNED: _____ DATE_____

Notes:

1. Conform the paragraph, if numbered, and the name of the regatta/races to the form of your registration form.
2. It is impossible to draft a form that will be enforceable in all fifty states and territories. Some states (e.g. California) may require a reference to a statute for it to be valid. Others may have similar requirements.
3. Laws generally require that notice of the above obligations be set off so that anyone signing the document will have his attention called to the special content of such language. For that reason, the heading should be in bold capital letters. The actual restrictions should also be in bold face and even larger type. Capital letters are desirable.

If you don't know where you are going,
you will wind up somewhere else!
—Yogi Berra

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Chartering and "passengers for hire" issues

In general

Chartering boats for race committee work is not uncommon. Nor is it uncommon to invite a regatta sponsor's representative on board a spectator boat to observe the races. Both activities involve certain risks and difficulties with which the host club or race organizer should be familiar. Although the two issues are technically distinct, the laws on carrying "passengers" are closely linked to those associated with chartering vessels, so the two are discussed together.

"Passengers for hire" vs. guests

Much of the difficulty arises from the use of boats to carry spectators, the press and sponsors. The reasons are the definitions of a "passenger for hire" and "consideration" under federal laws. The laws require vessels of certain tonnage, carrying a certain number of "passengers" or "passengers for hire" to be inspected by the United States Coast Guard.

Under the Passenger Vessel Safety Act of 1993 a "passenger" is any person, other than the owner or crew, and a "passenger for hire" is anyone who has contributed consideration for carriage on board. "Consideration" means an "economic benefit, inducement, right or profit, including pecuniary payment accruing to an individual, person or entity, but not including a voluntary sharing of the actual expenses of the voyage by monetary contribution or donation of fuel, food, beverage or other supplies."

The number of passengers you are allowed to carry without being an inspected vessel depends upon tonnage (more or less than 100 gross tons) and whether the vessel is chartered with or without crew provided or specified by the owner.

The obvious purposes of the 1993 Act were to (1) define "consideration" (previous interpretations were sufficiently confusing that even Coast Guard rulings were inconsistent), and (2) eliminate ongoing problems with loopholes in the laws relating to bareboat charters.

On a small lake there is little difficulty. But in any event where a Coast Guard marine event permit is required, the Coast Guard may be concerned with the possibility that "commercial operations" might be involved, and great care must be taken by the regatta organizer to assure that it, and those persons who are present for the regatta to photograph it, to report about it, or simply to watch it, do not unintentionally run afoul of Coast Guard regulations.

Coast Guard interpretations involving regattas

In recent major boating events held in the United States, the Coast Guard has taken the position that:

1. Although a competing boat is a participating vessel, and need not be inspected or certified by the Coast Guard, if carrying only racing crew aboard, it has not determined whether cameramen, or sponsors allowed to ride aboard, constitute "passengers for consideration."

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2. A race committee signal boat, mark-set boat, patrol boats, stake boats, judges' boats and umpire boats do not have to be inspected vessels, so long as those aboard do not include press, photographers, etc.
3. However, members of the press observing the race for the purpose of photographing or writing about the race are engaged in their employment, and regardless whether they have paid anything for the ride, they are, nevertheless "passengers for consideration." As such, if there are fewer than six of them aboard, there must be a licensed skipper in charge of the boat. If there are more than six aboard, the vessel must be a Coast Guard inspected vessel. It makes no difference whether they are in an inflatable boat, aboard a race committee boat (such as a stake boat), or otherwise.
4. Regatta sponsors who go out on the water are "passengers for consideration" regardless of the circumstances. The Coast Guard position has recently been that sponsorship is, by definition, a business for the sponsoring company, and that it makes no difference whether any money was paid for the opportunity to go out on the water. The mere fact that the sponsor contributed money or prizes for the benefit of the regatta has been interpreted as "consideration for carriage on board."
5. Regatta sponsors who provide spectator boats for their employees may not need to provide Coast Guard inspected boats. If they provide spectator boats for prospective customers or make boats available as a reward to their top sales personnel, they must do so aboard an inspected vessel.

The implications are several. First, the Coast Guard will not certify foreign built vessels, so a sponsor cannot safely charter even a foreign-built vessel.

Second, an executive of a sponsoring organization who provides his own vessel for entertainment of other company executives runs the risk that, at least, he will be boarded, inspected, and released, to the embarrassment of him and his guests. At worst, penalties, forfeiture of his boat, and possible imprisonment await.

Third, commercial operators in several areas of the United States, either knowing of or demanding such interpretations, are motivated, for their own personal profit, to insist that the Coast Guard make an issue of such use.

The owner of a competing boat who is observing it while it is racing is not a "passenger for consideration," but if he invites aboard a person who contributed to the owner's syndicate (what about a contributor to an Olympic campaign?), no matter how indirectly, the guest must be aboard either an inspected vessel, or if he is one of six or fewer guests, a Coast Guard licensed operator must be aboard.

It is uncertain whether the 1993 Act changes some of these interpretations, particularly with respect to inviting press and sponsors aboard to view races. It definitely limits the ability of sponsors to charter uninspected vessels. Before taking guests, photographers or sponsors on

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board vessels, seek an interpretation regarding their status from your club's or association's legal counsel, and have the local U.S. Coast Guard Marine Safety Office confirm that interpretation.

Bareboat chartering—does it solve the problem?

The concept of "bareboat chartering" has, on occasion, been used to attempt to avoid many of the problems involving the carrying of "passengers." Contrary to many opinions, however, it may not avoid a race committee's or regatta organizer's responsibilities. The exact effect of the 1993 Act upon bareboat charters is not fully known, but it unquestionably limits the number of people who may be on board a chartered uninspected vessel.

When an owner attempts to bareboat charter his vessel, he must consider whether he has effectively limited the nature of the charter so that the charterer must comply with the limitations placed upon "uninspected passenger vessels."

Having a valid bareboat charter does not necessarily absolve the owner of risks and responsibilities. The bareboat charter has evolved as a highly complex contractual agreement between vessel owner and charterer, under which the charterer is willing to accept the benefits and consequences of ownership for a period of time. Historically it was a device used with respect to large commercial vessels for multi-year periods.

Under a valid bareboat charter, the owner of the vessel retains title to the vessel, but relinquishes command, control, and possession for the duration of the bareboat charter. The charterer stands in the shoes of the owner of the vessel, and must have complete command, control, and possession of the vessel as if it were his or her own. The charterer accepts the benefits (except for holding title) and liabilities of ownership. Stating in the contract that this will happen is not sufficient. It must really happen.

As the "owner" for the term of the charter, the charterer must assume responsibility for operating the vessel operations within the maritime laws and regulations. Here lies the risk to the charterer under this form of agreement.

Under the laws dealing with merchant seaman protection, the charterer owes employees a safe place to work and proper equipment with which to work. The charterer becomes the warrantor of seaworthiness for his or her employees and passengers or guests. Proceedings resulting from negligent operation of the vessel may be directed toward the charterer.

Violations resulting from the unlawful carriage of passengers may be directed to the charterer as well as the owner. The vessel may be considered to have violated its documentation and have engaged in a protected (coastwise) trade, and may be seized and forfeited for such a violation.

Likewise, if the bareboat charter is not valid, additional responsibilities fall on the owner. If the vessel is damaged or lost, the possibility exists that insurance coverage may be voided, depending

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upon the terms of the policy. If persons are injured, the owner may be sought as the responsible party, which becomes particularly important if merchant seamen are the injured parties.

Under a valid bareboat charter, the master's responsibility is to the charterer, because he, not the owner, is the employer. The Coast Guard will not accept as valid those bareboat charters where the owner acts as the vessel's master. The rationale is that the owner cannot relinquish command of the vessel if he is acting as the master.

Nevertheless, the owner has an interest in the competency of the master, because he retains title to the boat. Although the charterer must be responsible for finding and hiring the master, the owner may provide a list of masters from which to choose. However, the charterer cannot be restricted to the list.

The above is a short synopsis of things to consider. If you intend to use chartered boats for race operations, contact the United States Coast Guard with any questions you may have, and consult your organization's attorney for the preparation of any agreement to charter a vessel. The issues are sufficiently complex that even a Coast Guard District Marine Safety Office will not always be sufficiently well-versed to answer all of the questions which may apply to regattas, because they seldom have to address them.

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Competition Formats 5

A competition format is the manner in which the competitors vie with one another. Fleet racing, as a competition format, is discussed extensively throughout this handbook. There are numerous variations to fleet racing that include one design and handicap racing over set buoy courses, random leg courses or distance courses. Formats that organize the competitors include, but certainly are not limited to, flights, heats, or classes. Boardsailing, model boats and other fleet racing events have developed their own unique formats. Other prominent formats include match racing and team racing. These provide very exciting and challenging racing. This chapter describes several of them and addresses some of their more important aspects.

In general, the racing rules of sailing that apply to fleet racing also apply to match racing and team racing. However, some racing rules have been changed to accommodate them, and those changes are also addressed.

Since interscholastic and collegiate fleet racing, match racing and team racing often use boat rotations, boat rotations are discussed in this chapter. While there are several examples included in this text, many more examples of boat rotation schedules are available on the US SAILING web site www.ussailing.org/racemgt.

Boat rotations in general

There are two basic methods for boat rotations: the "follow-the-leader" rotation, and the "direct swap." Both are used extensively in fleet racing. For team racing, a more complicated, non-algorithmic rotations have been developed.

Race organizers can easily make their own fleet racing rotations using either the "follow-the-leader" or the "direct swap" methods. Some tables for match racing rotations ("pairing lists") appear in this chapter and others are available on the Web site. For team racing, use the tables in this chapter or visit the Team Racing Committee's Web site at www.ussailing.org.
The system of boat rotation you choose will depend largely upon:
1. the competition format you have chosen (fleet racing, match racing, or team racing);
2. whether the number of teams/competitors is odd or even;

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3. the logistics of changing boats. The expected wind and water conditions may make it suitable for boats to land simultaneously on both sides of a well-padded exchange boat. If conditions will be difficult or dangerous, change ashore. Note that some collegiate or interscholastic rotations allow for switching between every other race.

"Bring your own boat" regattas afford much more racing because no time is consumed changing boats. In some regattas where boats are supplied (such as the Championship of Champions or Congressional Cup) the boats may be assigned to the competitors for some portion of a day or even for the duration of the regatta. Usually, however, to ensure the highest degree of fairness, supplied boats should be rotated among the competitors as often as practicable. In such regattas, a method must be devised for rotating the use of boats. There are some established formulae for doing so.

Fleet race boat rotations

"Follow-the-leader" rotations

"Follow-the-leader" rotations can be used with any number of entries, odd or even. Each crew draws a boat number for the first race, and thereafter rotates to the next highest (or lowest) boat number for each succeeding race (there is no magic to use of a higher-numbered or lower-numbered method, only personal preference).

The advantages of "follow-the-leader" rotations are that they are easy for crews to remember and are easily adaptable when established in advance, if fewer crews than expected appear for the regatta.

The drawbacks of "follow-the-leader" rotations are that each crew to use a boat always follows the same crew which has previously used the boat, so it is easy for one crew to affect another's standing. They also require a larger number of time-consuming landings and exchanges, either on the exchange boat or ashore.

A simple "follow-the-leader" rotation (rotating to a higher numbered boat) is shown in Table 5.1.

Table 5 .1

"Follow-the-leader" Rotation Fleet Racing Series 6 Crews, 6 Boats, 5 Races					
Race	1	2	3	4	5
Crew	Boat				
A	1	2	3	4	5
B	2	3	4	5	6
C	3	4	5	6	1
D	4	5	6	1	2
E	5	6	1	2	3
F	6	1	2	3	4

How to exchange boats

To exchange boats after the first race:

1. The crew of Boat 1 (Crew A) unloads to a well fendered exchange boat, and Boat 1 is sailed away by a non-competitor. The crew of Boat 2 (Crew B) then unloads to the exchange boat, and Crew A (the former crew of Boat 1) takes Boat 2 for the next race. Then the crew of Boat 3 (Crew C)

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unloads and Crew B takes Boat 3, etc., until finally Boat 1 is sailed back to the exchange boat for the last crew (Crew F).
2. To prevent Crew A from having a consistent advantage in preparing for subsequent races, Boat 1 (rather than Crew A) should always be called first to the exchange boat.
3. Should one or more boats not sail the entire series, a new rotation is easy to make. If all crew listed start the first race, the rotation should not be changed.

"Direct swap" rotations

Whenever entries total an even number, the "direct swap" system reduces the time for boat exchanges by having pairs of crews change boats simultaneously. The number of races in which each crew follows the same crew is also markedly reduced. For odd numbers of entries, use the "follow-the-leader" method.

This section discusses the method of creating "direct swap" boat rotations. The tables contained here are designed for fleet race competition.

While they are adaptable to team racing, most team racing regatta organizers use the rotations which have been developed specifically for team racing (see tables in the "Team racing rotations and boat pairings" section of this chapter).

To create a table of boat rotation for an even number of crews:
1. In the first vertical column, list boat numbers down the column in ascending order for the first race.
2. For the first horizontal row, list boats in ascending order.
3. For the second horizontal row, list boats in descending order, starting with 2.
4. For the remaining horizontal rows, list boats alternately in ascending and descending order, starting with the boat number in the first column.

Table 5.2

Fleet Race Direct Swap Rotation 6 Crews, 6 Boats, 5 Races					
Race	1	2	3	4	5
Crew	Boat				
A	1	2	3	4	5
B	2	1	6	5	4
C	3	4	5	6	1
D	4	3	2	1	6
E	5	6	1	2	3
F	6	5	4	3	2

For example, Table 5.2 shows a direct swap rotation for six entries.

If you have one less boat than the number of crews, you may still use the direct-swap format. Each crew sits out one race. An example is shown in Table 5.3. The same concept applies where there are ten crews, but only 8 boats. Each crew sits out 2 races.

Byes can be used in either direct swap or follow-the-leader rotations. If there is to be more than one bye per competitor,

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they should be staggered through the rotation so that one team or crew does not have consecutive byes.

Table 5.3

Fleet Race Direct Swap Rotation 10 Crews, 9 Boats, 10 Races										
Race	1	2	3	4	5	6	7	8	9	10
Crew	Boat									
A	1	2	3	4	5	6	7	8	9	X
B	2	1	X	9	8	7	6	5	4	3
C	3	4	5	6	7	8	9	X	1	2
D	4	3	2	1	X	9	8	7	6	5
E	5	6	7	8	9	X	1	2	3	4
F	6	5	4	3	2	1	X	9	8	7
G	7	8	9	X	1	2	3	4	5	6
H	8	7	6	5	4	3	2	1	X	9
I	9	X	1	2	3	4	5	6	7	8
J	X	9	8	7	6	5	4	3	2	1

For fleet racing events with two divisions (e.g., intercollegiate events for dinghies), it is common to have each division sail two consecutive races in the same boats. This reduces the time spent changing boats. The Inter-Collegiate Sailing Association (ICSA) has a program on its Web site (www.collegesailing.org) to provide such rotations.

Match racing

A match is a race between two boats. A flight is a series of matches started in one starting sequence. With the development of on-the-water umpiring, fueled by worldwide excitement about the America's Cup competition and inclusion in the 2012 Olympic Games, interest in match racing is increasing rapidly. Boat equality, short starting lines, and windward-leeward courses are key features in good match racing. *The Racing Rules of Sailing*, Appendix C – Match Racing Rules, include the special rules which apply to match racing.

There are four basic elements to match racing competitions:
1. format—round-robins, knockout series or combinations of them;
2. pairings—who meets whom, and when;
3. boat rotation—will the competitors exchange boats between flights, and if so, when;
4. advancing procedure – how many teams will advance to the next phase of the event.

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Basic match racing formats

The most widely used formats are:

1. knockout series, in which two boats race until one boat has won a majority of the scheduled races. The format can include any odd number of races;
2. ladder events, in which the winners advance to the next round. An example is US SAILING's U.S. Match Racing Championship for the Prince of Wales Bowl, in which competitors in different local areas race, and the winners advance to the regional competition. The regional winners then advance to the national finals. Sometimes a specific number of teams advance to the next phase, e.g., the top four teams (of eight) in a quarter-final round-robin advance to the semi-finals; and
3. round-robins, in which each competitor sails one or more matches against every other competitor. The winner of each match scores a point, and final awards are determined by points. These three formats can also be used in combination with one another.

An important element of match racing is determining which boats will be used, and who will use them. There are three basic systems:

1. bring your own boat, as in the America's Cup;
2. supplied boat/exchange regattas, in which boats are supplied by the organizing authority, and exchanged by competitors between flights; and
3. supplied boat regattas without exchanging boats, or with limited exchanging of boats.

Most match racing is done in keel boats equipped with spinnakers

Using supplied or borrowed boats

If you supply the boats, make certain they are insured. Insurance and related matters are covered in Chapter 4, "Insurance and Legal Issues." In addition, a cash deposit equal to the deductible of the insurance should be required from each competing team to cover minor damage. If you supply boats, make certain there are enough of them. Acquire and inspect a spare boat. If practicable, take the spare boat and replacement parts to the racing area in case of damage that is not repairable before the next race. If the spare boat is used, the sails from the damaged boat should be transferred to keep conditions as uniform as possible.

Using supplied or borrowed boats also requires that you anticipate that breakdowns will occur which are not the fault of the competitor. Both the Match Racing Rules and the Team Racing Rules (see Appendix D, D5) address breakdowns. The sailing instructions should also address time for repairs, and time allowed to exchange boats between races.

Equalizing supplied boats

In supplied-boat events, the boats must be equalized. Equalizing the boats, rigs and sails should be completed prior to the start of the event. Appoint a fleet bosun with full authority over handling and care of the boats. Ideally the bosun should be on the water to make quick repairs, and to inspect equipment after each race.

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Boats should first be inspected for condition, rigging, gear and equipment. Adjustable shrouds, mast chocks and other equipment that will not be permitted to be adjusted should be measured, equalized and taped or tied off. A complete inventory of loose and detachable equipment should be part of the inspection. It should show which items are kept aboard and which are stowed ashore. Unequal equipment should be taped or banned from use.

Sails should also be measured and inspected for condition, and each boat should have the same prescribed number, weight and size of sails aboard. They should be marked or tagged with the boat's number. Store all extra sails and gear ashore.

Further equalization is done by measurements (and sometimes equalization trials) prior to the competitors' meeting. For standard-hull offshore boats of a class, this can involve matching the bow and stern freeboard measurements, adding or removing ballast, making the wetted surface equal, etc. Smaller keel boats may be weighed and equalized with corrector weights. If the boats are moored, affix the number and location of the mooring to each boat. For the competition, boats are drawn by lot.

Starting line assignments

Boats are assigned to opposite ends of the starting line, and at their preparatory signal must be outside their assigned ends of the line. The two boats enter the pre-start area from the course side of the starting line between four and two minutes prior to the start.

Great care should be given to the starting line assignments. Each crew should have as close to an equal number of port and starboard entries as is possible, depending on the number of crews competing. The boat entering from the starboard end is perceived to have the initial advantage.

To the extent possible, the positions within flights (match 1, match 2, etc.) should also be equalized. Teams starting later in a flight have more time to prepare, and also have the benefit of watching earlier starts to observe wind shifts, current patterns and the starting line's fairness.

Match racing round-robins and boat rotations

Match racing round-robins are simple enough. To determine the number of matches necessary to complete a round-robin, the formula is:

$$\frac{(\text{Number of crews}) \times (\text{Number of crews minus } 1)}{2}$$

For example, for 10 crews the number of matches is: $10 \times 9 \div 2 = 45$.

A pairing list showing the pairings of the boats must also be created. Tables 5.4 through 5.10 are examples of pairing systems for match racing.

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Table 5.4

Match Race Round-Robin 4 Crews, 3 Flights, 6 Races				
Flight		1	2	3
Entry		P–S	P–S	P–S
Match 1	Crew	A–B	C–A	B–C
Match 2	Crew	C–D	D–B	A–D

Table 5.5

Match Race Round-Robin 5 Crews, 5 Flights, 10 Races						
Flight		1	2	3	4	5
Entry		P–S	P–S	P–S	P–S	P–S
Match 1	Crew	C–D	B–C	D–A	E–A	E–B
Match 2	Crew	A–B	D–E	C–E	B–D	A–C
Bye	Crew	E	A	B	C	D

Table 5.6

Match Race Round-Robin 6 Crews, 5 Flights, 15 Races						
Flight		1	2	3	4	5
Entry		P–S	P–S	P–S	P–S	P–S
Match 1	Crew	A–C	B–C	F–B	D–B	E–F
Match 2	Crew	B–E	F–A	A–D	E–A	C–D
Match 3	Crew	D–F	D–E	E–C	C–F	A–B

Table 5.7

Match Race Round-Robin 7 Crews, 7 Flights, 21 Races								
Flight		1	2	3	4	5	6	7
Entry		P–S	P–S	P–S	P–S	P–S	P–S	P–S
Match 1	Crew	E–F	E–G	G–C	B–C	B–D	A–D	F–A
Match 2	Crew	C–D	A–C	F–B	D–E	G–A	G–B	B–E
Match 3	Crew	A–B	D–F	E–A	F–G	C–F	C–E	D–G
Bye	Crew	G	B	D	A	E	F	C

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These tables assume that the boats are essentially equal and that you will ***not*** change boats after each race. Under these circumstances, to improve the perception of fairness among the competitors, it is a good idea to change boats on a daily basis at a minimum. If you break for lunch, why not change boats then as well?

When the boats are not equal, the boats that are most equal should be paired and sailed against each other throughout the series. In this case, it will be necessary to change boats after each

Table 5.8

Match Race Round-Robin 8 Crews, 7 Flights, 28 Races								
Flight		1	2	3	4	5	6	7
Entry		P–S	P–S	P–S	P–S	P–S	P–S	P–S
Match 1	Crew	F–C	D–F	E–B	A–E	D–A	H–G	C–A
Match 2	Crew	D–E	E–C	C–H	H–D	F–G	A–B	G–E
Match 3	Crew	G–B	B–H	A–F	G–C	E–H	C–D	H–F
Match 4	Crew	A–H	G–A	D–G	B–F	C–B	F–E	B–D

Table 5.9

Match Race Round-Robin 9 Crews, 9 Flights, 36 Races										
Flight		1	2	3	4	5	6	7	8	9
Entry		P–S	P–S	P–S	P–S	P–S	P–S	P–S	P–S	P–S
Match 1	Crew	C–H	I–H	F–A	G–C	C–F	E–B	A–B	B–D	G–D
Match 2	Crew	B–G	G–A	D–C	F–I	E–G	H–F	D–F	I–A	C–E
Match 3	Crew	D–I	E–D	H–B	A–E	B–I	A–C	G–H	F–G	H–A
Match 4	Crew	E–F	B–C	I–E	D–H	A–D	I–G	C–I	H–E	F–B
Bye	Crew	A	F	G	B	H	D	E	C	I

Table 5.10

Match Race Round-Robin 10 Crews, 9 Flights, 45 Races										
Flight		1	2	3	4	5	6	7	8	9
Entry		P–S	P–S	P–S	P–S	P–S	P–S	P–S	P–S	P–S
Match 1	Crew	A–F	H–I	J–A	E–B	C–J	G–C	F–E	B–D	D–G
Match 2	Crew	B–G	E–D	D–C	H–J	F–H	J–I	A–B	I–A	C–E
Match 3	Crew	C–H	G–A	H–B	F–D	B–I	A–E	D–J	J–G	I–F
Match 4	Crew	D–I	J–F	I–E	A–C	E–G	F–B	G–H	C–F	H–A
Match 5	Crew	E–J	B–C	G–F	I–G	A–D	D–H	C–I	H–E	J–B

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flight. It is desirable that crews sail as many different boats as possible. Tables 5.11 and 5.12 are examples.

If the event is to be a double round-robin, simply reverse the side of entry (and thus change the boat assignments) for each team for the second round-robin.

Scoring match racing is simple (except for the tie breaking). The winner of each match scores one point, the loser scores no points. If a boat which won a match is disqualified for a rules breach against a boat in another match, the penalized boat loses its point for the match, but

Table 5.11

Match Race Round-Robin 8 Crews, 7 Flights, 28 Races								
Flight		1	2	3	4	5	6	7
Entry		P–S	P–S	P–S	P–S	P–S	P–S	P–S
Match 1	Crew	F–C	D–F	E–B	A–E	D–A	H–G	C–A
	Boat	1–2	1–2	1–2	1–2	1–2	1–2	1–2
Match 2	Crew	D–E	E–C	C–H	H–D	F–G	A–B	G–E
	Boat	3–4	3–4	3–4	3–4	3–4	3–4	3–4
Match 3	Crew	G–B	B–H	A–F	G–C	E–H	C–D	H–F
	Boat	5–6	5–6	5–6	5–6	5–6	5–6	5–6
Match 4	Crew	A–H	G–A	D–G	B–F	C–B	F–E	B–D
	Boat	7–8	7–8	7–8	7–8	7–8	7–8	7–8

Table 5.12

Match Race Round-Robin 10 Crews, 9 Flights, 45 Races										
Flight		1	2	3	4	5	6	7	8	9
Entry		P–S	P–S	P–S	P–S	P–S	P–S	P–S	P–S	P–S
Match 1	Crew	A–F	H–I	J–A	E–B	C–J	G–C	F–E	B–D	D–G
	Boat	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2
Match 2	Crew	B–G	E–D	D–C	H–J	F–H	J–I	A–B	I–A	C–E
	Boat	3–4	3–4	3–4	3–4	3–4	3–4	3–4	3–4	3–4
Match 3	Crew	C–H	G–A	H–B	F–D	B–I	A–E	D–J	J–G	I–F
	Boat	5–6	5–6	5–6	5–6	5–6	5–6	5–6	5–6	5–6
Match 4	Crew	D–I	J–F	I–E	A–C	E–G	F–B	G–H	C–F	H–A
	Boat	7–8	7–8	7–8	7–8	7–8	7–8	7–8	7–8	7–8
Match 5	Crew	E–J	B–C	G–F	I–G	A–D	D–H	C–I	H–E	J–B
	Boat	9–0	9–0	9–0	9–0	9–0	9–0	9–0	9–0	9–0

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Figure 5.13

Match Race Results Sheet 10 Crews											
Crew	A	B	C	D	E	F	G	H	I	J	Points
A											
B											
C											
D											
E											
F											
G											
H											
I											
J											

the losing boat is not awarded the point (see Appendix C). A sample score sheet is illustrated in figure 5.13

The entire starting sequence for ten teams (five matches per flight) is shown in Figure 5.14.

Umpiring for match racing was developed in 1987, and has become a practical, if expensive method of ensuring that results are final at the conclusion of the race. Umpiring is also addressed in Appendix C.

Creative round-robin design

One of the greatest challenges to the organizers of match racing events is designing the event format to accomplish the event's goals. Usually, one primary goal is maximizing the quantity of racing done during the round-robin phase(s) of the event. Competitors and organizers would much rather spend the available time and good weather racing, rather than either waiting or changing boats.

Incomplete round-robins are also a major concern. Although Appendix C of the RRS provides a mechanism for scoring a partial round-robin after at least one round-robin has been completed, there is a perception that including a partial round-robin in the scoring adds a larger element of luck into the results than would be desirable.

These problems can be addressed, and solutions found which make significant improvements in the ratio of time spent racing to the total time involved.

Consider, for example, a full round-robin with 12 teams and 12 boats. If the teams change boats after each flight, one flight might take:

10 minutes from the Attention to the first start
25 minutes for the next 5 starts

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Figure 5.14

Match Race Starting Sequence Five Match Flight		
Time	Signals	Meaning
30	Flag F– with sound	Attention
26	Flag F lowered – no sound	
25	Numeral pennant 1– with sound	Warning, match 1
24	Flag P – with sound	Preparatory
22	Blue, Yellow Flag(s) & Sound (only if a boat has not entered)	End of entry time
20	Lower P & 1; raise 2 – with sound	START for match 1, warning for match 2
19	Flag P – with sound	Preparatory
17	Blue, Yellow Flag(s) & Sound (only if a boat has not entered)	End of entry time
15	Lower P & 2; raise 3 – with sound	START for match 2, warning for match 3
14	Flag P – with sound	Preparatory
12	Blue, Yellow Flag(s) & Sound (only if a boat has not entered)	End of entry time
10	Lower P & 3; raise 4 – with sound	START for match 3, warning for match 4
9	Flag P – with sound	Preparatory
7	Blue, Yellow Flag(s) & Sound (only if a boat has not entered)	End of entry time
5	Lower P & 4; raise 5 –with sound	START for match 4, warning for match 5
4	Flag P – with sound	Preparatory
2	Blue, Yellow Flag(s) & Sound (only if a boat has not entered)	End of entry time
0	Lower P & 5 – with sound	START for match 5

20 minutes for the 6th match to be completed
15 minutes to get all the competitors into their next assigned boats

This totals 70 minutes per round-robin. See Figure 5.15, on which the time spent from Warning signal to the Finish of each match is shaded. The time spent changing will vary tremendously depending on how far from the racing area the changes need to be done, and what facilities are available for the changing. If only two or three boats can come alongside a dock at once, for example, the time will be much longer. If several soft-sided boats are available to move the competitors, the time might be less. For a complete round-robin, the total time would be (11 times 70)-15, or 755 minutes. The "-15" is because no change is necessary after the 11th flight.

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Figure 5.15

Traditional round-robin for 12 teams						
Time	Match 1	Match 2	Match 3	Match 4	Match 5	Match 6
0	Foxtrot 1					
5	Warning 1					
10	Start 1	Warning 2				
15		Start 2	Warning 3			
20			Start 3	Warning 4		
25				Start 4	Warning 5	
30	Finish 1				Start 5	Warning 6
35		Finish 2				Start 6
40			Finish 3			
45				Finish 4		
50					Finish 5	
55						Finish 6
60						
65						
70	Foxtrot 2					

One measure of the efficiency of a round-robin design is the proportion of the time spent "racing". In this case it is 24/70, or 34%.

There are at least three methods available to shorten the time necessary to complete a round-robin:
1. reduce the number of changes of teams among boats;
2. creatively group the competitors during the round-robin to permit changes among smaller groups;
3. reduce the time from the Attention signal to the first warning signal.

Figure 5.16 shows what can be done if the time from the Attention signal to the Warning signal for the first match of the flight is reduced from 5 to 2 minutes, and if the pairing list is changed to group the competitors. In this example, the time from the finish of match 3 to the warning signal for the next flight is 13 minutes, but the same 6 teams change among the same 6 boats for the first 5 flights of the round-robin. This results in an efficiency of $^{24}/_{50}$ or 48%. The total time for the round-robin is now:

flights 1-4 @ 50 minutes = 200
flight 5 @ 67 minutes = 67
flights 6-7 @ 50 minutes = 100
flight 8 @ 67 minutes = 67
flights 9-11 @ 50 minutes = 150
total time = 584 minutes (saves 166 minutes vs. traditional design)

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Figure 5.16

New round-robin for 12 boats change boats after each flight						
Time	Match 1	Match 2	Match 2	Match 2	Match 2	Match 2
0	Foxtrot 1					
2	Warning 1					
7	Start 1	Warning 2				
12		Start 2	Warning 3			
17			Start 3	Warning 4		
22				Start 4	Warning 5	
27	Finish 1				Start 5	Warning 6
32		Finish 2				Start 6
37			Finish 3			
42				Finish 4		
47					Finish 5	
50	Foxtrot 2					Finish 6
52	Warning 1					
57	Start 1	Warning 2				
62		Start 2	Warning 3			
67			Start 3	Warning 4		
72				Start 4	Warning 5	
77	Finish 1				Start 5	Warning 6
82		Finish 2				Start 6
87			Finish 3			
92				Finish 4		
97					Finish 5	
100	Foxtrot 3					Finish 6
102	Warning 1					

Figure 5.17 shows what can be done if, in addition, the number of times teams change boats is reduced. In this example, it is reduced to two changes (after flights 5 and 8), which results in each competitor sailing in only 3 of the 12 boats. The efficiency is $^{24}/_{40}$, or 60%. The total time for the round-robin is now:

flights 1-4 @ 40 minutes = 160
flight 5 @ 67 minutes = 67
flights 6-7 @ 40 minutes = 80
flight 8 @ 67 minutes = 67
flights 9-11 @ 40 minutes = 120
total time = 494 minutes (saves 256 minutes vs. traditional)

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Figure 5.17

New round-robin for 12 teams change boats after flights 5 and 8						
Time	Match 1	Match 2	Match 3	Match 4	Match 5	Match 6
0	Foxtrot 1					
2	Warning 1					
7	Start 1	Warning 2				
12		Start 2	Warning 3			
17			Start 3	Warning 4		
22				Start 4	Warning 5	
27	Finish 1				Start 5	Warning 6
32		Finish 2				Start 6
37			Finish 3			
40	Foxtrot 2			Finish 4		
42	Warning 1					
47	Start 1	Warning 2			Finish 5	
52		Start 2	Warning 3			Finish 6
57			Start 3	Warning 4		
62				Start 4	Warning 5	
67	Finish 1				Start 5	Warning 6
72		Finish 2				Start 6
77			Finish 3			
80	Foxtrot 3			Finish 4		
82	Warning 1				Finish 5	
87	Start 1	Warning 2				Finish 6
92		Start 2	Warning 3			
97			Start 3	Warning 4		
102				Start 4	Warning 5	
107	Finish 1				Start 5	Warning 6
112		Finish 2				Start 6
117			Finish 3			

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One very important factor in accomplishing these improvements is the design of the pairing list. When creating a pairing list, the criteria are:

1. each team races each other team;
2. the port/starboard entries are divided as evenly as possible;
3. competitors in the last match of a flight are in the first match of the next flight as seldom as possible;
4. teams are spread over the match positions (1st, 2nd, etc.) as evenly as possible.

The last criterion is especially important if the boats are borrowed and certain pairs need to be sailed against each other all the time. If this is the case, the efficiency improvements are limited to those in Figure 5.16. It is essential to check the final version of your pairing list against these criteria. Figure 5.18 is a pairing list for a 12-team round-robin that uses groups of competitors. For the first five flights, the same six competitors (A-F and G-L) sail against each other. Then those groups are split, and sail three flights against each half of the other original group. If it is necessary to change boats after each flight, this design reduces the number of boats among which the competitors must change after most flights.

If the appropriate resources are available and two race courses (and two race committees) are being used, it is essential to group the competitors in this way. If they are not grouped, the potential efficiencies of using two race courses will not be achieved, since the two courses will be forced to stay synchronized, and will both be slowed down by any delay on either course.

One additional benefit of using groups within the round-robin is the possibility of stopping after the original groups have finished racing each other team within their group (five flights in this example). If that is a likely occurrence, the groups need to be selected in order to equalize the competition between the groups, usually by seeding. The sailing instructions need to describe how the event winners will be determined if a round-robin is terminated this way.

For example: an event is planned to include a double round-robin for 12 teams and then knock-out series for semi-finals and finals. One round-robin is completed, and the second started. Then poor weather makes it impossible to complete the second round-robin. If the competitors have been divided into groups, it is possible to end the second round-robin after five flights, and then proceed directly to semi-finals or just finals. This can be especially useful when weather conditions are difficult to predict, because it gives the event organizers multiple stopping points and options for completing the event and determining winners.

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Figure 5.18

Round-robin pairing list for12 teams									
RR-			PORT ENTRY (blue)				STARBOARD ENTRY (yellow)		
FLIGHT	MATCH		NAME	BOAT			NAME	BOAT	
1-1	1	D				C			
	2	B				A			
	3	E				F			
	4	J				I			
	5	H				G			
	6	K				L			
1-2	1	A				D			
	2	E				C			
	3	F				B			
	4	G				J			
	5	K				I			
	6	L				H			
1-3	1	B				E			
	2	D				F			
	3	C				A			
	4	I				L			
	5	G				K			
	6	H				J			
1-4	1	C				F			
	2	A				E			
	3	B				D			
	4	L				G			
	5	I				H			
	6	J				K			
1-5	1	F				A			
	2	C				B			
	3	D				E			
	4	H				K			
	5	J				L			
	6	I				G			

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Figure 5.18, continued

Round-robin pairing list for 12 teams (continued)										
RR-			PORT ENTRY (blue)				STARBOARD ENTRY (yellow)			
FLIGHT	MATCH		NAME	BOAT			NAME	BOAT	
1-6	1	B				H			
	2	A				G			
	3	C				I			
	4	D				L			
	5	F				K			
	6	E				J			
1-7	1	H				A			
	2	I				B			
	3	G				C			
	4	K				D			
	5	L				E			
	6	J				F			
1-8	1	A				I			
	2	C				H			
	3	B				G			
	4	E				J			
	5	D				K			
	6	F				L			
1-9	1	H				E			
	2	G				D			
	3	I				F			
	4	K				B			
	5	J				A			
	6	L				C			
1-10	1	E				G			
	2	F				H			
	3	D				I			
	4	B				J			
	5	A				L			
	6	C				K			
1-11	1	G				F			
	2	I				E			
	3	H				D			
	4	J				C			
	5	L				B			
	6	K				A			

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Team racing

In general

Team racing consists of a series of races or "matches" between teams of competitors. The most common grouping is three boats per team, although Optimist dinghies regularly race in teams of four. The lowest total number of points for a team determines the winner of a match. However, only the number of wins in a series determines the final rankings (excepting some ties which reference winning points.) For scoring team racing, see Appendix D, D3. Team racing de-emphasizes the role of the winning boat in favor of team effort. It is fun and a good way to teach tactics, boat handling and cooperation.

Team racing is very popular in interscholastic and intercollegiate racing and is becoming widespread through the efforts of the US SAILING's Team Racing Committee and Hinman Committee. There has been serious discussion about adopting team racing for future Olympic Games.

The same four elements which apply to match racing apply to team racing:
1. format—knock-out series or round-robins or combinations;
2. pairings—who meets whom, and when;
3. boat rotation—will the competitors change boats between races, and if so, when;
4. advancing procedures—how many teams will advance to the next phase of the event.

Pairings and boat rotation are so closely linked that most of the tables in this chapter combine the two.

The Team Racing Rules are found in *The Racing Rules of Sailing*, Appendix D. They include special alterations of the racing rules not normally of tactical consequence in fleet racing, a specific method for acknowledging rule breaches, a special scoring system, and procedures to be used when the organizing authority supplies the boats.

The best method of boat rotation for any event depends on the number of entries and the format. Various team race boat rotations are discussed below. Once the teams draw their boat numbers for the first race, the sequence of boats for each team throughout the series is determined by a pre-established schedule.

US SAILING instituted the United States Team Racing Championship for the George R. Hinman Trophy in 1981. Contact the US SAILING office for more information or visit their Web site at www.ussailing.org/Championships.

One-design class team race events can be a lot of fun if every team brings its own boats, because you can conduct more races and everyone is responsible for their own boats.

The U.S. Team Racing Association has attracted large numbers of current and former collegiate sailors to their events, which are usually "bring your own boat" dinghy events. The boats used

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are almost always Vanguard 15's, sailed by two people. The formats for these events have evolved quickly, and frequently involve several phases, in which some competitors move on to the next phase and others continue to compete for a limited number of places in subsequent phases. Usually, the event concludes with four teams competing for the top prizes.

The fastest growing area of team racing in recent years has been keel-boat team racing. Typically, these races are three-on-three (although there are some events that are four-on-four), and boats used in these events include Sonars, Rhodes 19's, Ideal 18's, J-22's, Shields, IOD's, Sigma 33's and J-105's. Typically, spinnakers are not permitted, and some of these events are limited to "masters."

Team races are usually very short— eight to twelve minutes is not uncommon for dinghy events and twenty to thirty minutes for keelboat events. If there are sufficient boats, there may be three or more races taking place simultaneously on the same course. Many races can be run in a short time, if the race committee understands the nuances of team racing and can make the adjustments needed, and if the competitors are in the right boats and ready to race on schedule.

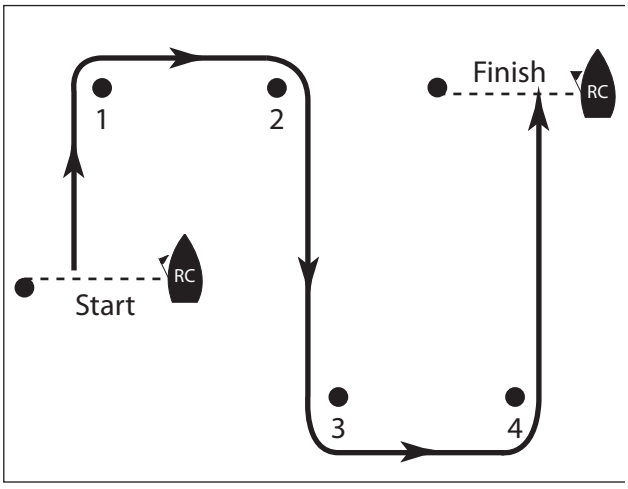
Team racing courses

Team racing courses are intended to provide trailing teams the opportunity to catch-up and encourage passing, which discourages the use of typical "triangle" courses. However, youth, interscholastic and intercollegiate events do still use triangle courses most of the time (typically with broader reaches than triangle courses used in fleet races). Two other courses are frequently used in team racing:

Digital N

The Digital N, used at most non-scholastic and non-youth dinghy team racing events, including the Hinman Trophy for the United States Team Racing National Championship, is very popular amongst competitors because it keeps races close, uses mark roundings that encourage "traps" and other moves, and allows numerous races to exist on the same race course with a minimum of interference.

Figure 5.19



Sometimes the starting line on the Digital N course is set in line with the leeward marks, but typically (and as shown in Figure 5.19) the first beat is shorter than the final beat.

The Digital N is difficult to use in shifty conditions (as there are eight anchored

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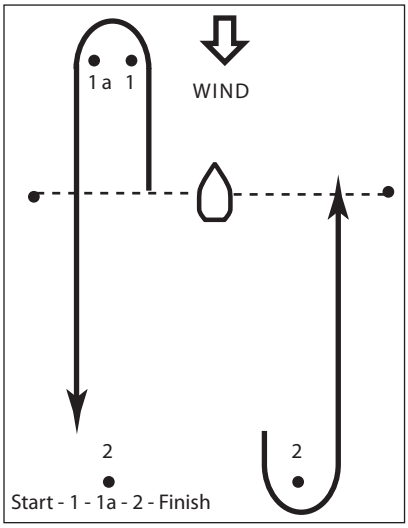
marks/boats, instead of five for a traditional triangle), and requires more time and race committee resources (including marks and mark boats) to set the course (and reset it when conditions change). The reaching legs on the Digital N need only be 4-5 boat lengths long to work well, and the run should be as close to a dead run as is possible.

Windward-leeward with an offset

The windward-leeward with an offset, which is used at most keelboat team racing events, is a simple windward-leeward with an offset mark at the weather mark. It can be run either to starboard or to port, but to date, most events have run it to port. The first beat should be approximately half the length of the final beat, the offset leg should be very short (two to three lengths), and the run should be as dead downwind as possible. See Figure 5.20.

Figure 5.20



One variation is to add an offset mark at the end of the run, creating a "box" course, and making the upwind and downwind legs directly up- (and down-) wind. While that requires another mark to be set, it is generally a better course.

Supplied boat issues in team racing

If you supply boats, make certain there are enough of them. In team racing, they should be provided in multiples of three (6, 9, 12, etc.). Keep at least one spare. Having too many teams and too few boats requires the expenditure of a great deal of time exchanging boats. The boats should be equalized as much as possible.

Ways to save time in team racing events

There are several ways to make the conduct of a large number of races more efficient. The following are a few suggestions to consider.

1. Use a 3-minute starting sequence.
   The default sequence under racing rule 26 is a 5 minute starting sequence, with the warning signal five minutes prior to the start. But the sailing instructions may prescribe a different sequence. Use the Sound Signal Starting System described in Appendix Q. You can usually start 3 races before the first two teams make it back to the starting area. Occasionally one race will mix into another, but unless it is a major championship, that should not be a serious concern. If races are shorter than 10 minutes, two-minute sequences can work well.
2. Use short courses.
   Dinghy team racing courses should take only about 8 to 12 minutes to complete. Keel boat team racing courses should take from 20 to 35 minutes to complete, as the course should

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be just long enough that boats can gain separation on the first beat (and not all arrive at the weather mark simultaneously), but short enough so that the trailing team is close to the leading team (and can generally cover their breeze from behind) after the weather mark. If you must exchange boats, try to set the course close to the place where the exchanges are being done.

3. Use a mid-course starting line.
   Set the start/finish line near the middle of the windward leg, so that the first beat is short.
4. Use separate starting and finishing lines.
   Set the starting line to windward of the finishing line but not far away. For Digital N courses, set the finish line to windward of the starting line.
5. Use the length of the offset legs in the Digital N to control the time between races.
   If there are numerous teams and they are waiting too long between races, and the length of the upwind and downwind legs is correct, extend the offset legs to lengthen races without favoring either the leading or the trailing teams.
   The Digital N course takes a longer time (and more resources) to change, as there are more marks (and two start/finish lines) to move, and delays in correcting the course can significantly impact the number of races that can be completed. Consequently, it is not typically used in very shifty conditions.
6. Remind the competitors to stay close.
   Competitors should be reminded to stay alert for their next start and not to sail beyond hailing distance from the race committee boat, or they will risk missing their start. If possible, use umpires or a volunteer to act as "pushers" to herd competitors toward the race committee boat.
7. Provide on-the-water protest hearings or umpiring.
   Protests are a problem in team racing because of the number of races which must be run in short time. One solution is to provide a judges' boat, and require that protesting skippers board it for a protest hearing before proceeding to their next race. The nature of this procedure (called "three- minute justice") helps to discourage protests. Another alternative is to use umpiring; see rule D2.2. Another option is to have observers who are appointed by the race committee to observe the racing and give opinions on incidents when requested; see rule D2.3.

A sample team race scoring sheet is shown in Form 5.22.

> The human mind is like a TV set. When it goes blank, it's a good idea to turn off the sound.
> —Anonymous

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Form 5 .22 Sample team race score sheet

RACE #: _____VS._____

	SAIL #	FLAGS/PROTEST/DSQ	TEAM/COLOR
1.			
2.			
3.			
4.			
5.			
6.			

Points
WINNING TEAM _____
LOSING TEAM_____

RACE #: _____VS._____

	SAIL #	FLAGS/PROTEST/DSQ	TEAM/COLOR
1.			
2.			
3.			
4.			
5.			
6.			

Points
WINNING TEAM _____
LOSING TEAM_____

RACE #: _____VS._____

	SAIL #	FLAGS/PROTEST/DSQ	TEAM/COLOR
1.			
2.			
3.			
4.			
5.			
6.			

Points
WINNING TEAM _____
LOSING TEAM_____

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Suggested formats

There are many different approaches to team race regatta formats. Ken Legler, the sailing coach at Tufts University, recommends the following formats for the number of teams and the number of boats shown:

No. of Teams	No. of Boats	Format
4	12	Triple round-robin (18 races) if teams are evenly matched, or double round-robin followed by "best-of-3" final. For a four-team round-robin format, see Table 5.26.
5	12 or 15	Double round-robin (20 races), followed by "best-of-3", time permitting. For a 5-team, 12-boat round-robin pairing and boat rotation system, see Table 5.27.
6	12	Single round-robin (15 races), followed by "best-of-3", with all races counting. For a 6-team, 12-boat round-robin pairing and boat rotation system, see Table 5.28.
6	18	Double round-robin (30 races). If you have 18 boats (three per team), modify the pennant colors system shown in Table 5.28 to alternating white/green, red/blue, yellow/black.
7	12	Single round-robin (21 races). For 7-team, 12-boat round-robin pairings and boat rotation systems, see Tables 5.29 and 5.30.
7	18 or 21	Single round-robin, followed by final-four round robin, with all races counting. A 7-team round-robin pairing for 18 boats is shown in Table 5.32 If you have 21 boats, modify the pennant colors system shown in that table.
8	12	Bracket system double elimination, with "best-of-3" final (see Figure 5.24).
8	18	Where teams are unevenly matched, a bracket system double elimination (see Figure 5.25). Where teams are evenly matched, a round-robin (see Table 5.33). If you have a shortage of boats (12— enough for only 4 teams) use Table 5.26. If you have 21 boats, modify the pennant color system shown in Table 5.33. If you have 24 boats, use Table 5.33.

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10	18	Round-robin, with limited boat rotation. Use Table 5.38. With 24 boats use Table 5.39.
12	18	Round-robin followed by "final four", all races count (78 races, two days, minimum, required). Use Table 5.41.
12	24	Two leagues of six teams, with round robins (30 races) followed by final four. You can separate the boats into the two leagues as well and use Table 5.28, the smaller rotation table for 6 teams, 12 boats for each league, or you can keep the boats together for rotation and use Table 5.42.
16	24	Bracket system double elimination (see Figure 5.25).

Table 5.23

Team Race Regatta Formats
Showing Number of Races Required

No. of teams	Round robin 4 team	Prelim. RR with double R-R final	Double RR	Single elimination	Double elimination	2 prelim. RR groups with 4 team double R-R final	3 prelim.RR groups with 3 team double R-R final
6	15	27	30	5	10	N/A	N/A
7	21	33	42	6	12	N/A	N/A
8	28	40	56	7	14	24	N/A
8	36	48	72	8	16	28	N/A
10	45	57	90	9	18	32	N/A
11	55	67	110	10	20	37	N/A
12	66	78	132	11	22	42	24
13	78	90	-	12	24	48	14
14	91	103	-	13	26	54	32
15	105	117	-	14	28	61	36
16	120	132	-	15	30	68	41
17	136	148	-	16	32	76	46
18	153	165	-	17	34	84	54
19	171	183	-	18	36	92	57
20	190	202	-	19	38	102	63
21	210	222	-	20	40	112	69
22	231	243	-	21	42	122	76
23	253	265	-	22	44	133	83
24	276	288	-	23	46	144	90

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In contrast, Table 5.23, shows various alternatives suggested by Gary Bodie, a former coach of the US Sailing Team.

A third alternative is the "Swiss League," which is often used in larger dinghy team race events (12+ teams) instead of a round robin to minimize the number of mismatches and blowouts. After three to five races, all teams race against other teams with similar records (e.g., the teams with 4-1 records race each other, the 2-3 teams race each other and the 0-5 teams race each other). It is the best format for teams to have the highest number of close races. However, the Swiss League requires quick (or immediate) resolution of protests, a full-time computer person inputting results and a refined system to clearly announce who is participating in upcoming races (as the participants in future races are decided only a few races ahead of time). For more details and advice on the Swiss League, as well as a downloadable computer program for creation and application of a Swiss League format, see the Team Racing Committee Web site at www.ussailing.org.

The Hinman Trophy, the United States Team Racing Championship, uses either double or single round-robins, followed by either a "final four" direct swap round-robin (see Table 5.26) final, or a "best-of-three" or 'best-of-five" semi-final and final.

Whatever format you choose, do not adopt one which is too ambitious for the time available to conduct the regatta. For example, if you are able to race from 10:00 a.m. to 6:00 p.m. on a Saturday and Sunday, can run three races back-to-back (18 boats), and are able to rotate the fleets with a turnaround time of ½ hour, the maximum number of races you can complete is 96 races (16 hours x 6 races/hour). But that figure does not take into account breakdowns, protests, or periods of calm conditions. If you are really efficient, getting in 78 races is more likely. Do not attempt to run a round robin which you cannot complete.

For 12 or more teams, consider dividing the teams into two groups for preliminary round-robins. A 13-team round-robin requires 78 races to complete. However, if you split up the group into two groups, and use one 6-team round-robin (Table 5.28) and one 7-team round robin (Tables 5.29 or 5.30) you would need only 36 races to complete the preliminary rounds (using the following formula: $6 \times 5 \div 2 = 15$, $7 \times 6 \div 2 = 21$). You can conduct a championship round-robin for the top teams from each group (for example 2 from the 6-team group and 3 from the 7-team group). The 5-team championship would be 10 races, for a total of 46 races for the regatta.

Elimination systems and round-robins

Bracket eliminations

Bracket elimination systems determine the ultimate winner by causing one competitor to sail a race against another drawn by lot (or seeded), then against winners of succeeding races. The simplest is the "single elimination" series, in which each competitor who loses one race is immediately eliminated, and only winners continue to compete. Professional tennis tournaments use the same format.

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However, for competitors who travel significant distances to compete, the single elimination is a rather harsh format. For that reason, the "double elimination" format, in which the competitor is eliminated after losing twice is more common.

In many events, it is important to establish the final position of all competitors, so in addition to the winners and losers brackets, "consolation" brackets are established which allow each competitor to race until his or her final finishing position is determined. In all of these systems, protests must be decided quickly so that the competitors can move on.

In team racing, bracket systems are best used when there is not enough time to complete a full round-robin competition, or when the teams are very unevenly matched. With unevenly matched teams, round-robins provide many lopsided and boring races. Brackets get such races over with early, then pair more evenly matched teams in the later races.

The principal criticism of bracket eliminations is that some teams may race certain other teams more than once, while not racing every other team.

An example of an eight team (or competitor), double elimination bracket, with consolation brackets, is shown in Figure 5.24. An example of a 16 team (or competitor), double elimination bracket, with consolation brackets, is shown in Figure 5.25. Each is easily adaptable to a larger or smaller number of entries.

The "round-robin" format

Since bracket systems may require that some competitors race others more than once, and still others not at all, most championships use round-robins instead. Many championships use a full round-robin, then select the best four to compete in an additional round-robin. In this format, all races count, including the initial round-robin.

The formula for the number of races in a round-robin is the same as for a match racing round-robin.

$$\frac{(\text{Number of teams}) \times (\text{Number of teams minus } 1)}{2}$$

For example, with 12 teams, the number of races is: 12 x 11 / 2 = 66. Deriving a rotation for 66 races can be tricky.

This chapter contains a number of tables for team race rotations and pairings. Check the United States Team Racing Association (USTRA) Web site at www.ustra.org for these and other rotations. They are downloadable in an Excel file format with a linked table at the bottom that will populate the rotation sheet with your team names as you fill them in.

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Figure 5.24

Double elimination format with consolation brackets

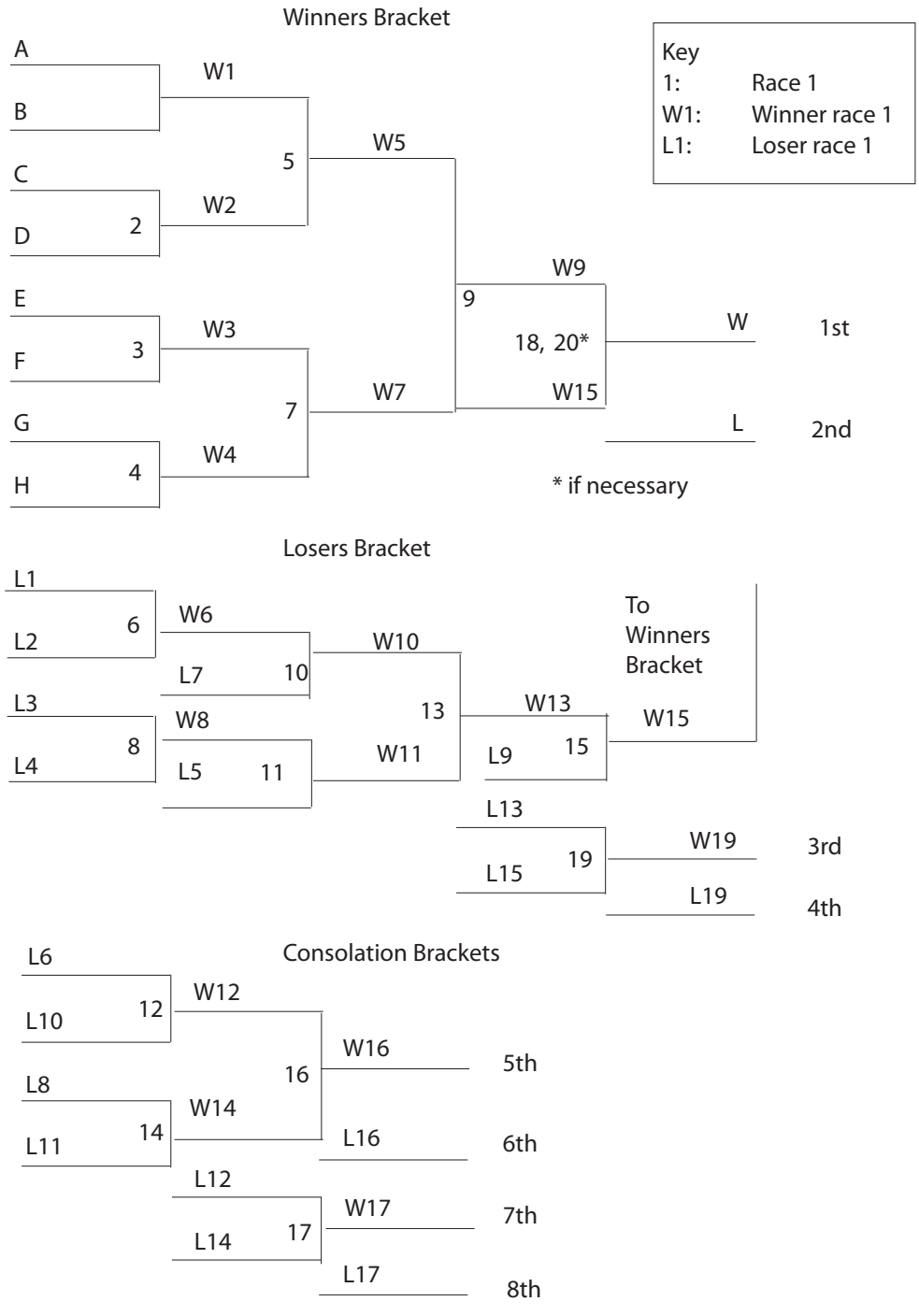

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Figure 5.25

Double elimination format with consolation brackets (16 Teams)

Winners Bracket

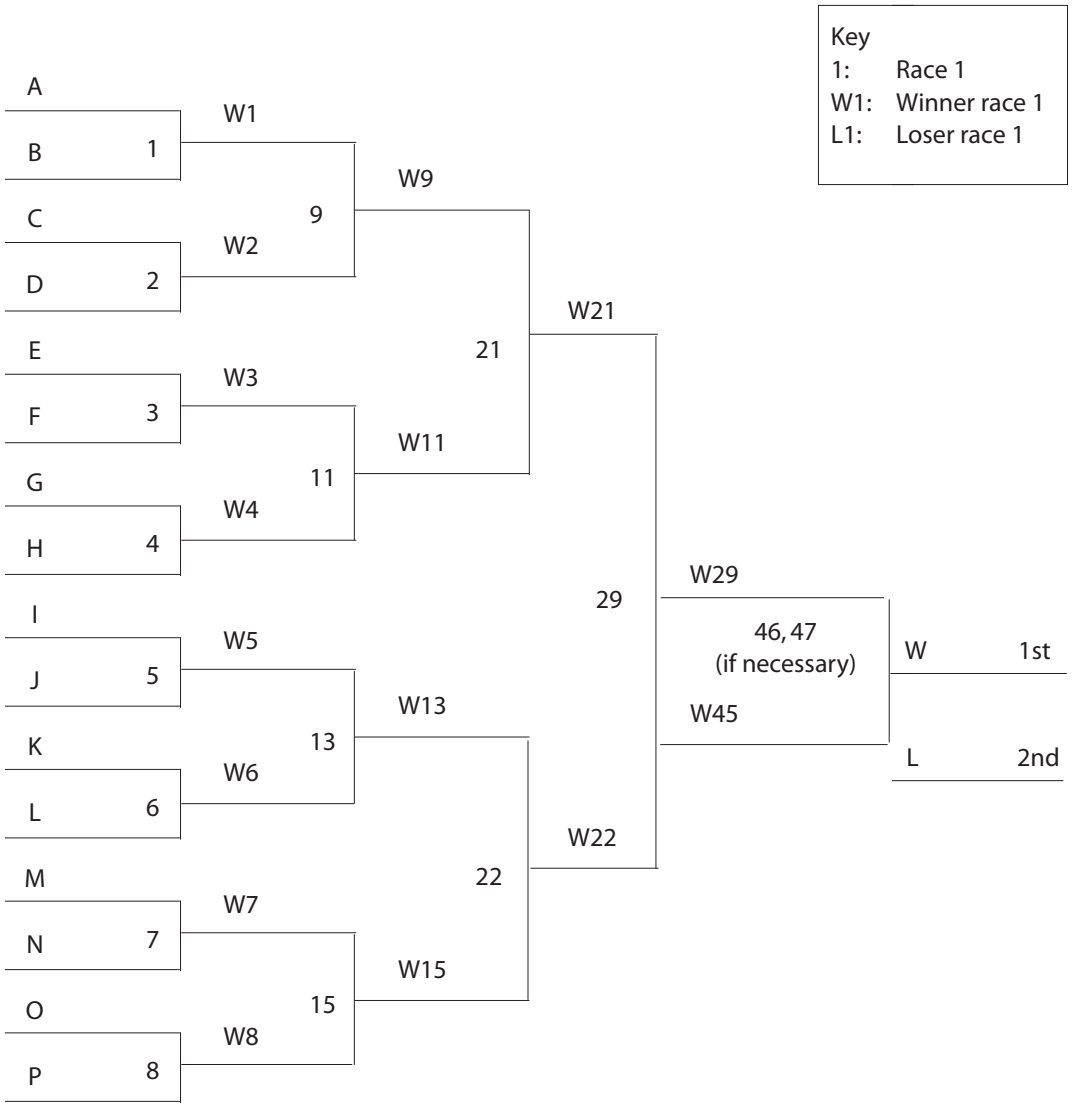

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Figure 5.25, continued

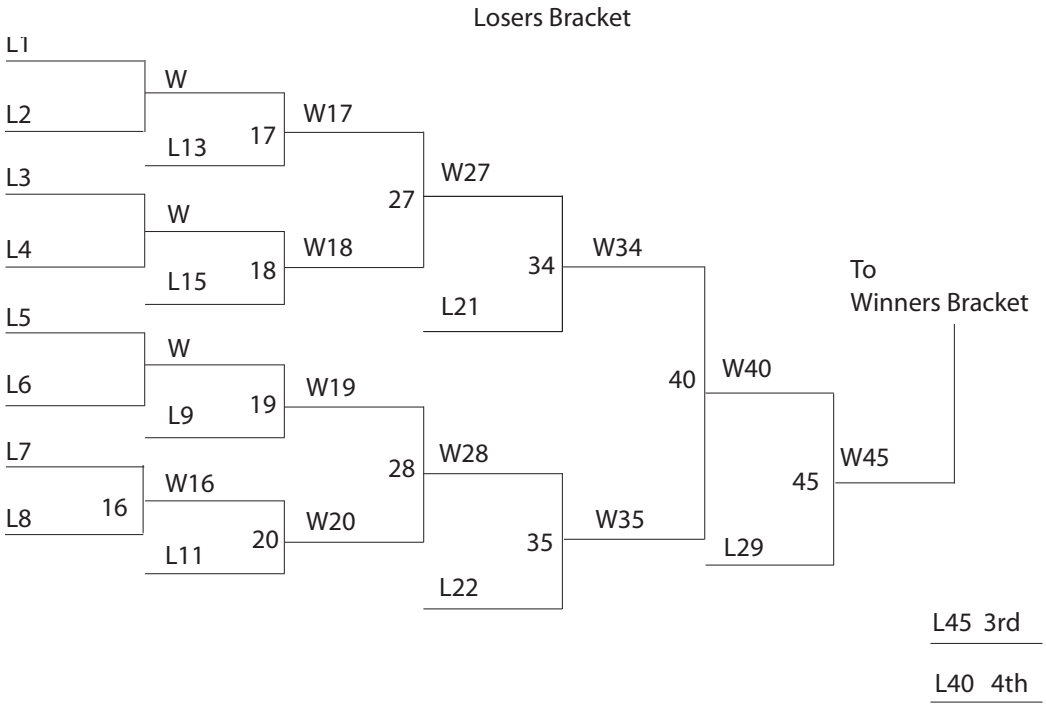

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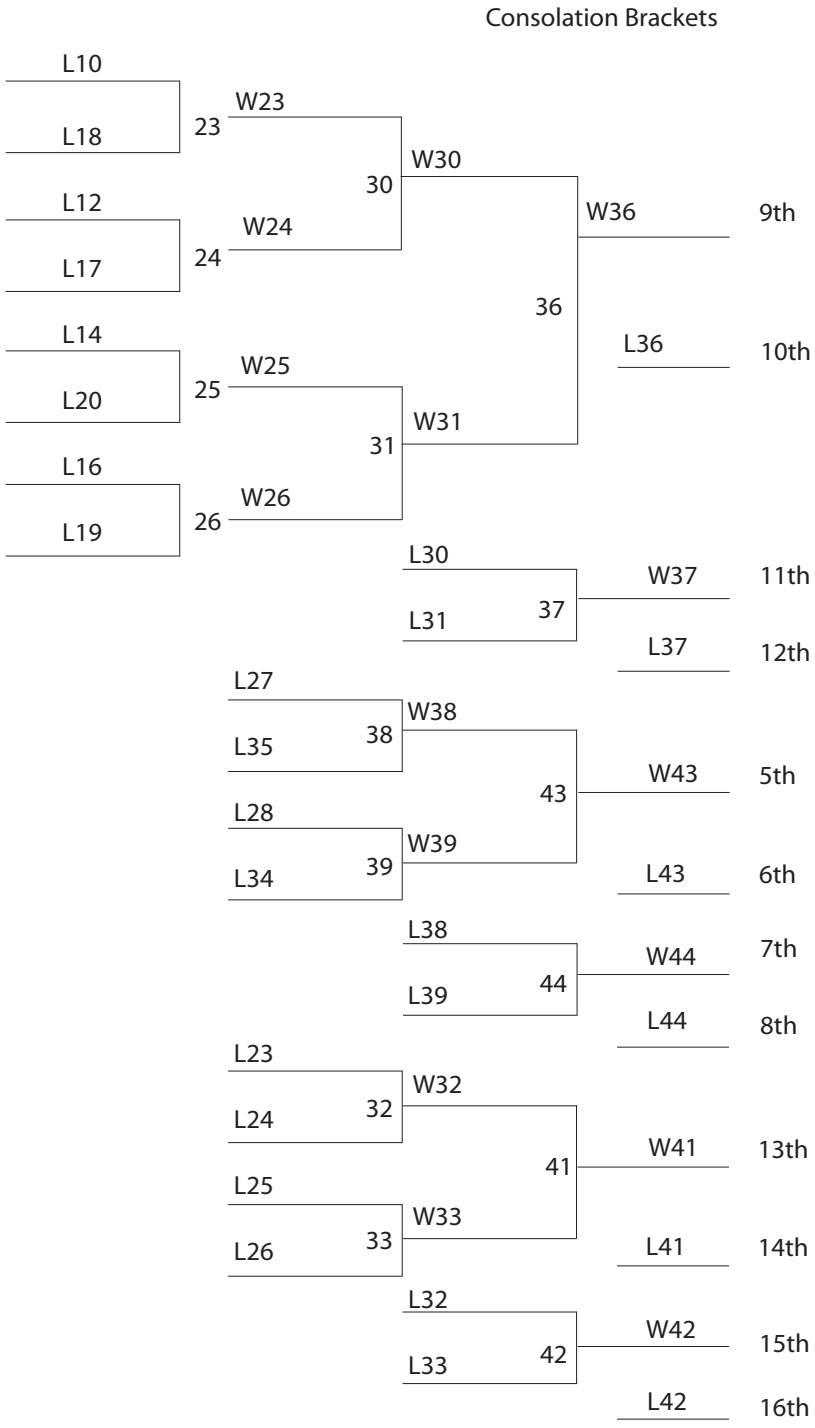
Figure 5.25, continued



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The "ladder" format

In large competitions, some event organizers use a "ladder" elimination format, in which the entrants sail one round in order to qualify for the next. If they qualify for the second round, they must then qualify for the third, and so forth. The format is different from the single elimination bracket system because a qualifying round may consist of more than one race— usually a round-robin.

Team racing rotations and boat pairings

The basic "final-four" boat rotation and pairings

In team racing events, the boats carry an identifying characteristic. The best is colored mainsails. A shroud flag, pennant, hull colors or sail stripe may also be used. Competitors can also wear team "pinnies", or colored bibs worn over life jackets.

One designated group of boats always races against a second designated group (for example, boats displaying white pennants always race against the boats displaying green pennants, red against blue, yellow against black, etc.). The teams in the boats usually exchange after every race. Ideally, each team sails each boat an equal number of times, although that is not always possible unless a double round-robin is sailed. A shorthand method of referring to the rotations is by number of competing teams and number of boats used. For example, a 5-team, 6-boat rotation is referred to as "5 x 6"; an 11-team, 24-boat rotation is referred to as "11 x 24".

The system assumes that the boats are equal, so equalization is very important. Fairness is then furthered by designing the boat rotations and pairings in advance, and having the teams draw lots for their positions in the rotation.

The basic team racing direct swap is shown in Table 5.26, in which four teams meet in a double round-robin. The groups of boats (3 per group) are identified by colored pennants—red, blue, green and white, although they can be any colors.

Running team races with limited numbers of boats

You can, however, run a team racing series with fewer than enough boats for all members of each team. In other words, 12 boats (4 groups, 3 boats each) will accommodate 4 teams. But if there are not enough boats, some of the teams may race while others stand by. The teams then exchange boats with the next teams to race.

Tables 5.28 through 5.43 show rotations for round-robins with more competitors than boats.

A "limited rotation" variation on the "follow-the-leader" method

Where there are not enough boats to accommodate all of the competing teams, a "limited rotation" can also be used. For example, if ten teams are competing, but there are only enough boats for 6 teams, (18 boats), the following round-robin format is an option:

Six teams (A through F) sail the first three races. Upon finishing, teams A and B sail in to exchange with teams G and H, while teams C through F become the first two starts of the second round. Teams G and H become the third start of round 2. This pattern continues with teams staying on the water for either four or two straight races against other teams without exchanging boats,

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until it is their turn to go ashore and rotate out. Using this method, it is possible to complete all 45 races of a ten-team round-robin in one day.

Pairings and rotations for round-robins

You may use the following tables in lieu of designing a round-robin rotation. Each may be used by itself or in combination with other formats, such as a "best-of-three" final, a "final-four" round-robin, etc. (see "Suggested formats" above). As mentioned above, do not start with a rotation which is too ambitious. Seventy-eight races in a two-day event is a realistic goal if your personnel expediting boat exchanges are experienced, and the race course is not far from the boat exchange location.

The round-robin tables which follow are:

Table No.	No. of Teams	No. of Boats
5.26	4	12
5.27	5	12 (or 6)
5.28	6	12 (or 6)
5.29	7	12
5.30	7	12 (or 6)
5.31	8	12
5.32	8	18
5.33	8	24
5.34	9	12
5.35	9	18
5.36	9	24
5.37	10	18
5.38	10	24
5.39	11	18
5.40	11	24
5.41	11	18
5.42	12	24

In each of the tables, only a single round-robin is shown. A double round-robin is a repeat of the first round. For double round-robins, you should reverse the boat assignments so that at their next meeting in round 2, the competitors are sailing the boats their opponents sailed in round 1. The comments after Tables 5.27, 5.28 and 5.30 include suggestions how to change the Table if you are using only 6 boats. Although they are adaptable to either four groups (12 boats) or two (6 boats), eight teams is the practical limit for using 6 boats, because the teams must wait so long between races.

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Table 5.26

Team Race Round-Robin 4 Teams, 12 Boats, 4 Colors 12 Races (Double Round)					
Race	Team	Pennant	Race	Team	Pennant
1	1	white	7	4	white
	4	green		1	green
2	2	red	8	3	red
	3	blue		2	blue
3	3	white	9	1	white
	1	green		3	green
4	4	red	10	2	red
	2	blue		4	blue
5	1	white	11	2	white
	2	green		1	green
6	3	red	12	4	red
	4	blue		3	blue

Table 5.27

Team Race Round-Robin 5 Teams, 12 (or 6) Boats, 4 Colors 10 Races (Single Round)					
Race	Team	Pennant	Race	Team	Pennant
1	1	white	6	3	red
	2	green		5	blue
2	3	red	7	2	white
	4	blue		4	green
3	2	white	8	1	red
	3	green		5	blue
4	4	red	9	1	white
	5	blue		3	green
5	4	white	10	5	red
	1	green		2	blue

Comments to Table 5.27:

1. For a double round-robin, repeat the same format for the second round. Time permitting, add a "best-of-three" final (see "Suggested formats").
2. Where you have only 6 boats, the pairing is the same, but only two colors are used (for example, white and green). Instead of starting race 2 immediately after race 1, the teams must exchange boats after each race with the next teams to start.

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Table 5.28

Team Race Round-Robin 6 Teams, 12 (or 6) Boats, 4 Colors 15 Races (Single Round)					
Race	Team	Pennant	Race	Team	Pennant
1	1	white	9	5	white
	2	green		1	green
2	5	red	10	4	red
	3	blue		2	blue
3	4	white	11	6	white
	6	green		3	green
4	3	red	12	1	red
	1	blue		5	blue
5	2	white	13	2	white
	5	green		3	green
6	6	red	14	1	red
	4	blue		4	blue
7	3	white	15	5	white
	4	green		6	green
8	2	red			
	6	blue			

Comments to Table 5.28:

1. For a double round-robin, repeat the same format for the second round. Break between races 15 and 16, since the boats with the white and green pennants will be used in both races.
2. Instead, you may wish to use a single round-robin, followed by a "best-of-three" final, with all races counted (see "Suggested formats").
3. Where you have only 6 boats, the pairing is the same, but only two colors are used (for example, white and green). Instead of starting race 2 immediately after race 1, the teams must exchange boats after each race with the next teams to start.
4. The boat rotation for six teams using 18 boats is only slightly quicker than the 12-boat rotation, so only the recommended 12-boat rotation is included here.

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Table 5.29

Team Racing Round Robin 7 teams, 12 boats, 21 races		
Race rotation		
Race	Pairings	
1	A (blue)	B (red)
2	C (white)	D (green)
3	A (blue)	C (white)
4	B (red)	D (green)
5	A (white)	E (blue)
6	F (red)	G (green)
7	A (white)	F (red)
8	E (blue)	G (green)
9	D (red)	F (white)
10	B (blue)	E (green)
11	B (blue)	F (white)
12	D (red)	E (green)
13	C (blue)	F (green)
14	A (red)	G (white)
15	C (blue)	G (white)
16	A (red)	D (green)
17	D (white)	G (blue)
18	B (green)	C (red)
19	B (green)	G (blue)
20	C (red)	E (white)
21	E (white)	F (blue)
Sail-off race if necessary		

	A	B	C	D	E	F	G	Total
A								
B								
C								
D								
E								
F								
G								

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Table 5.30

Team Race Round-Robin 7 Teams, 12 (or 6) Boats, 4 Colors 21 Races (Single Round)					
Race	Team	Pennant	Race	Team	Pennant
1	1	white	12	4	red
	3	green		7	blue
2	2	red	13	6	white
	4	blue		1	green
3	5	white	14	1	red
	7	green		2	blue
4	1	red	15	4	white
	6	blue		5	green
5	3	white	16	6	red
	4	green		7	blue
6	2	red	17	2	white
	7	blue		3	green
7	5	white	18	7	red
	6	green		1	blue
8	1	red	19	3	white
	4	blue		5	green
9	7	white	20	4	red
	3	green		6	blue
10	6	red	21	5	white
	2	blue		2	green
11	5	white			
	1	green			

Comments to Table 5.30:

1. Table 5.30 is the same type of format as Table 5.29, but expressed differently.
2. You may wish to use a single round-robin, followed by a "final four" round robin. For a double round-robin, repeat the same format for the second round.
3. Eight teams is the practical limit to using only 6 boats, because of the amount of time each team must wait to race. Where you have only 6 boats, the pairing is the same, but only two colors are used (for example, white and green). Instead of starting race 2 immediately after race 1, the teams must exchange boats after each race with the next teams to start.

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Table 5.31

Team Race Round-Robin 8 Teams, 12 (or 6) Boats, 4 Colors 28 Races (Single Round)					
Race	Team	Pennant	Race	Team	Pennant
1	1	white	15	3	white
	3	green		4	green
2	2	red	16	7	red
	6	blue		8	blue
3	7	white	17	5	white
	4	green		6	green
4	5	red	18	1	red
	8	blue		4	blue
5	6	white	19	2	white
	1	green		7	green
6	3	red	20	3	red
	7	blue		8	blue
7	2	white	21	4	white
	4	green		5	green
8	1	red	22	6	red
	5	blue		7	blue
9	6	white	23	1	white
	8	green		2	green
10	2	red	24	5	red
	3	blue		3	blue
11	5	white	25	4	white
	7	green		8	green
12	4	red	26	7	red
	6	blue		1	blue
13	8	white	27	3	white
	1	green		6	green
14	2	red	28	8	red
	5	blue		2	blue

All right everyone, line up alphabetically according to your height.
—Casey Stengel

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Table 5.32

Team Race Round-Robin 8 Teams, 18 Boats, 6 Colors 28 Races (Single Round)					
Race	Team	Pennant	Race	Team	Pennant
1	1	white	15	3	yellow
	2	green		8	black
2	3	red	16	6	white
	4	blue		1	green
3	6	yellow	17	4	red
	5	black		7	blue
4	7	white	18	8	yellow
	8	green		2	black
5	1	red	19	3	white
	3	blue		5	green
6	2	yellow	20	7	red
	4	black		1	blue
7	7	white	21	4	yellow
	5	green		8	black
8	6	red	22	2	white
	8	blue		6	green
9	1	yellow	23	3	red
	4	black		7	blue
10	5	white	24	5	yellow
	2	green		1	black
11	3	red	25	4	white
	6	blue		6	green
12	8	yellow	26	2	red
	1	black		3	blue
13	2	white	27	5	yellow
	7	green		8	black
14	4	red	28	6	white
	5	blue		7	green

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Table 5.33

Team Race Round-Robin 8 Teams, 24 Boats, 8 Colors 28 Races (Single Round)					
Race	Team	Pennant	Race	Team	Pennant
1	1	white	15	3	yellow
	2	green		7	black
2	3	red	16	4	orange
	4	blue		8	light blue
3	5	yellow	17	1	white
	6	black		6	green
4	7	orange	18	3	red
	8	light blue		8	blue
5	1	white	19	2	yellow
	3	green		5	black
6	2	red	20	4	orange
	4	blue		7	light blue
7	5	yellow	21	1	white
	7	black		7	green
8	6	orange	22	2	red
	8	light blue		8	blue
9	1	white	23	3	yellow
	4	green		5	black
10	2	red	24	4	orange
	3	blue		6	light blue
11	5	yellow	25	1	white
	8	black		8	green
12	6	orange	26	2	red
	7	light blue		7	blue
13	1	white	27	3	yellow
	5	green		6	black
14	2	red	28	4	orange
	6	blue		5	light blue

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Table 5.34

Team Race Round Robin 9 Teams, 12 Boats, 4 Colors 36 Races (Single Round)					
Race	Team	Pennant	Race	Team	Pennant
1	5	white	19	9	white
	6	green		6	green
2	3	red	20	5	red
	4	blue		8	blue
3	7	white	21	2	white
	8	green		4	green
4	9	red	22	1	red
	1	blue			blue
5	2	white	23	7	white
	6	green		9	green
6	3	red	24	6	red
	5	blue		8	blue
7	8	white	25	1	white
	1	green		5	green
8	9	red	26	2	red
	4	blue		3	blue
9	2	white	27	4	white
	5	green		7	green
10	7	red	28	8	red
	6	blue		9	blue
11	3	white	29	6	white
	9	green		3	green
12	4	red	30	2	red
	8	blue		1	blue
13	6	blue	31	5	white
	1	green		9	green
14	5	red	32	4	red
	7	blue		6	blue
15	9	white	33	3	white
	2	green		7	green
16	1	red	34	8	red
	4	blue		2	blue
17	8	white	35	4	white
	3	green		5	green
18	7	red	36	1	red
	2	blue		7	blue

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Table 5.35

Team Race Round Robin 9 Teams, 18 Boats, 6 Colors 36 Races (Single Round)					
Race	Team	Pennant	Race	Team	Pennant
1	6	white	19	9	white
	5	green		6	green
2	3	red	20	S	red
	4	blue		8	blue
3	8	yellow	21	2	yellow
	7	black		4	black
4	9	white	22	1	white
	1	green		3	green
5	6	red	23	7	red
	2	blue		9	blue
6	3	yellow	24	6	yellow
	5	black		8	black
7	8	white	25	1	white
	1	green		8	green
8	9	red	26	2	red
	4	blue		3	blue
9	5	yellow	27	4	yellow
	2	black		7	black
10	7	white	28	8	white
	6	green		9	green
11	3	red	29	6	red
	9	blue		3	blue
12	4	yellow	30	2	yellow
	8	black		1	black
13	6	white	31	S	white
	1	green		9	green
14	5	red	32	4	red
	7	blue		6	blue
15	9	yellow	33	7	yellow
	2	black		3	black
16	1	white	34	2	white
	4	green		8	green
17	8	red	35	4	red
	3	blue		5	blue
18	7	yellow	36	1	yellow
	2	black		7	black

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Table 5.36

Team Race Round-Robin 9 Teams, 24 Boats, 8 Colors 36 Races (Single Round)					
Race	Team	Pennant	Race	Team	Pennant
1	1	white	19	2	yellow
	2	green		9	black
2	3	red	20	4	orange
	4	blue		7	light blue
3	5	yellow	21	1	white
	6	black		7	green
4	7	orange	22	2	red
	8	light blue		8	blue
5	1	white	23	9	yellow
	3	green		5	black
6	2	red	24	4	orange
	4	blue		6	light blue
7	S	yellow	25	1	white
	7	black		8	green
8	6	orange	26	2	red
	9	light blue		7	blue
9	1	white	27	3	yellow
	4	green		6	black
10	2	red	28	4	orange
	3	blue		9	light blue
11	5	yellow	29	1	white
	8	black		9	green
12	7	orange	30	6	red
	9	light blue		8	blue
13	1	white	31	3	yellow
	5	green		7	black
14	2	red	32	2	orange
	6	blue		5	light blue
15	3	yellow	33	3	white
	9	black		5	green
16	4	orange	34	6	red
	8	light blue		7	blue
17	1	white	35	8	yellow
	6	green		9	black
18	3	red	36	4	orange
	8	blue		5	light blue

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Table 5.37

Team Race Round-Robin 10 Teams, 18 Boats, 6 Colors 45 Races (Single Round)											
Race	Team	Pennant	Race	Team	Pennant	Race	Team	Pennant	Race	Team	Pennant
1	1	white	13	3	white	25	9	white	37	10	white
	6	green		10	green		5	green		8	green
2	7	red	14	4	red	26	6	red	38	4	red
	2	blue		5	blue		2	blue		7	blue
3	3	yellow	15	7	yellow	27	1	yellow	39	5	yellow
	8	black		6	black		3	black		1	black
4	9	white	16	2	white	28	8	white	40	6	white
	4	green		1	green		7	green		9	green
5	5	red	17	9	red	29	10	red	41	2	red
	10	blue		8	blue		9	blue		10	blue
6	1	yellow	18	3	yellow	30	4	yellow	42	1	yellow
	7	black		4	black		2	black		4	black
7	8	white	19	5	white	31	3	white	43	7	white
	2	green		7	green		5	green		3	green
8	3	red	20	10	red	32	8	red	44	5	red
	9	blue		6	blue		6	blue		8	blue
9	10	yellow	21	9	yellow	33	10	yellow	45	4	yellow
	4	black		1	black		1	black		6	black
10	5	white	22	2	white	34	7	white			
	6	green		3	green		9	green			
11	1	red	23	8	red	35	2	red			
	8	blue		4	blue		5	blue			
12	2	yellow	24	7	yellow	36	6	yellow			
	9	black		10	black		3	black			

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Table 5.38

Team Race Round-Robin 10 Teams, 24 Boats, 8 Colors 45 Races (Single Round)											
Race	Team	Pennant	Race	Team	Pennant	Race	Team	Pennant	Race	Team	Pennant
1	1	white	13	3	white	25	9	white	37	10	white
	6	green		10	green		5	green		8	green
2	7	red	14	4	red	26	6	red	38	4	red
	2	blue		5	blue		2	blue		7	blue
3	3	yellow	15	7	yellow	27	1	yellow	39	5	yellow
	8	black		6	black		3	black		1	black
4	9	orange	16	2	orange	28	8	orange	40	6	orange
	4	blue		1	lt. blue		7	lt. blue		9	lt. blue
5	5	white	17	9	white	29	10	white	41	2	white
	10	green		8	green		9	green		10	green
6	1	red	18	3	red	30	4	red	42	1	red
	7	blue		4	blue		2	blue		4	blue
7	8	yellow	19	5	yellow	31	3	yellow	43	7	yellow
	2	black		7	black		5	black		3	black
8	3	orange	20	10	orange	32	8	orange	44	5	orange
	9	lt. blue		6	lt. blue		6	lt. blue		8	lt. blue
9	10	white	21	9	white	33	10	white	45	4	white
	4	green		1	green		1	green			green
10	5	red	22	2	red	34	7	red			
	6	blue		3	blue		9	blue			
11	1	yellow	23	8	yellow	35	2	yellow			
	8	black		4	black		5	black			
12	2	orange	24	7	orange	36	6	orange			
	9	lt. blue		10	lt. blue		3	lt. blue			

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Table 5.39

Team Race Round-Robin 11 Teams, 18 Boats, 6 Colors 55 Races (Single Round)					
Race	Team	Pennant	Race	Team	Pennant
1	6	white	l5	5	yellow
	1	green		9	black
2	2	red	16	11	white
	7	blue		1	green
3	8	yellow	17	2	red
	3	black		10	blue
4	4	white	18	6	yellow
	9	green		3	black
5	10	red	19	4	white
	5	blue		7	green
6	11	yellow	20	5	red
	6	black		8	blue
7	7	white	21	9	yellow
	1	green		1	black
8	8	red	22	3	white
	2	blue		11	green
9	3	yellow	23	6	red
	9	black		10	black
10	4	white	24	5	yellow
	10	green		2	black
11	5	red	25	1	white
	11	blue		4	green
12	2	yellow	26	7	red
	6	black		8	blue
13	3	white	27	9	yellow
	7	green		10	black
14	4	red	28	2	white
	8	blue		3	green

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Table 5.39. continued

Team Race Round-Robin 11 Teams, 18 Boats, 6 Colors 55 Races (Single Round)					
Race	Team	Pennant	Race	Team	Pennant
29	6	red	43	9	white
	5	blue		7	green
30	11	yellow	44	8	red
	4	black		1	blue
31	1	white	45	10	yellow
	8	green		11	black
32	9	red	46	1	white
	2	blue		3	green
33	10	yellow	47	2	red
	3	black		3	blue
34	7	white	48	9	yellow
	6	green		8	black
35	4	red	49	7	white
	5	blue		11	green
36	8	yellow	50	10	red
	11	black		1	blue
37	1	white	51	3	yellow
	2	green		5	black
38	9	red	52	6	white
	6	blue		2	green
39	7	yellow	53	11	red
	10	black		9	blue
40	3	white	54	10	yellow
	4	green		8	black
41	11	red	55	5	white
	2	blue		7	green
42	1	yellow			
	5	black			

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Table 5.40

Team Race Round-Robin 11 Teams, 24 Boats, 8 Colors 55 Races (Single Round)					
Race	Team	Pennant	Race	Team	Pennant
1	6	white	15	5	yellow
	1	green		9	black
2	2	red	16	11	orange
	7	blue		1	light blue
3	8	yellow	17	2	white
	3	black		10	green
4	4	orange	18	6	red
	9	light blue		3	blue
5	10	white	19	4	yellow
	5	green		7	black
6	11	red	20	5	orange
	6	blue		7	light blue
7	7	yellow	21	9	white
	1	black		1	green
8	8	orange	22	3	red
	2	light blue		11	blue
9	3	white	23	6	yellow
	9	green		10	black
10	4	red	24	5	orange
	10	blue		2	light blue
11	5	yellow	25	1	white
	11	black		4	green
12	3	orange	26	7	red
	7	light blue		8	blue
13	1	white	27	9	yellow
	5	green		10	black
14	4	red	28	2	orange
	8	blue		3	light blue

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Table 5.40, continued

Team Race Round-Robin 11 Teams, 24 Boats, 8 Colors 55 Races (Single Round)					
Race	Team	Pennant	Race	Team	Pennant
29	6	white	43	9	yellow
	51	green		7	black
30	11	red	44	8	orange
	4	blue		6	light blue
31	1	yellow	45	10	white
	8	black		11	green
32	9	orange	46	1	red
	2	light blue		3	blue
33	10	white	47	2	yellow
	3	green		4	black
34	7	red	48	9	orange
	6	blue		8	light blue
35	4	yellow	49	7	white
	5	black		11	green
36	8	orange	50	10	red
	11	light blue		1	blue
37	1	white	51	3	yellow
	2	green		5	black
38	9	red	52	5	orange
	6	blue		2	light blue
39	7	yellow	53	11	white
	10	black		9	green
40	3	orange	54	10	red
	4	light blue		8	blue
41	11	white	55	5	yellow
	2	green		7	black
42	1	red			
	5	blue			

I don't know the key to success,
but the key to failure is trying to please everybody.
—Bill Cosby

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Table 5.41

Team Race Round-Robin 12 Teams, 18 Boats, 6 Colors 66 Races (Single Round)					
Team	Team	Pennant	Race	Team	Pennant
1	1	white	18	9	yellow
	2	green		12	black
2	3	red	19	S	white
	4	blue		1	green
3	5	yellow	20	2	red
	6	black		6	blue
4	7	white	21	3	yellow
	8	green		7	black
5	9	red	22	4	white
	10	blue		8	green
6	11	yellow	23	9	red
	12	black		8	blue
7	1	white	24	6	yellow
	3	green		10	black
8	4	red	25	7	white
	2	blue		11	green
9	5	yellow	26	8	red
	7	black		12	blue
10	6	white	27	2	yellow
	8	green		3	black
11	9	red	28	5	white
	11	blue		4	green
12	10	yellow	29	6	red
	12	black		7	blue
13	4	white	30	9	yellow
	1	green		8	black
14	5	red	31	11	white
	2	blue		10	green
15	3	yellow	32	1	red
	6	black		12	blue
16	10	white	33	3	yellow
	7	green		5	black
17	8	red	34	4	white
	11	blue		6	green

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Table 5.41 continued

Team Race Round-Robin 12 Teams, 18 Boats, 6 Colors 66 Races (Single Round)					
Race	Team	Pennant	Race	Team	Pennant
35	7	red	51	12	yellow
	9	blue		2	black
36	10	yellow	52	11	white
	8	black		4	green
37	2	white	53	9	red
	11	green		3	blue
38	1	red	54	8	yellow
	6	blue		1	black
39	7	yellow	55	2	white
	12	black		10	green
40	4	white	56	6	red
	9	green		12	blue
41	3	red	57	11	yellow
	8	blue		5	black
42	5	yellow	58	7	white
	10	black		4	green
43	6	white	59	10	red
	11	green		1	blue
44	2	red	60	2	yellow
	7	blue		9	black
45	1	yellow	61	3	white
	9	black		11	green
46	12	white	62	12	red
	4	green		5	blue
47	5	red	63	4	yellow
	8	blue		10	black
48	10	yellow	64	8	white
	3	black		2	green
49	9	white	65	11	red
	6	green		1	blue
50	7	red	66	12	yellow
	1	blue		3	black

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Table 5.42

Team Race Round-Robin 12 Teams, 24 Boats, 8 Colors 66 Races (Single Round)					
Race	Team	Pennant	Race	Team	Pennant
1	1	white	18	8	red
	2	green		11	blue
2	3	red	19	5	yellow
	4	blue		1	black
3	5	yellow	20	2	orange
	6	black		6	light blue
4	7	orange	21	3	white
	8	light blue		7	green
5	9	white	22	4	red
	10	green		8	blue
6	11	red	23	9	yellow
	12	blue		5	black
7	1	yellow	24	6	orange
	3	black		10	light blue
8	4	orange	25	7	white
	2	light blue		11	green
9	5	white	26	8	red
	7	green		12	blue
10	6	red	27	2	yellow
	8	blue		3	black
11	9	yellow	28	5	orange
	11	black		4	light blue
12	10	orange	29	6	white
	12	light blue		7	green
13	4	white	30	9	red
	1	green		8	blue
14	5	red	31	11	yellow
	2	blue		10	black
15	3	yellow	32	1	orange
	6	black		12	light blue
16	10	orange	33	3	white
	7	light blue		5	green
17	8	white	34	4	red
	11	green		6	blue

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Table 5.42 continued

Team Race Round-Robin 12 Teams, 24 Boats, 8 Colors 66 Races (Single Round)					
Race	Team	Pennant	Race	Team	Pennant
35	7	yellow	51	12	yellow
	9	black		2	black
36	10	orange	52	11	orange
	8	light blue		4	light blue
37	2	white	53	9	white
	11	green		3	green
38	2	red	54	8	red
	6	blue		1	blue
39	7	yellow	55	2	yellow
	12	black		10	black
40	4	orange	56	6	orange
	9	light blue		12	light blue
41	3	white	57	11	white
	8	green		5	green
42	5	red	58	7	red
	10	blue		4	blue
43	6	yellow	59	10	yellow
	11	black		1	black
44	2	orange	60	2	orange
	7	light blue		9	light blue
45	1	white	61	3	white
	9	green		11	green
46	12	red	62	12	red
	4	blue		5	blue
47	5	yellow	63	4	yellow
	8	black		19	black
48	10	orange	64	8	orange
	3	light blue		2	light blue
49	9	white	65	11	white
	6	green		1	green
50	4	red	66	12	red
	1	blue		3	blue

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The easiest team racing events to run are bring-your-own-boat (BYOB) events. Boats do not need to be acquired, equalized, assigned, rotated, repaired or worried about. Also, the racing does not need to be run near a rotation dock and races do not need to be postponed for breakdowns. Even the rotation is easier to figure. Figure 5.43 shows that there is a space in between groups of races or flights.

Figure 5.43

Team Race Round-Robin Bring Your own Boat				
3 teams	4 teams	5 teams	6 teams	7 teams
1. AB	1. AB	1. AB	1. AB	1. AB
	2. CD	2. CD	2. CD	2. CD
2. AC			3. EF	3. EF
	3. AC	3. AE		
3. BC	4. BD	4. CB	4. AC	4. AG
			5. BE	5. BC
	5. AD	5. AC	6. DF	6. DE
	6. BC	6. DE		
			7. AE	7. FG
		7. BE	8. CF	8. AC
		8. AD	9. BD	9. BD
		9. CE	10. AF	10. EG
		10. BD	11. DE	11. CF
			12. BC	12. AD
			13. AD	13. BG
			14. BF	14. CE
			15. CE	15. AF
				16. DG
				17. BF
				18. AE
				19. CG
				20. DF
				21. BE

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"Cheese… milk's leap toward immortality."
—Clifton Fadiman

Course Configuration 6

Course design, in general

Courses may be designed to provide beating, reaching, running or combinations of the three. Each leg tests a particular racing and boat-handling skill, so do not compromise the quality of any leg. With careful thought, point-to-point distance events can be configured to include variety as well .

Performance considerations

Some courses are designed to accommodate a particular type of boat. High-performance boats, such as planing dinghies, may be far less fun to sail if they are confined to short courses where the skipper and crew do not have the opportunity to get the boat up to speed and experience the results of their efforts.

Boats which are exciting to sail on a reach should be given the opportunity to sail reaches if there is enough wind, or the competitors will consider that the race or regatta is not well planned or executed

Familiarity with the relative speed and sailing characteristics of dissimilar boats is essential for events which include more than one class. A shorter course for slower boats may be set inside a longer one designed for the speedsters. Larger events may require two or more separate courses

Class and competitor considerations

When selecting a course, not only must you know something about the performance characteristics of the boats involved, you should have a thorough understanding of the desires of the class. While some classes may be willing to experiment with everyday regattas, they may be unwilling to consider new course concepts for a championship event.

Location considerations

Sailboat races are held wherever there is a body of water. Each location presents a unique set of circumstances which affect course design. A narrow river may preclude setting a reach mark. Setting a proper gate may be difficult or impossible in very deep water. Small lakes may prohibit

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long windward legs. The race officer will have to decide on the best option for any particular venue.

The purpose of course design

Consideration of different types of race courses for the Olympic Games has increased experimentation with course designs for particular types of boats. For a race organizer or race committee, the most important consideration is to seek feedback from the competitors about the course they sailed. It is the competitors who either will or will not consider the course challenging and fun.

Alternative courses

Try to select at least two, and possibly three, courses for each class: one for light air, one for moderate air, and one for heavy air. For example, a windward-leeward course may be the most tactical up to 12 to 15 knots true wind. After that, if the boats perform well on a reach, consider at least one set of reaches to 18 to 20 knots, and perhaps two sets of reaches in over 20 knots (consult Table 6.8 for guidance).

Diagramming the course

The Sailing Instructions Guide (Appendix L, Addendum A to the rules) provides examples of how to draw a diagram of a typical course to be used. When diagramming the course for your sailing instructions, if there is an inconsistency between the methods used in this handbook and Appendix L, use the method specified in Appendix L.

Elements of course configuration

Starting line locations

Separate starting line:

For geometric courses, many race committees create a starting line using the leeward mark as the port end, and the signal boat as the starboard end.

You can provide a longer first weather leg by setting the starting line to leeward of the leeward mark. This has an added advantage. It is not uncommon, when running races for more than one class in a regatta, to start the first class, and have either a postponement (for a wind shift), one or more general recalls (aggressive fleet or poor starting line), or an abandonment and re-sail (error in the starting sequence) or all three. By that time, the first class is approaching the leeward mark.

For windward starts with more than one class, try setting the starting line to leeward of the leeward mark by .1 nautical mile or more. An example of a starting line to leeward of the leeward mark is shown in Figure 6.1.

Similarly, if you are using downwind starts, set the line to windward of the windward mark by the same distance. An example is shown in Figure 6.2.

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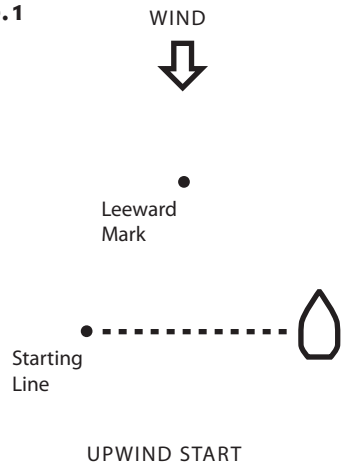
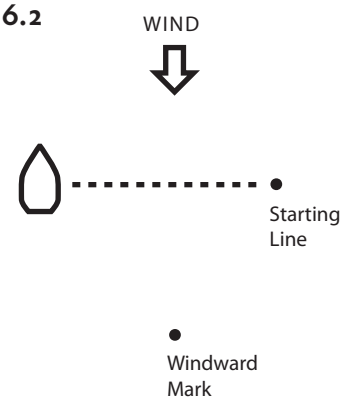
Figure 6.1



UPWIND START

Figure 6.2



DOWNWIND START

Mid-course starting lines

Starting lines set some distance above the leeward mark, such as in the middle of the course, are generally used to shorten the first beat, thereby keeping the boats closer together at the first weather mark. They are also used to create middle gates for some classes and short beats to the finish after rounding the last leeward mark.

The mid-course starting line has both advantages and disadvantages. For example, they allow the race committee to provide both windward start and finish without having to move committee boats. A disadvantage is that they make it difficult to change marks if the wind shifts, and still have a true beat to the finish.

Downwind starts

There are substantially different tactics to be used in a downwind start. It may take a few starts before some of the sailors figure out how to get the best start. Most sailors feel, however, that there are more tactics involved in an upwind start.

When using a downwind start, the starting line must be adjusted to make both ends of the line equally desirable. Generally, the port end (pin end) must be to windward about 15 degrees to accomplish this. The most you should have to favor the starboard-end committee boat should be about 20 degrees. For more details, see Chapter 10, "Setting The Course."

Offset marks

Offset marks are set a few boat lengths from the weather mark, and must be rounded or passed after rounding the weather mark.

The basic purpose of the offset mark is to create a short reach which:
1. allows boats to clear some of the fleet approaching the mark on the layline;

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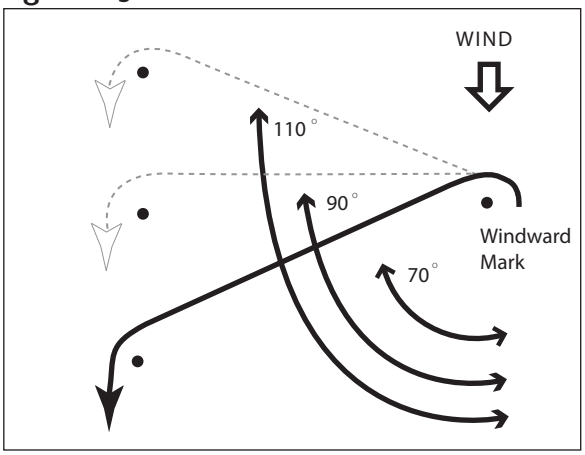
2. prevents gybe sets at the weather mark, which are slow and also somewhat dangerous in large fleets and
3. allows the boat to set a spinnaker before having to gybe.

Figure 6.3



Many classes consider the offset mark essential in larger fleets. However, many sailors also believe that there are more tactics involved in setting up for the downwind leg than an upwind leg. For that reason, if an offset mark is used, consider setting the offset mark, not the weather mark, directly upwind of the leeward mark. Be careful, though. The shorter the weather leg, the more effect this will have on the weather leg. In addition, if by offsetting the weather mark you are placing it on the favored side of the course, you may defeat your purpose.

In view of the purposes of the offset mark, it should not be far from the weather mark. Generally, all of these goals can be accomplished by placing the offset mark about 6-10 boat lengths from the weather mark. It is critical to place the offset mark above the layline to the weather mark, or it will not accomplish at least one of its purposes.

Many classes of boats with spinnakers prefer a short offset (6 boat lengths) that allows them to set a spinnaker and to get the boats powered up before having to gybe. If an offset is used, in this case, make certain that the boats can set a spinnaker during the reach to the offset mark (110 degrees to 120 degrees). This will also keep the mark above the layline (approximately 135 degrees). Note that some spinnaker classes prefer a tighter offset that does not allow spinnakers. Check with the class representative before the regatta. Figure 6.3 shows a diagram of an offset mark and the range of possibilities.

Reaches

When to use reaches

For most one design classes reaches are not tactical unless the boats are capable of either power-reaching or planing. Otherwise, they become parades. Very few boats plane or surf in less than 12 to 15 knots of true wind. The more you know about the boats, the more you will be able to design reaches as part of the course. For handicap classes (IRC in particular) the rating of the boats may assume a reaching component. In this case reaching legs should be set to ensure fair competition.

Where planing or power reaching is extremely tactical (for example, in over 20 knots), consider adding a second set of reaches in lieu of one of the windward-leeward sets of legs.

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In some classes, reaches are preferred in higher winds for safety reasons.

Types and numbers of reaches

The two most common types of reaching courses are the isosceles triangle (135° reaches) and the equilateral triangle (120° reaches). In the past the latter have been favored by high performance boats such as catamarans, while the former have been more popular with monohulls. But these are not the only types of reaching courses available.

For example, in a breeze, using a triangle with a broad first reach (140°) and a tight second reach (approximately 110°) the competitors will have to decide whether they can carry a spinnaker and fetch the leeward mark on the second reach, or whether they will have to sail lower to carry the spinnaker, or whether they should jib-reach and sail the rhumb line or higher in order to pass.

In such a course, the bottom reach should be tight enough that the boat will have some difficulty carrying the spinnaker, making hiking, trapezing and good crew work essential.

Where to put reaches in the course

Where in the course should you insert the reaches? Again, know the boats. A considerable number of sailors believe that although the first beat sorts out the fleet, a run immediately thereafter bunches the fleet up again, so the reaches should come after the second beat.

That theory is not necessarily shared by all. Watch a windward-leeward race in the class for which you are designing the course. If only the middle of the fleet tends to come together on the run, and the leaders and the back of the fleet tend to stay separated from the middle, perhaps the reaches can be placed immediately after the first beat, when the fleet is still relatively compressed.

Runs

Runs are at least as tactical as beats. They afford an opportunity for a trailing boat to catch and pass a leading boat and to obtain right-of-way at mark roundings simply by obtaining an inside overlap near the leeward mark.

Runs are equally tactical in both light and heavy air, and in shifting and steady breezes. In light air, where reaches are less tactical, runs are far more desirable when designing courses. Probably the best light air race is a windward-leeward (twice or three times around).

Because of their significance, it bears repeating that runs must be square to the wind. The importance of this is detailed in Chapter 12, "The Race."

Gates

A "gate" consists of two marks between which the boats must pass. The marks of a gate should be square to the wind and should be 8 to 10 boat lengths apart to avoid problems with three-boat-length zones for right-of-way at mark roundings. For very large (more than 25-60 boats

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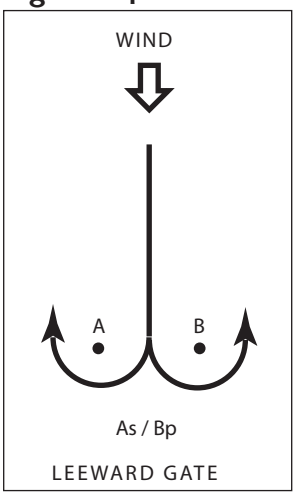
depending on boat size) one-design fleets or multihulls, the gate should be somewhat wider. There are essentially two types of gates:

Figure 6.4



Leeward gates

Leeward gates are set in place of the leeward mark. The boats must pass through the gate, but may then round either of the gate marks. An example of a leeward gate course diagram is shown in Figure 6.4, and may be described in the course diagram as "…As/Bp…" For example: "Start-1-2As/2Bp-1-Finish," for a windward-leeward course.

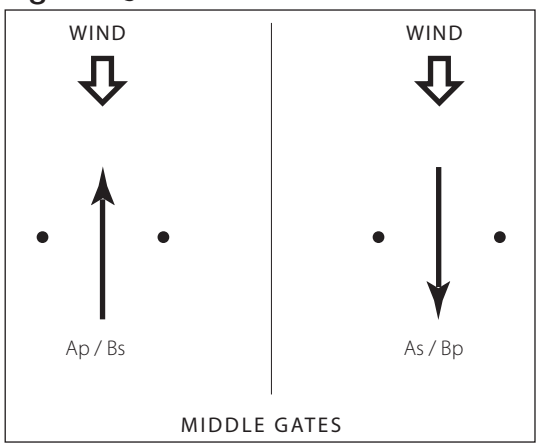
Leeward gates give tactical options otherwise unavailable to a boat which is fast, but trailing. Because the boat has a choice, she will attempt to determine which mark is favored. The wind may favor one mark, and yet the boat may wish to be on the opposite side of the course proceeding up the next beat.

Leeward gates have an additional advantage since they afford an opportunity to round either of two marks. If the gate is properly set, there are fewer boats rounding the same mark, and generally fewer protests.

Middle gates

Middle gates are essentially of two types. Where the starting line is in the middle of the course, rather than to windward or leeward, it may be used as a gate (this is common in boardsailing). The gate may also simply be two marks placed in the middle of the course to keep boats (particularly those which reach downwind) from sailing out to the layline before jibing. Both require the boats to use more of the middle of the course downwind, and thereby require more use of downwind tactics. The course used by the former "Ultimate Yacht Race" professional circuit was a windward-leeward course with a gate in the middle of the course through which the boats had to pass on both the beat and the run. Such a course provides another turning mark opportunity, and enhances spectator viewing by closing in the laylines. It does require that the competitors be very observant of boats on both legs of the course, and on both tacks and jibes.

Figure 6.5



An example of two middle gate course diagrams is shown in Figure 6.5. They may be described in the course diagram as "…Ap/Bs…" for gates for windward legs, or "…

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As/Bp…" for downwind legs. For example: Start-1-2Ap/2Bs-3-2As/2Bp-1-etc., for a windward-leeward course.

Finish line locations

Separate finishing lines

Separating the finishing line from the weather or leeward mark serves the same purposes as a separate starting line. It is especially appropriate when dealing with multiple classes or with fleets where there is great disparity in sailing ability.

Reaching finishes

Experimentation with finish lines to leeward of the committee boat (reaching finishes) has become important because of the desire in some regattas (such as the Olympics) to afford spectators, either ashore or to leeward of the finish, an opportunity to view the winners.

Reaching finishes do have some disadvantages. They make boat identification difficult for the race committee because of the angle of the sails on a reach and the way the finish boat lies to its anchor. With the finish boat anchored on the starboard end of the line, the anchor rode encroaches on a short finish line so it is better to place the finish boat on the port end. A second boat on the starboard end of the line to record finishes is highly desirable.

The finish line is usually set to leeward of the committee boat, at 70° to 90° from the last rounding mark. As an example, either the leeward mark or the port end starting mark may be used as a rounding mark before proceeding to the finish. Where you set the last mark to be rounded determines how the boats will proceed to the finish. So long as the course affords the competitors the opportunity to go high on the way to the finish, and others to go low and reach up to the finish, significant tactics are added to the last leg.

Timed courses

Most closed courses are conducted based upon set distances to each mark. For such courses, the length of time required to sail the course is controlled either by setting a time limit before which one boat must finish, or by shortening the course at a rounding mark. However, courses based upon an estimated (or expected) time, rather than distance, are coming into more widespread use, especially since their use in the Olympics.

In timed courses, the race organizer announces in the notice of race that "the race committee will attempt to set courses of approximately ____ minutes." The race committee then sets the course that it believes will take approximately that long. Usually, the course is at least twice around (e.g., W-L-W-L) so that, after the first round, the race committee can adjust the length of the remaining legs to account for the amount of time remaining.

For example, the standard team racing course is intended to take no more than 15 or 20 minutes per race. The Olympic Games uses timed courses for all classes, varying in duration from 35

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minutes (sailboards) to 90 minutes (Finns). In each instance, the length of each leg is adjusted according to the wind strength.

The following two tables, used together, will help you to determine the length of the course for the first race. With the knowledge gained from observing the boats' speed in the actual conditions, you should be able to estimate their velocity made good (VMG) more closely.

Before the warning signal, try to estimate the average speed of the boats. Using Table 6.6, select the length of time you want the race to last, read across from the average estimated speed to determine the total length of the course needed to achieve that result. Then, using Table 6.7, choose a course style and length of windward leg that will attain your goal. Any course that you might choose must be described and/or illustrated in the sailing instructions.

The course lengths shown in Table 6.7 do not include the length of any leg from a windward mark to an offset mark nor do they include any distance from a starting or finishing line that is offset from the leeward or windward marks. If you want your course to include any of those features, you must add or subtract the total length of those legs to your calculation. The length of a course with a mid-course start-finish line would be the same as the downwind finish course of the same type, assuming the start and finish lines are the same.

An example: You estimate the average speed of the fleet to be 4.5 knots. You want a 1½ hour race. Table 6.6 tells you that you need a course that is 6.8 nm in length. You decide on an isosceles triangle and find in Table 6.7 that it will require a 1.00 nm windward leg. You also want a starting line to leeward of the leeward mark and a finishing line to windward of the windward mark.

Ask your mark-set boat to set the leeward mark .1 nm (approximately 200 yards) to windward of the starting line and then set the windward mark at 1.05 nm from the leeward mark. The finishing line should then be set .1 nm to windward of the windward mark.

Table 6.8 will help you to select an appropriate courses for a different types of boats in varying wind conditions. It was compiled from the class rules of some of the classes and from the input of sailors familiar with others. The wind speed ranges are flexible and depend on many factors including sea conditions and competitor skill. This guide is intended to be just that, a guide.

A nickel ain't worth a dime anymore.
—Yogi Berra

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Table 6.6

Course Length Determination Table								
Minutes:	30	60	90	120	150	180	210	240
or Hours:	0.5	1	1.5	2	2.5	3	3.5	4
Estimated Average Boat Speed (knots)	Length of Course Needed (nm)							
2.0	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0
2.5	1.3	2.5	3.8	5.0	6.3	7.5	8.8	10.0
3.0	1.5	3.0	4.5	6.0	7.5	9.0	10.5	12.0
3.5	1.8	3.5	5.3	7.0	8.8	10.5	12.3	14.0
4.0	2.0	4.0	6.0	8.0	10.0	12.0	14.0	16.0
4.5	2.3	4.5	6.8	9.0	11.3	13.5	15.8	18.0
5.0	2.5	5.0	7.5	10.0	12.5	15.0	17.5	20.0
5.5	2.8	5.5	8.3	11.0	13.8	16.5	19.3	22.0
6.0	3.0	6.0	9.0	12.0	15.0	18.0	21.0	24.0
6.5	3.3	6.5	9.8	13.0	16.3	19.5	22.8	26.0
7.0	3.5	7.0	10.5	14.0	17.5	21.0	24.5	28.0
7.5	3.8	7.5	11.3	15.0	18.8	22.5	26.3	30.0
8.0	4.0	8.0	12.0	16.0	20.0	24.0	28.0	32.0
8.5	4.3	8.5	12.8	17.0	21.3	25.5	29.8	34.0
9.0	4.5	9.0	13.5	18.0	22.5	27.0	31.5	36.0
9.5	4.8	9.5	14.3	19.0	23.8	28.5	33.3	38.0
10.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0

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Table 6.7

Course Length Guide									
	Length of the windward leg in nautical miles								
Course Description	0.50	0.75	1.00	1.25	1.50	1.75	2.00	2.25	2.50
Windward-leeward; upwind finish (5 legs)	2.5	3.8	5.0	6.3	7.5	8.8	10.0	11.3	12.5
Windward-leeward; downwind finish (4 legs); Trapezoid is the same but add in the two reaches	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0
Isosceles right triangle-windward-leeward; upwind finish (6 legs)	2.7	4.1	5.4	6.8	8.1	9.5	10.8	12.2	13.5
Equilateral triangle-windward-leeward; upwind finish (6 legs)	3.0	4.5	6.0	7.5	9.0	10.5	12.0	13.5	15.0
Scalene triangle (75°-60°-45°) windward-leeward; windward finish (6 legs)	3.0	4.4	5.9	7.4	8.9	10.3	11.8	13.3	14.8
Isosceles right triangle-windward-leewar;d downwind finish (5 legs)	2.2	3.3	4.4	5.5	6.6	7.7	8.8	9.9	11.0
Equilateral triangle-windward-leeward downwind finish (5 legs)	2.5	3.8	5.0	6.3	7.5	8.8	10.0	11.3	12.5
Scalene triangle (75°-60°-45°) windward-leeward; downwind finish (5 legs). This distance would be the same regardless if the triangle is done before the windward-leeward or after the windward-leeward with a reaching finish.	2.5	3.7	4.9	6.1	7.4	8.6	9.8	11.0	12.3

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Table 6.8

Course Selection Guide						
General Category of Boat → / Wind Speed Range (Knots) ↓	High-performance centerboard (trapeze) (Fireballs, 505s, 470s, FD's, etc.)	Planing Centerboard (Lightning, Snipe, Thistle, Sunfish, etc.)	High-performance Keelboat (Sportboat – Melges 24 & 32, Ultimate 20, etc.)	Displacement Keelboat (PHRF, J24, J22, Solings, E22, Sonars)	Multihull	Board Boats
0-4 (0-6 for boards)	Postpone	Postpone	Postpone	Postpone	Postpone	Postpone
4-12	Windward-Leeward	Windward-Leeward	Windward-Leeward	Windward-Leeward	Windward-Leeward	Windward-Leeward
13-19	Windward-Leeward or Triangle	Triangle or Windward-Leeward	Windward-Leeward	Windward-Leeward	Scalene Triangle or Windward-Leeward	Windward-Leeward
20-25	Triangle or Windward-Leeward	Triangle	Windward-Leeward	Windward-Leeward	Scalene Triangle (possibly without a downwind leg)	Windward-Leeward
25+	Postpone	Postpone	Windward-Leeward or Postpone	Postpone for Solings, Sonars, etc.; Windward-Leeward for others	Postpone	Postpone

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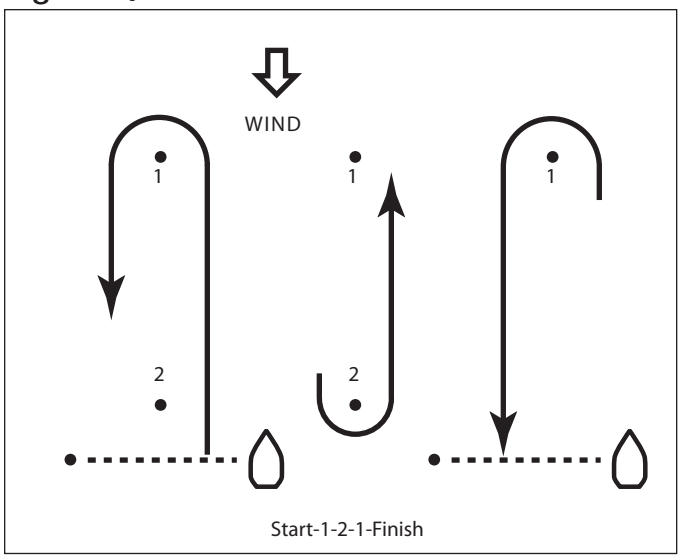
Sample courses, putting the elements together

Windward-leeward courses

The traditional windward-leeward

Figure 6.9



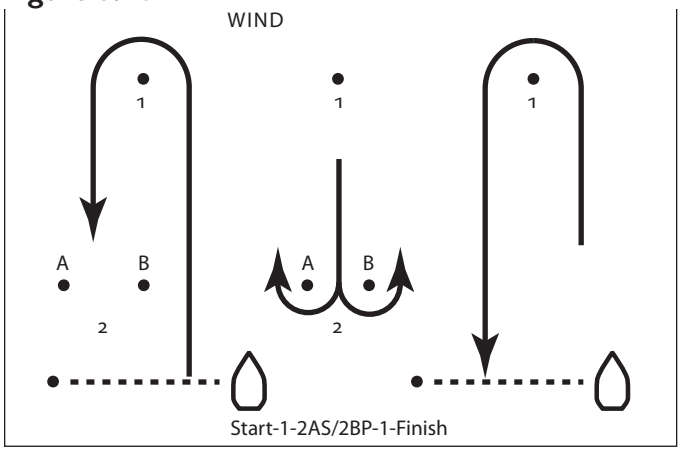
The most basic, yet one of the most tactical courses, is the simple windward-leeward course (see Figure 6.9). Vary the length of the weather legs for use as a "sprint" course (short legs) or for different time-around-course considerations, or use more times around the course. Add or subtract a leg to provide a windward finish. For dinghies and Olympic class boats, a true sprint is a weather leg of about .5 nm.

Windward-leeward with a gate

A variation of the traditional windward-leeward course includes a leeward gate course (see Figure 6.10).

Triangular courses

Figure 6.10



Closed-course triangular course configurations have traditionally been either isosceles (right) triangles (45°-90°-45°), or equilateral triangles (60°-60°-60°), with the first leg to windward. The right triangle has a longer weather leg relative to the reaching legs, and the reaching legs are 135°. In the equilateral triangle, the reaching legs are 120°.

For these reasons, the isosceles triangle is more popular, although classes which close-reach well with spinnaker may prefer the equilateral

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triangle. Catamarans usually use a scalene triangle (unequal sides) with a short, close reach and a longer, broader second reach.

Triangle courses are usually used in combination with a windward-leeward set of legs. The following are some of the most common.

The "Olympic" and "Gold Cup" courses

The most commonly used closed-course racing triangles for many years have been the "Olympic" and "Gold Cup" courses, now called windward-leeward-triangle course. The "Olympic" course is a right triangle-windward-leeward- windward (Start-W-R-RW-L-Finish, or "Start-1-2-3-1-3-Finish"—See Figure 6.11). The reaches are 135°.

Figure 6.11

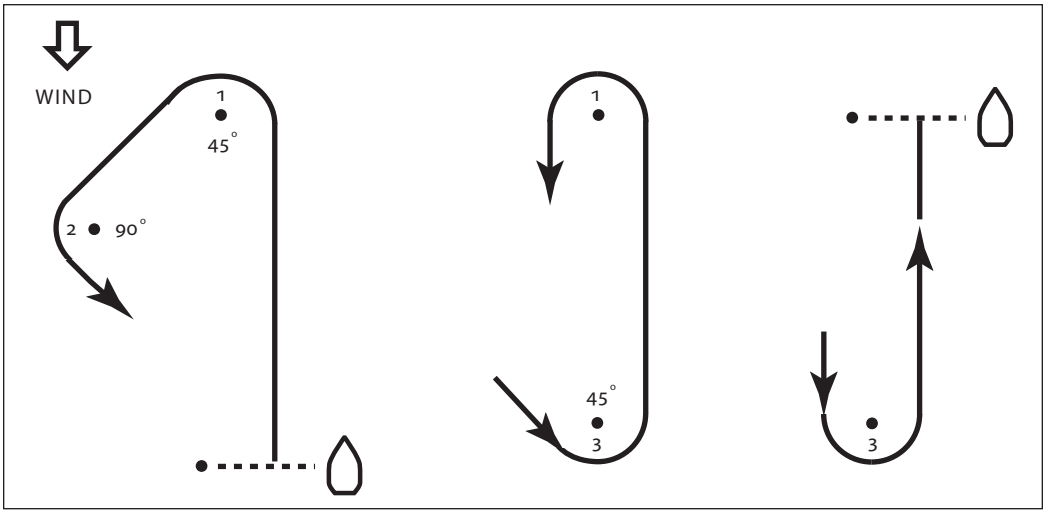
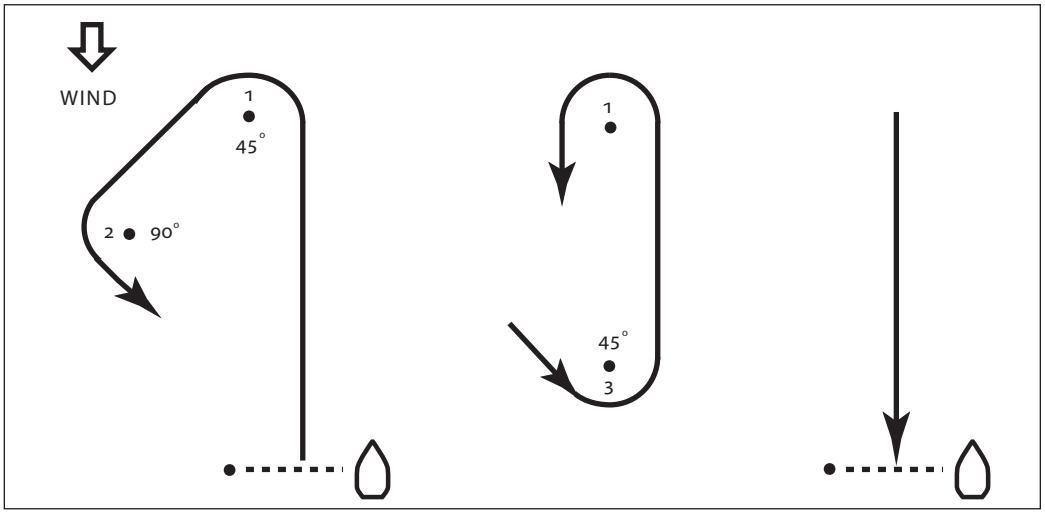


Figure 6.12



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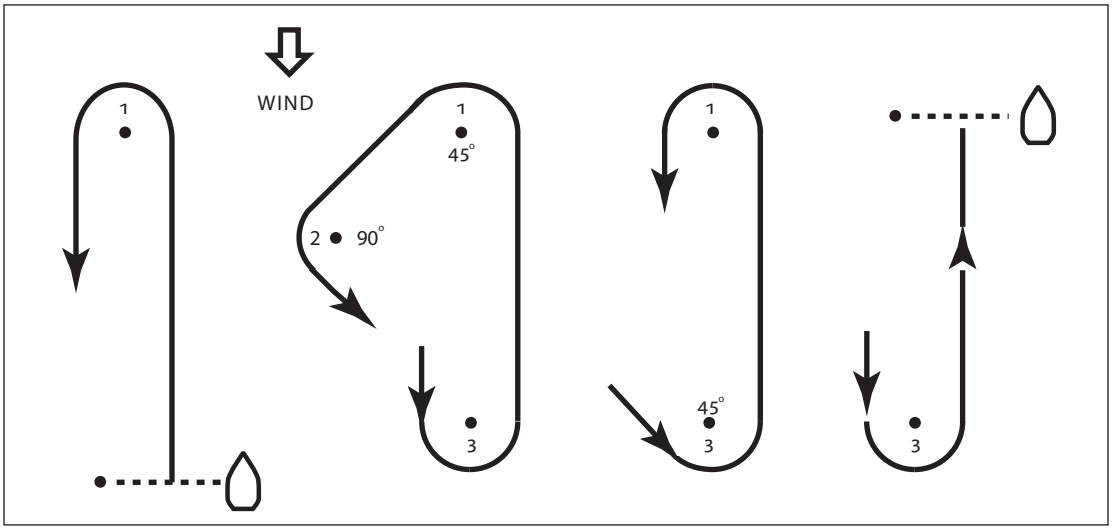
The "Gold Cup" is one leg shorter—the boats finish downwind (Start-W-R-R-W-Finish, or "Start-1-2-3-1-Finish")—See Figure 6.12.

Long courses in a confined area

In Perth, Western Australia, the race organizers for the 1987 America's Cup found that the length of the legs of the then modern America's Cup (Olympic) course would not fit within the confines of the waters in Gage Roads, where the Cup races were to be conducted. As a result, they opted for shorter, and more legs, with a windward-leeward placed before and after the triangle (Start-W-L-W-R-R-W-L-Finish—See Figure 6.13).

Figure 6.13



The percentage of "beat content" is highest, to accommodate boats which perform well to windward (and afford room for tacking duels). The percentage of "run content" is next highest, to allow the trailing boat to catch the leading boat (and allow gybing duels). The percentage of "reaching content" is lowest.

In addition, the first three legs are windward-leeward-windward so that, going into the reaches, the trailing boat has had plenty of time to get close or pass. The reaches are followed by one more windward-leeward-windward series to afford the trailing boat more opportunity to pass (and lots more tacking and gybing duels).

You may modify the course to suit your area by adding or subtracting components and by varying the length of the legs.

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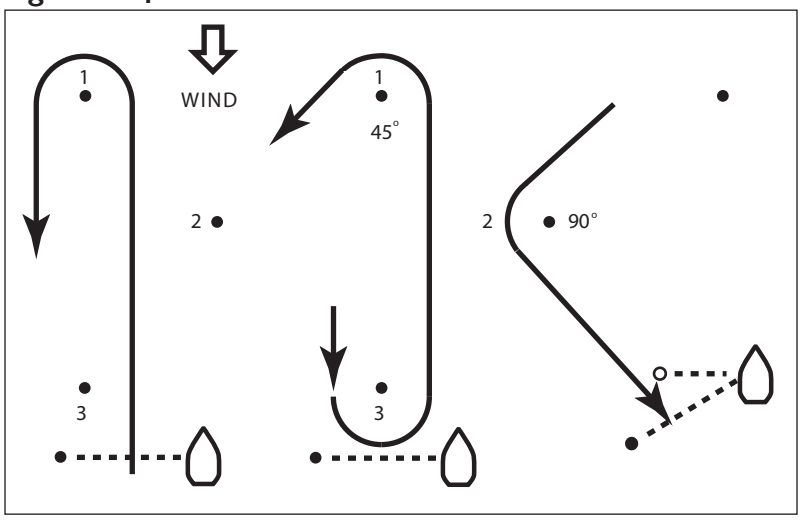
Triangles with Reaching Finishes

Triangles with reaching finishes are a development of an experiment. They were considered for the Olympics but were ultimately replaced by trapezoids which also have a reaching finish (dubbed the "Hollywood Leg" by competitors).

Figure 6.14



Isosceles triangle

Figure 6.14 shows the isosceles triangle with a reaching finish. The starting line is set to leeward of the leeward mark. The finish line is to leeward of the starting line and perpendicular to the course from the reach mark.

Equilateral triangle

As with the isosceles (right) triangle, above, windward and leeward legs are added before the triangle, and the second reach proceeds to the finish. The angles at marks 1 and 2 are 60°, making the reaches tighter and longer.

It is equally good for dinghies without spinnakers and boats which reach well with spinnaker.

Scalene triangle

Designed by the 470 class, the course is a windward-leeward (with or without a gate at the bottom), followed by a triangle. The first reach is deep (approximately 140°) followed by a tight second reach (approximately 110° to 120°) to the finish. The course is shown in Figure 6.15.

The bottom reach should be tight enough that the boat should have some difficulty carrying the spinnaker, making hiking, trapezing and good crew work essential. Planing dinghies and offshore boats should love this course in a breeze.

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Figure 6.15

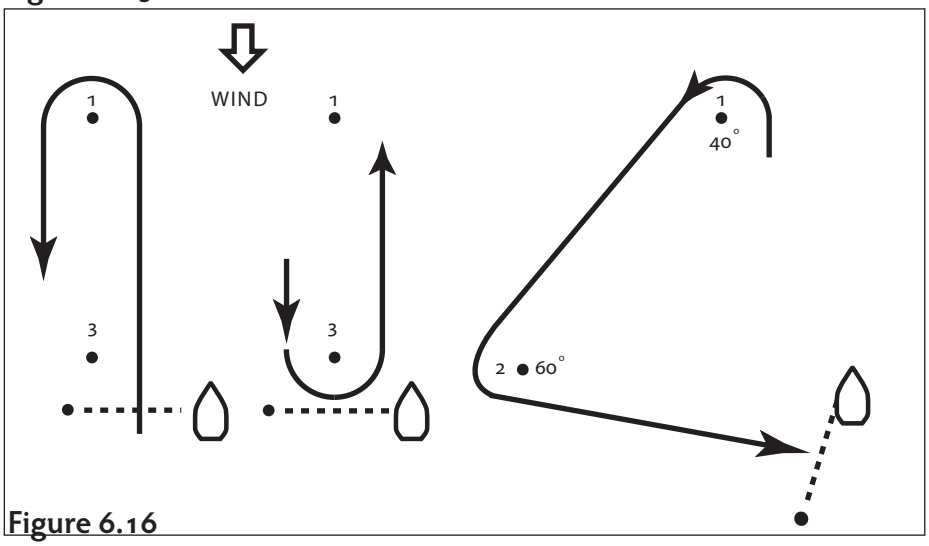
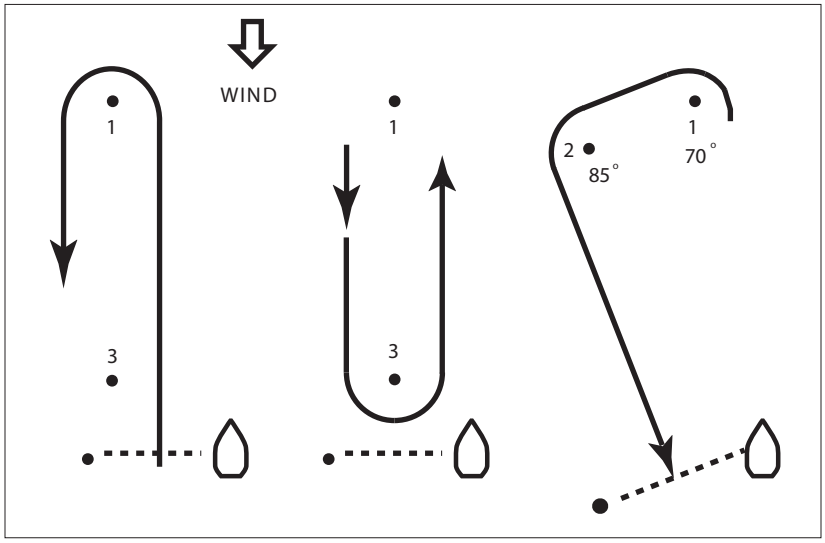


Figure 6.16



Scalene triangle, version 2

This is a version of the catamaran scalene triangle, with a short, tight, first reach (approximately 100 degrees to 110 degrees), followed by a broad reach (approximately. 140 degrees). As with the other triangles, the first two legs are windward-leeward. The course is shown in Figure 6.16. It is, essentially, the 470 course with the reaches reversed, to create different tactics approaching the finish.

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Other courses

The basic team racing courses

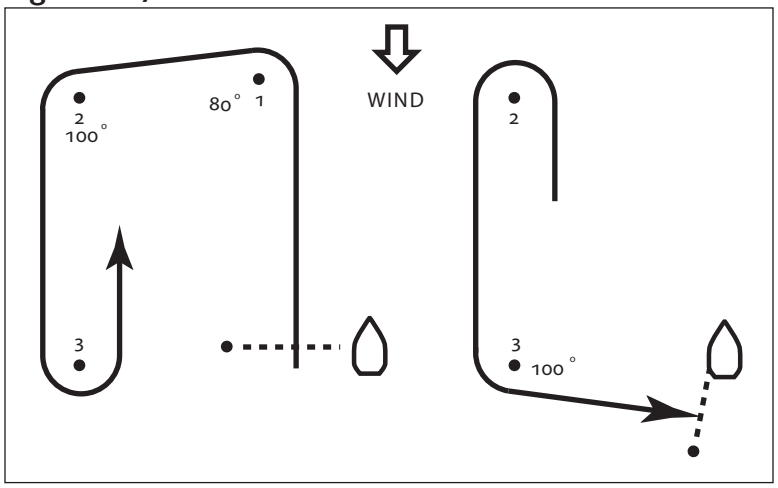
Two forms of team racing courses are discussed in Chapter 5 ("Competition Formats"). One is the "Digital N' course, and the other, a windward-leeward with an offset mark. The Digital N is used for dinghies and the windward/leeward for keelboat team racing. Diagrams for both courses are found in Chapter 5.

Trapezoidal courses

Some classes have used a trapezoidal course for several years to avoid the reach to reach jibe in a triangular course. The trapezoid is also good in restricted areas, because the reach legs are shorter relative to the windward leg than with equilateral or isosceles triangles.

At the Olympic regatta, a variation of the trapezoid is used for a different purpose. It allows two classes to be run on windward-leeward legs without interfering significantly with one another. The two courses are shown in Figures 6.17 and 6.18.

Figure 6.17



The Olympic trapezoid

The Olympic Trapezoid uses an "outer loop" and an "inner loop" to run two courses at the same time. The first fleet to start sails a windward leg, then a reach. The second fleet sails a windward-leeward-windward course before sailing the first reach. Both courses use a reaching finish.

The lengths of the windward legs are the same. The first class starts and sails the outer loop. Several minutes later, the second class starts and sails the inner loop.

This format allows two classes to sail on the same course, with adequate time to change course if there is a wind shift.

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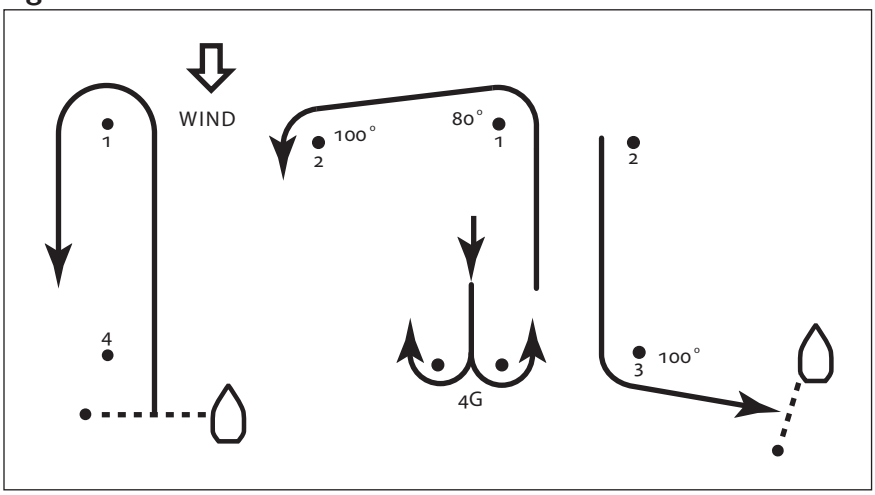
Figure 6.18

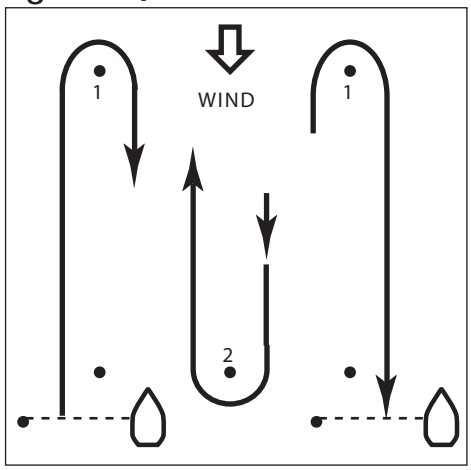


The length of the reaches can be varied, depending upon wind velocity and concerns about interference. If the boats reach well, or if they carry spinnakers, you can extend the reaches and reduce the reaching angle, and still have a significant run after the first reach.

Match racing course

The "standard" match racing course is windward-leeward as shown in Figure 6.19. Marks are rounded to starboard and the starting and finishing lines are one and the same. If time, lack of wind, etc., dictate, the ISAF "standard" sailing instructions have an option to sail a shortened version of this course which is simply one windward and one leeward leg.

Figure 6.19



Non-geometric courses

In general

As noted above, not all racing uses geometric courses. Some races involve geographical features as "marks" such as an around-the-island race or, more commonly, a point to point distance race.

In addition, some courses have no prescribed geometry, because the race committees use government and other permanent marks as a convenience.

Using government marks

When using permanent marks or permanent mark locations, each must be designated with a letter and/or number. Often government aids-to-navigation and their chart designations are

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used. Using this method, courses for different wind strengths and directions are predetermined, and listed in the sailing instructions. The signal boat selects one of the courses and displays the appropriate course designation. It is imperative that the race organizers check carefully both for the presence and location of the government marks prior to the race. Weather conditions and/or Coast Guard maintenance operations may have resulted in removal or displacement of marks from prior years positions.

Using other permanent marks

An alternative, often used on inland lakes, is to give each mark or mark location a number, and then simply display on the signal boat, usually using placards, the mark numbers in the order they are to be rounded. The placards are usually colored either red or green with white numbers, and the color indicates on which side the mark is to be rounded or passed. An alternative is to use a blackboard, and circle the mark symbol if the mark is to be left to starboard.

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If a train station is where the train stops, what's a work station?
—Anonymous

7 Notices of Race and Sailing Instructions

Notices of Race in general

A notice of race is required for every racing event (rule 90.2). The required contents are specified in Appendix J1. Use Appendix J1 as a checklist when drafting your notice. It is republished in this chapter in full, with comments and suggestions regarding its use.

The rule book has an appendix (Appendix K) which gives you a template for writing a notice of race. The preamble to Appendix K gives advice for those writing a notice of race and help on using the template. Do not simply use the previous year's notice of race. The person who prepared it may not have been as thorough as desired, or may have been rushed. Notices of race often have recognizable flaws which survive several seasons because no one remembers the problems. Remember, also, that the racing rules change at least every four years, and last year's copy may not have been prepared in accordance with the current rules.

Whenever you prepare a notice, sit down with your rule book and the applicable class rules, and make certain that the applicability of each rule is considered, as is the need to alter it (rule 86 identifies the rules which cannot be altered). Then review it with the regatta chairman so that you can determine whether all conceptual aspects of the regatta have been addressed. Send it to the class representative(s) for review and comment.

Ask a couple of thoughtful, experienced race officers and judges to read the notice before it is printed. If you have obtained the services of a US SAILING judge or race officer, seek his or her advice.

Comments regarding Appendix J1

Much of how you prepare the notice of race will depend upon what you decide your regatta should look like. Therefore, some of the comments contained in this chapter refer you to other chapters of this handbook for further explanation or consideration.

The text from Appendix J1 is set forth below verbatim. Race management comments have been added following each section, taken from various parts of this handbook. Where references to chapters of the handbook are given, those chapters contain a discussion of the

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subject. Since the notice of race and the sailing instructions are intended to work together, some of the comments on the notice of race are also applicable to the sailing instructions. References to the rules indicate whether the comments should be included in both.

Appendix J1 text:

J1.1 The notice of race shall include the following information:
(1) the title, place and dates of the race and name of the organizing authority;
(2) that the race will be governed by the rules *as defined in* The Racing Rules of Sailing;

Race management comments:

1. See Chapter 1
2. A notice of race is a rule as defined in the RRS. This means that boats that do not comply with a requirement of the notice of race can be protested. It is important that the notice of race include all the information that a prospective competitor needs to know in order to decide whether to enter the event.

Appendix J1 text:

(3) a list of any other documents that will govern the event (for example, The Equipment Rules of Sailing*, to the extent that they apply) stating where or how each document or a copy of it may be seen;*

Race Management Comments:

1. One of the most common "other documents" is the ISAF Special Regulations Governing Offshore and Oceanic Racing, including the US SAILING prescriptions. This document was formerly produced by the Offshore Racing Council, which is now a part of ISAF. To invoke the ISAF Special Regulations, include in the notice of race (and the sailing instructions) something like: "Boats shall comply with the ISAF Special Regulations for Category 3, including the US SAILING prescriptions." The category can be 0 (for trans-oceanic racing) to 4 (racing in protected waters).
2. The class rules do not need to be mentioned, since they are also rules, by definition. It is a good idea to read the class rules and look for things that attempt to change the RRS. Only a few of the RRS can be changed by class rules, see rule 86.1(c). Sailing instructions are permitted to change many of the RRS that cannot be changed by class rules.
3. The rules of a handicapping system, such as ORR and IMS, are also class rules.

Appendix J1.1 text:

(4) the classes to race, any handicap or rating system to be used, and the classes to which it will apply, conditions of entry and any restrictions on entries:

Race Management Comments:

1. See Chapter 2.

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2. Restrictions on entry may be based on age, gender, number of boats or other factors. Each limits the number of competitors, so the conditions of entry are basic information needed by anyone who is considering entering the event.
3. You may reject or cancel the entry of a boat, or exclude a competitor from your event only if you carefully follow rule 76 and the US SAILING prescriptions that are a part of it. That can be done by the organizing authority or the race committee only before the start of the first race (rule 76.1). You must state the reason (rule 76.1). The reason cannot be because of advertising, if the boat or competitor complies with Appendix 1 (rule 76.1). The reason cannot be arbitrary or capricious (prescription to rule 76.1), or for reason of race, color, religion, national origin, gender, sexual orientation or age (prescription to rule 76.1). Note that the prescription is worded to permit limiting events to one gender or special age groups as long as those limits are in the notice of race.
4. For world or continental championships, rule 76.2 requires such cancellations or exclusions have the prior approval of the relevant international class association or ISAF.
5. A boat or competitor against whom such action is taken is entitled to a hearing conducted by the event's protest committee; see the US SAILING prescription (rule 76.3).
6. If ISAF eligibility will be required, it is important to say that. See ISAF Regulation 19 (ISAF regulations are no longer printed in the rule book. See the ISAF Web site for the latest regulations. www.sailing.org). Paragraph 19.3 lists the events for which ISAF eligibility is required. It is very unusual for a member national authority such as US SAILING to invoke paragraph 19.3(g).

Appendix J1.1 text:

(5) the times of registration and warning signals for the practice race, if one is scheduled, and the first race, and succeeding races if known.

Race management comments:

1. See Chapter 2.
2. Many local regattas do not include formal registration. Instead, the notice of race, published in the regional sailing association's annual calendar, includes the dates of the regatta, the classes to race, and the number of races. The competitors simply pick up a copy of the sailing instructions and check in at the starting line. For such regattas, the racers find out the time of their start when they pick up the sailing instructions (and the scratch sheet, for handicapped events). In such instances, it is sufficient to state the time of the first warning signal in the notice of race.
3. If there is no registration, and entry is by mail, so state. Also state the date by which entries must be either postmarked or received, the date when the sailing instructions will be available, and the location where they will be available.

People don't go there anymore. It's too crowded.
—Yogi Berra

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Appendix J1.2 text:

(1.2) The notice of race shall include any of the following that will apply and that would help competitors decide whether to attend the event or that conveys other information they will need before the sailing instructions become available:

Race management comments:

This statement is the test of what to include in the notice of race. Use it to make each decision on what to include or omit.

Appendix J1.2 text:

(1) identification of any racing rules that will be changed, a summary of the changes, and a statement that the changes will appear in full in the sailing instructions (see rule 86);

Race management comments:

1. Rule 86 does not provide for making changes in the RRS by means of the notice of race. This paragraph means that you need to state what rules, if any, will be changed by the sailing instructions.
2. An example would be: Rule 44.2 will be changed to make the alternative penalty one turn, not two.

Appendix J1.2 text:

(2) that advertising will be restricted to Category A or that boats will be required to display advertising chosen and supplied by the organizing authority (see ISAF Regulation 20) and other information related to Regulation 20;

Race management comments:

This is another example of an ISAF regulation which is no longer printed in the rule book. ISAF may change its regulations at any time, so you must check the ISAF Web site for the current language.

Appendix J1.2 text:

(3) any classification requirements that some or all competitors must satisfy (see rule 79 and ISAF Regulation 22, Sailor Classification Code)

Race Management Comments:

A classification code is used to limit the participation of certain competitors based on their classification (such as "sailing professionals"). If you intend to use the ISAF Sailor Classification Code, you must say so in the notice of race.

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Appendix J1.2 text:

(4) for an event where entries for other countries are expected, any national prescriptions that may require advance preparation;

Race management comments:

It has been standard practice for international events to say that the prescriptions of the national authority will not apply. Rule 88 allows a national authority to prohibit deletion of some of its prescription. US SAILING has done so for certain prescriptions. Those prescriptions to which the prohibition applies must be included, in full, in the notice of race.

Race management comments:

(5) the procedure for advance registration or entry, including fees and any closing dates;

1. See Chapter 2.
2. Many race organizers now have a web page, and many provide an on-line entry form. Some can accept the payment of entry fees with credit cards, eliminating most of the paperwork involved in registration. Be sure to describe an alternative to on-line entry for those who do not have the capability to use it.

Appendix J1.2 text:

(6) an entry form, to be signed by the boat's owner or owner's representative, containing words such as "I agree to be bound by The Racing Rules of Sailing *and by all other **rules** that govern this event";*

Race management comments:

See Chapter 2, entry forms.

Appendix J1.2 text:

(7) equipment inspection, measurement procedures or requirements for measurement or rating certificates or for handicap or rating certificates;

Race management comments:

1. See Chapter 2.
2. A boat's owner and any other person in charge is required by rule 78.1 to ensure that the boat is maintained to comply with her class rules and that her measurement or rating certificate, if any, remains valid. If measurement or rating certificates are going to be required, it is a good idea to put that into the notice of race.
3. Rule 78.2 describes the procedures to follow if a boat cannot produce a required certificate before racing.

When you win, say nothing. When you lose, say less.
—Paul Brown

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Appendix J1.2 text:

(8) the time and place at which the sailing instructions will be available;

Race management comments:

1. Most often, the sailing instructions are made available at registration.
2. For events with competitors whose first language is not English, it is a good idea to make the sailing instructions available on a Web site a few weeks in advance of the event.

Appendix J1.2 text:

(9) changes to the class rules, as permitted under rule 87, referring specifically to each rule and stating the change;

Race management comments:

1. Class rules are "owned" by the class organization, and almost always include a provision for making changes to them. Such provisions rarely, if ever, allow an organizing authority other than the class association to make changes to the class rules.
2. If the class has modified its class rules since they were last printed, it is a good idea to include a reference in the notice of race to the place (usually on the Web) where the changes may be found.

Appendix J1.2 text:

(10) the courses to be sailed;

Race management comments:

1. Normally what is in the notice is fairly general, such as: "Courses will be around government marks" or "Courses will be windward/leeward, with up to eight legs."
2. Nothing is needed if, for example, the class rules specify the courses to be used for the event.
3. The sailing instructions must include the details of the courses, see Appendix J2.1(4).

Appendix J1.2 text:

(11) the penalty for breaking a rule of Part 2, other than the Two-Turns Penalty;

Race management comments:

1. Rule 44.1 provides that the default alternative penalty for breaking a rule of Part 2 is a two-turns penalty. If you want some other alternative penalty to be in effect, such as the scoring penalty of rule 44.3, you must include that.
2. Sometimes for distance races there will be a provision in the notice (and the sailing instructions) to permit the protest committee to assess time penalties in lieu of disqualification for certain rule breaches, such as being OCS. Be careful how you write such rules.

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Appendix J1.2 text:
(12) denial of the right of appeal, subject to rule 70.5;

Race management comments:
The right to appeal can be denied only in very limited circumstances; see rule 70.5. It is not sufficient to state that the right of appeal will be denied (or that decisions of the protest committee will be final); one of the conditions of rule 70.5 must be met.

Appendix J1.2 text:
(13) the scoring system, if different from the Low Point System in Appendix A, the number of races scheduled and the minimum number that must be completed to constitute a series;

Race management comments:
1. See Chapter 13.
2. The rules provide a default scoring system which is in effect unless you say otherwise. You must still state the number of races scheduled and the number of races required to constitute as series or championship if it is more than one race.
3. The default in Appendix A is to exclude each boat's worst race score from her series score. If you want something other than this, it must be in both the notice and the sailing instructions. Pay particular attention to qualifying series or other short series. An excluded score is often not what you want.
4. If a more complex scoring system is to be used, it is best to include it by reference or to put the entire system into an appendix to the notice and sailing instructions.

Appendix J1.2 text:
(14) prizes.

Race management comments:
Usually what is stated is how many boats will receive prizes. If there are special prizes, such as a named trophy or ones for certain subsets (e.g. juniors or women), they should be listed too.

Sailing instructions in general

The sailing instructions are the directions that describe how the race(s) will be conducted. They must be in writing, rule 90.2(a), and must be made available to each boat before a race begins (rule 25). For most events it is sufficient to make them available when the competitors arrive at the venue, typically at registration. For complex events, especially when some competitors will have to translate them, making sailing instructions available well in advance on a Web site is a very good idea.

It is the race committee's responsibility to publish the sailing instructions, and to make them conform to Appendix J2, rule 90.2(a).

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For an "international event" the sailing instructions must include, in English, the applicable prescriptions of the national authority (US SAILING in the United States); see rule 90.2(b). The term "international event" is defined in ISAF Regulation 18.16.2: an event "open to entries other than those from the national authority of the venue". They can be downloaded from the US SAILING Web site, on the racing rules page. Posting them on the official notice board as an addendum to the sailing instructions is an acceptable way of including them in the sailing instructions.

Changes to the sailing instructions

Rule 90.2(c) specifies how to change the sailing instructions. Ordinarily, changes must be in writing and posted within the required time on the official notice board. The "required time" should be in the sailing instructions, and should have two different time limits: a general one, usually just long enough prior to the first scheduled warning signal to allow competitors sufficient time to check the board before leaving for the racing area; and one for changes in the racing schedule, usually sometime the evening before the change will become effective. Hint: use the end of protest time limit as the time by which changes in the schedule must be posted.

The second way competitors can be informed of changes to the sailing instructions is on the water, before the warning signal. Unless the sailing instructions provide for giving oral instructions, these too must be in writing. If you do this, be sure to record the sail or bow numbers of each boat that receives the change.

The third way competitors can be informed of changes to the sailing instructions is orally on the water, before the warning signal. This can be done only if the procedure is stated in the sailing instructions. Except for very small fleets, this should be done only in unusual circumstances

Note that changes to the sailing instructions can never be made orally on shore, for example at a competitors' meeting.

It is the race committee that has the authority to change the sailing instructions. Appendix N2.3(a) does give the organizing authority to right to direct an international jury to "make or approve changes to the sailing instructions." Such authority should be granted only in unusual circumstances.

Sailing instruction principles

The preamble to Appendix L of the racing rules contains seven principles on which sailing instructions should be based:

1. They should include only two types of statement: the intentions of the race committee and the obligations of competitors.

It's good to shut up somtimes.
—Marcel Marceau

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2. They should be concerned only with racing. Information about social events, assignment of moorings, etc., should be provided separately.
3. They should not change the racing rules except when clearly desirable.
4. They should not repeat or restate any of the racing rules.
5. They should not repeat themselves.
6. They should be in chronological order; that is, the order in which the competitor will use them.
7. They should, when possible, use words or phrases from the racing rules.

If you adhere to these principles, your sailing instructions will be concise and easy to understand. The competitors may actually read them!

Sailing instruction contents

Appendix J2 includes two lists of sailing instruction contents. The first, J2.1, lists the requirements ("shall include") for all sailing instructions. You should be sure that any sailing instructions you write include these basic items.

Appendix J2.2 is the list of items that must be included when they are applicable ("shall include those…that will apply"). This list is long, 38 items, and many of the items on the list will not be applicable for most regattas.

Comments on specific items in J2.2:

(4) Rule 86.1(b) specifies which racing rules can be changed by sailing instructions. One of the principles stated above is that only essential changes should be made to the racing rules. In order for such a change to be effective, it must refer specifically to the rule being changed and state the change; if it does not, the change has not been made.

(5) Rule 86 permits national authorities to restrict changes to its prescriptions. US SAILING has prescribed that some of its prescriptions cannot be changed or deleted. Any attempt to do so in the sailing instructions is invalid, and could create a very confusing situation for the competitors.

(6) This is misleading. ISAF Case 98 makes it clear that neither the organizing authority nor the race committee has the authority to change class rules. The function of J2.2(7) is to require that competitors be informed of proper changes that have been made to the class rules by the class.

(10) Having more than one official notice board is risky. Do so only when clearly necessary.

(12) Hint: it is a good idea to either prohibit competitors from protesting under the sailing instructions that deal with these issues, or to specify a penalty less than DSQ for breaking them.

(13) "Declarations" are not defined. They may be required by class rules (e.g., which sails will be used) or by the notice of race (e.g., which crew members will sail or have sailed

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in each race). They may also be a mechanism used to report alternative penalties that have been taken.

(17) Do not try to make a "keep-away" buoy attached to a race committee boat an obstruction. The definition *mark* prohibits that.

(18) If the sailing instructions define a "finishing window" or "curfew", be sure to include the rules that are changed (35, 63.1, A4.1 and A5), and to say that the race committee will score the boats as DNF (or something else) without a hearing.

(31) The right of appeal cannot be denied except for one of the reasons listed in rule 70.5. Merely stating that decisions of the protest committee will be final or that there will be no appeals of decisions of the protest committee does not, by itself, eliminate appeals.

Sailing Instructions model

US SAILING provides the following guide to writing simple sailing instructions for events such as club or local regattas. For a guide to sailing instructions for more complex events, such as world, national, or class championships, consult Appendix L of The Racing Rules of Sailing.

To use this guide replace each set of brackets { } with the material called for within the brackets, and select options in square brackets as appropriate. Finally, you should review Appendix J2 to determine whether any additional items should be included. If so, you can find appropriate wording in Appendix L.

{Event name}

{Location, Dates}

Sailing Instructions

1 Rules

The regatta will be governed by the rules as defined in the current Racing Rules of Sailing.

2 Entries

Competitors may enter by delivering a completed entry form [and paying the {amount} entry fee] to {place} before {time} on {date}.

3 Notices to competitors

Notices to competitors will be posted on the official notice board located {describe where}.

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4 Signals made ashore

Signals made ashore will be displayed from the flagpole located {describe where}. If a postponement is signaled ashore, the warning signal will be made not less than {time period} after AP is lowered.

5 Schedule [and class flag(s)]

[A competitors' meeting will be held at {time, date, place}.]The warning signal for the first race will be [at {time}] [as follows: {date}, {time}; {date}, {time}; ...]. Subsequent races [each day] will be held as soon as possible after the end of the previous race. [The class flag is {describe}.]

6 Class flags

[For the first race [each day], classes will start in the following order {specify list of classes and class flags}.]

7 Racing area

The racing area will be {describe where}.

8 Course[s] and marks

The course[s] will be {describe course[s]}. [{If more than one course} The course will be designated by {describe method, e.g. a black letter on a white board}]. All marks will be {describe}.

[The attached diagram shows the courses, course designations, the marks in order and the rounding direction of each mark.]

9 Starting and finishing lines[; starting system]

The starting and finishing lines will be between {describe}. [The Sound Signal Starting System of Appendix Q will be used.]

10 Time limit

The time limit for each race will be {specify time limit} for the first boat to finish. [Boats finishing more than {number} minutes after the first boat that sails the course finishes will be scored DNF without a hearing. This changes RRS 35, 63.1, A4 and A5. *Use the finishing "window" carefully.*]

11 Protests

Protests shall be delivered to {place} within {time} after the race committee finish boat docks. The protest time limit and a list of protests received will be posted on the notice board. Hearings will be held as soon as possible after racing each day in {place}.

12 Scoring

[All scores will count.] [Only if at least {number} races are completed, each boat's worst score will be excluded from her series score.] {Number} races are scheduled. [One race constitutes] [{Number} races constitute] a series.

13 Prizes

Prizes will be awarded to {describe}.

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Sailing instructions guide (Appendix L)

This appendix to the racing rules is available on the ISAF Web site, www.sailing.org, and provides a template for creating sailing instructions for more complex events. In many cases there are several options included for specific sailing instructions, e.g., 11.2 starting lines.

Very complicated events

ISAF has provided, on its Web site, model sailing instructions for very complicated events, such as a multi-class world championship. They also provide model sailing instructions for specialized events, such as grade 1 match racing events.

Course diagrams

The weakest part of many sailing instructions is the course diagrams. Addendum A to Appendix L of the racing rules "Illustrating the Course," includes some basic diagrams. These provide a good starting point, but are incomplete and may be misleading when combined with some of the suggested language for describing the course (see L8.1, for example). When the language in the sailing instructions says that the course diagrams will show "the side on which each mark is to be left," the diagram should not include a continuous line falling on one side of a mark that is not a mark of the course every time it is passed.

On the race management page of the US SAILING Web site, www.ussailing.org/racemgt, there is a windward/leeward course diagram. It has the following desirable attributes:

1. It is in Microsoft Word, and can be changed easily.
2. There is no continuous line for the course, avoiding the problem of where to put the line with respect to the gate on the first leg, or the windward mark(s) on the last leg with an upwind finish.
3. The course designation is related to the course; in this case, it is the number of full legs in the course, excluding the "leg" from the windward mark (1) to the offset mark (1A).
4. The starting and finishing lines are drawn to the course side of the appropriate marks, removing any doubt about the definition of these lines.
5. The marks on the diagram look like the actual marks in shape, relative size, and color (if printed in color).
6. If you are using numeral pennants to designate the course, they can be added to the diagram.

A black and white version of this diagram is in Figure 8.1.

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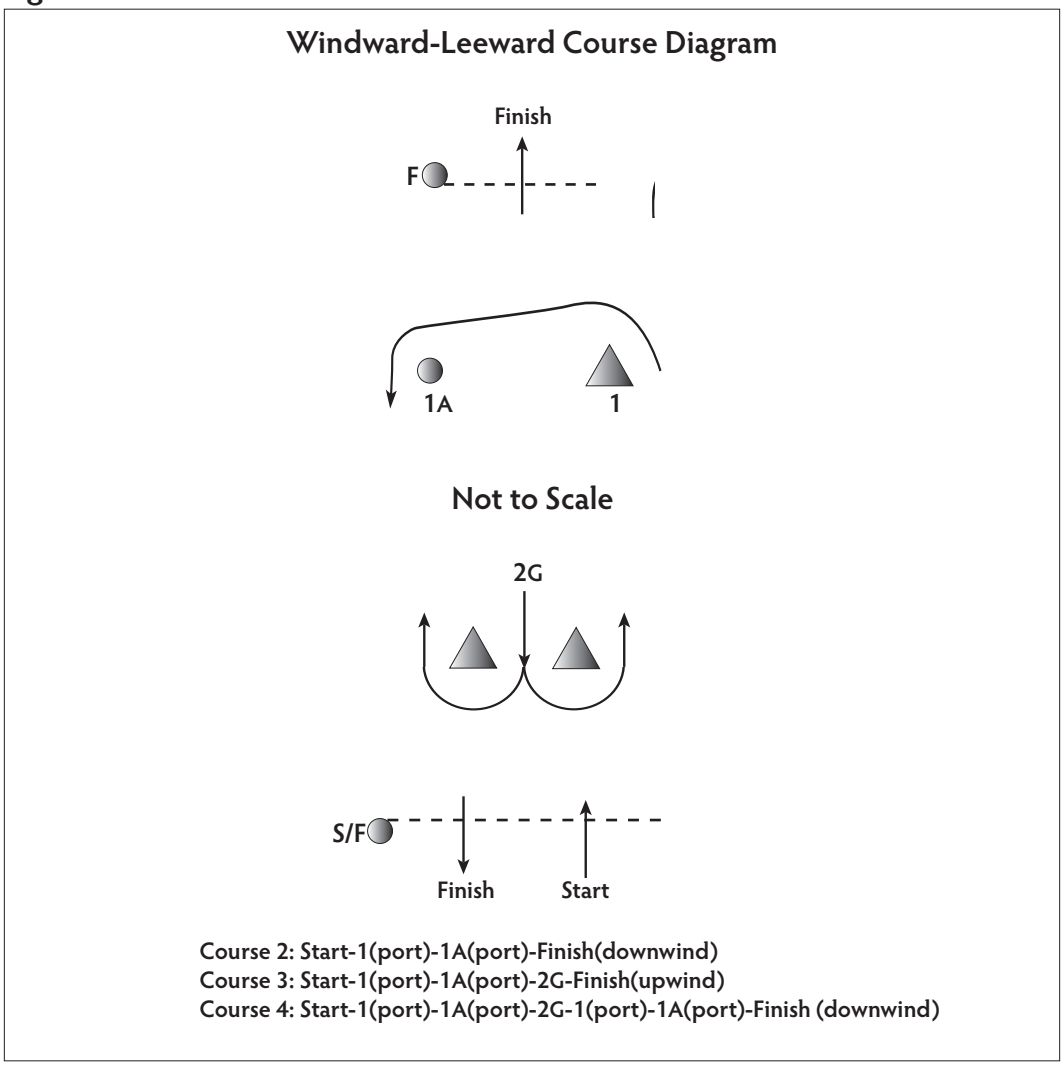
Figure 8.1



Course 2: Start-1(port)-1A(port)-Finish(downwind)
Course 3: Start-1(port)-1A(port)-2G-Finish(upwind)
Course 4: Start-1(port)-1A(port)-2G-1(port)-1A(port)-Finish (downwind)

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I cook with wine, sometimes I even add it to the food.
—W. C. Fields

8 Race Committee Equipment

Boats

In general

Rarely is enough thought given to the selection of committee boats. The number, function and desired characteristics depend on the race committee system used, kind of boats racing, sea and weather conditions, and type of course and marks. The signal boat for a four-boat system, inland-lake scow regatta is not necessarily suitable for an offshore race with the one-boat system.

Boats used in rough, open water need to be steady enough so they can lie broadside to waves without rolling the scuppers under. Well-ballasted, seagoing hulls are preferable to light-displacement craft. The opposite is true in flat, inland water.

In general, committee boats chosen tend to be too large for the job. Choose one large enough to contain your race committee but not so large as to create major wind shadow.

In events with fleets using more than one racing area, it is good practice to assign a particular colored flag for use by all committee boats in a given racing area, and to assign separate radio channels to each racing area.

Signal boats

An appropriate boat for displaying race courses and signals is critical to good race management. It should provide the committee with room to do their work efficiently and in reasonable comfort, with protection from bad weather.

Some racing requires that the signal boat be fast enough to outpace the racing boats. Other racing requires that the signal boat be equipped to feed and bunk committee members.

Select a boat which will accomplish the tasks it is expected to perform. It should not, however, be so large that it will be unwieldy, or blanket boats sailing to leeward of it, or materially affect the length or angle of the starting and finishing lines when swinging with the current or wind. No matter what the size, it should be able to maneuver quickly into position in any kind of weather.

He hits from both sides of the plate. He's amphibious.
—Yogi Berra

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The boat must be equipped with a means of displaying signals. Common systems are poles placed in holders, masts with halyards, and boxes for displaying shapes. Because of their ease of use, the use of poles for displaying signals has become widespread. Using either PVC, bamboo or long wooden poles, it is possible to raise signals rapidly. By placing pole holders in various places on the signal boat, flags can be displayed without obscuring each other, making them quite visible to all competitors.

If you plan to use halyards, you will need at least five hoists, more if code flags are used for designating courses (Race Signals). See also, Signal visibility, below.

A signal boat needs both open and covered space. In fair weather the committee can work best from an open deck or cockpit, but in bad weather, some will have to work under cover. It is impossible to record finishes on a card that is dissolving in the rain.

The boat should be able to weigh anchor and re-anchor quickly in the general racing conditions; this ability gives the committee much needed flexibility. An effective system for rapid anchoring is a hydraulic reel winch with heavy chain on the anchor, followed by a generous length of nylon line to provide spring. To reduce the chance of fouling the anchor line, slide a weight several feet down the line, and run another short line to the weight to keep it at the appropriate depth.

A good, but sometimes slightly slower, system uses all chain and a good electric windlass. Regardless of the system, effective windlass speed is the key.

Line boats

Any line boat (even the signal boat, when it is a line boat) should be as small as possible without jeopardizing the safety of its occupants. For dinghy races, small hard-sided boats or inflatable rubber boats are usually suitable. They disturb the wind very little, are maneuverable, and require only small, light anchors. There is no superstructure to catch rigging. Rubber boats are particularly popular with sailors who get too close. However, a low line of sight makes it difficult to identify those boats on the course side in a large fleet. For this reason, when using a midline boat, try to use one with a superstructure. They should be equipped with VHF radio and GPS, either permanently installed or handheld.

Mark-set boats

A mark-set boat must be fast, and powerful enough to haul or tow necessary marks. It must be maneuverable and provide a good working platform for setting and retrieving marks. A large, clean open-cockpit whaler-type boat is ideal, but consider purchasing a fold-down canopy of some sort to protect the occupants from sun and foul weather. When operating large courses in open water, dual engines are desirable.

Since mark-set boats must be able to set the course accurately, try to select boats which have enough cabinet or console space to fit radios, global positioning systems (GPS) or other elec-

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tronic equipment to allow the boat to do its job in any conditions. The availability of hand-held GPS and good, portable VHF radios can keep the need for installed systems to a minimum. At the same time, if you use inflatable marks, the mark-set boat should have an available electrical supply sufficient to operate an electric mark inflator.

Rescue boats

In some events it is desirable, or even necessary, to have rescue boats to assist capsized or disabled yachts. Inflatable rubber boats are ideal since they have a low freeboard, can come alongside without causing damage, and are quick and maneuverable. In open water, rubber boats operate from the lead rescue boat which contains necessary facilities and supplies for all other support boats and for the competitors in the event. All race committee boats may occasionally be required to act as rescue boats.

Patrol boats

In some events it is necessary to have patrol boats to keep the spectator fleet off the course. Opinions as to the appropriate size of patrol boats varies, depending upon the type of event and the goals of the organizer. Generally, however, they need not be large. It is usually more important that they be fast and maneuverable, and have some sort of distinctive identification. It is imperative that they have good communications equipment and a loud-hailer.

If there is a possibility that any of the auxiliary race committee boats (mark-set boat or patrol boat) might be pressed into service during the race to support or replace another boat (for example, to act as a replacement for a missing mark, to signal a course change, or to finish a race), the boats should be equipped with all necessary flags, entry lists, finish sheets radio, GPS and an accurate watch.

Ownership and control

In general

Race committee boats should be completely under the command of the race committee member in charge. This is one difficulty with using borrowed boats. The owner, understandably, feels he has a right to go along, and maybe take family or friends. Unless he is an unusually tractable person, he and the race committee are likely to find themselves at odds sooner or later. The owner's role, therefore, should be settled before accepting the loan of a private boat.

Non-working guests should not be invited aboard except in extraordinary circumstances, and then only with prior consent of the principal race officer and a thorough understanding between the race officer, the owner, and the guests as to the conditions of their carriage on board.

The club that runs many races may find it economical, and certainly desirable, to own its own signal boat and any other race committee boats (such as mark-set boats) which it uses regularly.

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If only a few races are to be run, however, or where conditions make a big boat necessary, it may be more practical to charter.

For very complicated legal reasons, guests should not be allowed to provide any form of payment or other "consideration" (including gifts, fuel, etc.) for their carriage (see Chapter 4, "Insurance and Legal Issues"). There are a number of legal and practical difficulties with chartering vessels for race committee work. Before chartering is considered, see Chapter 4, "Insurance and Legal Issues."

Equipment

In general

In addition to boats, various equipment is either necessary or convenient for race committee work. The following is a description of essential, or extremely useful, items of equipment for conducting races.

In addition to the equipment described below, there are innumerable small items which are needed for effective race committee work. At the end of this chapter you will find a basic boat equipment checklist to assist you.

To augment what is described below, US SAILING publishes an entry level training manual for race committees entitled *Join the Race Committee Team!* which is most helpful for every member of the race committee, particularly aboard the race committee signal boat. It describes each person's functions, and how they interrelate.

Marks

Permanent marks

Marks are either set temporarily for each race (preferred) or permanently in place. If you are using permanent marks, you must obtain approval for placing or using existing permanent marks from the authority having jurisdiction in the area; they must be consistent with Coast Guard or state buoyage regulations. You may not want to use government marks if they bound a busy channel or other congestion point.

Temporary marks

Temporary marks should be highly visible and easily towed and handled by the mark-set boat. The most simple marks for small-boat races over short courses can be simple and homemade: a bamboo pole passing through a block of plastic flotation material, or a plastic bottle with a weight in its lower end and a flag at the top.

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Inflatable marks

Inflatable neoprene cylinders, spheres, tetrahedrons (pyramids) or cubes are more expensive, but they are easy to handle and can be seen against wave crests, sky or shoreline. They are commercially available from several sources.[1] Cylindrical marks require significant counterweight in order to stand upright.

Tetrahedrons do not require counterweighting. All that is necessary is a weight placed ten feet or so below the surface to keep the line from being hit by keels or centerboards. A simple 10 pound lead diving weight, attached to the anchor line a few feet below the surface, works fine.

When setting courses next to one another, each course should use different colors or shapes of marks (or both). A way of differentiating marks used for change of course is to use "new" or "replacement" marks with a different color and/or shape, or some other easily distinguished feature, such as a black band.

In short course racing, the shifting of marks in the event of a change of course does not really allow time to add a band. Having additional marks (already banded or of different color and/or shape) in the mark-set boat simplifies the setting of a "new mark". It is much easier to simply deploy a mark overboard than to wrestle with one that is already set, particularly in rough water.

Mark inflators

Mark inflators aboard the mark-set boat are invaluable. If a mark starts to deflate, or drifts away, or you simply need to prepare a new mark for a course change, the ability to plug the inflator into the battery power of the mark-set boat and inflate a new mark makes an otherwise difficult job very simple, for a very reasonable price. Gasoline fueled leaf blowers accomplish the job very rapidly but can be dangerous because of the exposed muffler which becomes very hot.

If you don't have the commercial type, the back end of a canister-type vacuum cleaner, with a suitable homemade adaptor to fit the mark plug, works well. A life raft's electrical inflator works well, also. A foot pump for an inflatable dinghy is satisfactory when power is unavailable, but very slow. Plan ahead when you will need to place a mark quickly. Have a spare mark inflated well in advance. A large inflated mark aboard a mark boat can be confusing and an effort should be made to conceal it from the competitors' view.

1 Inflatable marks:
Mauri Pro Sailing, 1304 Wilderness Trail, Crowley, TX 76036, phone: 1-866-766-6264 , toll free, inflatable tetrahedrons, 2.5', 5.5', 8.0' and 5.0' cylinders.
Engineered Textile Products, Inc. ("ETP"), 715 Loeffler Street, Mobile, Alabama, 36670, phone: (800) 222-8277), inflatable tetrahedrons, 56", 84" or 112", yellow, orange, or custom made; www.etpinfo.com.

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Anchors and ground tackle

Select an anchor of ample weight and with enough line for the water depth, to prevent the mark from dragging in seas, swells, or rising tide. Attach a counterweight to the line six or eight feet below the surface to make the line hang straight down, so that it will not catch on the keel or centerboard of a close-rounding boat.

A simple mushroom anchor is easy to set and is usually sufficient. If the mushroom anchor will not hold because of bottom conditions, use a Danforth type. Select your anchor for the bottom conditions and current strength. For special circumstances, and a discussion of the relationship between anchors and their ground tackle, see Chapter 10, "Setting the Course," particularly "Deep water mark-setting."

Visual signals

Signal visibility

It is of paramount importance that the flags used by the race committee be visible and distinguishable from one another. Pole holders should be far enough apart so each signal flies clear, but close enough so that one person can handle two poles from a safe position.

Signals should be displayed in a line fore and aft, rather than athwartship, so that competitors can see them while near the starting line. Make certain that the signals are visible and do not interfere with one another.

Think it through. Take the signal boat out on the water, put up all of the signals which might be displayed at one time, and, from another boat take photographs of the signal boat from abeam and at an angle off the stern. Determine whether all necessary signals are visible from the angles at which competitors will have to see them. Signals attached to poles are an excellent choice.

To the extent possible, the number of flags and shapes to be displayed at one time should be kept to a minimum, and be as well separated from one another as possible. During the starting sequence, many race committees remove their "race committee" flags, club burgees, colored course flags, and other items unnecessary to the starting sequence. For example:

1. Displaying the orange starting line flag from high on a pole leaves more room near the deck or bridge for other signals which must be displayed.
2. If using numeral pennants to signal the course to the first mark, place the flags at the stern of the committee boat and far from the remainder of the visual signals so that the course can be readily identified without interfering with other signals. Another way to display the compass bearing and course type, is to use a rack into which numbers and letters can be placed. For dinghy racing and small fleets, a white board on which instructions are written is widely in use.
3. Place the individual and general recall flags at the most forward part of the committee boat. The sailors can see them more easily after the start.

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Types of visual signals

Race Signals prescribe the standard race committee signals made afloat. The sailing instructions must describe any signals to be made ashore (Appendix J2.2(14)), class flags (Appendix J2.1(6)), and course signals (rule 27.1).

A sticker illustrating the most commonly used visual signals is available from US SAILING.

Flags

Flags are used for all visual signals with the exception of course signals, which may be displayed by pennants, placards, dry erase board ("whiteboard"), or even a chalkboard.

Flags are used for both the warning and preparatory signals. Be certain they are large enough. Signal flags and pennants should be a minimum size three (2' x 2'). Flags indicating starting signals for a 40 boat fleet should be size seven (3' x 3'). Brilliant orange flags, at least two feet square, are the best way to mark the two ends of a starting or finishing line.

If each flag has a batten pocket sewn diagonally from the lower corner of the hoist to the upper corner of the fly, in light air a lightweight fiberglass batten inserted in the pocket will hold out the flag. Instead, some race committees use flags held open by wire (sometimes called "moon flags" after those displayed on the moon by our astronauts).

Placards, blackboards

Placards, at least 1 foot by 1 foot, may be used to signal courses or course headings. They display numbers or letters referring to designated marks or courses in accordance with the sailing instructions.

A large dry erase board ("whiteboard") or chalkboard may also be used for displaying courses or the compass bearing to the first mark or shifted marks. A plastic covering sheet is useful in inclement weather.

For short course racing, where the next mark can be readily seen from the previous mark, consider using the alternative procedure for changes of course. A red rectangular flag means that the mark location has been changed to port, and a green triangular flag means that the mark location has been changed to starboard (rule 33(a)(2)). Pieces of plywood with the shapes painted red or green are an excellent alternative to flags.

Sound signals

Equipment options for sound signals include:

1. shotgun or starting cannon;
2. propane cannon, air or electric horn;
3. whistle; and possibly
4. loud-hailer.

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Shotguns and cannons can be dangerous if used improperly. Don't use a gun if a horn or whistle will do the job.

Guns and cannons

As mentioned in Chapter 3 "Risk Management", training in the proper use of firearms by race committees is essential. Make certain that the person who is to act as the gunner is thoroughly versed in firearm safety before he or she is assigned the responsibility. Other persons aboard should not be allowed to use the gun unless the race officer knows that they are equally well trained.

A shotgun is less expensive and safer than a cannon because a shotgun can easily be fired straight up. It should be a 10-or-12 gauge double-barreled or pump model. Both can fire off successive rounds adequately, but an inexpensive single-shot model will work better, and more safely, than a cannon.

The saluting cannon generally performs satisfactorily if kept in good condition. If a cannon is used, it must be secured so that if it is fired accidentally no one will be hurt, and where the discharge from its muzzle is dissipated by a shield. Consult an expert in firearms about the design and location of both. Do not forget a rammer for ejecting shells in case the mechanical ejector fails.

Many clubs use a pair of cannons mounted side by side on a board so the gunner can hold a lanyard in each hand. For three sound signals, the shots should be slow enough to allow equal spacing, allowing for reloading.

Ear protection should be provided for everyone on the signal boat anytime shotguns or cannons are used.

Propane cannons are being used in increasing numbers because they are much safer than traditional firearms, and provide plenty of noise. Although their initial cost is substantial, they cost almost nothing to operate. They are equipped with a long cord and so may be placed almost anywhere on the signal boat. There is a one or two second time delay between the time the gunner presses the button and when the sound is heard.

If possible, do not use smokeless powder. Even though racers should set their watches by the visual signal, many set their watches by the gun. The smoke is more accurate than the sound.

Carry only blank ammunition on board. Black powder blanks that put out a plume of smoke visible from a distance are available.

Guns must be cleaned after each day's use. This is especially important if using black powder blanks, because they are corrosive.

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Horns

If a shotgun or cannon is used for starting signals, you will want something less expensive and cumbersome to operate as a different sound signal. Horns may be adequate sound signals for starting small fleets and for conducting races in restricted waters. The most commonly used horns are fueled with a canister of compressed gas. The canisters are comparatively expensive for frequent use, but are readily available.

Freon releases harmful gasses into the atmosphere. Be sure to use a horn which does not employ Freon. A new type of horn, the *EcoHorn*, has a number of advantages. The canister which accompanies the horn produces more than 115db sound blasts per charge. A bicycle or service station air pump will refill the canister. The horn meets USCG sound producing regulations.

For small fleets, the *Admiral Hornblower*, a device similar to a mouth activated fog horn, can be used. It emits a surprisingly loud sound, is rated at 120db and uses a plastic diaphragm for a reed.

A truck horn, powered by a 12 volt battery, is loud and reliable—sometimes annoyingly loud to shore residents on a small lake. Compressed air horns work well, but are usually installed permanently. If the air supply comes from a compressor, it may not pump up its reservoir quickly enough to run an audible signal series such as those used in intercollegiate races and many yacht clubs.

Two products which automatically count down to a start, Regatta Pro-Start (http://www.phcsystems.com/index.htm) and the Ollie Wallock Race Start Machine http://www.ecohsystems.com/olliePics.htm) are fully automatic, portable, easily recharged and have two trumpets which are very loud. They can be programed for rule 26, and other starting systems. Pre-warning attention getting signals can also be programmed. They emit a countdown to each signal with a series of beeps, easily heard by the flag crew. These products eliminate the need for a dedicated timer and gunner. They are not inexpensive but are an excellent tool for shorthanded race committees.

Finally, horns do not emit smoke, so there may be a delay in recognition of the signal, making proper handling of visual signals all the more important.

Whistles

Whistles are adequate in some situations and are often used for team racing and high school and college sailing. See Chapter 11, "The Start," "The sound signal starting system."

Loud-hailers

Some device is necessary for attempting to recall early starters, keeping yachts which are not starting clear of the starting area, hailing other committee boats, etc. A megaphone may be adequate, but an electric loud-hailer is better and, in some conditions, essential.

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Portable loud-hailers are reasonably priced but are subject to failure if improperly handled or allowed to get wet, especially with salt water. Repairs generally cost more that a replacement. The batteries should be removed after each day's use.

Know how far your hailer will carry in various conditions. Except under the sound-signal starting system, messages conveyed by sound are advisory only. If you expect to use a loud-hailer for official notices such as change of course, be sure your equipment is capable of the job. Whatever your source of sound signals, test it by listening from a sailboat with sails luffing, positioned to windward in a strong breeze.

Hand bearing compasses

You should have a hand bearing compass on each committee boat. They are nearly essential for monitoring wind direction, setting courses, and checking the angle of starting and finishing lines.

Many hand bearing compasses are available, some display both the bearing and its reciprocal. Choose one that has a well dampened element, clear figures and a precisely graduated card. An attached neck lanyard is handy.

Excellent hand bearing compasses are available which use a liquid-damped card and a highly directional prism to sight along. The unit looks like a small, rubber-covered doughnut or hockey puck, and is tough and waterproof.

Bear in mind that hand bearing compasses are affected by magnetic proximity. Remove any eyeglasses or sunglasses which have metal rims and keep your hand-held radio at arm's length. Be sure to stand well clear of permanently installed electronic equipment as well.

Laser rangefinders

Laser rangefinders are an easy-to-use tool for measuring starting lines, gates, or even short courses. They are faster to use than GPS; just sight, push and read in yards. They feature a single button operation and weigh 10.4 ounces. They will read distance from a 10-yard minimum up to 800 yards to a reflective target. They can measure distance to a golf bag sized object at 200 yards and a tree sized object at 450 yards. Using advanced laser technology, it will measure distances instantly and is accurate within 1 yard. Easy as pushing a button, water and shock resistant, lightweight, and rubber armored for durability.

Wind speed and direction indicators

Every committee person should be able to determine wind direction and velocity. Wind speed indicators come in hand-held versions. The Davis Turbo Meter and Kestrel units are available through major marine suppliers They have a digital display in knots, mph, ft./sec. or meters/sec. The Kestrel models are waterproof, float and are accurate to plus or minus 3% up to 78 MPH.

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If no wind-direction instrumentation is available, make a "wind-stick." A wooden dowel with nylon yarn or magnetic tape streaming from the end is a simple effective device when coupled with a hand held compass. Don't use a metal coat hanger, which affects the compass! Be sure to position yourself in clear air when observing the wind in this fashion.

Alternatively, you can use a scrap telescopic radio antenna (nonmagnetic) with about one foot of light nylon line (not monofilament) and 6 to 8 inches of magnetic tape from a cassette. These will lift in the lightest wind.

Radar and global positioning systems (GPS)

Radar is an invaluable tool for keeping track of the fleet, no matter what the weather conditions. It is also helpful in tracking local weather systems. In addition, it can be used to verify the accuracy of the positions of race marks, once set.

The introduction of reliable global positioning systems has made the task of setting marks accurately extremely simple. Good hand held GPS systems are readily available, extremely precise and moderately priced. Both devices are valuable tools for setting lines and marks, and measuring the length of the course.

Magellan and Garmin make the most popular hand held GPS models. Accuracy within three meters is now available with the Wide Area Augmentation System (WAAS), which is already in use. These units are more expensive and perhaps not absolutely necessary if 10-to-15 meter accuracy is adequate. The new units are very user friendly compared to their predecessors. Anyone, with a few hours practice, can master the functions required to set a race course.

Unless the unit you plan to purchase is warranted against water intrusion, keep it well protected in a waterproof bag. Some units are available that are submersible for up to thirty minutes and have a battery life of up to 36 hours (with two AA alkaline batteries). Always have spare batteries on hand.

Useful accessories include DC power cords, dash mounts, PC connectors and memory cartridges to store map data.

Timers

For starting sequences you should have at least two timing devices, one of which should be an easy-to-read timer. An inexpensive liquid-crystal wristwatch with a built-in alarm and stopwatch function, or a timer with a sweep secondhand are the usual solutions. Digital clocks are more accurate and easier to read. Even better is a clock which displays the time and also produces audible signals at certain intervals.

A large-faced clock mounted where several people can see it is helpful in synchronizing visual and sound signals. Check the batteries each day to see that they are fully charged, and always have at least one other timer as a backup.

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An alarm clock or a sixty-minute kitchen timer can be useful in alerting committee members to radio weather reports, prearranged communications and the like, but is inadequate for accurate timing sequences.

For finishing handicap races it is necessary to know, precisely, the finish times or the elapsed time since the start for each finisher.

If finishes are recorded in hours, minutes and seconds, they may have to be converted to minutes and hundredths of minutes before results can be manually calculated, although most computer scoring systems accomplish this conversion.

For accuracy within nano-seconds of the US Naval Observatory Master Clock, synchronize timers and clocks with a GPS.

Radios

Communications mean control. Reliable communications are essential for good race management.

VHF-FM is the most widely used method of communicating , although today, we do have other options. Private channel radio systems are available but expensive. They can, however, be rented. Their advantage is that your race committee conversations will be totally secure, not able to be heard by competitors or spectators. They generally have a range of at least three miles. Cellular telephones can also be used when a private conversation is required. Family Radio Service (FRS) is another alternative. They are inexpensive and intended for personal two-way communications. Their effective distance is limited so they should not be considered a replacement for marine VHF radios. Use proper radio protocol and keep conversations to a minimum.

A permanently installed VHF radio operating from a boat's 12-volt battery and using a fixed antenna provides the most reliable communications. Although less reliable, hand-held units are convenient because the operator is not tied down to one place in the boat. Hand held radios can be moved from boat to boat, are self-contained, and are less expensive, but will need to be replaced more frequently. Their antennas are susceptible to damage. Hand-helds have far less transmit power than those that can be permanently installed. However, VHF range is more dependant on antenna height and gain than on transmit power. You can add range to a hand-held by connecting an external antenna or by transmitting from the highest point on the boat. Very little range is gained by transmitting on high power, and by using low power, the battery drain is reduced dramatically. Be sure you have extra batteries, and that units in small boats are in bags which will float them if they are dropped overboard.

One ship-to-ship channel should be used by the primary race committee boats (signal, mark-set and line boats) and another for protest committee-race committee communications. Spectators and competitors should not be privy to these communications. All-channel receivers, especially those which are able to scan an entire band within seconds, make private communications virtu-

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ally impossible. Private channel radios, cellular telephones and FRS are useful when privacy is required.

The clubhouse should be equipped with a base station and good antenna. It should stand by on the normal calling channel so it can be contacted by the race committee in case of emergencies, for equipment or personnel replacement, or if race information must be transmitted.

Patrol and rescue boats can monitor the race committee channel, stand by on a calling channel, or operate on their own separate channel. They should not use the race committee's channel as their operating channel.

Some regattas now use courtesy broadcasts. A designated unofficial observer reports information that will be useful to the competitors. Examples include the time the race committee boats leave the harbor, postponements, a countdown to warning signals, change of course information, or other information that will make the competitors' experience more enjoyable. Care must be taken to avoid anything that could be construed as outside help. Especially helpful is the hailing of OCS boats by radio. A well-thought-out procedure should be devised to relay OCS information from the line boat to the signal boat quickly and accurately. The sailing instructions provide that information provided by the observer is a courtesy to the competitors, and does not alter the competitors' responsibility to observe the race committee's visual signals. The sailing instructions also provide that errors or omissions on the part of the designated observer will not be considered as grounds for granting redress. The use of private channel radios or cellular telephones between the race committee boats followed by VHF transmission to the competitors affords an effective means of communication among all parties.

Desirable VHF accessories include a lapel microphone which allow you to keep the radio on your belt or in your pocket while speaking and listening through a headset. The headset is particularly useful when operating on a noisy boat moving at high speed. Pouches to keep the units dry and/or afloat are readily available.

Binoculars

Binoculars are helpful for such jobs as identifying sail numbers, verifying positions of buoys or watching distant boats for an indication of a wind shift. They should have the widest possible field. Unstabilized binoculars of more than 7x power are difficult to steady against the motion of a boat. Units with integral compasses are particularly useful in checking buoy positions at a distance.

Image stabilized binoculars

With gyro-stabilized binoculars, the image remains stable due to built-in high-speed motor driven gyroscopes , which control the position of the prism platform. They feature very strong resistance to shaking, but are not stable when panning. Batteries or external power source are

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required and about 40 seconds start-up time is needed to speed the motor. They are relatively heavy.

Vary-angle prismatic stabilizers feature prisms controlled by microprocessor which receives signals from the sensors. They are adequately protected from shaking and panning. They allow instant response, but still require power source (six AA batteries). They are not as heavy as the gyro type.

Cardanic suspension stabilized binoculars incorporate a mechanically suspended prism system which perfectly protects from shaking. Panning protection is at the level of gyro type. Latest models are at the same weight range as Vary-Angle Systems. It is the only type that does not require batteries.

Recording aids

You will need forms for recording starters and the order of finishes. Clipboards and rubber bands to hold papers in place are useful. A sample form for recording finishes is contained in Chapter 13 ("Scoring and Handicapping").

Always make at least one copy of forms, in case one is blown overboard and lost. Using a small tape recorder with open microphone as a backup for all starts and finishes is highly recommended, and will be helpful in redress hearings. Notebooks with water-resistant paper are available. They are handy for making notes before the start, writing sail numbers and recording other information.

For all on the water work, pencils work better than pens, but caution recorders not to erase.

Computers

It is common for race committee boats to include a computer and printer in their equipment inventories. The smaller, laptop variety has revolutionized on-board scoring. When the computer is interfaced with a cellular telephone or when wireless internet is available, results can be easily relayed via e-mail.

Absent such equipment, results may be radioed ashore and the scorer can calculate results while the committee boat is returning from the course. In this way, preliminary results can be available before the fleet returns home.

Computer scoring programs can produce registration lists by skipper, sail number and class; produce handicap results automatically sorted in order; resolve ties and give results both by class and overall; and handle exclusions. Season results are easily maintained for large or small fleets.

Publications

Three types of publications should be on the boat:

1. General—*The Racing Rules of Sailing 2009-2012,* the *US SAILING Appeals and ISAF Cases,* and this *US SAILING Race Management Handbook;*

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2. Specific to the event—list of boats entered, the notice of race, sailing instructions, recording forms, time allowance tables, logs to record race committee actions, docking time forms, etc. These can be found on the US SAILING Web site, which contains many useful items for race committees; and
3. Specific to the area—race course and navigational charts and current tables.

Race management committee reference materials

The Race Management section of the US SAILING Web site is updated continuously. Check there for additional race committee tools, http://www.ussailing.org/racemgt/.

In addition to the above, the following are simple checklists of equipment generally considered necessary for race officers and the various boats which will be involved in a typical regatta. It can never contemplate the exact needs of your regatta, but should be used as a guide.

I used to be Snow White, but I drifted.
—Mae West

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Personal race management equipment

You have been asked to go to another yacht club to serve as the PRO for a major one-design regatta. You do not know anything about the resources available at that club. What personal equipment should you bring with you?

Portable VHF radio, spare battery and charger
Cellular telephone
GPS and spare batteries
Hand bearing compass
Binoculars
Tape recorder, spare tape and spare batteries
Course angle calculator or tables
Wind stick (or equivalent)
Portable anemometer
Whistle on a lanyard
Ear plugs
Watch suitable for timing starts
Clipboard, paper and pencils
Highlighters
Pencil sharpener
Electrical ties (zip-ties)
Zip-lock bags
Short (2-foot) PVC tubes for flagstaffs
Signal flags (limited set for race management)
US SAILING Race Management Handbook
The Racing Rules of Sailing 2009-2012
US SAILING Appeals and ISAF Cases
Small stuff
PFD
Hat and hat retainer
Sunscreen
Sunglasses and retainer
Glasses cleaner (Sight Savers)
Foul weather gear
Band-Aids
Laptop computer with scoring, word processing & spreadsheet programs, or
Disk(s)withscoring program and sample spreadsheets
Private channel radios, spare batteries and charger

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Race committee signal boat equipment

air horns
air canisters, extra
anchor, chain & line
anemometer
batteries, spare
binoculars
cellular telephone
chart(s), waterproof
clipboards
equipment required by the Coast Guard
course designating equipment (flags or white-board)
course calculator, or tables of course angles
dry-erase markers, wide tip
duct tape
ear plugs
electrical ties ("zip" ties)
emergency contacts, phone and VHF
entry lists, by sail number
equipment list
first aid kit
flags & numeral pennants
flag, blue
flag(s), class
flag decoder
flag, RC
flag, starting line
food, water & soft drinks
fue,l engine oil
gun and blank ammunition
gun cleaning kit
hand bearing compass
handicap ratings, current
heaving line
highlighters
horn, electric
knife
loud-hailer
mark rounding/finishing forms
navigation equipment, including GPS
notice of race
paper
pencils
pencil sharpener (manual)
personal flotation devices ("PFDs")
poles (PVC or bamboo) for f lags
PVC holders for poles (larger diameter)
The Racing Rules of Sailing (rulebook)
RC forms: check-in
RC forms: finishing
RC forms: mark rounding
RC forms: protest time
RC forms: RC actions
PC forms: wind readings
rubber bands (for clipboards)
sailing instructions
shackles (for anchor line)
small stuff
tape recorder & spare cassettes
tide tables
tools, or a Leatherman
Velcro ties
VHF handheld radios
VHF radio batteries, spare
watches or clocks
Wet Notes
whistle, on a lanyard
white board
wind telltales
Zip-loc bags

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Race committee support boat equipment

air horns
air canisters, extra
anchor, chain & line
anemometer
batteries, spare
binoculars
board(s) with + and -
cellular telephone
chart(s), waterproof
class flags
clipboards
equipment required by the Coast Guard
course calculator, or tables of course angles
dry-erase markers, wide tip
duct tape
electrical ties ("zip" ties)
emergency contacts, phone and VHF
entry lists, by sail number
equipment list
first aid kit
flags C, M, S, N, A, H
flag, blue
flag decoder
food, water, and soft drinks
fuel and engine oil
hand bearing compass
heaving line
highlighters
knife
loud-hailer
mark rounding/finishing forms
navigation equipment, including GPS
paper
pencils
pencil sharpener (manual)
personal flotation devices ("PFDs")
poles (PVC or bamboo) for flags
PVC holders for poles (larger diameter)
The Racing Rules of Sailing (rulebook)
RC forms: check-in
RC forms; finishing
RC forms: mark rounding
RC forms: wind readings
rubber bonds (for clipboards)
sailing instructions
shackles (for anchor line)
small stuff
tape recorder & spare cassettes
tide tables
tools, or a Leatherman
Velcro ties
VHF handheld radio
VHF radio batteries, spare
watches or clocks
Wet Notes
whistle, on a lanyard
white board
wind telltales
Zip-loc bags

For line or pin boat add:

flag, AP
flag, First Substitute
flag, starting line

I can't say I was ever lost, but I was bewildered once.
–Daniel Boone

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Race Day

9

On race days the principal race officer has to be an early riser. If you have planned adequately prior to the day of the race, preparations to depart will be easier, but there is still a lot to do before the committee shoves off for its day's work. The planning of some of the subjects mentioned in this chapter should be done days, weeks, or even months in advance. However, all should be double-checked the day before or the day of the race. Do as much in advance of race day as possible.

Preparations

Check the weather

Obtain the most current available weather forecast. The reliability of weather forecasts varies greatly from one locale to another. Few have forecasts sufficiently accurate for race committee purposes, but most can give you a general idea what are the most severe conditions to expect during the day.

The National Oceanic and Atmospheric Administration (NOAA) maintains the National Weather Service Web site at http://www.nws.noaa.gov that is filled with information including:

1. local forecast by "City, St." (search by city.);
2. current severe weather warnings;
3. radar, satellite and surface weather observations;
4. local, aviation and marine forecasts and
5. links to other sites which provide forecast maps/models, weather safety, education and historical information.

There are several other Web sites which update their information frequently. They include MSNBC Weather Page, USA Today, Weather, Weather.com, The Weather Channel, Sailflow, Weather Underground and AccuWeather.com.

Local television stations show radar and satellite information along with their forecasts, commercial air fields generally have good information, and marine forecasts are updated periodically. It

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is equally important to know the general nature of local conditions. There are few substitutes for "local knowledge" in determining how to interpret general weather forecasts. If you are in coastal waters, check tide tables and any available information regarding currents. Each will affect your ability, and the ability of the competitors, to get to the racing area by the designated time (predicted tides should be checked well in advance for other reasons—adverse conditions will affect the choice of course configuration and location of the racing area).

When you are on the water, it is important to have either wireless internet capability or a contact on shore who is monitoring current local conditions and forecasts. This is especially important if bad weather has been forecast or is anticipated. The ability to receive regular reports via VHF or cellular telephone allows the race officer to make well-informed decisions regarding the safety of the event.

Check your equipment

Get to the committee boats early. Each boat should have a systems checklist for all mechanical and electronic equipment. Check fuel supply, oil, hydraulic fluid, battery fluid levels, potable water, holding tanks, and all mechanical systems. If you need fuel or must pump holding tanks, plan to leave the dock enough in advance of scheduled departure that those activities will not interfere with timely arrival at the racing area.

Turn on all electronic equipment early and determine that it is in good working order. Check batteries and connections, and test the equipment in time to determine whether repair or replacement is necessary. Check mark inflators to make certain they are in good working condition.

Give each boat a checklist of those items which should be on board (see Chapter 8, "Race Committee Equipment" for a basic checklist). Assign one or more crew members on each boat to inventory all equipment on board. Make sure it is in good working order and that you have adequate spares (air horn canisters, batteries, etc.).

Make certain that you include items for people who may become seasick, if there is any remote possibility that will occur. A seasick crew member is lost to you. He may require the assistance of another crew member, or in extreme circumstances, may require assistance to shore from you or another support boat. Check your first aid kit.

If you lend equipment to other race committee vessels, make a list of it so that at the end of the day you know from whom to retrieve it. Be sure to keep records of equipment you have borrowed from other clubs, so that you will be reminded to return it promptly. A form for these purposes is helpful.

Check your paperwork

Check your forms to make sure that you have the necessary check-in lists (including a list of competitors by sail number or bow number), logs and other documents necessary to conduct the race.

Don't look back. Something might be gaining on you.
—Satchel Paige

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Personnel and shore-side tasks

Make certain that you know who is to be on board for the day, that they know well in advance when they are expected to arrive, and that they arrive on time. Make certain that they have adequate clothing and personal safety equipment.

Assign crew members specific tasks in advance, which they are to complete before leaving for the racing area. Assign one or more crew members the responsibility to obtain, inventory and stow food and beverages, and load adequate ice on board.

If the regatta is large enough to require a provisioning plan (see Chapter 2, "Organizing the Event" "Meal delivery plan"), make certain that the assigned crew member knows the details of the plan: when provisions are to arrive, where to obtain them, and what to do if they do not arrive on time.

Assign another crew member to inventory all visual signals (flags, shapes, placards, boards, class flags, etc.), check them for condition, and check ammunition supplies.

Race committee briefing

Every regatta needs a morning briefing. It may be as simple as having coffee at the club, or it may have to be a structured meeting of the key personnel responsible for each aspect of the offshore operations (signal boat, mark-set boats, etc.).

Use the time to discuss any changes to the sailing instructions, or other notices to competitors which affect the day's racing. Use it to discuss the weather forecast and plan of operations for the day. Assign primary and back-up radio channels and determine who will monitor Channel 16. Discuss any problems which have arisen since the previous day's racing, and solutions which have not already been communicated to everyone on the committee.

Especially use it to review the sortie plan (see below) for arrival at the race course, and any matters which affect the plan (fueling and equipment needs, safety considerations, etc.).

Changes in sailing instructions—notices to competitors

Written changes in sailing instructions

Rule 90.2 (c) requires that written changes in sailing instructions be made before a race and posted on the official notice board within the time constraints imposed by the sailing instructions. "Required time" has been interpreted as in "sufficient time that everyone has adequate opportunity to read the change before going on the water."

Appendix J2.2 (11) requires that the sailing instructions include, when it applies, the procedure for changing the sailing instructions. "When it applies" means that if the sailing instructions can be changed, the procedure must be stated. Usually this is done by specifying a time by which the change must be posted (see Appendix L, "Sailing Instructions Guide," sailing instruction number 3).

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If a change in sailing instructions is required, prepare it as a notice to competitors and follow the procedure for giving notice to competitors set forth below.

Notices to competitors

Notices to competitors may accomplish any official task (a change of time for the warning signal, which boats will tow competitors that day, which of several racing areas specified in the sailing instructions will be used that day, results of a protest affecting the scoring of boats, changes in the sailing instructions, etc.). If a notice must be given, prepare it, post it on the official notice board, display flag "L" ashore (see Race Signals "L") by the posting deadline, and make one sound signal when "L" is first displayed (see Race Signals).

Signals made ashore

In general

Appendix J2.2 (14) requires that the sailing instructions include signals to be made ashore and the location of signal station(s). The criteria for location of signal stations are discussed in Chapter 2, "Organizing the Event".

Include any special signals, or alterations of rules relating to signals (see Appendix L, "Sailing Instructions Guide," [optional] sailing instructions numbers 4.2 and 4.3, respectively).

What signals may be made ashore?

"AP" and related signals

Flag "AP", postponing, generally

Unless you are starting races from the shore, do not use flag "AP" (Race Signals, "AP") alone. The signal means that the warning signal for the postponed race will be made one minute after "AP" is lowered, and there is no effective way of notifying the competitors offshore when it is lowered.

Appendix L, "Sailing Instructions Guide," [optional] sailing instruction number 4.2, suggests a remedy. Modify Race Signals (see Race Signals "AP") by providing that the warning signal will be made a specified period of time after "AP" ashore is lowered.

In various parts of the country, some race committees have also altered Race Signals "AP" to mean, when displayed ashore, "All races are postponed. Do not leave the harbor. The warning signal will be made. . . [etc.]" This practice is both unnecessary and unwise. It is unnecessary because there are other signals which accomplish the task of indicating that further signals will be given afloat ("AP" over numeral pennant) or ashore ("AP" over "H"). It is unwise because the language "Do not leave the harbor" implies that when the race committee gives any signal which would cause the boats to proceed afloat, the race committee has determined that it is now safe to leave the harbor. That decision should be, and is, the sole responsibility of the competitor (rule 4).

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"AP" over numeral pennant—postponing for hours

Use "AP" over one of the numeral pennants 1 to 9 (postponed one hour, two hours, etc.) if you know how long you intend to postpone. If the reason for the postponement is a temporary weather condition which is expected to clear in a defined time (for example, fog which is beginning to burn off, or a thunderstorm which has almost passed), you may be able to anticipate the new warning signal. If you cannot, use "AP" over "H".

"AP" over "A"—postponing to a later day

Appendix J2.2 (35) requires that the sailing instructions include whether races postponed or abandoned will be re-sailed, and, if so, when and where. If the sailing instructions contain the required provision, and you know that you will be unable to start the race that day, signalling "AP" over "A" with two sound signals (Race Signals "AP") is appropriate.

Rule 81 also requires that, when a race is to be re-sailed, the race committee notify the boats concerned when and where the race will be re-sailed. Appendix J1 does not require that the notice of race contain such information, so although new entries may be accepted for the re-sailed race at the discretion of the race committee (subject to the entry requirements), the race committee has no obligation to re-notify possible entrants.

If the sailing instructions include the information required, Rule 81 does not impose any additional obligation upon the race committee, and appears to be redundant.

However, if the sailing instructions do not contain the required provision, and you want to postpone the race to a later day, you will have to change the sailing instructions. Use of "AP" over "A" in conjunction with a change in the sailing instructions is not the appropriate method of giving notice.

If you have sufficient time to issue and post the change within the time allowed by the sailing instructions, display flag "L" ashore with one sound signal (see Race Signals "L"). Thereafter, signalling "AP" over "A", with the two additional sound signals, is unnecessary, but gives additional notice of your intention. If you do not have sufficient time to issue and post the change within the time allowed by the sailing instructions, use "AP" over "H", discussed below.

"AP" over "H"—postponing with further signals ashore

This signal has more uses than might be expected. It provides the shoreside alternative to "AP" (indefinite postponement) and "AP" over numeral pennants (postponement for defined periods of time). It also provides a method of notifying competitors on the water that further information will be provided about the racing when they reach shore.

There are, unfortunately, occasions when information must be communicated to competitors, but there is insufficient time to do so before the deadline for posting notice the morning of the race (for example, a change in the sailing instructions as discussed above). Use "AP" over "H" before the deadline to keep the competitors ashore. Then post the notice as soon as possible,

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and display Flag "L" with one sound signal (see Race Signals "L"). Do not forget to include in the notice the time of the new warning signal for each class!

The same procedure should be followed if, by the deadline for posting notices, you do not know when, or if, the race will be started that day. Postpone ashore with "AP" over "H" and two sound signals, and when the decision has been made that the race will be started, issue and post a notice to competitors indicating the time of the new warning signal for each class, and display flag "L" and one sound signal.

If the race will be postponed to a later day, use the same procedure, and see the discussion of "AP" over "A" (above) regarding the optional use of that signal.

Flag "L"—notification signal

This signal made ashore simply means that "a notice to competitors has been posted " (see Race Signals "L"). Some of its uses are discussed above. It can be used for any notice to competitors, but should be used for official notices only.

"N" and related signals

"N" Over "A"

This does the same thing as "AP over "A" — signals the competitors that there will be no more racing today.

"N" Over "H"

When displayed either afloat or ashore, "N" over "H" means that all races are abandoned (or when displayed with a class flag, races for those classes are abandoned—see Race Signals) and that there will be further signals, but they will be will be made ashore. When displayed ashore, it has limited uses, such as a change in the racing schedule.

Flag "Y"—personal flotation signal

Whether displayed ashore or afloat, the signal means "The personal flotation device requirement of rules 40 and 1.2 are in effect." While it is the individual responsibility of each competitor to wear adequate personal flotation when conditions warrant (rule 1.2), this signal gives the race committee the option to require that it be worn (rule 40).

Race committees should not hesitate to use this signal, especially when running races for juniors or inexperienced competitors, or when the race committee determines that conditions warrant its use. When in doubt, use the signal.

Special signals ashore

There may be a need to make special signals ashore (for example, flag "B" to indicate the beginning and end of "protest time"). Any such signals must be included in the sailing instructions (see Appendix J2.2 (29)).

Have enough sense to know, ahead of time,
when your skills will not extend to wallpapering.
—Marilyn vos Savant

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Determine what the purpose of such signals will be (for example, some classes use flag "T", displayed ashore, to mean "towing is now available from the designated locations"). Use special signals sparingly.

The sortie plan

When should you leave the dock? The goal is to get to the racing area at least one hour to 45 minutes before the warning signal, ready to begin reading and charting wind and current, checking in boats (if check-in is required), and doing all of those other little things which are necessary to be ready for the starting sequence and the race. How should you accomplish this? First develop the sortie plan well in advance. Announce it at a race committee meeting before the regatta. Remind race committee members the day before the race. The sortie plan consists of several elements.

Radio check/roll call

If the race committee consists of a signal boat and a mark-set boat, radio checks are simple. The signal boat calls the mark-set boat (or vice versa) to check radio transmission quality, and both the radio check and roll call are completed.

In regattas involving more committee and support boats, the task becomes more complicated, and far more important. The procedure involves both operational coordination and safety considerations.

Designate a time (say, 20 minutes before scheduled departure) when all committee boats are required to have their radios tuned to a designated frequency and operating. At the designated time, the signal boat conducts a roll call of all committee boats via radio. As each boat responds, the quality of its radio transmissions is automatically checked by others.

Establish a reporting order which can also be used for other purposes. For example, on the water you may want to get wind readings from various points around the course. Create your morning radio check/roll call in the same order (such as: mark boats, pin-boat, finish boat, etc.).

Use the roll call to determine whether each boat has all expected personnel aboard, whether all equipment is on board and in good working order (or whether additional time will be required to repair or replace it), and whether additional time will be required for that boat to leave the dock or get to its appointed location in the racing area.

Then proceed to the time tick.

Time tick

All race committee boats should operate on exactly the same time. Use a GPS time hack, and synchronize all other watches to it. To make certain that everyone has the same time, use a time tick during roll call. The procedure is simple.

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Select one person aboard the signal boat (the timer) whose time will be used for the day. Immediately after each boat has reported during the roll call, announce the time tick:

"This is [the race committee signal boat]
Stand by for time tick.
When I say Time, the time will be [0945] hours.
30 seconds to time tick.
20 seconds to time tick.
10 seconds, 5, 4, 3, 2, 1, Time! [Zero nine four five hours].
Race committee vessels, please confirm time tick in order."

At that point, call the roll again (same order as earlier). When you call each boat's name, it needs only to say: "Time tick confirmed." If a boat did not get the time tick, take care of the rest of the necessary radio traffic with the committee boats as a whole, and call the other boat afterward with a new time tick.

Anticipate tasks affecting arrival time at the racing area

There may be tasks to accomplish before the committee boats arrive at their assigned locations in the racing area. The sortie plan should take those into account.

Plan time for those boats which must refuel to do so, and have them leave early.

If some of the committee boats are towing competitors, calculate in advance the time required to accept tows, and the normal speed at which the tow boats will tow. Account for the time in determining when those boats should leave the dock to pick up tows. Remember, if you tow some boats, you must ensure that all are at least offered a tow, in order to avoid claims that a boat was materially prejudiced. If a boat refuses a tow, make a record of the sail number, time the boat was offered the tow, and the approximate location.

If you are using permanent marks, you should have sent out a committee boat with good navigational equipment (GPS is best) to check the marks prior to the regatta. Even if you have done so, you may want to send a committee boat out the day of the race to confirm that the marks are in place. Plan the additional time it will take for that boat to confirm the marks and arrive at its designated location in the racing area.

If there is a problem with a mark, or if one is out of place, you must either have an alternate course set forth in the sailing instructions, or you will have to station a committee boat in the proper place, with flag "M" displayed (and making repeated sound signals—see Race Signals), to replace it. It will cost you the use of a committee boat for other purposes.

For some regattas, you may want a committee boat to go out to the racing area in advance to check current or weather conditions, or to ensure that government or special marks are in place where expected. Factor that departure into the sortie plan.

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Also consider that the committee boats will travel to the race course at different speeds. Sailboats used as committee boats usually take more time to get to the race course than high speed mark-set boats.

It is not particularly helpful for all of the race committee boats to arrive at the starting area and sit, doing nothing. Give each of them the task of observing conditions at different places on the race course. If you know local wind conditions well enough, try to establish a preliminary course orientation on the way to the race course. Or send a fast committee boat to the racing area early to provide preliminary data regarding wind direction.

Race committee crew assignments

Each race committee boat should know its task days or weeks before the race. However, personnel aboard may change each day during a regatta. Each boat crew should know what tasks it is expected to perform, and the crew members should be given their assignments aboard as early as possible. In that way, they can sort their equipment, check procedures, and raise any questions before arrival at the racing area. Early crew assignments also afford the opportunity to practice on the way to the race course.

After the finish

Retrieve all marks (determine who will pick up which marks). Account for all boats (both race committee and competitors).

Race committee boats should check out with the finish boat and ask to be released before leaving the course. Be cautious about releasing support boats, such as mark-set boats and patrol boats, from duties on the race course until you have determined that there are no adverse weather conditions which may affect the competitors and the race committee boats' ability to arrive safely ashore.

If you observe the presence of protest flags aboard finishing boats, inform protest committee of their existence, and provide names or sail or bow numbers of boats displaying protest flags.

In some regattas, the sailing instructions require that boats intending to protest notify the race committee at the finish of the boat being protested. There are advantages and disadvantages to this procedure.

The advantages are that the race committee has notice that race results will be tentative, pending filing and resolution of protests, and may accurately notify the protest committee of the possibility that a hearing will be necessary (in some cases, protests are heard on the water).

The principal disadvantage is that the race committee finish boat has other primary responsibilities (determining whether boats properly finish and recording finishes), and the notifications procedure detracts from the ability of finish boat personnel to concentrate on those responsibilities.

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In some larger regattas, the sailing instructions provide for a "protest boat," stationed beyond the finish line, which boats must notify of their intention to protest and of the boat they intend to protest. Smaller committees have no choice but to use the race committee boat if notification is to be given afloat. If you use the race committee finish boat, assign one person on the race committee boat the task of recording protests. In regattas where the sailing instructions provide for radio communications between the race committee and competitors, VHF may be used by competitors to report their intent to protest.

After returning to the dock

Begin the procedure for "protest time"

The time within which to file protests usually commences either within a specified time after the protesting boat finishes (more common in handicap racing), within a specified time after the last boat has finished the last race of the day or at the time the race committee signal boat returns to shore.

If the latter criterion is used, record the date and time the race committee boat docked, prepare a simple notice to competitors (such as "The race committee signal boat docked at _____ hours") and post it on the official notice board immediately. If the sailing instructions do not provide for a special signal for the beginning of protest time (see "Signals made ashore," above), display flag "L" above flag "B" and make one sound signal (see Race Signals).

If the sailing instructions provide for one or more special signals for the time within which to file protests, follow that procedure. The method most commonly used is to: display flag "B" ashore (with one sound signal) to signal that protest time has begun; 30 minutes later, flag "B" is lowered to half mast to indicate that less than thirty minutes remain in protest time; then thirty minutes later flag "B" is lowered completely to indicate that the time for filing protests has expired.

Preliminary race results

Post the race results as soon after docking as possible. Chapter 13 of this handbook is devoted to scoring and handicapping. If protests are pending, note that fact on the preliminary results: "Protest(s) pending". Once protests have been heard, post official results as soon as possible.

Equipment

Clean, wash down, and cover boats, and clean and stow equipment. If equipment has been lost, or was expended, replace it immediately and make a record of it. Consider the use of a maintenance (or "breakdown") report form for reporting items on race committee support boats which must be repaired or replaced, where no replacements are available immediately upon return to the dock.

Be sincere; be brief; be seated.
—Franklin D. Roosevelt

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Recover equipment from other race committee vessels, if equipment had been loaned. Inventory all equipment so that you are certain it is available for the next day's use.

Confirm personnel for the next day

Check your crew list for next day. Call the people who are supposed to be on board and verify that they will be there. Have a "reserve" list of people whom you can call on short notice if you need extra people. Remind everyone of the time they are expected to be at their boats.

Assemble race data

Collect from all race committee boats the data they collected concerning the race. This includes recorded wind readings, mark roundings, boats recorded as having withdrawn, and any other matters. Place all of the data in one notebook. It will help determine the agenda for the next day's briefing, and may be invaluable if there is a request for redress.

Determine the need for changes in the sailing instructions

Determine whether changes in the sailing instructions must be prepared for the next day's racing. If races have been postponed or abandoned and must be re-sailed, they will affect the racing schedule.

Appendix L, "Sailing Instructions Guide," sailing instruction number 3 contains a recommended procedure for notifying competitors of a change in the schedule of races, and that such a change be posted by a specified time the day before it will take effect. If you intend to conduct the race the next day, check the sailing instructions to determine the time by which the notice must be posted, and make certain that the change is posted as required.

You must also check the sailing instructions to determine if a race must be re-sailed in order to complete the regatta (see Appendix J1.2(13)), so that if it must be sailed the following day, the notice is posted in a timely fashion. Further details concerning changes in the sailing instructions and notices to competitors are discussed earlier in this chapter.

Post mortem

Conduct a meeting, formal or informal, with the key personnel from the race committee to review the day's race(s)—what went right, what went wrong, and how both can be improved.

If you have the opportunity, talk to the competitors to determine how they felt about the race(s). Competitors are usually surprised, and exceptionally pleased, to be asked their opinions about the competition, and are characteristically more than willing to offer constructive suggestions.

In large regattas, it is not uncommon to conduct an organized post-race meeting between the competitors (or class representatives and team coaches) and members of the race committee to discuss problems and suggestions for subsequent racing.

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Be available for protest time

If there is a request for redress by a competitor (see rule 62), or if the race committee or protest committee initiates consideration of redress under rules 60.2 and 60.3, make certain that members of the race committee who have knowledge of the incident, or of matters which may affect the protest committee's decision, are available for the hearing. A discussion of the race committee becoming a party to a protest is included in Chapter 1, "Objectives, Responsibilities and Authority."

Have you ever noticed that anybody driving slower than you is an idiot,
and anyone going faster than you is a maniac?
—George Carlin

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Setting the Course 10

The starting line

General

No duty or function of a race committee is as important as setting good starting lines. Poor starting lines cause breaches of the racing rules. They produce recalls. They prejudice competitors by depriving them of their right to an equal opportunity to start properly.

However, perfection is not always practical or even possible. Time should not be wasted trying to make the angle of the line perfect if normal oscillations are likely to nullify the attempt. Set the line to the average wind direction. Factor in current, if necessary. Strive for perfection, but do not insist upon it to the detriment of getting the race started on time.

Locating the starting line

Locate the starting line where boats have plenty of space in which to maneuver, and their wind is not cut up by obstructions ashore or by large vessels.

Locating starting lines where they can be seen easily from the club porch or from some public vantage point can ruin a lot of races, but it is good for spectators and the press. Efforts are being made to make sailing accessible to the viewing public, including spectators ashore. Professional racing emphasizes people being able to see the sport. Be inventive, consistent with good racing.

Restricted areas

Restricted areas, such as those intended to keep boats not starting out of the way of boats that are starting, must be prescribed in the sailing instructions, (Appendix J2.2(20)).

Establish restricted areas only if it is necessary because you have a large number of boats in a small area or to avoid hazards or interference with shipping channels. Do not establish a restricted area simply for the convenience of the race committee. Boundaries should be easily identifiable by competitors. Keep the area as small as possible.

A closed mouth gathers no feet.
—Anonymous

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Setting a "square" line

The perfect line is one which a boat can cross on either tack and be in an equally favorable position with every other boat along the line. Be aware of the need to make adjustments for current and make lines long enough. Many individual and general recalls are due to poor starting lines

Good racing skippers are quick to evaluate a line and take any advantage it offers. If the boats spread out along the line, it is a good one. If boats bunch up at one end, there is a certain advantage at that end. When setting up the line, think as a competitor would and favor the less desirable end, if there is one.

To set a good starting line it is necessary to know:

1. average direction of the wind;
2. length of line needed to accommodate the boats in existing wind and sea conditions;
3. velocity and direction of current, if any;
4. whether there will be a tendency for the fleet to favor one end of a line set 90 degrees to the wind due to tactical considerations (such as whether the first mark is to the right or left of the center of the starting line, whether port or starboard tack will be favored up the course, etc.).

There are at least two methods of setting the starting line. In one, the buoy (pin end) is set first (either by the signal boat or a by a mark-set boat), and the race committee signal boat then runs the proposed line, selects the desired length of the line, and anchors at the other end.

In the other, the signal boat anchors first, and another boat sets the pin end. If you are using this method, direct the mark-set boat to a position downwind of the desired location, at the distance chosen for line length. Have the mark-set boat stream the buoy astern to the full length of the anchor rode, holding the anchor in the boat. Then direct the mark-set boat to motor upwind slowly with the buoy trailed astern.

Observe the bearing of the buoy with a hand bearing compass. When the buoy reaches the desired bearing of the line, signal the mark-set boat to drop the buoy's anchor. The buoy should remain on the bearing as the anchor drops to the bottom. Allow a few minutes for the anchor to set and confirm the bearing. If the other end of the line is fixed, anchor no further in advance of the warning signal than necessary, in case of a wind shift. Have enough anchor line available to make adjustments in the line's direction by moving the boat either forward or aft.

For deep water mark setting, other techniques are required. They are discussed later in this chapter.

Moving a starting mark

Remember, you cannot move a starting mark after the preparatory signal (rule 27.2). If a wind shift occurs after the preparatory signal, you have several alternatives: postpone (Race Signals "AP"); abandon prior to the start (Race Signals "N"); general recall after the start (Race Signals

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"First Substitute"). If there are unidentified OCS boats or an error in the starting procedure; or abandon after the start (Race Signals "N").

The most commonly used alternative is to postpone and reset. Postponing before the starting signal lets the competitors know that you know that the starting line should be corrected. It also avoids potential problems if flag "Z" or a black flag is being used. Postponing as soon as you know the starting line is a poor one is a good idea.

Wind direction

Wind either shifts (tends right or left), oscillates (back and forth) or does both. Sometimes oscillations are large. It is, therefore, important to establish an average wind direction by taking and recording wind direction over a period of time.

Have your mark-set boat(s) position themselves in clear air (away from passing sailboats) to give you additional wind information. Take wind readings at least every 10 minutes from various points of the course beginning one hour before the warning signal, then at least every 5 minutes beginning 30 minutes before the warning signal. Ask your mark-set boats to give additional information in between these checks if they see what appears to be a shift of more than 10 degrees.

Periodic checks will also reveal any gradual veering or backing in the average wind direction.

The most reliable combination of equipment for determining wind direction is a hand bearing compass and a tell tale mounted at the highest possible point (see Chapter 8, "Race Committee Equipment"). With practice, people can take very accurate readings. Move forward in the boat to an unobstructed position, and face upwind; choose something in that direction or a point on the horizon and take your bearing, using nylon yarn or magnetic cassette tape on a wooden dowel (not a steel coat hanger!).

Length of line

The proper length of the starting line depends on several factors: the number and length of boats, velocity of wind, height of seas, type of boats, experience of the competitors, and current.

The starting line should be long enough so there will be no crowding. If there is a "favored" end of the line, the longer the line the more favored that end is.

As a rule of thumb in moderate air, set the line length at 1.25 times the aggregate length of the longest class of boats expected to start. For example, 16 boats, each 30 feet long, require about 600 feet; the same line will accommodate 32 boats, 15 feet long. In heavy air and steep seas, extend it to as much as 1.5 times the aggregate length of the competing boats. In very light air, reduce it.

Lines should be longer for planing boats, catamarans and windsurfers than for other types of boats in fleet racing.

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For match racing, the starting line should be just long enough that the boats engage each other after 15 to 20 seconds.

Lines may be set very accurately with GPS. Differential GPS or WAAS (wide area augmentation system) provide accuracies of about ten feet.

Some hand-held GPS report distances in increments of 0.1 miles (tenths of a mile) rather than 0.01 (hundredths of a mile). This severely limits their usefulness for measuring line length.

Laser rangefinders and radar can also be very useful in determining starting line length.

Running the line

When you are attempting to set the length of a line by time and distance, remember the following:

2.0 knots = 3.38 feet per second (fps)
2.5 knots = 4.22 fps
3.0 knots = 5.06 fps
4.0 knots = 6.76 fps
5.0 knots = 8.44 fps

So you would run a 400 foot line (as in the above example) in 47 seconds at 5 knots boat speed.

Limit marks

A limit mark is a temporary buoy set off the quarter of a line boat to keep the racing boats away from that boat. It can be attached to the line boat by a line or a pole. The definition "mark" provides that objects attached temporarily or accidentally to a mark are not part of it. This means that competing boats may touch the limit mark without breaking a rule. Note that a definition cannot be changed.

Including language in the sailing instructions to prohibit boats from touching the limit mark or from going between the limit mark and the line boat is a very bad idea. Doing so would make the limit mark or the space between the limit mark and the line boat an obstruction, and thus make rule 18 applicable.

Guide marks

Where the starting line is very long, some race committees set a flag or buoy toward the center and slightly behind the approximate center of the line (a "guide mark") to help competitors know approximately where the line is. In such a configuration, the guide mark is not used as part of the starting line.

Guide marks have been used with varying degrees of success. They are difficult to position, especially in current, and equally difficult to tend. If a guide mark moves onto or above the line it will lure starters to the course side and defeat the purpose for which it is placed. If the wind is

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shifty, necessitating frequent adjustment to the starting line, it is time-consuming to reposition guide marks. On the positive side, when conditions are right, they can be a valuable tool. The race officer must assess each situation and use his best judgement. For large, aggressive fleets, a midline boat is an alternative.

As with limiting marks, the sailing instructions should clearly describe the boat's obligations, if any, with respect to the guide mark. The sailing instructions should state that the guide mark is not a mark of the course and not part of the starting line.

Angle of the starting line

Windward starts

For windward starts the line should be set square to the average direction of the wind rather than relative to the first mark of the course. There are a number of circumstances when you might wish to have the windward mark to the right or left of directly upwind; for example, the presence of current or when the starting line is long but first leg is short.

The line should be angled, if necessary, to encourage the fleet to spread evenly along the line. Ordinarily, favoring the port end by a few degrees is sufficient, even in large fleets. But the shorter the first leg, and the longer the starting line, and the more current involved, the more it becomes necessary to favor one end of the line over the other.

If there are no shore, wind, current or tactical considerations, and if the port tack is the long tack, competitors may prefer the starboard end to minimize risk of being carried past the port layline; therefore, any favoring should be for the port end of the line. The opposite is true if starboard tack is the long tack. With "drop marks", try to achieve equal time on each tack going to windward.

For match racing and team racing, the line should be absolutely square—neither end should be favored.

Downwind starts

Offwind starts for closed course racing have not been used much in recent years. Most race committees believe that they should be avoided. You may need a downwind start for a point-to-point race.

If you do set a downwind start, the first rules of thumb are to set the line square to the direction of the first mark, and make the line long enough to give everyone a chance for clear air.

You may find, however, that a line square to the first downwind mark, especially if it is also square to the wind, will cause everyone to want to start on starboard gybe since rule 18 does not apply at a starting mark surrounded by navigable water.

One solution is to favor the starboard end of the line. How much to favor it depends upon the type of start. If the first mark is directly downwind, the port end of the line may be set as much

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as 10 to 20 degrees further upwind than the starboard end of the line For example, if the heading to the first mark is 180 degrees from the center of the line, a square line would have the port end of the starting line bearing 90 degrees from the race committee boat at the starboard end. Instead, you might wish to have the port end bear 080°, 075° or even 070°.

It is very difficult to sight the starting line from a boat stationed outside the pin (port) end in a downwind start, because competing boats will want to approach the pin on starboard gybe. It is often preferable to use a boat as the "pin end" of the starting line, instead.

Reaching starts

If the start is a reach you may wish to favor the leeward end so that the boats starting to leeward must reach harder, while at the same time risking being blanketed by the windward boats. This tends to equalize the benefits to the boats starting at various points along the line —trade off windward position for closer reaching.

If the wind is forward of the beam, you may not have to favor the leeward end of the starting line as much as if the wind is aft of the beam. For example, if the true wind is 70 degrees to the left or right of the course to the first mark, you may have to favor the leeward end by 20 degrees. If the true wind is 120 degrees, you may have to favor the leeward end by as much as 30 degrees.

Except for a dead downwind start, also consider whether the rhumb line course will be sailed on starboard or port tack, and how this affects pre-start maneuvering. If the leg will be sailed on port, it may be possible to favor the starboard end of the line enough to entice starters to use the whole line, but not enough to enable a lone boat to run the line on starboard.

Temporary windward marks, and offset marks

For some distance races the object is to get from point "A" upwind to Point "B" downwind. One alternative to an offwind start is to set a temporary mark some distance upwind, even if it is opposite the ultimate course direction. If a temporary upwind mark is used, consideration should be given to using an offset mark, so that the boats, after rounding the upwind mark, must sail a short reach, preventing them from gybe setting at the windward mark and sailing back through the fleet.

"Offset marks" are discussed further in Chapter 6, "Course Configuration." In summary, however, an "offset" mark is a mark set above the laylines for the approaching boats beating to windward, and close to the windward mark, which must be passed or rounded after rounding the windward mark.

Current considerations in setting the starting line

In general

The presence of current poses problems for race management, especially when wind is relatively light, or the current relatively strong. If a current tends to oppose boats trying to start, starters

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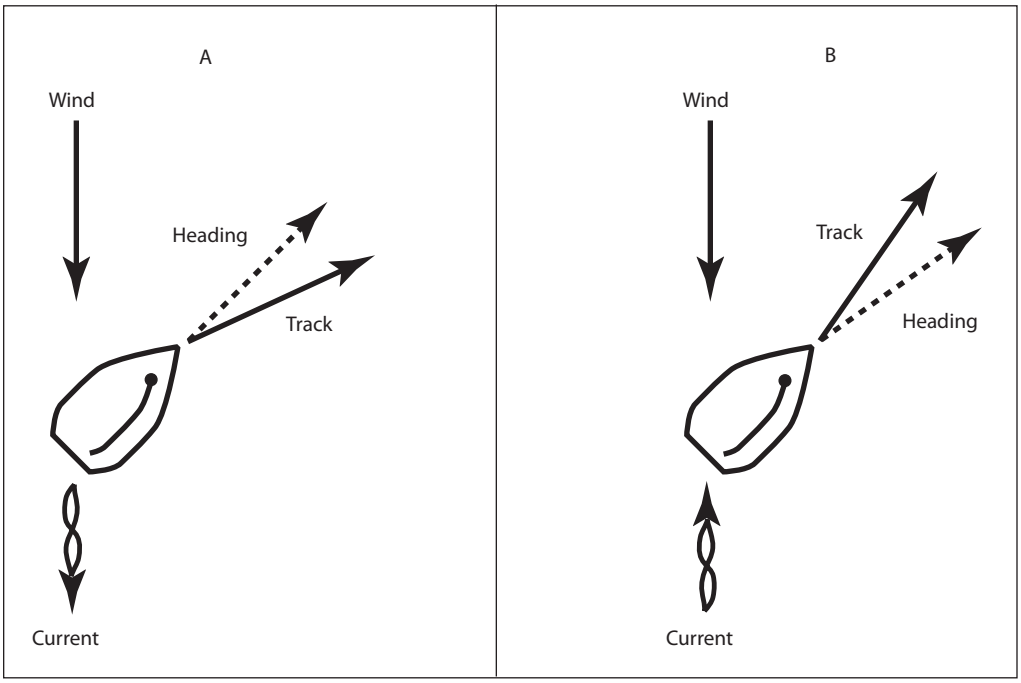
Figure 10.1



will tend to be late. If it is strong enough they may be unable to cross the line. When adjusting the course for current, the race officer must exercise considerable judgment.

Starting lines for windward legs

If the current is flowing downwind (adverse current), the wind experienced by sailboats is of less velocity than that registered on the anchored signal boat, by an amount equal to the velocity of the downwind current (see Figure 10.1 A). If the boats cannot make sufficient progress against the current, postpone the start.

If the current is flowing upwind (favorable current), the wind experienced by sailboats is of greater velocity than that registered on the anchored signal boat by an amount equal to the velocity of the upwind current (see Figure 10.1 B). If current and wind are not aligned (cross-current), the apparent wind experienced by sailboats is from a direction more down-current than the wind perceived on the anchored signal boat. The apparent wind is a combination of the true wind and the wind created by the current.

In order to understand this divergence, suppose you are on a signal boat anchored in a one knot current from the west, and the wind is calm. A boat drifting with the current experiences a one knot wind from the east, because the current is taking that boat east at 1 knot. What the drifting boat feels when the wind velocity is zero is called the "current wind" and its direction is always opposite to the flow of the current. If the race committee signal boat experiences a true wind

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Figure 10.2

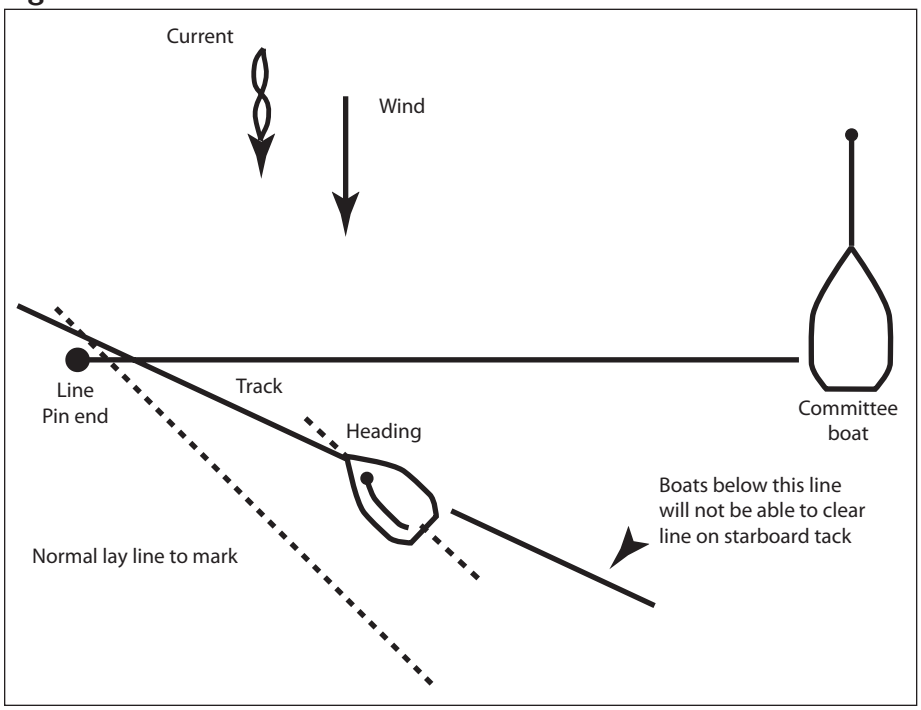
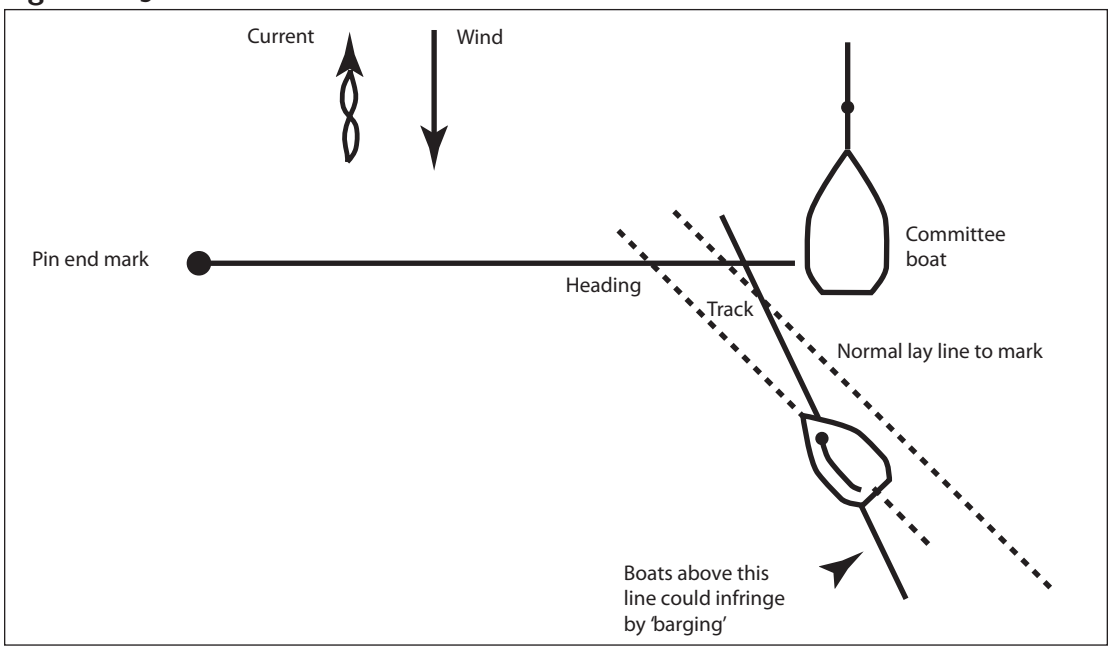


Figure 10.3



A child of five would understand this. Send someone to fetch a child of five.
—Groucho Marx

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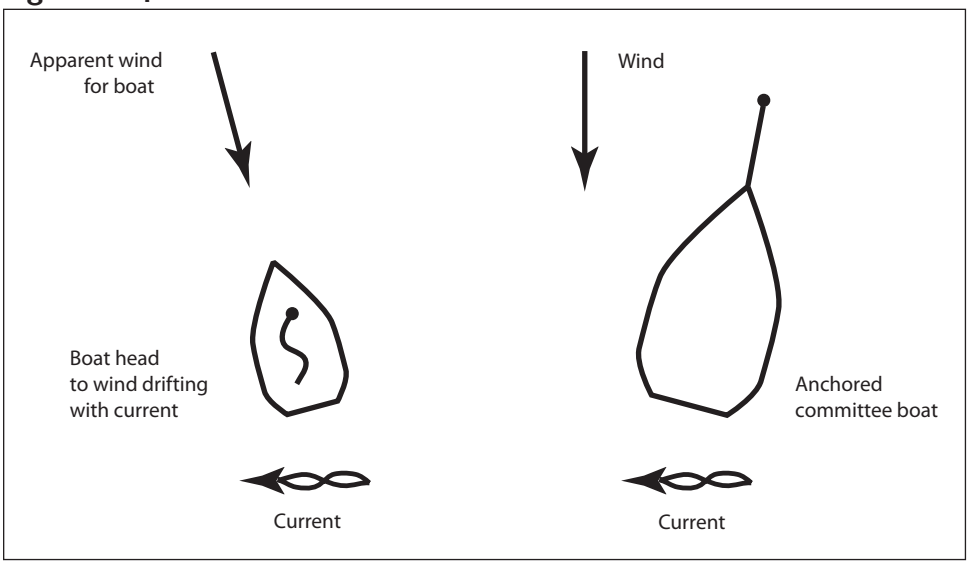
Figure 10.4



of 7 knots from the north , the sailboat's apparent wind will be from 8 degrees downstream of the committee boat's apparent wind. This is illustrated in figure 10.4. With a current setting with the wind, a boat starting on starboard tack passes closer to the pin end mark than it would with no current (see Figure 10.2).

If the current is setting with the wind, (unfavorable current), you have two ways to make the starting line more fair:

1. You may set the port end mark somewhat downwind of a 90 degree line to lessen chances that boats crossing on starboard tack will be unable to clear the mark; or
2. You may lengthen the starting line to account for the leeway made by boats because of the current (see Figure 10.2).

If the current is setting against the wind (favorable current), and either the current is strong or the wind light, you will need to lengthen the starting line to allow boats approaching it too quickly enough room to bear off to avoid being OCS (see Figure 10.3).

When there is current across the course, you should set the starting line square to the apparent wind—not to the true wind. The best way to measure the apparent wind is from a drifting boat. If the wind readings from a drifting boat are consistently different from those on an anchored boat, there is a component of current across the course.

Other ways to detect crosscurrent are observing sailboats that are head-to-wind near the starting line, or from the angles sailed by boats going upwind on opposite tacks.

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Setting the bearing to the windward mark

A perfect windward leg would be one in which boats sail equal time (and equal distance through the water) on both tacks. When current is either directly with or directly against the wind, the ideal bearing to the mark is directly into the true wind.

With a crosscurrent, a beating boat sailing equal time on each tack will reach a point some distance down current of a point directly to windward of its starting point. In the presence of crosscurrent, the true wind bearing needs two corrections:

1. for the downcurrent divergence of the apparent wind from the true wind, and
2. for the downcurrent distance that the crosscurrent will carry the boats while they are sailing on the leg.

Fortunately, the bearing from the signal boat for a perfect windward leg is the same under constant conditions whether the leg is short or long; so if you can determine the bearing near the signal boat, you can extend that bearing for any distance desired for the weather leg.

Four methods for deciding on your bearing to the windward mark in crosscurrent are:

1. The intelligent guess. You may be good at it, but occasionally try one of the other methods to improve the accuracy of your guesses.
2. Equal time on both tacks. Ask a competitor to sail to windward on both tacks, beginning at the signal boat's bow. Ask him to stay on one tack about 3 minutes, and slightly longer on the second tack. Have your timer time the first tack from when the sailboat is at the bow until it fills away on the other tack. When the timer announces "equal time" on the second tack, read the bearing to the sailboat with a hand bearing compass and set the windward mark on that bearing.

   The longer the equal tacks are, the more accurate your observed bearing will be. Delaying the ending of the timing on the first tack until the sailboat fills away on the other tack is an attempt to compensate for the boat's diminished speed after coming about. Having both tacks on the upcurrent side of the bearing to the mark prevents putting the mark too far downcurrent in case the sailboat is slow in regaining speed after tacking. A diagram of this exercise is shown in Figure 10.5.
3. Divergence of the apparent wind, times three. Determine as well as you can the number of degrees of divergence between the true wind and the apparent wind. Three times that angle downcurrent from your true wind will give you an approximate bearing for the windward mark.

   To estimate this angle of divergence from the true wind: estimate the difference between the wind direction measured from an anchored boat and a drifting boat or ask a sailboat to luff upwind of you, head to wind; or observe the little wind ripples on the water, which (when visible) indicate the direction of the apparent wind.

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Figure 10.5

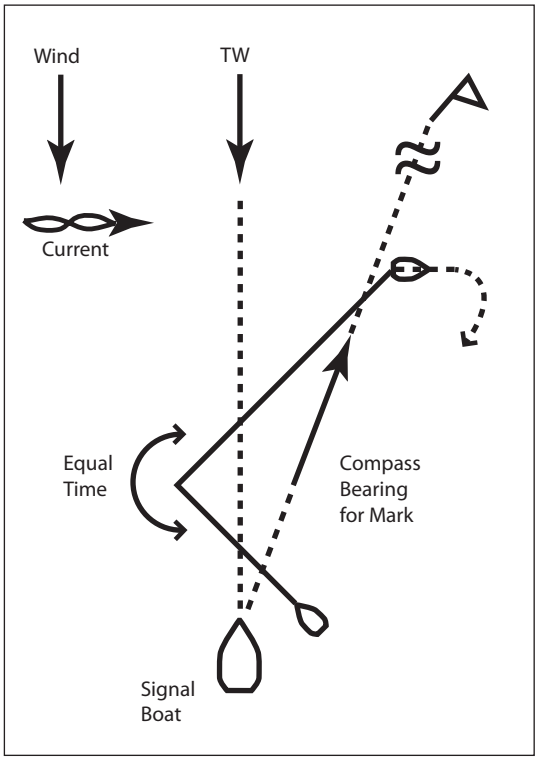
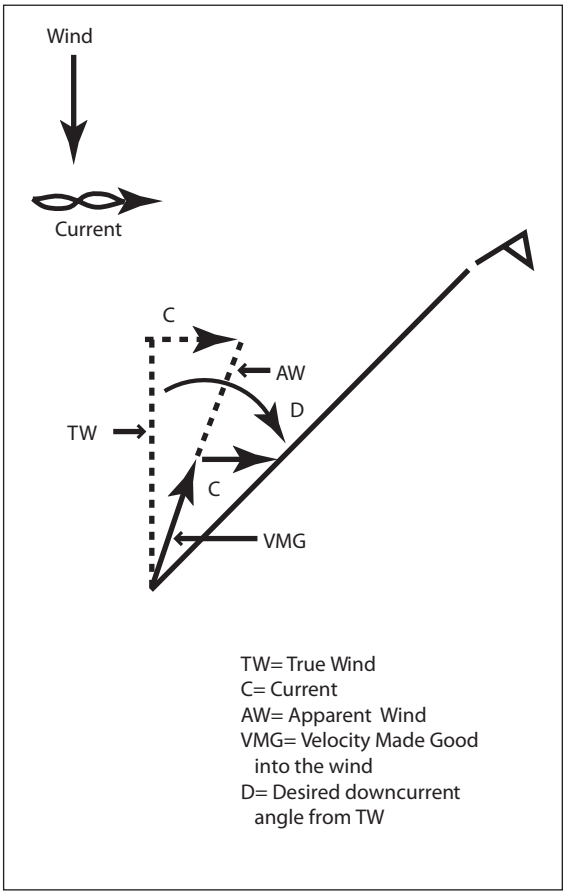


Figure 10.6



Accuracy is important in estimating the angle, because any error is multiplied by three. For boats that truly excel in sailing to windward, the multiplier should be reduced to two.

4. Plotting velocity made good and current. To use this method, measurements or estimates of the following six variables are needed:

- boat speed close-hauled
- tacking angle
- true wind direction
- true wind velocity
- current direction
- current velocity

After drawing the dashed line triangle consisting of TW, C, and AW (see Figure 10.6) add solid lines for one hour's worth of VMG (velocity-made-good directly up the apparent wind) and C. When the tacking angle is 90 degrees, VMG is .71 times boat speed; when the tacking angle is 80 degrees, VMG is .77 times boat speed.

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Next, draw your direction for the windward mark through the downcurrent end of solid C (see Figure 10.6). Lastly, using a protractor, measure your desired downcurrent angle (D) from the direction of your true wind.

These methods for determining the bearing to the windward mark in crosscurrent assume that conditions will remain constant throughout the leg. If you expect the wind to increase or the current to decrease during the beat, set the mark on a bearing somewhat less downstream. Conversely, if you expect the wind to decrease or the current to increase during the beat, set the mark on a bearing somewhat more downstream.

One of the benefits of having the weather mark set, or the markset boat ready to set it, before the start is that the boat setting the mark has the opportunity to measure current in the vicinity of the proposed weather mark position, while the race committee signal boat has the opportunity to measure current at the starting line. Information from these two locations can give you enough information to be able to adjust your calculations for differences in current direction or velocity at the two locations.

Whenever the bearing to the first mark will not be directly into the apparent wind (as in conditions of crosscurrent), the compass bearing for the first leg should be signalled. Be sure to include provision for such signalling in your sailing instructions. Such an instruction is a "special signal" under Appendix J2.1(6), and must be included in the sailing instructions if it is to be used. Remember that when you set the windward leg angle to compensate for current, any subsequent reaches or runs will be skewed considerably.

Table 10.7

Current/Boat VMG	Correction (Degrees)
0.00	0
0.10	6
0.20	11
0.30	17
0.40	22
0.50	27
0.60	31
0.70	35
0.80	39
0.90	42
1.00	45
1.25	51
1.50	56
2.00	63

Table 10.7 shows the adjustment to the direction of the windward mark necessary to produce equal time on each tack as a function of the ratio of the crosscurrent velocity to the boats' VMG.

Before using these adjustments to the position of the windward mark, consider the entire course and what subsequent adjustments may be needed. In some circumstances, making the first upwind leg "fair" may not be the thing to do.

Starting line systems

In general

Starting line systems are sometimes described by the number of primary race committee boats required. Such factors as number and size of competing boats, size of the

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course, the body of water, formality of the event, wind and weather conditions, and the extent to which marks will be shifted during the race will determine how many boats are needed.

The six systems discussed below provide a frame of reference and represent the most common combinations. There are, of course, variations on these. Evaluate each event and choose the system (or design one) which does the best possible job with the available resources.

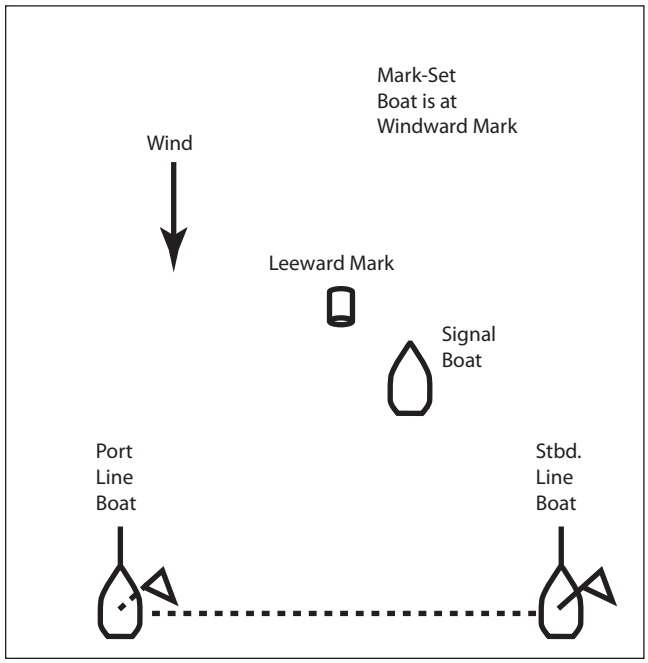
The four-boat system

The four-boat system is especially appropriate for large fleets on long starting lines, and in high-level championships, but it need not be used only there. Although four boats are required at the start, two (the "port line" and "starboard line" boats) are free for other duty immediately after the start.

Throughout the race, everything can be handled by just two boats. Any club holding a small boat regatta will need two or more boats, beyond its basic signal boat and mark-set boat, for safety purposes anyway. In the four-boat system, two boats always convert to patrol duty once the race has begun.

The starting line is formed between tall poles flying bright orange flags on each of two small whalers or inflatable boats (the port and starboard line boats). The largest boat acts as the signal boat, to windward of the starting line. The fourth boat is the mark-set boat, which sets and shifts marks. Figure 10.8 shows the general positioning of the four boats during the starting sequence.

Figure 10.8



The signal boat makes all visual and sound signals, and is positioned to windward of the starting line. It maintains position. It does not anchor. Just before the start, it begins to move toward the starboard side of the course, so as to be able to quietly move outside the fleet. If another fleet is to be started, it moves back to its original station as soon as the first fleet has cleared.

Displaying all signals from a moving boat which is not part of the starting line has several advantages. The sailors can see and hear all signals much

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better. The signal boat is not obscured by sails, and its upwind location allows the sound to move downwind to the fleet.

More important, however, is the effect on the functions of the other race committee boats. When two small boats are used as starting marks, the angle of the line can be adjusted almost instantly, and with a very high degree of accuracy.

Anchor lines on the port and starboard line boats are angled downward with weights to avoid fouling keels or centerboards. The starting line can be adjusted either by adjusting the anchor line, or merely dragging one of the boats to leeward with its motor, if bottom conditions permit. Navy-type anchors with their heavy, blunt flukes are more easily dragged with the boat's engine in reverse than Danforth anchors.

With two people in each line boat, one can note wind direction with a hand bearing compass and make adjustments in the anchor line right up to the preparatory signal. The other can sight on the flag at the other end of the line with his compass and talk by radio with the other line boat. After the preparatory signal, both can concentrate upon watching for OCS boats, recording them, and hailing (if appropriate).

The physical separation of various committee members operating from four different boats allows each one to concentrate on his or her own job. On each boat, someone watches the wind direction almost continuously, but otherwise the function of the signal boat is just that—to make signals.

The two line boats concentrate on keeping the line exactly square. The mark-set boat worries only about putting marks in proper position and providing wind information to the principal race officer from further up the course.

The principal race officer may use two different "command posts" at different times. Before the start, he is on the starboard line boat so that he can see both the line and the signals being made by the signal boat. After the start, he may transfer to the signal boat while the line boats take up patrol duty.

The four-boat system requires an experienced, coordinated team, but it helps insure excellent race management.

The three-boat system

The three-boat system is probably the most common for courses using moveable marks. The starting line is between the signal boat and a line boat, or between the signal boat and a buoy, in which case the port end line boat sights the line from near the buoy. The third boat is the mark-set boat.

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The "mid-line boat" variation on three-and four-boat systems

A variation on both the three-and four-boat systems inserts a midline boat between the buoy (or port end boat) at one end of the line and the signal boat at the other. In this variation, the starting line is between the signal boat and the mid-line boat and between the mid-line boat and the port end boat or buoy.

The mid-line boat is treated as a starting mark which must not be touched. This arrangement is particularly suited to very large fleets where line management is a problem. Observers in the mid-line boat can be stationed to observe in both directions, and when supplemented by a boat at the buoy end, even large, unruly fleets can be managed.

When a mid-line boat is used, the line boat on the favored end can be dragged back until about one minute before the preparatory signal. Then the mid-line boat can be dragged back to co-linear, or just to leeward of co-linear, in order to induce line sag to help reduce general recalls.

A specific description of this boat and the obligations of boats with respect to this boat are required in the sailing instructions. When rule 30.1 is in effect, the mid-line boat is usually described as not being an end of the starting line.

Two-boat system

The starting line is between the signal boat and a buoy. The other boat is the mark-set boat, but may double as the port end line boat for the start.

One-boat system

The starting line is between the signal boat and a buoy. The signal boat must set marks before the race if moveable marks are used. This system is appropriate only for informal club racing.

No-boat systems

The starting line is usually between two buoys and can be sighted from shore. Signalling is done from a pier or dockside building. It is simple, fast and inexpensive. It is a great pleasure for spectators but usually unsatisfactory for anything other than casual dinghy racing or small fleets of cruising boats, since the starting line probably will not be square to the wind and the course is restricted by land.

Another "no-boat" system is the gate start used primarily in fleet practice or large fleets of dinghies. A detailed description of its use appears in Chapter 11, "The Start," under "Alternative starting sequences."

Setting courses and laying marks

In general

Select a location for the course and starting line which will give you maximum flexibility and is as free as possible of obstructions and land influence. If more than one committee boat is avail-

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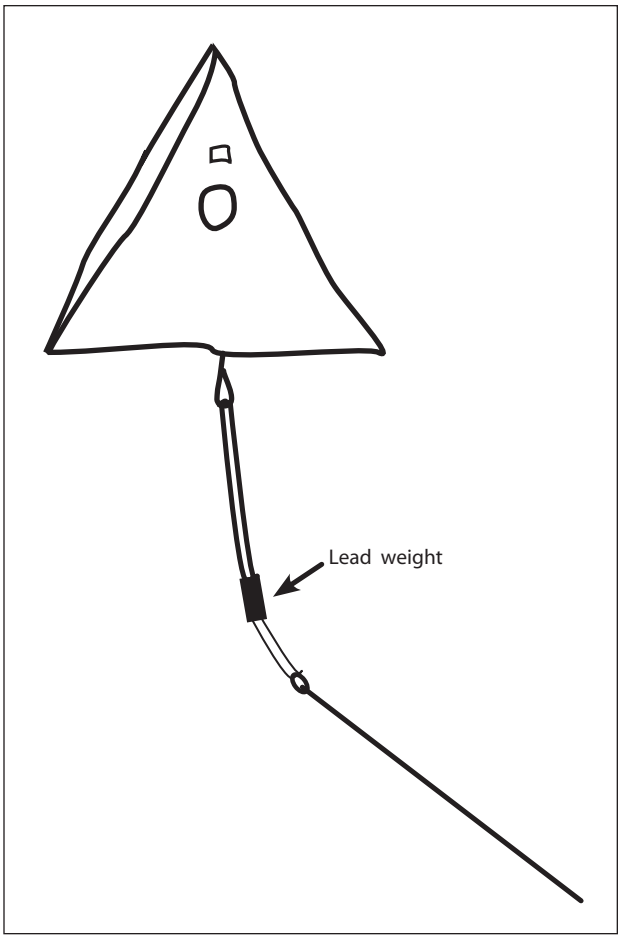
able, spread them out, especially to windward and in the direction of the reach mark, to observe wind over more of the course area.

Set the starting line or leeward mark first. Set marks or select the permanent-mark course no earlier than absolutely necessary.

All marks should have anchor line weights or "deadmen" attached to the anchor line at sufficient depth to get the line below the keel or rudder depth of the deepest draft boat in the fleet. See Figure 10.9.

Figure 10.9



The signal designating the course must be posted no later than the warning signal (and the sailing instructions may provide that the bearing to the windward mark will also be signalled), but the windward mark does not have to be in place at that time. The mark-set boat should make every effort to have the windward mark set no later than the preparatory signal. This provides maximum flexibility, but requires a reliable mark boat.

Getting the marks in the right place is very important. The advent of GPS has made mark setting far more accurate. The time, speed and distance method is being made obsolete by the electronics but is, in fact, still a viable system. The mark-set boat operator should know, by experimenting over known distances with the boat properly loaded, the time it takes to travel the required course-leg distances at a given throttle setting or rpm. Calibrate the mark-set boat's speedometer by using a measured mile.

Table 10.10 shows the directions to marks for different courses and wind directions for the three most common types of triangles (right angle, equilateral, catamaran-type scalene). There are many other types of courses (see Chapter 6," Course Configuration"), but most clubs use one or more of those shown in Table 10.10.

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Table 10.10

Compass bearings to marks for different wind directions and courses							
Wind Dir.	45-90-45 Triangle 1-2 2-3	60-60-60 Triangle 1-2 2-3	75-60-45 Triangle 1-2 2-3	Wind Dir.	45-90-45 Triangle 1-2 2-3	60-60-60 Triangle 1-2 2-3	75-60-45 Triangle 1-2 2-3
000	225 135	240 120	255 135	180	045 315	060 300	075 315
005	230 140	245 125	260 140	185	050 320	065 305	080 320
010	235 145	250 130	265 145	190	055 325	070 310	085 325
015	240 150	255 135	270 150	195	060 330	075 315	090 330
020	245 155	260 140	275 155	200	065 335	080 320	095 335
025	250 160	265 145	280 160	205	070 340	085 325	100 340
030	255 165	270 150	285 165	210	075 345	090 330	105 345
035	260 170	275 155	290 170	215	080 350	095 335	110 350
040	265 175	280 160	295 175	220	085 355	100 340	115 355
045	270 180	285 165	300 180	225	090 000	105 345	120 000
050	275 185	290 170	305 185	230	095 005	110 350	125 005
055	280 190	295 175	310 190	235	100 010	115 355	130 010
060	285 195	300 180	315 195	240	105 015	120 000	135 015
065	290 200	305 185	320 200	245	110 020	125 005	140 020
070	295 205	310 190	325 205	250	115 025	130 010	145 025
075	300 210	315 195	330 210	255	120 030	135 015	150 030
080	305 215	320 200	335 215	260	125 035	140 020	155 035
085	310 220	325 205	340 220	265	130 040	145 025	160 040
090	315 225	330 210	345 225	270	135 045	150 030	165 045
095	320 230	335 215	350 230	275	140 050	155 035	170 050
100	325 235	340 220	355 235	280	145 055	160 040	175 055
105	330 240	345 225	000 240	285	150 060	165 045	180 060
110	335 245	350 230	005 245	290	155 065	170 050	185 065
115	340 250	355 235	010 250	295	160 070	175 055	190 070
120	345 255	000 240	015 255	300	165 075	180 060	195 075
125	350 260	005 245	020 260	305	170 080	185 065	200 080
130	355 265	010 250	025 265	310	175 085	190 070	205 085
135	000 270	015 255	030 270	315	180 090	195 075	210 090
140	005 275	020 260	035 275	320	185 095	200 080	215 095
145	010 280	025 265	040 280	325	190 100	205 085	220 100
150	015 285	030 270	045 285	330	195 105	210 090	225 105
155	020 290	035 275	050 290	335	200 110	215 095	230 110
160	025 295	040 280	055 295	340	205 115	220 100	235 115
165	030 300	045 285	060 300	345	210 120	225 105	240 120
170	035 305	050 280	065 305	350	215 125	230 110	245 125
175	040 310	055 285	070 310	355	220 130	235 115	250 130

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The geometry of the course can be maintained by compass. Each mark-set boat needs an excellent ship's compass, as well as a reliable hand-bearing compass. GPS and other electronics are very often used, especially for longer courses.

Hand bearing compasses can be used for checking bearings to and from other marks when marks are in sight of one another. Otherwise, radar or GPS should be used to confirm mark locations. Hand held GPS equipment is readily available and quite inexpensive. Always check the mark's location by compass bearing from the signal boat if possible.

To set marks using GPS, the mark boat operator takes a GPS waypoint at the leeward mark, and/or the middle of the starting line, depending on where the windward leg will begin. He can then proceed on the designated course heading using reciprocal bearings and distance to determine exactly where the windward mark should be placed. The same method is used to set a "new" mark in response to a wind shift. Should it become necessary to reset the leeward mark, its location should be taken as a waypoint and the coordinates relayed to the mark boat by radio.

A handy device for computing courses is included at the end of this chapter, and may be used in addition to the same information in table form. Another useful tool for plotting courses is a clear plastic course diagram made to scale, which may be placed on a chart of the course area to check positioning quickly, and to plot the course accurately.

The lengths of courses for time-on-distance handicap races must be known precisely. Very accurate plotting and calculations are required, particularly in closed course racing. For computing course lengths and time limits, get a standard nautical chart of the area and laminate it in plastic. Prepare a table showing how many miles of course distance boats must sail per hour of available time. This table should cover the appropriate size ranges of boats in at least three levels of wind.

With these tools, the committee can quickly estimate the time it will take a given class to sail a given course length in the present wind strength. See the discussion and tables in Chapter 6.

Setting marks in current

The length of each leg over the bottom, and all interior angles of the course, should be as stated in the sailing instructions, regardless of current. To do otherwise would (a) make accurate navigation of the course impossible in the event of poor visibility; and (b) create a situation in which redress requests were likely.

The mark-set boat, on its way to setting the windward mark in conditions of crosscurrent, should not steer the given compass bearing. Instead, repeated reciprocal bearings should be taken on the starting mark with a hand bearing compass, in order to progress over the bottom along the

The nine most terrifying words in the English language are,
'I'm from the government and I'm here to help.'
—Ronald Reagan

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correct bearing. Distance along the bearing can be timed from a calibrated RPM speed curve, plus a plot of speed and direction-made-good over the bottom.

For setting the gybe mark in the presence of current, the desired interior angle at the windward mark can be maintained by reciprocal bearings back to that mark; and the desired interior angle at the gybe mark can be obtained through repeated bearings to both the windward mark and the leeward mark, if they are within sight.

You can greatly increase mark-setting accuracy in current by using radar or GPS. If using radar, have the mark-set boat display a radar reflector. The radar on the signal boat will give distance and relative bearing, and the race committee can direct the mark-set boat to the correct mark location by radio.

With GPS, the necessary instrumentation is on the mark-set boat, so it can set marks with great accuracy without relying upon radio communications.

In poor visibility and with no electronic aids available, the mark-set boat must resort to piloting by dead reckoning, making proper allowances for current.

Stake boats

Stake boats are useful in a number of ways for large regattas. The equipment they should carry is described in Chapter 8, "Race Committee Equipment." Whether stake boats need to anchor depends upon their usage. If the water is shallow (100' or less) and the wind relatively constant, it may be convenient for the stake boat to anchor. If the water is deeper, or it is anticipated that a number of course changes may be necessary, you may wish to tell the stake boat that it should not anchor.

On the other hand, an anchored stake boat requires fewer people to accomplish the tasks at hand, because someone need not always be steering the boat to keep it in position.

When in position, the stake boats should raise their identifying signal, if provided (frequently a large orange shape). If course changes make it necessary to move marks, stake boats should always lower the signal before moving. A stake boat with a signal flying while underway confuses competitors.

Stake boats should not leave their position unless advised to do so by the race officer. Stake boats should be positioned outside the course.

Weather mark and gybe mark stake boats should be positioned on an extension of the rhumb line from the prior mark.

Leeward mark stake boats should be positioned to leeward of the leeward mark (preferred) or on a similar rhumb line extension. Figure 10.11 shows the proper positioning.

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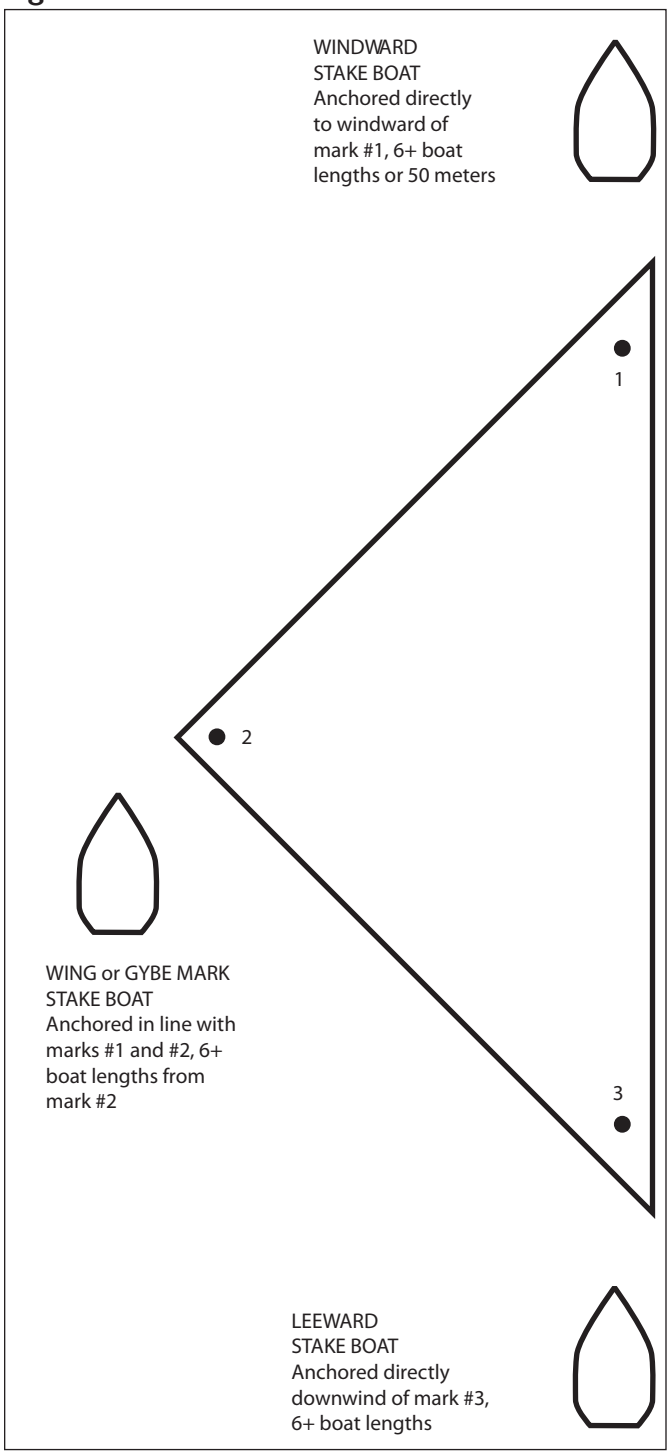
Figure 10.11



The finishing line

For an upwind or downwind finish, the line should be set at right angles to the direction of the wind. For a reaching finish, set the finish line at right angles to the direction from the previous rounding mark.

The finishing line should be short, generally about six to ten boat lengths. A short line enables sail numbers to be more easily read, and reduces the effect of any bias in the line. Large one-design fleets require the longest finish lines.

It is preferable, though not required under the rules, that the buoy end of the finishing line be left on the same side as rounding marks of the course.

Remember, the sailing instructions must contain a description of the finishing line (J2.1 (6)). Sight the course side of buoys for the finish line.

An anchor retrieval system

In deep water (40-125 feet), retrieving an anchor of a size sufficient to hold a large inflatable racing mark can be a tiring and backbreaking task. It need not be. There is a way to do it with very little effort.

Developed by a charter fisherman, this retrieval system consists of two pieces . One is an open-ended stainless steel ring (about 5½ inch interior diameter) with two small

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rings (about 1 inch interior diameter) fixed to the open ends, with their planes at right angles to the plane of the large ring. The other piece is a small inflatable buoy of the size used for dinghy races, with a short piece of line and a strong shackle. (It also makes a good fender.)

The mark boat runs up to the mark from leeward, and one person grabs and holds the mark. The other person secures the anchor line on a stern cleat, leaving about eight feet of scope for dragging the mark. He then places the ring around the part of the line leading to the anchor and shackles it to the buoy. While one person holds the two pieces of line for a few seconds to prevent entanglement in the propeller(s), another runs the boat directly to windward.

The ring and buoy then begin sliding astern along the anchor line. When the buoy is slightly to windward of the anchor, the latter is broken out, and ring and buoy continue sliding along the line until disturbed water announces that the anchor's shank is in the ring. The boat then stops, and the line is reeled in until anchor, ring, and buoy are alongside.

If there is enough open water to windward, the same technique, varied slightly, can be used to weigh anchor on a large sailboat or a powerboat lacking a power winch. The boat heads slowly to windward, aiming a bit to one side or the other of the anchor line, so the line will stream alongside the hull. When it reaches the cockpit, a crew member picks up the line with a boat hook. If alone, he cleats the line before attaching the ring and buoy, astern of the cleat, and then uncleats it. Off to windward! When the anchor is in the ring, the boat turns stern to wind and stops. While the driver holds it in that position, the crew member reels in the line and anchor from the bow.

The anchor retrieval device is commercially available. It can be found at chandleries that cater to offshore fishermen who have been using it for some years. It is also carried by several leading marine discount houses.

Deep water mark setting

Setting marks accurately in deep water can be difficult. In places where racing is done in deep water, e.g., Hawaii or Seattle, the race committees have developed specialized equipment and techniques to make the job easier and safer. Some of these methods do not require the retrieval of all of the ground tackle. Even if the tackle left in the water is biodegradable, such methods may break anti-pollution or other environmental laws.

A retrievable system

Both surface and subsurface currents play a role in mark-setting accuracy in deep waters. Concrete blocks, while inexpensive, have a tendency to "skate" (drift unpredictably) during the drop. The more quickly an anchor reaches the bottom, the less opportunity it has to "skate" during descent.

The system described below descends at a rate of approximately 600 feet per minute (about 2.2 times faster than a concrete block system).

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The anchoring system

The system is effective, simple, and very inexpensive. It consists of three sections: (a) ground tackle; (b) line from ground tackle to surface; and (c) leader and race mark.

Ground tackle

Starting from the bottom, the ground tackle consists of an 8 pound mushroom anchor shackled to an 8 ft. length of 5/16 inch chain. The chain is shackled at the other end to a 25 pound lead ball. The ball is, in turn, shackled to a second 8 ft. length of 5/16 inch chain. The line to the surface is tied to the other end of the second length of chain.

The lead ball takes the mushroom anchor to the bottom without "skating". Mushroom anchors are less apt to dig into the bottom than other types, and digging in is not essential with this system.

Line drag caused by current has much more effect on the system's ability to hold than either wind or waves. Using a mushroom anchor, the system holds comfortably in 15 to 18 knots of wind, in up to 1600 feet of water, and with 8-10 foot waves, where the current is less than 1 knot.

However, where the current is in excess of 1¼ knots with 8 knot winds, it may drag in as little as 250 feet of water using a mushroom anchor. Some of this may be the mark simply rotating on its scope.

If the mushroom anchor is replaced with a 10 pound Danforth, it should hold in currents of more than two knots in over 1,000 ft. depths with wind in the 12 to 14 knot range.

The only problem with using a Danforth anchor is that the Danforth is more apt to foul, sometimes making it necessary to retrieve and reset.

Line from ground tackle to surface

Attach a 20 foot length of ¼ inch white nylon cord to the second length of chain. This acts as a warning device. Tie the other end of the cord, with a fisherman's knot, to a spool of 3/16 inch black fisherman's nylon net line.

The retrieval system brings the ground tackle up at the rate of 400 feet per minute, at one-quarter throttle (see below). If you do not use the white cord, you do not know when you are getting close to the chain. When the chain hits the davit on the retrieval system, the chain, ball, and anchor may fly over the davit and into the boat. Use the white leader!

Black fisherman's net line is strong, light, and inexpensive. Use fisherman's knots because the line is retrieved through a block attached to a davit aboard the mark-set boat, then onto the spool. Fisherman's knots run easily through the block. Other line types may jam in the block.

Consider experimenting with heavy monofilament, instead of fisherman's net line. Line stretch and difficulty in handling are factors to be considered.

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Surface system

The surface portion of the system consists of an 8 ft. inflatable mark, with a "D" ring attached to the bottom, and a leader. Use as a leader an 18 foot length of ½ inch, three-strand line with a 3½ inch brass snap shackle spliced onto the upper end (which attaches to the "D" ring on the mark) and a 2 inch brass ring spliced onto the bottom end. Attach a 6 pound lead weight to the line just above the brass ring. The lead weight holds the leader more or less vertical in the water to avoid fouling deep draft keels.

Setting the mark

When the desired location is reached, attach one end of the white warning line to the second chain on the ground tackle. Tie the other end (with a fisherman's knot) to the bitter end of the black fish net line (led from the spool through the block on the davit aboard the boat). Lower the ground tackle into the water until all of the slack is out of the chain and line. Release the tackle for the drop.

The tackle will descend virtually vertically at the rate of about 600 feet per minute. When the tackle hits the bottom the line will immediately become slack. Pay out five percent more line for scope (by hand), cleat the line to the boat's gunwale and cut it. Tie the bitter end (with a bowline) to the brass ring on the ½ inch leader, and drop the mark and leader over the side. Untie the line from the cleat and the system is set free of the boat.

A good depth sounder aboard the mark-set boat will give the information necessary to calculate scope.

To drag, the mark must first pull on the 6 pound lead weight, the length of line, the first length of chain, and the 25 pound lead ball, then 8 more feet of chain before the anchor is put to use. The anchor merely keeps the rest of the system from moving horizontally.

On-board retrieval system

The concept is simple. Lobster fishermen have been retrieving traps using such systems for years. The process does not have to be complicated.

The system consists of a few simple items:

1. A davit and block to keep the retrieval system away from the side of the mark-set boat;
2. A drum or spool onto which the anchor line winds;
3. A simple gasoline-powered ¼ hp. motor sheltered by a housing to keep the motor dry, with ports to allow ventilation and fueling; and
4. A hand-operated clutch to engage and disengage the spool.

Open the side ports to the motor housing just before the motor is started, to avoid intrusion of water but allow ventilation during use. The top port is opened only for refueling and inspection. When retrieval has been accomplished, close the side ports again.

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Mark retrieval

When a mark is to be retrieved, the mark-set boat should approach it from downwind. Pull the mark aboard, along with the 18 foot long, ½ inch diameter leader, the lead weight, and about five feet of the black anchor line, and cleat the anchor line to the gunwale.

Untie the anchor line from the leader. Run the end of the line on the spool from the spool through the block on the davit and tie it to the cleated bitter end of the anchor line, using a fisherman's knot.

Start the motor and leave the clutch disengaged. Uncleat the anchor line so that it runs free from the water to the block, and engage the clutch, working the throttle to begin to retrieve the system. Watch for the white leader near the ground tackle, slow the system using the clutch until you can reach the chain and haul the ground tackle aboard.

Do not leave the line on the spool under tension. After several days of setting marks, the line should be unwound from the drum and rewound to relieve excessive tension on the drum. Consider using a reinforced aluminum or other lightweight metal drum. PVC drums work fine, but tension from the retrieval line can cause them to tend to collapse after approximately 30 race days. Although cheap to replace, PVC drums can be a maintenance problem.

Course calculators

Figure 10.12 is a simple, reliable device for quickly calculating directions for race courses. It can be used as an alternative to a table such as Table 10.10.

It is a scientific fact that your body will not absorb cholesterol if you take it from another person's plate.
—Dave Barry

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Figure 10.12
Directions: Copy the circle below and those that follow onto stiff cardboard or paper. Be sure to make the center opening in the paper as large as indicated, then laminate. Make a small opening in the laminating material to accommodate a plastic bolt (the tip of a soldering iron works well). Finish the assembly with a plastic wing nut and you will have a waterproof unit.

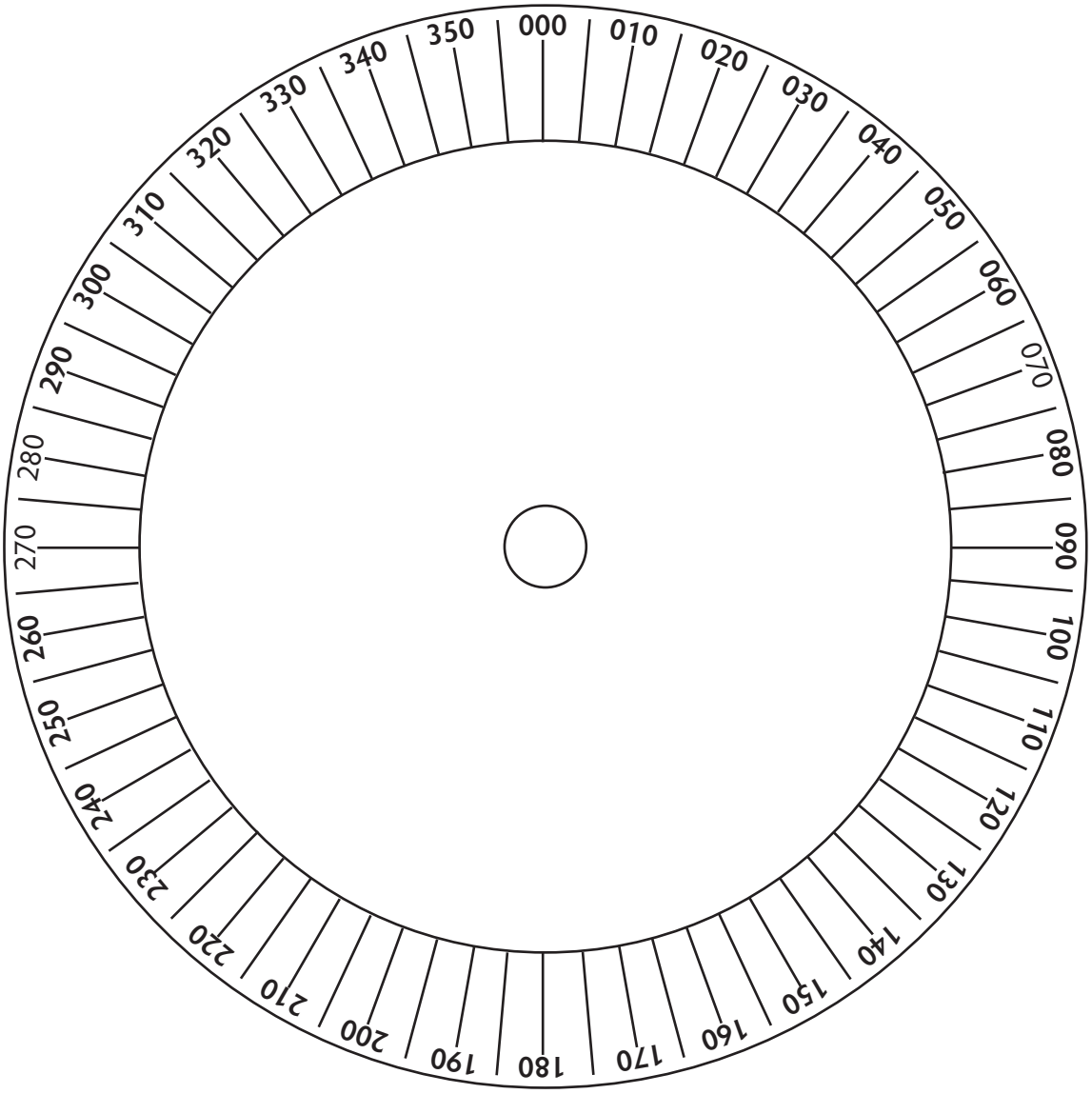

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Figure 10.12 (continued)

Right (isosceles) Triangle 45° - 90° - 45

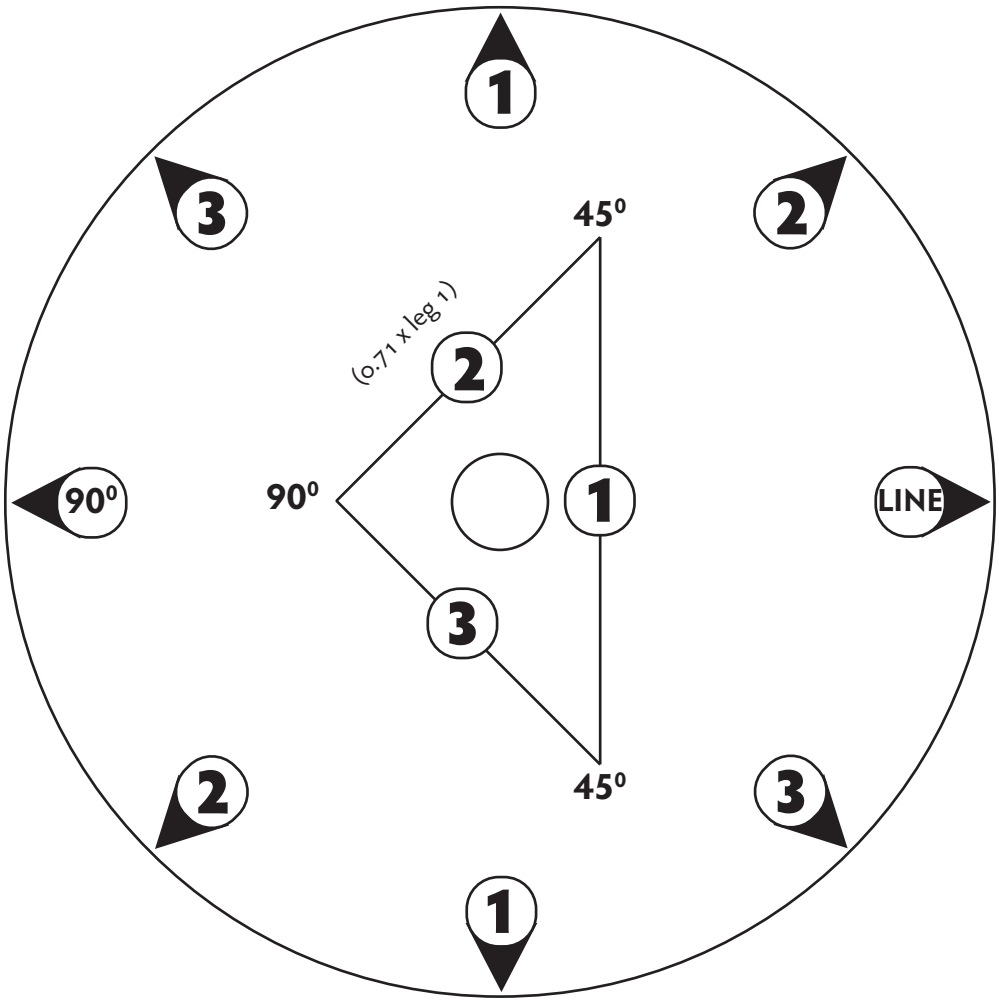

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Figure 10.12 (continued)

Equilateral Triangle 60° - 60° - 60°

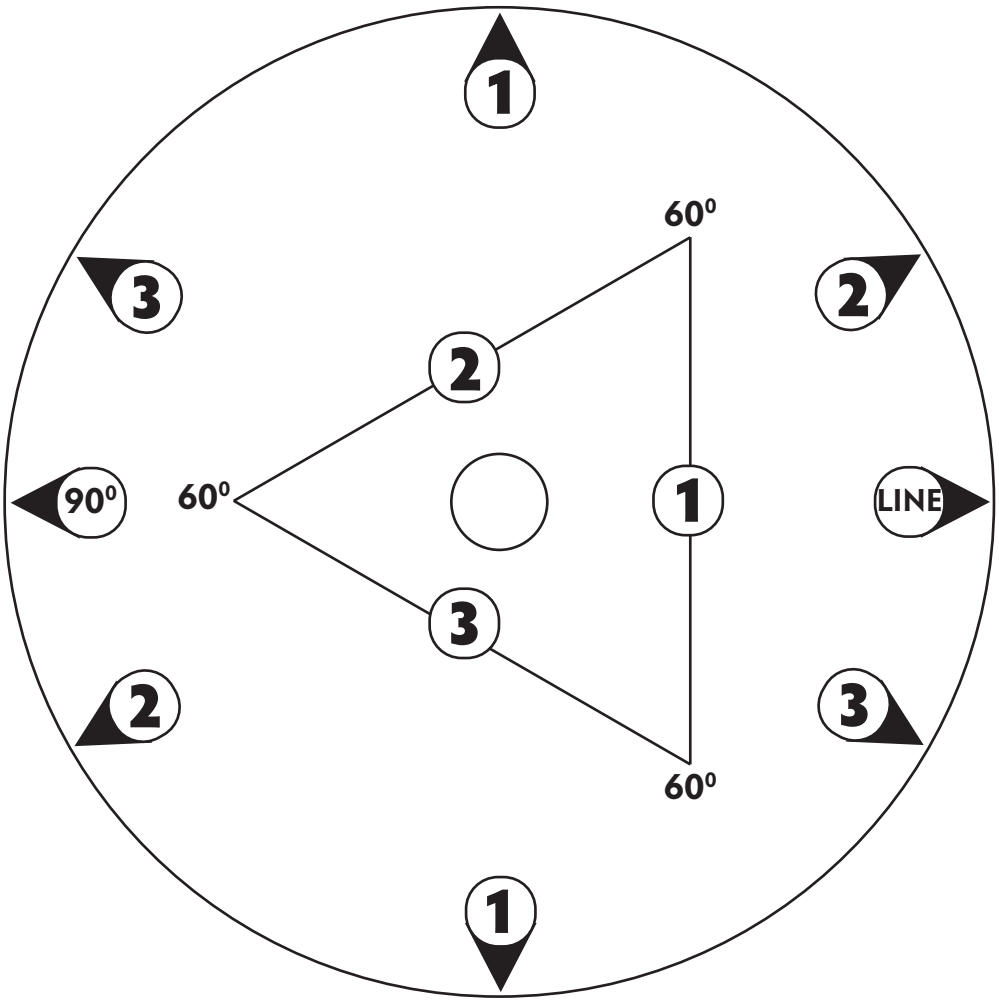

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Figure 10.12 (continued)

Scalene Triangle 75° - 60° - 45°

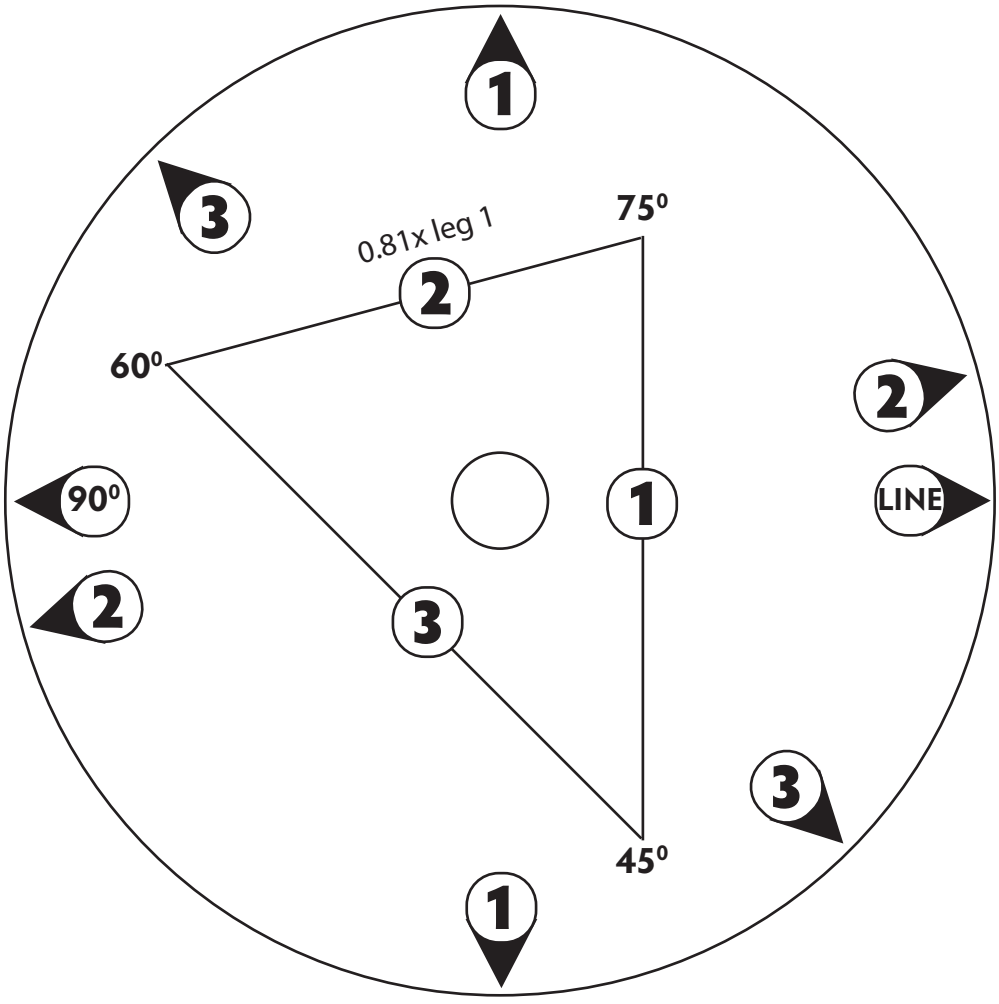

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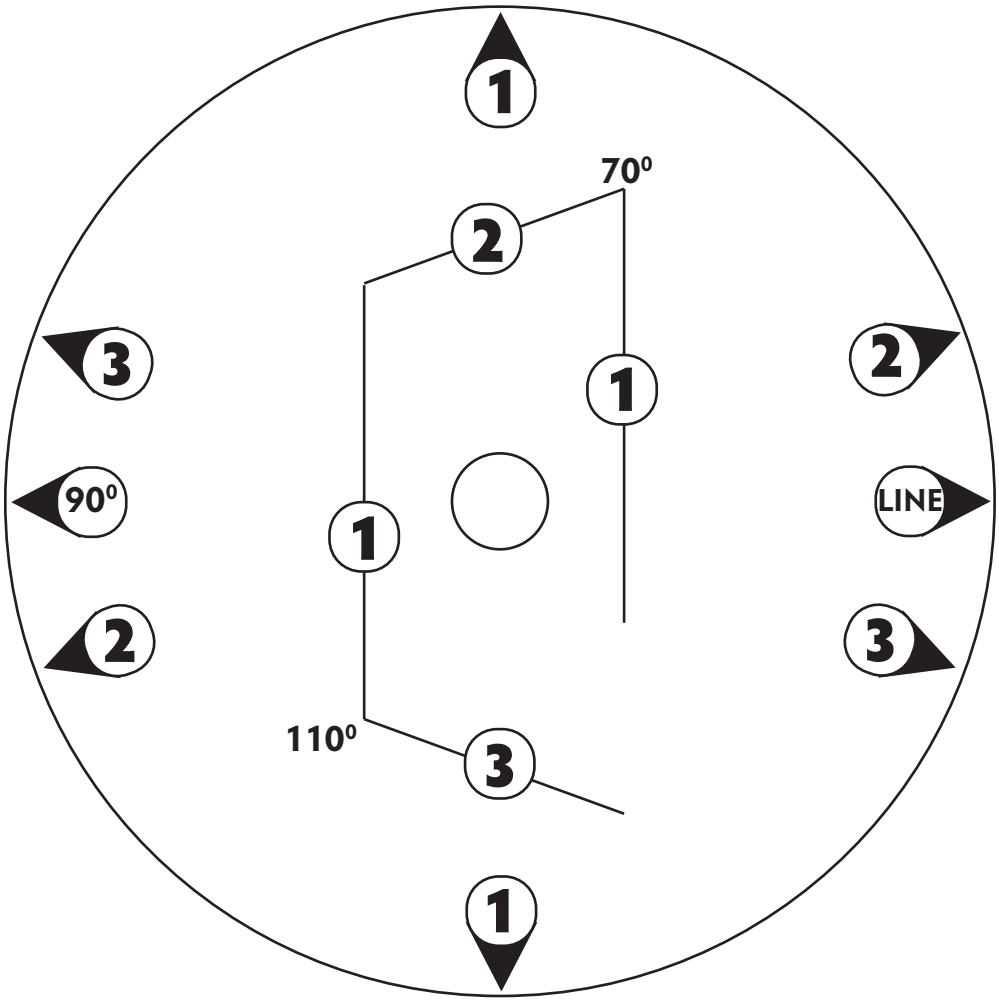
Figure 10.12 (continued)

Trapezoid 70°–110°



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Using GPS to set marks

As mentioned earlier, GPS is by far the best tool for locating marks accurately. However, using either a built-in or hand held GPS takes practice. Mark boat personnel should be encouraged to either have their own GPS or to take the time necessary to learn how to use a race committee-supplied GPS properly.

Caution: The software in some hand-held GPS' will display distances over 0.1 miles only in tenths of a mile. This is usually sufficient for locating rounding marks, but not for setting a starting mark or a gate.

I think we agree, the past is over.
—George W. Bush

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The Start

11

By the time you are ready for the starting sequence, much has already been accomplished. You should arrive in the starting area in ample time—at least 60 minutes prior to the scheduled warning signal.

You are prepared to set the marks of the race course. Your signal boat is in position for the starting sequence, and anchored, if appropriate. You are within 45 minutes of designating the course and beginning the starting sequence.

This chapter deals with what happens next.

Before the starting sequence begins

Boat check–in

Most regattas include some form of check-in procedure as a safety consideration. When fleets are large, having boats checking in at the starting line can be distracting. Many regattas use entry forms to create a scratch sheet which is used to account for starters immediately after each start, instead.

You should use either an entry list, or a check-in procedure, or both. Using simply a class eligibility list and finishing positions may be adequate for scoring purposes, but not for safety considerations.

If you are checking in boats in the starting area, you should have flag "L" displayed, and spotters aboard the signal boat (or a separate designated "check-in" boat) should start recording sail numbers by class.

The requirement to check in, and the procedure for doing so, must be specified in the sailing instructions. A common method of check-in is to require that each competitor sail past the committee boat and check in prior to the warning signal. Radio check-in is frequently allowed for larger boats.

There are four basic food groups, milk chocolate, dark chocolate, white chocolate, and chocolate truffles.
—Anon.

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Some clubs and class organizations become quite specific: sail behind the committee boat on starboard tack before the warning signal, hail your sail number, and receive acknowledgment to be ranked as a starter.

One difficulty with such a precise requirement is that the sailing instructions rank as rules, and if a competitor fails to check in properly he or she may be disqualified (after a hearing) for an innocent, usually harmless (but not always) rule breach. If such a specific check-in procedure is to be used, make certain that you describe what penalty, if any, will be imposed for a rule breach (for example, a warning for the first offense, some sort of penalty for a second).

Restricted area buoys

The use of buoys for marking restricted areas is described in Chapter 10, "Setting the Course".

Setting a preliminary course orientation

If you are using mark boats, observe the wind direction in the starting area for a few minutes, get wind readings from as many other race committee boats as possible, and determine what the probable course to the first mark will be. Instruct the mark boats to move to the approximate positions where marks will be set, based upon this preliminary course orientation.

Allow sufficient time prior to the starting sequence to allow the stake boats to get to their approximate positions, and to begin to provide you with wind direction and velocity information prior to determining whether to begin the starting sequence.

In some events you may have access to very good weather forecasts. The availability of high-tech weather forecasting is generally limited to a few world-class events, but where you have a highly reliable forecast, or where knowledge of local conditions allows you to accurately predict probable wind direction on the course well before the start, you may be able to set a preliminary course orientation for the mark boats prior to leaving the dock.

Scope, current, wind direction

Check your anchor line to make certain that you have plenty of scope, and allow the boat to "settle" in place with wind and current.

Watch the current and how your signal boat is behaving in it (see also, Chapter 10, "Setting the Course," "Current considerations in setting the starting line").

Observe the wind for some time (usually a minimum of 20 minutes) before deciding on the mean wind direction, and make certain that the line you have set (or are about to set) will be "square" to the mean wind direction. Observe, and have someone time, the wind's oscillations so that during the starting sequence, if you perceive a variation in direction, you will be able to discern whether it is probably an oscillation or is more likely a true shift. If it is the latter, you have some decisions to make about the quality of your starting line. Obtain additional wind

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readings from boats which are not anchored in order to determine whether or not there is a current effect.

Send a boat up the course to radio wind direction and velocity information to you. Get additional wind direction reports from other race committee boats at other points on the proposed course, to verify whether the direction and velocity you are getting are constant around the course.

Make certain the course Is clear

Check to make certain that your course does not overlap with another course. Two of the worst race management mistakes are setting legs of two drop-mark courses in the same water, and sending different fleets around the same permanent mark from different directions. At best, the former makes the competitors unhappy with both race committees. Sending different fleets around the same mark can be dangerous!

Avoid areas with numerous lobster or crab trap buoys. In most places it is illegal to move the traps. Relocate your starting area if you feel that they will create a problem for competitors.

Line flag

Use a large orange flag to mark the staff or pole which is the end of the line. If you are operating from the upper deck of your race committee boat, it is helpful to the competitors to have an extension of the staff holding the line flag extend down to the lower deck. When sailors have a visual reference at their eye level, it helps them determine exactly where the line is.

If a boat is used as the port end of the line, the flag should be placed well toward the bow, so that a boat crossing the line at that end can also clear the boat and its anchor line without having to tack.

At the starboard end, the line flag should be amidships or aft. In large fleets, it may be helpful to position the line flag on the port quarter of the signal boat, so that observers can see the starting line from the bow, avoiding "blanketing" by a premature starter close aboard.

Changing the line (shifting a starting mark)

The decision to adjust the starting line is a matter of judgment and experience. If, in spite of your best guess as to how to spread the fleet along the line, the boats are bunching at one end, it is usually better to postpone and adjust the line than to allow a poor start.

The decision is complicated by when the perceived need to adjust occurs, and what sort of equipment you have. As mentioned in Chapter 10, "Setting the Course", you cannot shift a starting mark after the preparatory signal.

If you decide to change the line, and the buoy is movable, have a mark boat pick up the anchor and reset it. Dragging the buoy produces unpredictable results unless the bottom is sandy.

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The starting sequence

The sequence of signals is:
Class flag or a suitable substitute as described in the sailing instructions.
"P" (or blue) indicates that there are no penalties being imposed on the start by the race committee.

"I" indicates that the "I" Flag rule is in effect (rule 30.1). If any part of a boat's hull, crew or equipment is on the course side of the starting line or one of its extensions during the last minute before her starting signal, she shall thereafter sail from the course side across an extension to the prestart side before starting.

"Z" indicates that a 20% penalty will be imposed without a hearing when a boat is identified as being in the triangle formed by the ends of the starting line and the first mark during the minute before her starting signal (rule 30.2) and that if she is identified during a subsequent attempt to start the same race, she shall receive an additional 20% scoring penalty.

"Black" flag indicates that a boat will be disqualified without a hearing when it is identified as being in the triangle formed by the ends of the starting line and the first mark during the minute before her starting signal (rule 30.3).

Whichever flag (or flags) is used as the preparatory signal is lowered one minute before the start.

The class flag is lowered at the start. The sequence is shown in Table 11.1.

Table 11.1

		Minutes before
Signal	Flag and sound	starting signal
Warning	Class flag; 1 sound	5*
Preparatory	P, I, Z, Z with I, or black flag	4
One-minute	Preparatory flag removed; 1 long sound	1
Starting	Class flag removed; 1 sound	0

*or as stated in the sailing instructions (the number of minutes between the warning and the preparatory signals may be changed as desired by the race committee by so stating in the sailing instructions)

If you can believe it,
the mind can achieve it.
—Ronnie Lott

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Advantages of the system

1. In the minute before the start, there is only one flag flying.
2. The preparatory signal and the starting signal are the two key elements in a start. The fleet receives a signal which acts as a time check, one minute before each of these two key signals.
3. The sequence of signals is exactly the same whether there is a penalty imposed or not. This consistency should help to reduce errors on the committee boat.
4. There is a maximum of two flags displayed at any one time (except when "I" and "Z" are displayed together).
5. Effectively, the "P" becomes a 'no penalty' flag.
6. Classes may be started independently so there is no need to postpone in order to adjust the starting line.
7. The race committee is able to provide for as much or as little separation between classes as it feels will provide the best racing

Alternative starting sequences

The match racing starting sequence

The default starting sequence when the Match Racing Rules are used is described in Appendix C. It consists of an "attention" signal 10 minutes prior to the first start, a warning signal at 5 minutes, a preparatory signal at 4 minutes, a sound signal for the end of pre-start entry time in some circumstances (2 minutes prior to the start), and a starting signal. For further detail, see Appendix C and Chapter 5, "Competition Formats".

The sound-signal starting system

The sound-signal starting system (Appendix Q) was developed in intercollegiate racing, where many races are run in a short time. The system is gaining popularity in informal club racing, especially with juniors. It uses sound signals only, and is recommended primarily for small-boat racing, including frostbiting.

A three minute starting sequence is used. At three minutes (the warning signal), three long sound signals (whistles or horns) are made. Two long sounds (the preparatory signal) are given at two minutes, a long and three short at 1 minute 30 seconds, one long at 1 minute. Then three short sounds at thirty seconds, two shorts at twenty seconds, one short at ten, then one short sound at each of 5, 4, 3, 2 and 1 seconds, and then a long sound at zero (start).

The system may be modified to adopt any interval of time for the sequence. Some race committees use a series of short sounds to call attention to the imminent start of the sequence, but if you intend to do so, you should so specify in the sailing instructions.

The advantages to the sound-signal starting system are obvious: one person can handle it; no flags, and therefore no poles, halyards or masts are required; no firearms are involved, and competitors need not have stopwatches.

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The disadvantages are that timing rarely is precise, horns may misfire, and the sound signals are sometimes hard to hear. Using a loudspeaker helps. Automatic sound systems that eliminate most of these problems are available.

The gate start

It is the starting system of choice of the International 505 class and is a valuable tool for regattas that have no race committee.

When this starting system is used, the sailing instructions should include a diagram of the starting area including the port limit mark.

Starting marks will be:
1. the port limit mark, a ____ on the starboard side of the race committee boat;
2. the pathfinder (or rabbit)
3. the gate launch, displaying flag "G"
4. the guard boat, displaying flag "U"

The signals for starting will be in accordance with racing rule 26. Signals will be displayed from the race committee boat, which will also display flag 'G', signifying a gate start. At or before the warning signal, a numeral pennant will be displayed indicating the time in minutes between the starting signal and the time at which the gate launch will stop at the starboard end of the starting line.

The pathfinder for the first race sailed will be appointed by the race committee. The pathfinder for subsequent races will be the boat that finished tenth in the preceding race. When this boat is unable to race or has acted as pathfinder previously, the pathfinder will be appointed by the race committee and will normally be the boat that finished eleventh in the preceding race. The national letters and sail number of the pathfinder will be posted on the official notice board each day. Prior to the preparatory signal, the pathfinder shall report to the gate launch, which will be near the port limit mark.

After the preparatory signal, boats shall not sail on the windward side of an imaginary line which would be the course of a boat sailing front the port limit mark on a close-hauled port tack,

Approximately ten seconds prior to the starting signal:
1. the pathfinder will begin a close hauled port tack from the port limit mark;
2. the gate launch will keep station close astern of the pathfinder; and
3. the guard boat may escort the pathfinder on her starboard side.

The starting line (except for the pathfinder) will be between the port limit mark and the center of the stern of the gate launch.

All boats (except for the pathfinder) shall start on starboard tack after the starting signal. A boat starting prematurely shall retire from the race. Rule 29.2 shall not apply. The pathfinder shall sail

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her close-hauled course until she is released by hail from the gate launch, after which she may continue on port tack or tack, as she wishes. After the release of the pathfinder, the gate launch will continue her course and speed until the gate has been opened for the period signalled. She will then stop, make a long sound signal, drift for one minute, and finally signal the close of the gate by lowering flag "G" with a short sound signal. Thereafter, no boat shall start.

Before starting, a boat shall not interfere with the pathfinder. Any boat that interferes with, or passes between, or attempts to pass between the pathfinder, the gate launch or the guard boat, or that causes another boat to interfere in any of these ways, or that is on the port side of the gate launch as it opens the gate, shall retire from that race and shall be ineligible for any re-starts of that race, unless the infringing boat can satisfy the protest committee that her actions were caused either by another boat not having right of way, or by some other unavoidable circumstances. Rules 36 and 81 shall not apply to such a boat.

Which fleet to start first

In one-design racing starts, it is usually preferable to start the fastest fleet first to avoid fleets sailing through one another. In handicap racing the fastest fleet is usually started first for the same reason, but not always. When you want to keep all fleets as close together as possible (as in some handicap racing) start the slow fleet first to enable the fleets to finish at about the same time or help them make a time limit. If you start the slower boats first, be sure that there is enough time between starts to ensure that the smaller boats will be spread out by the time the larger boats have to sail through them.

Prior to the starting sequence

Quiet on the race committee signal boat

When you are prepared to begin the starting sequence, maintain quiet on the boat, and keep radio communications to a minimum. Necessary conversations should be held in a low voice and pertain only to the situation at hand. Cellular telephones should be silenced. Experienced race committee members concentrate solely on their assigned tasks and avoid distracting other members with comments or questions not directly related to their jobs.

If idle conversation becomes a problem on the signal boat, the race officer may order quiet on the boat, a command which does not preclude necessary communications.

Race committee communications

If your communication system includes a base station, advise the clubhouse of your working channel. Communicate with discretion. Don't say anything over the air you wouldn't want printed in the evening paper. Agree upon a designated channel ahead of time. Even this will not avoid scanners. Use cellular phones when possible for private communications. When in doubt, save the conversation for later, or say it face to face. Private channel VHF radios, which provide privacy, are available to be rented for events at which privacy is an issue.

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Eavesdroppers aside, radios are impersonal. It is gentler and more tactful to have difficult discussions in person rather than over the air.

Communications with competitors

General

The principal means for the race committee to communicate with competitors is by the sailing instructions, and the use of signals as described in Race Signals and the sailing instructions. Oral communications with competitors can be used to change the sailing instructions only as specified in rule 90.2(c).

It is not unusual for the sailing instructions to permit or even encourage the race committee to communicate with competitors by VHF radio. Telling the competitors which class will be starting next, what the course will be, which boats were OCS or what a particular signal means can make the competition more enjoyable for the competitors, and avoid misunderstandings. Frequently the sailing instructions will state that errors or omissions in these communications will not be grounds for granting redress, and that receiving such communications does not break rule 41 because it is "help in the form of information freely available to all boats" (rule 41(d)).

Prior to the preparatory signal

Rule 41, Outside Help, prohibits a boat from receiving help, except in certain specific circumstances. Because rule 41 is in Part 4 of the racing rules, it applies only to boats that are racing. A boat begins racing at her preparatory signal, and ceases to be racing when she finishes and clears the finishing line and marks, or retires. All boats cease racing when the race committee signals a general recall, postponement or abandonment.

This rule puts no limitation on the race committee's communications with competitors except when they are racing. Before the preparatory signal no rule is broken if the race committee answers a question from a competitor, or asks a competitor to do something (such as to go head-to-wind on the starting line). There is no reason for the race committee to avoid communicating with competitors, except while they are racing.

While racing

As described above, a boat breaks rule 41 if she receives outside help while racing (other than under one of the exceptions in rule 41: rule 1; helping an ill or injured crew member; or after a collision, help to get clear from the crew of the other boat. The race committee should be sure that no-one on the race committee causes a boat to break this rule. Polite replies such as "thank you," "read the sailing instructions" or "sorry, I'm not permitted to speak to you now" are the most appropriate way to answer questions from competitors after their preparatory signal.

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Designating the course

Rule 27.1 requires the race committee to designate the course no later than the warning signal, if it has not already been designated in the sailing instructions. The sailing instructions should specify what will be displayed, and how. For example, the designation might require only a single letter or numeral pennant, if the sailing instructions fully describe what that signal means. More often, for one-design racing, the course configuration (a letter or a number) is accompanied by a direction to the windward mark and the approximate distance from the starting line to the windward mark.

For other types of racing, the designation may take the form of a series of letters or numbers indicating the rounding marks, or just a single letter or number indicating which of several pre-determined series of marks (courses) are to be rounded.

The sailing instructions should be specific about how the course will be displayed. Common methods include code flags, numeral pennants, letters or numbers on placards displayed in a rack, or writing on a white board. If the designation is complex, the sailing instructions should describe where on the signal boat the course will be displayed, and how to interpret it. An example would be: "The course will be designated using black letters and numbers on white placards, displayed vertically. The top letter is the course configuration, the next three numbers are the magnetic heading to the windward mark, and the bottom two numbers are the distance to the windward mark in nautical miles and tenths of miles."

If you have designated the course and then need to change it, what you need to do depends on where you are in the starting sequence. Whatever you do, you should be sure that the competitors have an adequate opportunity to see the new course designation. If it is before the warning signal, rule 27.1 permits you to merely "replace one course signal with another." This is generally a bad idea, since some competitors may not realize that you have changed the course designation. A better idea would be to postpone or to display flag "L," and have someone on the signal boat point to the new course designation when the competitors sail by. You may also announce the change on a designated competitor channel if your sailing instructions permit.

If you need to change the course designation after the warning signal, you must first postpone, and then display the course designation no later than the new warning signal.

When using permanent marks or permanent mark locations, each must be designated with a letter and/or number. Often government aids to navigation and their chart designations are used. Using this method, courses for different wind strengths and directions can be predetermined, and listed in the sailing instructions. The race committee selects one of the courses and displays the appropriate course designation.

An alternative, often used on inland lakes, is to give each mark or mark location a number, and then simply display on the signal boat, usually using placards, the mark numbers in the order

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they are to be rounded. The placards are colored either red or green with white numbers, and the color indicates how the mark is to be rounded or passed. An alternative is to use a blackboard, and circle the mark symbol if the mark is to be left to starboard.

If a protest committee is on the water, it is a good idea to advise them before the warning signal of the course you intend to designate and the planned bearing and distance to the first mark.

Discuss any problems with the protest committee. You and the protest committee are a team to provide fair sailing for competitors. The relationship should be cooperative. Both you and the protest committee members know that the protest committee does not have the authority to supervise the race committee, unless the organizing authority for the regatta has so directed (Appendix M2.3).

Postponement and abandonment prior to the start

Options open to the race committee

1. postpone for some time on the course and restart the sequence—"AP"; or "AP" over numeral pennant "1" for 1 hour postponement, "2" for two hours;
2. postpone and give further signals ashore ("AP" over "H");
3. postpone to a later day ("AP" over "A");
4. abandon and give further signals ashore ("N" over "H"); and
5. abandon for the rest of the day ("N" over "A").

The rules allow the race committee to postpone or abandon prior to the start for any reason (rule 27.3).

The goal is the same—to start a good race on time. If in doubt about conditions, it is usually better to postpone.

Wind too light

Do not be in too big a hurry if the wind is too light or unsettled. Occasionally, it is more important to get a race off, even if the wind is less than ideal. In general, it is better not to start a major championship race in unsettled conditions; the reverse is often true in club races, since most of the sailors would prefer to race even if the conditions are not ideal. Knowledge of the classes racing and their capabilities in light air will help you make the right decision.

Conditions too heavy

You may have to make a difficult decision—whether to postpone or abandon in heavy weather. The skippers want to race, and most are prepared for heavy weather. They know the decision to race is their sole responsibility (see rule 4), but they trust the race managers; if you start a race, some will go out even if they would normally have second thoughts.

When in doubt, don't!
—Anonymous

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Remember, you may abandon at any time. You may abandon either before or after the start and give further signals in the starting area, or abandon with further signals to be given ashore ("N" over "H").

It is especially difficult to decide whether to race in the face of a prediction of bad weather. Keep track of the reliability of forecasts in your area.

In deciding to postpone or abandon for bad weather, your job is to exercise good judgment—not win a popularity contest in the fleet. Don't worry if conditions moderate later and make you look overcautious. Your primary concern is the safety of all of the participants.

Personnel functions during the sequence

US SAILING publishes an excellent basic text which describes the function of each person aboard the race committee signal boat. Entitled *Join the Race Committee Team!*, it is available from US SAILING's offices, P. O. Box 1260, Portsmouth, Rhode Island 02871-6015. It is not our function here to repeat that text. Below, we describe only certain key points relating to the start.

Principal race officer

The principal race officer is the executive authority. Depending on the type of racing, his or her duties may range from doing all the jobs on the signal boat to acting as observer and backup for the work crew. The principal race officer makes all command decisions, such as the course to be designated, whether to signal a recall, whether to abandon or postpone, and whether to shorten or change the course.

While he or she may wish to make some of these decisions after consulting with a protest committee on the water, the responsibility for the decision rests with the race officer, unless the organizing authority has otherwise prescribed.

Talk over procedures ahead of time especially if you have rookie race committee people aboard. In that case, it is a good idea to practice a few starting sequences in advance of the real thing.

Spotters

This task is easier if the sailing instructions require that all boats check in with the race committee prior to the start. Spotters record the class and racing number of every boat in the vicinity with apparent intentions to start the race. Spotters should check their list against actual starters when classes go over the line. It is important to check actual starters for purposes of scoring and safety, and to identify boats which do not finish due to retirements, breakdowns or other reasons (see Chapter 12, "The Race," "Accounting for starters").

With a big fleet two or more spotters who are familiar with the racing classes may be needed, aided by binoculars and a tape recorder. If a list of entries is available in advance, set them up by sail number to expedite the work of spotters.

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Spotters also write down any protest or breakdown flags, and rule breaches observed by the committee.

Timer

The timer should have few, if any, other duties before the start; he/she must keep his/her eyes on the clock at all times. Call the time of each act of the race committee with a warning about one minute in advance, then 30 seconds in advance, and a countdown of at least the last ten seconds.

To avoid confusion, be sure to say "Ten seconds to drop, with horn" or "thirty seconds to _____ flag and gun (or horn)" .

Synchronize your timer with the official time, using either GPS or some other standard. Keep a backup timer synchronized with your official clock. A GPS will give you instant access to the exact time.

Signalling

Flags on staffs are preferable to halyards on masts or frames. With them, it is possible to raise the flags quickly and accurately. The signaller should hold the staff horizontally until the proper time to display it. Then snap it quickly to a vertical position (and place it in a PVC tube or other holding device) until time to drop. When using this method, the flags should be positioned to make them clearly visible to the competitors and not obscuring each other. Sound signals call attention to visual signals; they do not indicate official time. Therefore, if a gun misfires or the sound signal is otherwise delayed, omit it. A late sound signal is a race committee error that requires either a postponement or a general recall.

If you use halyards, check them to be sure they are not tangled. If you have multiple halyards, bend on ahead of time the starting sequence flags, postponement and abandonment. The individual and general recall flags should be on poles in any case. Have all signals organized for quick reference.

All signals should be hoisted so they are two-blocked or close-up at the command, since the visual signal is the one competitors should use to set their watches. Allowing signals to "float" up is a common and serious race committee error.

Never lock the breech of a cannon or take a shotgun off safety until a few seconds before firing.

Sighting the line

The definition, "Start", involves a boat's hull, crew, or equipment crossing "the starting line" (Definitions). Your sailing instructions should describe what part of the mark or permanent buoy is the starting line. It is generally accepted that the course side of starting mark (the upwind side if the start is upwind) is used to sight the starting line.

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Similarly, you sight the course side of the finish mark.

Line sighters are responsible for OCS boats. One person can usually sight the line for small boats on a relatively short line. If the boats, and therefore the signal boat, are large, an additional sighter stationed at the extreme windward end of the signal boat can be helpful. A competitor sighted from this position is obviously over the line, and this is a good place to see an OCS boat which is otherwise screened by other boats.

Any time you have a long line and a large fleet, station a race committee member on an anchored boat, equipped with a radio, at each end of the line to identify OCS boats. Make sure that the boat is equipped with a radio and a tape recorder to document the events. If a mid-line boat is used, put two line sighters and a recorder in it to sight both ways.

Be sure all line sighters know the definition of "Start" and "Finish" (see Definitions) including the provisions of rule 29.1 and rule 30.1, if either applies, and any special provisions in the sailing instructions.

Line sighters should start recording sail numbers of boats that are over the line or likely to be over, from about one minute before the start. The notations will help in case sail numbers are blanketed at the signal. Check them off if they return properly behind the line.

With a big fleet, it is helpful for one person to call off sail numbers of OCS boats, and a second person to write them down. A tape recorder is essential for backup in reconstructing what happened before the start; start it one minute before the start and leave it open to record everything said until all boats have cleared the line. Some race officers run the recorder during the whole sequence. This is especially useful in redress hearings (rule 62).

After the start

If you have an individual recall signal displayed (see below) or if the sailing instructions allow competitors to start five or more minutes after the starting signal, the line flag must remain displayed until that time.

If you have a general recall (see below), you will be starting the sequence with a new warning signal.

Individual recalls

Starting correctly is a responsibility of the boat, not the race committee. Nevertheless, an OCS boat has the right to assume that she started correctly unless properly signalled to the contrary.

When boats are OCS, the whole race committee team must act quickly and decisively. The decision whether to signal an individual recall is generally made by the principal race officer.

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The principal race officer, line sighter, and those handling visual and/or sound signals should talk over their roles in advance to avoid confusion and delay in signalling.

Standard procedure for signalling

The sailing instructions do not need to describe the standard recall procedure set forth in the rules. Instead, they need only describe any special procedure or signals for recalls (Appendix J2.2 (21)).

The standard procedure is in rule 29.1: promptly display flag "X", accompanied by one sound signal (Race Signals). Do not dip flag "X" for a boat which has returned to start. Rule 29.1 says that "X" remains up until all OCS boats have returned to the pre-start side of the line and have complied with rule 30.1 if it applies, but not later than four minutes after the starting signal or one minute before any later starting signal, whichever is earlier.

How soon must you signal?

When a boat has no reason to know that she is OCS, and the race committee fails to promptly signal "individual recall," and scores her "did not start," this is an error that materially prejudices the boat's finishing position through no fault of her own. The US SAILING Appeals Committee has held that the boat is entitled to redress.

In rule 29.1, Individual Recall, what does "promptly" mean? No specific measure of time will apply in all circumstances. The appeal indicates that under the rules, it means within a very few seconds of the starting signal.

It should be noted that the appeal does not suggest granting redress in situations where the boat must have known that she did not start properly, e.g., when she was so far over the line at the starting signal that there was no doubt that she was OCS.

Under what circumstances should you signal?

The race committee should make the individual recall signal whenever there is even one OCS boat, and should be able to identify a reasonable number of OCS boats, if there is a group of them. Using an individual recall with some unidentified OCS boats is better than a succession of general recalls.

Do not wait to hoist flag "X" and make a sound while you identify OCS boats. Signal immediately, then sort out the identification.

Race committees can help the situation by setting lines square to the wind, and by planning for recording the numbers of OCS boats. One committee member sighting the line and calling numbers (with a tape recorder on), and another member writing the numbers down, is better than having both members trying to identify early starters. Identifying at least half a dozen OCS boats should always be possible, even if it takes a few seconds. Additional spotters can help to identify some boats whose numbers are briefly obscured.

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Sound signals for individual recalls

Using different sound signals for individual and general recalls avoids confusion on the part of the racers as to which visual signal is being made. If this system is used, a long horn or whistle for individual recalls and two guns for a general recall is popular.

Hailing

If you intend to hail OCS boats, you must so state in the sailing instructions. The individual recall procedure specified in rule 29.1 does not include hailing. Some competitors may claim that they were materially prejudiced by being among the last notified, and seek redress. You can avoid this by not hailing . In large fleets, only those competitors nearest the ends of the starting line will be able to hear the hail and in that case, hailing is probably unfair to those in the middle.

Hailing a boat before the starting signal is bad practice, no matter how far over she may be. Doing so requires changing, in advance in the sailing instructions, not one but two rules, 29.1 and 41. Think about it! Starting is a major part of racing, and to help those not adept at starting will negatively affect those who are.

For particularly aggressive fleets, it is better not to hail. This tends to introduce a bit more caution by the competitors.

If OCS boats will be hailed, line sighters should begin immediately after the start to identify sail numbers of OCS boats, and the race officer or designee should quickly begin transmitting the numbers over the loud-hailer or a radio.

Likewise, the line sighters at the other end of the line should identify sail numbers of boats they see as OCS and report them to the signal boat. Hailing from line boats at both ends can be confusing to the competitors and should be avoided.

Identify and hail all boats to be recalled as soon as possible. A late hail seriously disadvantages a boat, and is doubly hard to take when other OCS boats were recalled promptly. Crisp communication is especially important here.

In offshore fleets, VHF is frequently used to notify OCS boats. It is also gaining popualrity in one-design classes. The obvious advantage is that all boats can hear the hail as opposed to only those nearest the committee boats when the hail is done with a loud-hailer. One communicator should consolidate all reports of OCS boats.

Line sighting for aggressive fleets

When the fleet is particularly aggressive, to solve the problem of the line being obscured by an OCS boat immediately in front of the line sighter move the line flag to the stern of the committee boat and station one or more additional spotters at the bow to act as backup. The spotters cannot call this line, but they can assist to identify the "blue boat, middle of the line" for the recorder.

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Not hailing "clear"

The race committee should not hail "all clear." Such a hail can be misunderstood as numbers being called, and distracts the boats. The absence of any sound signal inherently means that there were no OCS boats.

General recalls

In general

It has been said that the only people who welcome general recalls are those who see that they are or are about to become OCS. The argument has frequently been made that the rules recognize an equitable way for OCS boats to correct their mistake: return and start properly. A good start is important to the competitor, particularly in large fleets. A general recall not only does not penalize a premature starter, it deprives those who make good starts of their advantage. The good starter is probably better off if the race proceeds even with a few unidentified OCS boats than if there is a general recall.

Although procedures vary as to how to avoid general recalls, the goal is generally the same: Do not have general recalls. The key is maintaining discipline on the starting line. This means:

1. setting good starting lines, square to the wind, a proper length for the size, speed, and number of boats competing, with consideration of current if present, and strength of the breeze;
2. consider using starting penalties to help control large, aggressive fleets;
3. using, if necessary, a starting system to handle aggressive fleets (i.e., a three-or four-boat system, see Chapter 10,"Setting the Course," "Starting line systems" with a signal boat to windward, or a midline boat, etc.) or, sending recalled classes to the end of the line;
4. being thorough in recalling OCS boats to discourage opportunistic competitors who assume they will not be seen; and
5. using VHF or other means, if appropriate to the regatta and so specified in the sailing instructions.

Parameters for general recalls

Some race committees take the position that no race will be permitted to continue if there are any unidentified OCS boats, even though the rules do not suggest such a stringent procedure. Rule 29.2 begins with:

"When at the starting signal the race committee is unable to identify boats that are on the course side of the starting line…, the race committee may signal a general recall." The word "may" makes a general recall optional.

Procedure for general recalls

The standard procedure for a general recall is described in rule 29.2. Display flag "First Substitute", accompanied by two sound signals. The general recall visual signal may remain displayed for an indefinite period of time thereafter. For that reason, if the general recall was necessitated by

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a poor starting line or an error in the starting procedure, there is no reason to display another signal until after you adjust the line.

When "First Substitute" is lowered, it must be accompanied by one sound signal. The next signal to be displayed is the warning signal.

Time interval for a start after a general recall

Must you wait any particular amount of time after a general recall before lowering "First Substitute?" Absolutely not! Most good watches and timers have automatic reset capability.

1. Make certain that the wind is still from the same direction, that the line is still fair, and that no course changes are needed;
2. Wait a few seconds ("twenty is plenty"), and have your timing person reset his or her watch to 6 minutes;
3. Start the new sequence by lowering "First Substitute" with one sound signal (some race committees prefer to use a gun for this signal, while others prefer a horn—use whichever you feel most comfortable with, but make certain the competitors can hear the signal clearly);
4. Display the warning signal one minute later (one sound signal). Competitors will quickly learn that they should anticipate resetting their watches on the new warning signal, and will not stray too far from the starting line while waiting for the next signal.

Starting penalties

The use of starting penalties (rule 30) can help avoid general recalls for aggressive fleets.

I Flag Rule, rule 30.1

A boat that is recalled finds itself behind almost every other boat, if the I Flag rule (rule 30.1) is used. What reduces general recalls is that good starts continue to be rewarded, while OCS boats starts are penalized more severely.

The I Flag rule applies only when flag I has been properly displayed as the preparatory signal. It applies to all boats which are on the course side of the starting line or its extensions during the minute prior to their starting signal. For large, aggressive fleets, you may want to impose rule 30.1 for all starts. It is, however, a bad idea to invoke rule 30.1 via the sailing instructions. A better practice is to display flag I as the preparatory signal for each start. It is incumbent on the race committee to watch carefully and record the sail numbers of those boats that actually sail around an end and start properly.

Z Flag Rule, rule 30.2

A very effective way to control large fleets is to use the Z flag rule. It provides an automatic 20 percent penalty. The penalty is imposed without a hearing. If the race is subsequently restarted or resailed, the penalty is still given. If the same boat is identified during a subsequent attempt to start the same race, she shall receive an additional 20% scoring penalty. It applies to all boats which are within the triangle formed by the ends of the starting line and the first mark during the minute before their

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starting signal. It differs from rule 30.1 in that only those boats in the triangle are affected. If boats are seen in the triangle during the one minute period but have returned to the pre-start side before the starting signal, an individual recall should not be signalled. This rule may be used in conjunction with rule 30.1. In that case, all boats which are on the course side of the starting line or its extensions during the one minute period must sail around an end and start properly, but only those which are within the "triangle" are given the 20 percent penalty.

Black Flag Rule, rule 30.3

This is a harsher rule, which the ISAF recommends only for a large fleet of a one-design class that has a history of repeated general recalls. The rule is unpopular even with the fleets in which it is used and for good reason. It has, in many instances, been used by race committees as a substitute for good race management techniques, to the serious disadvantage of the competitors and the event.

Extreme care must be taken by race officers not to use the rule where the reason for recalls may be the fault of the race committee (such as a starting line that is not square) or a cross current. It applies to all boats which are within the triangle formed by the ends of the starting line and the first mark during the minute before their starting signal.

A substantial wind shift shortly before the starting signal will cause the line to be biased and boats to be early. Be alert! If you see such a situation developing, you must postpone or abandon the race *before* the starting signal.

The rule requires the race committee to display the sail numbers of boats which have broken this rule after a general recall or abandonment has been signalled before the warning signal for the subsequent start. If the race is restarted or resailed, those boats shall not sail in it. The penalty is imposed without a hearing. If rule 30.3 applies, rule 29.1 does not.

Never have more children than you have car windows.
—Erma Bombeck

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The Race 12

Accounting for starters

Record the number of starters after the start. For most regattas, you will have a check-in procedure (see Chapter 11, "The Start"). If, for any reason, you decide not to require boats to check in prior to the start, you must have an entry list or class eligibility list. Check in the boats' sail numbers as they arrive at the starting area, even if you have a check-in procedure. This is a serious safety consideration, as well as a matter for proper scoring. Perform a final count after a start to confirm the number of starters. Transmit this information to the weather mark boat.

Compare the number of starters with the number of boats entered or checked in, or both. Make a record of boats who did not check in, or who did not start. Record boats that have a different sail number than shown on the entry list or class eligibility list. If a boat checked in but did not start, survey the course with binoculars to locate it. List it as not starting, and if it cannot be located (and radio contact, if available, does not succeed) initiate a search. Throughout the race, watch for disabled boats being towed home or boats obviously abandoning the race, and note numbers. It is a good idea to require boats leaving the course to report to a race committee boat or check in once back in the harbor.

Observing the course

Once the boats have started and all starting duties are completed, it is not time to relax (although you may feel like doing so). Maintain careful and continuous observation of the wind and water on the course. Shortening course, shifting marks or selecting courses to be used for successive races are matters that may require consideration. Keep asking other race committee boats for wind direction and velocity information.

Once the first beat is completed, try to estimate the time required for the race. Knowing the boats is critical. If you have non-spinnaker boats competing, they will typically sail the reaches or runs in about the same time as they sail a beat. Spinnaker boats typically sail somewhat faster on reaches and runs than they sail beats. Therefore, if the first beat is 20 minutes, the "traditional" Olympic course (W-R-R-W-L-W-(Finish) should be completed in 5 x 20 (or 1 hour, 40

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minutes). You should continue to monitor the time required on the beat, reach and downwind to refine this process. Acquiring this information increases your confidence in meeting target times and opens more options to stay within the time limits of the race.

Support boats

If the entire course cannot be seen from the starting area, you may want the signal boat or a support boat to follow or get ahead of the fleet to observe conditions around the course. The wind may quit; a mark may be missing; infringements may occur. If a protest committee is on the water, the judges may follow the fleet around the course, and confer by radio with the race officer.

Stake boats/mark-set boats

Stake boats should be in position on an extension of the rhumb line of the leg the approaching boats are sailing (a diagram showing proper positioning is contained in Chapter 10, "Setting the Course," see "Stake boats"). Ordinarily, stake boats should not be anchored and should hover on an extension of the rhumb line to the mark, far enough from the mark so as not to interfere with maneuvers of several boats rounding simultaneously. A reasonable standard for distance from the mark is 5 boat lengths. A stake boat in this position is readily available to assist if there is an emergency.

If the stake boat must anchor it should be 5-8 boat lengths from the mark, on or above the rhumb line. Stake boats should be radioing information regarding changes in wind direction and velocity to the race officer regularly. They should also be preparing to record mark rounding positions and, if appropriate, rounding times. Wind direction and velocity readings should be taken from a drifting stake boat particularly if there is current. See Chapter 10, "Setting the Course".

The presence of stake boats at each mark also helps to identify early whether a mark is drifting. If stake boats are not present, the mark-set boat should check the position of the mark while the approaching boats are several hundred yards from the mark, then move to the next mark to check its position.

Other official boats

Many regattas today have on-the-water media, umpire or judge boats on the course in some official capacity. They will be well inside the race area and close to the competitors. Remind the mark or stake boats that they will be there and make sure that they are at least monitoring your operating radio channel while they are on the course. Media (photo) boats always want to get "in close" for a great photo of the competitors. The operators of these boats must have an understanding of the rules and should be exceptional boat operators.

If possible introduce these drivers to the committee to facilitate communication on the water. This prior introduction can eliminate conflict if the mark boat is signaling a change for the next leg of the course and a photo boat wants to get between the mark boat and the mark.

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Patrol boats/managing spectator craft

For the typical regatta at championship level, it is sufficient here to generalize.

Patrol boats should keep all non-official craft, including spectator boats, well away from the race course. As a guideline, keep them at least 300 meters outside the laylines, and at a speed of less than 6 knots. Especially on days when the wind is light and the sea smooth, large powerboats should proceed very slowly and stay well away from the racing fleet. All craft should keep downwind of boats on upwind legs, and outside the course and behind the line of advancing boats on offwind legs.

Official boats are often the worst offenders! Remind the press, stake or mark boats of the problem with wakes. Watch the official boats, and establish a communications channel which they must monitor. Be aware of the problem you cause when waiting until the last minute to ask the stake or mark boats to respond to some change on the course. Think ahead!

If a non-official boat does not comply with the control plan, or with your requests, offer them the alternative of leaving the course.

Diagrams of the crowd control plan, and notices requesting cooperation, should be posted in boat clubs and marinas in the vicinity several weeks prior to any event where spectator vessels are expected to be present. For certain events, the U.S. Coast Guard may require additional forms of notice, or you may wish to publish a notice in another way, as well. If there is commercial traffic in the area, consider contacting them and letting them know your plans and communications channel so that they may monitor or talk with you during the event. Showing respect for commercial vessels goes a long way in improving communication and relationships.

For some events, it is necessary to publish such plans in local newspapers. For even larger events, it is essential to prepare and distribute to the general boating public detailed crowd control and communications plans, and to elicit the cooperation of the United States Coast Guard and other governmental agencies.

What you may do during the race

The rules afford the race committee only a few alternatives to affect the race after the start. You may:

1. signal a general recall (rule 29.2 and Race Signals). This action has to do with the number of unidentified boats on the course side at the starting signal or with an error in the starting procedure. For detail see Chapter 11, "The Start" ("Recalls");
2. change the next leg of the course at a rounding mark (rule 33 and Race Signals);
3. abandon the race under certain circumstances (rule 32.1 and Race Signals);
4. shorten the course under certain circumstances (rule 32.2 and Race Signals); or
5. replace a missing mark (rule 34 and Race Signals).

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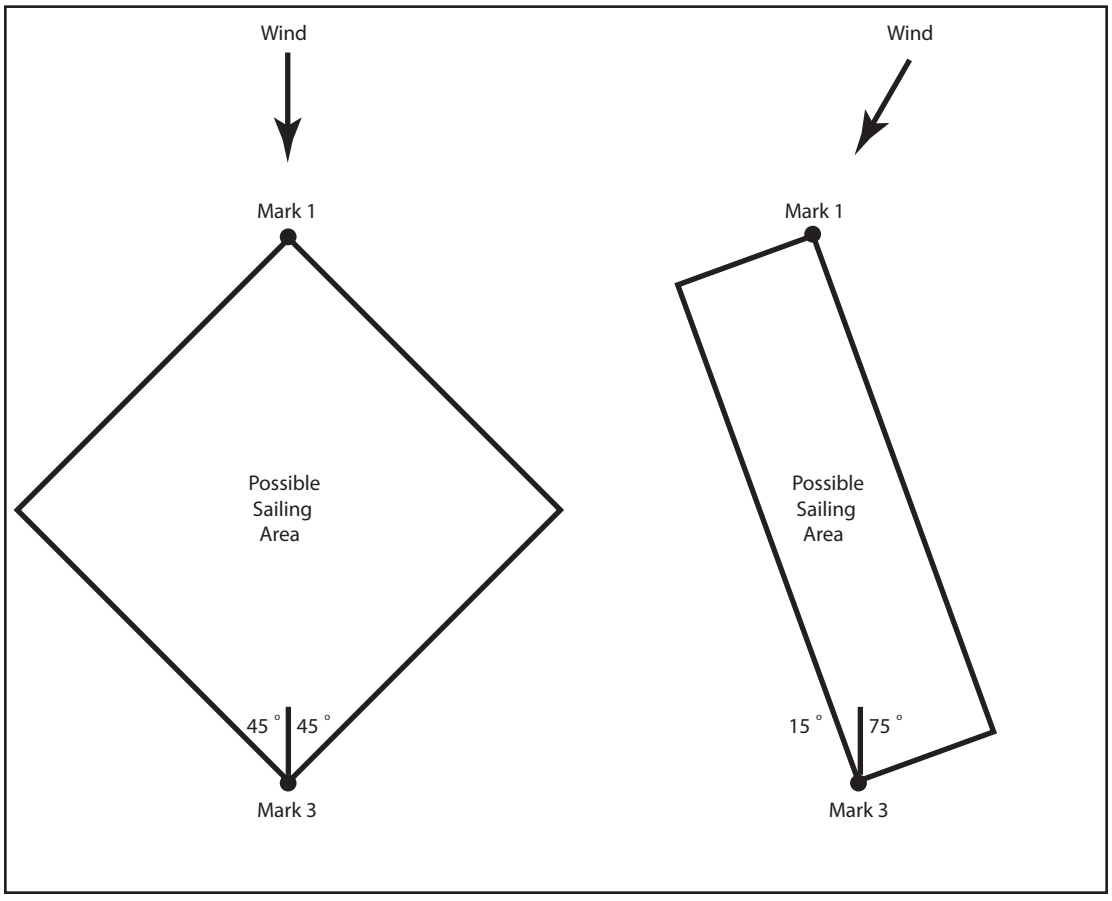
Changing the course

How effective sailing area is changed by a wind shift

During the race pay careful attention to the wind. On a windward leg, boats should sail equal times on port and starboard tacks. If the leg is not square to the wind, both the sailing distance and the sailing area are reduced. In the left diagram of Figure 12.1 the sailing area on a beat for boats making good a track 45 degrees to the true wind is shown. It is a square formed by boats sailing on opposite tacks from the leeward mark to the lay lines to the top mark.

The right diagram in Figure 12.1 is the sailing area if the wind veers 30 degrees. The sailing area is reduced by 50%, and port tack sailing by 63%. If the wind veers 45 degrees, the sailing area becomes a line, and the "beat" becomes a procession to the top mark with the sailing distance reduced by 30%.

Figure 12.1



On the leeward leg, correct alignment to the wind and current is even more critical. This is somewhat dependent on the type boat competing, but generally the gybing angles are less than

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the tacking angles, making the leeward leg the most critical. Assume the class is one that does not tack downwind, and the optimum course lies within 10 degrees of the true wind. If the course is true, midway down a 1.5 nautical mile run the boats could be spread over a width of 500 yards. A boat has room for initiative with respect to following shifts and tactical theories. But if the leeward leg is at an angle of 10 degrees to the wind, theoretically all boats should remain on the same tack and sail on the same line to the leeward mark.

The reaching legs of the triangle are not generally so sensitive to slight changes of wind direction. However the crew of boats who find the reaching leg is too close to carry a spinnaker will soon advise the race committee.

It is usually not acceptable to abandon a race because of a wind shift unless it occurs very early in the race (generally only on the first leg). If a persistent shift occurs, you should change the location of marks to keep the legs of the course properly aligned with the wind.

The procedure for changing the course after the start, and any special signals, must be described in the sailing instructions if they differ from rule 33 (Appendix J2.2(23)). The procedure will vary with the type of racing.

Common method for changing course

The most common method is to display flag "C" (rule 33 and Race Signals), together with either a course board or numeral pennants, indicating the magnetic bearing to the next mark, or green triangle or red rectangle. This must be accompanied by repetitive sound signals (usually a horn, but in small boat regattas on protected water, sometimes a whistle). An example of the procedure is set forth in sailing instruction number 12 of the Sailing Instructions Guide (Appendix L).

Changing course for short course racing and sailboards

The alternative method is popular with sailboards, which generally do not have compasses, and for short course races where the marks are easily visible from one another. The procedure is to use flag "C", over either a red rectangular or green triangular flag, with repetitive sound signals. The red flag means that the new mark has been relocated to port of the mark it replaces. The green flag means the new mark has been relocated to starboard.

Having the flags with different shapes considers that a large segment of the population is color blind, and will have difficulty distinguishing pure red and pure green. In addition, the color green can be difficult to distinguish against some shorelines. The different shapes help.

At what point can you change course?

In any procedure, the course may be changed only if flag "C" is displayed at or near a rounding mark (rules 33 and Race Signals), and only if proper notice is given to each boat before she

Santa Claus has the right idea–visit people only once a year.

–Victor Borge

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begins the changed leg. If you cannot get flag "C" and the other signals up before the first boat rounds the mark, do not change course.

Changing course for one of several classes

Where you have more than one class which will be rounding the mark, and the wind shifts after the first class has already begun to round, you may change course for fewer than all classes if you have provided for class flags in your sailing instructions.

If you use such a procedure, make certain that whichever race committee boat will signal changes of course has the proper class flags, and that they are displayed so as to be highly visible and distinct from one another.

Which marks should you change?

Moving the windward mark is most common, but moving the leeward mark is just as important to ensure a good running leg.

If the course you selected calls for a triangle to be sailed for the first three legs, you may wish to change course at the weather mark if the shift on the first leg was significant. Normally, however, boats are far less sensitive to changes of wind direction while reaching. But where the course calls for a triangle after the first leeward mark, and you are changing the windward mark, the gybe mark to be rounded thereafter should also be moved to maintain course configuration.

Try to have the new mark in place by the time the first boat is around the mark where the signals are being given. It is not required, but is good practice, and is a goal which the race committee's mark-set team should strive to achieve. Also try to remove the old mark being replaced as soon as possible.

When using drop marks, the preferred method is to distinguish between an original mark and a mark used after a change of course ("new mark") by using different shapes or colors, or by applying a band (usually black) to the new mark. Again, these must be described in the sailing instructions (Appendix J2.1(5)).

The alternative is to move the existing mark to the new location. If the first class has already begun to round the mark at which you are about to signal the change, you will have to leave the next mark in position. Establish the "new" mark in its new position for the classes who will be signalled that the course is being changed. If the wind shift occurs on the last leg of the race, there is nothing you can do but finish the race.

Should you change a gate for a wind shift?

If you are using a leeward gate, it should be set square to the wind. If the wind shifts a few degrees (20° or less) after the boats have begun the leg toward the gate, you may adjust one gate mark if you are confident that you can complete the task while the boats are sufficiently far away that no boat will be prejudiced. To change the gate late in the leg destroys the tactics the

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boats have used getting to it. Keep in mind that moving a mark which boats are sailing toward does involve some amount of risk. If you signal a change of course at the gate and set a "new" windward mark, you can square the gate to the new direction after the fleet has passed through it, if the gate will be used for any subsequent roundings.

Should the shift be more than 20°, adjusting one gate mark more than 20° is not a viable option and may, in fact, make the situation worse. Just accept the fact that the fleet will all round the same mark, signal a change of course, set a "new" windward mark and square the gate to it for any subsequent roundings.

How much of a wind shift?

What you are able to accomplish will depend, in part, on the equipment you have available, the types of marks you are using, and the area in which you are racing.

When using temporary (movable) marks, it is common practice to change course on a true shift of 10 degrees. However, on inland lakes, it is difficult to change for less than 15 degree shifts because of prevalent oscillations. Do the best you can under the conditions, bearing in mind that the goal is to provide the best racing you can achieve under the circumstances.

In coastal waters, some race officers attempt to change on 5 degree shifts. To do so accurately, however, requires an extremely steady wind shift (which is the antithesis of the concept of wind shifts). If you change on 10 degrees, you have a margin of error of plus-or-minus 5 degrees. By attempting to change on a 5 degree shift, you are asserting that you are accurate to plus-or-minus 2½ degrees—something of which few race officers can boast.

For short course racing, if you are using an offset mark after the weather mark, or before the leeward mark, or if you are using a leeward gate, you can actually "leapfrog" the marks when changing course. For example, on a 10 degree to 15 degree left shift, move the old weather mark to the left to become the new offset mark. The old offset mark then becomes the new weather mark. Especially where the short courses are set to time and not distance, the effect of such a change is minuscule in terms of time difference to the sailors. Of course, the marks must be of the same type and have been described in the sailing instructions or confusion will ensue.

What if the wind shifts more than ninety degrees?

Some racing areas are subject to opposing breezes. At the start of the race, the wind may be from 360 degrees. During the race, the opposing breeze may fill in from 260 degrees, so that boats approaching the leeward mark could not round it on the proper side without "looping" completely around it. Boats could, however, pass the leeward mark on the proper side at a great distance while proceeding directly from the original windward mark to the shifted windward mark.

In areas where this is uncommon, race officers are likely to consider a wind shift of more than 90 degrees a "reason directly affecting the fairness of the competition" (rule 32.1(e)), and to

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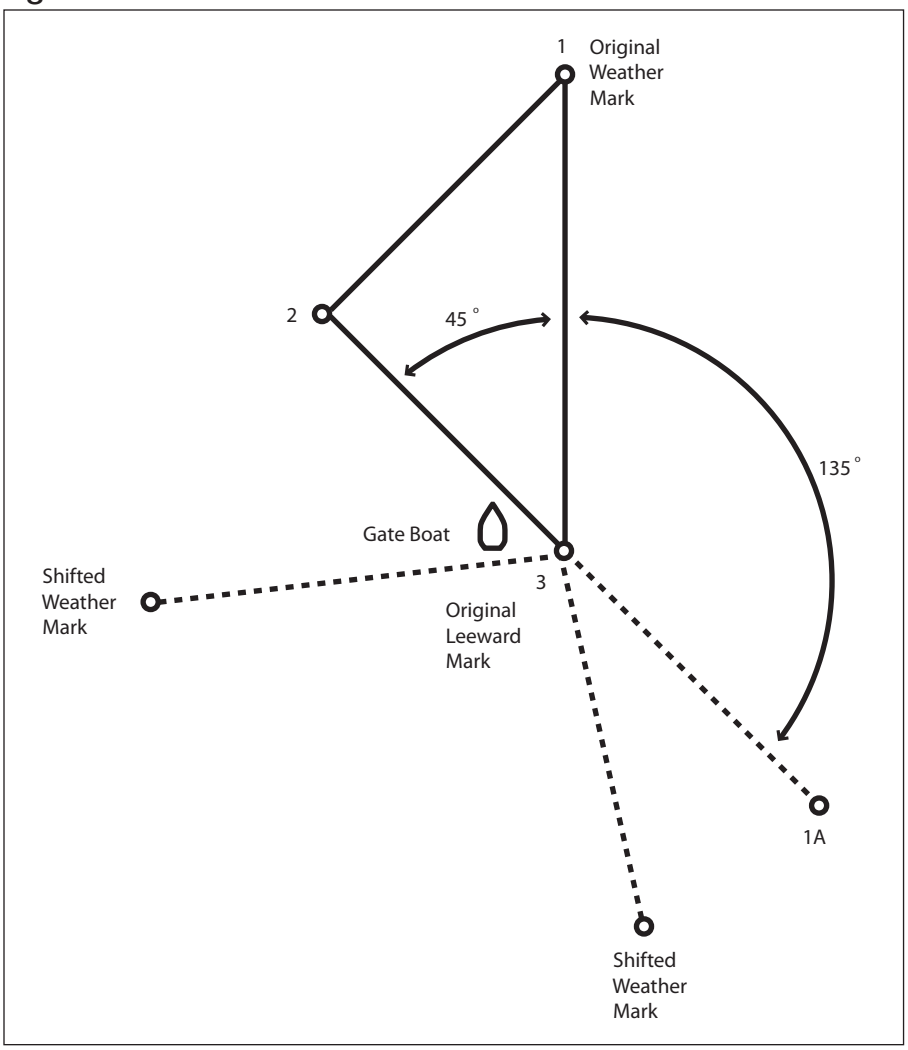
abandon the race. There remains considerable debate whether a wind shift which affects all of the racers more or less equally falls within that definition.

In those regions where you must deal with such conditions on a frequent basis, it is more common to simply address the circumstance in the sailing instructions as follows:

"When the course is changed, boats shall pass between the race committee boat signaling the change and the nearby mark, leaving the race committee boat to starboard. In this case, rule 28.1 is amended so that the string representing a boat's wake shall touch either the mark or the required side of the committee boat signaling the change."

An example of how the configuration may be set up is shown in Figure 12.2.

Figure 12.2



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Desired accuracy in resetting the course

If there is any doubt regarding the course, it should be reset during the race, and legs should be established to an accuracy of one degree. With regular fluctuations in wind direction, it is sometimes difficult to achieve accuracy of better than 5 degrees with respect to the wind direction, although accuracy with respect to the course indicated by the race committee should be within one degree.

Missing or drifting marks

When a mark is missing or has drifted, rule 34 requires the race committee, when possible, to either:

1. replace the mark in its correct position; or
2. substitute a new one with similar appeetarance, or a buoy or vessel displaying flag "M".

When is this possible? If you see it early, and no boat is on the leg of the course to the mark, then simply reposition the mark properly and leave the vicinity of the mark so that it will be visible.

If the mark is drifting while boats are approaching it, replace the mark. If there is time to do so, retrieve the mark before the boat which will replace the mark moves into position to display flag "M".

It is better, if possible, to have a committee boat other than the one which will take the place of the mark retrieve it and leave the area. For example, the mark-set boat may retrieve the mark, while the stake boat displays flag "M" and begins to give sound signals.

If there is not time to retrieve the mark before displaying flag "M", and flag "M" is properly displayed accompanied by sound signals, it is not absolutely essential that the mark be retrieved.

If a boat replaces the mark, the boat should anchor, display flag "M", and make repetitive sound signals (Race Signals).

It is very important, however, that the sound signals be loud enough, and flag "M" large enough, that the competitors' attention will be attracted to the signals, especially if the mark is still in the water.

If there is not time to move into position to display flag "M", or if some boats have rounded and others appear to have been prejudiced by trying to round the drifting mark (for example, if it is the leeward mark which is drifting), abandon the race (flag "N" with 3 sound signals), reset the course, and restart the race.

The rules also allow you to shorten course if a mark is missing or has drifted. This is discussed in the next section, "Shortening or abandoning after the start "

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Shortening or abandoning after the start

When may you shorten or abandon?

Rule 32.1 says that after the start, the race committee may abandon the race (flag "N" or flag "N" over "H" or "A") or shorten the course (flag "S"), as appropriate:

1. because of an error in the starting procedure;
2. because of foul weather;
3. because of insufficient wind making it unlikely that the race will finish within the time limit;
4. because a mark is missing or out of position; or
5. for any other reason directly affecting the safety or fairness of the competition.

After the starting signal, the race committee may shorten the course (display flag "S" with two sounds) to enable further scheduled races to be sailed (rule 32.2).

Error in the starting procedure

The rules permit the race committee to correct an error in the starting procedure either by signaling a general recall or by abandoning the race. If more than a few seconds have elapsed since the starting signal was made, it is probably better to abandon (flag "N") and start over. Abandoning also makes it clear to the competitors that it was an error in the starting procedure rather than several unidentified boats OCS.

Foul weather

Foul weather is a separate ground for abandoning the race or shortening the course. It is also a reason directly affecting the safety of the competition, but it is not the only safety consideration. The availability of support or rescue boats, the safety of their crews, and the safety of your own boat and crew are serious considerations in determining whether you should abandon the race or shorten the course.

If the weather is foul, consider whether it is expected to get worse. If the weather is not expected to get worse, determine whether you have plenty of support boats—their presence is of substantial importance. If the safety of the competitors is in jeopardy, abandon. If, however, their crews and equipment are not in jeopardy, and the boats have completed most of the course and are close enough to one another that they can safely finish a shortened course and reach the harbor, you may consider shortening the course, rather than abandoning the race.

If foul weather threatens, or there is any reason to suspect that the weather will deteriorate (for example, lightning or a heavy squall) making conditions unsafe for sailing or for your operations, the prudent (and practical) thing to do is to abandon the race.

Consider the type of boats racing. Some older boats are far more prone to seaworthiness difficulties. Others have self-bailing devices which make them capable of safely floating under almost any conditions while bearing the crew's weight.

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Display flags "N" over "H" with three sound signals to abandon the race. Pull the committee boat's anchor and dispatch all race committee boats to shepherd the competitor boats to shore immediately.

Race committee boats should monitor the progress of competitors returning to shore. Under no circumstances should the race committee boats, including support and safety craft, dock until all sailors are accounted for on shore. In life-threatening situations, sailors should be taken aboard the rescue craft, and taken ashore if necessary. The drifting boats can later be picked up at the leeward end of the course and attached to the start mark, the leeward mark, or a separate buoy set for the purpose of tethering the boats.

The rescue boats should tow all disabled boats ashore at one time following the completion of the race. If you allow your rescue boats to tow sailors and boats ashore during a race, you will lose them for at least a half hour, possibly much longer, leaving you with no security on the course. Remember the priority is to save lives, not boats.

Shortening course is usually undesirable, and should be avoided unless at least half the original course has been completed. Less distance than this indicates that conditions have provided a poor contest. Foul weather is no exception. If the weather is bad enough that a race less than half completed should be stopped, the prudent (and practical) thing to do is abandon it immediately, rather than waiting for the boats to finish a shortened course.

As with every other section of this Handbook, this decision varies with conditions and the level of racing. It may make sense to shorten due to too little wind, particularly in low-key club racing. For a world championship, it may be better to abandon and resail rather than give the impression of favoring some competitors.

If you do decide to shorten the race, one of your boats must act as the finish boat, which prevents it from effectively operating as a safety boat while it is on station to finish boats. Consider the effect of this in your decision. Will you have enough support boats to conduct the race in a safe manner?

For handicap racing, you may wish to set a longer course for the faster boats and a shorter course for the slower boats. Make certain that there is a common mark at about two-thirds of the course distance where you can shorten the course for all classes.

However you decide, remember that the race committee boats should monitor the progress of competitors returning to shore, and should not dock until all sailors are accounted for on shore.

Courage is not the lack of fear. It is acting in spite of it.

—Mark Twain

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Insufficient wind

The mere fact that the wind has died does not necessarily allow you to abandon or shorten the race. Rule 32.1(c) allows you to abandon or shorten a race because of insufficient wind making it unlikely that the race will finish within the time limit.

First, the sailing instructions must prescribe a time limit. Second, it must appear that it is unlikely that the race will finish. If you are in doubt, it is better to allow the race to continue until it is all but certain that the race cannot be completed within the time limit before abandoning or shortening.

In some regattas, time limits for each leg (or for the first leg, the first three legs, etc.) are established, based upon an assumed velocity-made-good for the first several legs. If the first several time limits are met, there is a time limit for the entire race, and you simply wait to see whether the time limit expires for the boats to finish the entire course. In this way, the race committee is required to let the race run its full course after time limits for the (for example) first two-thirds of the race have been met.

Only one thing is more frustrating to the competitors than to get within 100 yards of the finish line and have the time limit expire. That is to have completed most of the course, only to have the race committee call the race with one leg to go, simply because it does not believe that it is "likely" that the race will be completed. It would be better to change (shorten) the length of the leg(s) of the race using a change of course signal than to let the time limit expire.

The more important the competition, the more important it is to let the sailors deal with the elements, and let the race continue if there is any chance that the race can be completed that day.

The rules give us a way to deal with this problem. Rule 33(b) allows the race committee to shorten (or lengthen) individual legs of the course by displaying flag "C" with a "+" sign or a "–" sign with repetitive sound signals. The race committee should closely monitor the elapsed time on each leg of the course. If it appears that finishing within the time limit may be a problem, shorten one or more legs. It is far better to shorten a leg than to delete it. Knowledge of local conditions, and a good weather forecast, will help immeasurably.

Mark missing or drifting

As mentioned above, rule 32.1(d) also allows you to abandon a race or shorten course if a mark is missing or has drifted. Abandon only if some boats have been prejudiced because of the missing or drifting mark. Replacing the mark is the first choice. Abandoning the race should take place only if there is no effective way for the competition to be considered fair under the circumstances. If you are to finish at the position of a missing mark, you will need two boats. One displays flag "M" and takes the place of the missing mark. The other displays flag "S" and a blue flag or shape to indicate that it is "on station" for the finish. After the "shorten course"

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sound signal (two guns or horns) the boat displaying flag "M" begins to make repeated sound signals.

Reasons affecting the safety or fairness of the competition

As mentioned above, foul weather is a reason directly affecting the safety of the competition, but it is not the only safety or fairness consideration.

Competitors at principal championships generally prefer to have a race in progress stopped and restarted when, for example, a major and unpredictable wind shift helps some boats and hurts others to the extent that the race is not considered a satisfactory test of skill.

But, as also stated, any provision permitting abandonment and resail of a race in such circumstances should be discussed in advance with class representatives.

A major wind shift on the first leg would be a reason to abandon and resail the race. A wind shift half way through the race might simply be considered "sailboat racing." In club racing, you would simply change the course if a wind shift occurred after the first leg.

Occasionally, shipping traffic or other considerations may affect the fairness of the competition. When a tug towing a barge on a 1,000 foot tow line crosses the middle of the course, and boats must decide whether to tack (or gybe) to either side to avoid the obstruction, the decision is relatively easy. Abandon and resail. Naval and other commercial vessels, contacted long enough in advance, are generally very cooperative, as long as your race course does not encroach upon a main shipping or navigation channel.

Shortening the course

Some classes do not allow shortening the course so your options are limited to changing the length of the leg(s) or abandoning the race. It is important to check class rules to confirm that shortening is an available option for one-design events. Once the decision is made to shorten the course, rule 32.2 and Race Signals delineates the when, where and how to shorten. The question always arises how to set the new finish line of a shortened course. Generally it is best to set the new finish line just as you would do for a normal finish line (Chapter 10, "Setting the Course"), that is, perpendicular to the wind for upwind finishes and at right angles to the direction from the previous rounding mark for downwind, reaching finishes. When shortening on a course around fixed marks, set the new finish line at right angles from the previous rounding mark. The length of the new finish line should be short, generally 4 to 6 boat lengths, the same as any other finish line. The shortened course must be signalled before the first boat crosses the finishing line.

Abandoning the race—use good judgment

Rule 32.1 delineates the requirements for abandoning a race, but it does not supply the necessary judgment and experience. Normally, this decision will be made after consultation and discussion with the protest committee on the water, but the ultimate decision rests with the

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race committee. The more important the event, the more difficult the decision, but the more opportunity you have to consult the protest committee on the water about the possible decision and to solicit their thoughts about how they will view the decision if there is a protest.

Some race officers are inclined to allow the racing to continue in almost any conditions, claiming this is "part of boat racing." Some timid souls abandon without sufficient reason. Use common sense. The decision depends on the kind of race, type(s) of boats, the experience and capability of the competitors, and the availability of support boats to provide additional safety if the decision to continue is made.

Put yourself in the shoes of competitors in the middle of the fleet when reaching a decision that is prudent and equitable. The leaders probably want to continue, almost at all costs. The tail-end of the fleet may be ready to quit for almost any excuse.

Abandoning for fewer than all classes

Before or after the start, you may be confronted with the problem that the start, or the race, must be abandoned for fewer than all of the classes racing. How do you abandon for one class without affecting other classes who are racing? You must have provided in your sailing instructions for the use of class flags or a suitable substitute (Appendix J2.1(6)). This is easy if you are starting the races using rule 26 where the class flag is the Warning. By using class flags, the race can be abandoned after the start for one class, and abandoned before the start for the succeeding class by displaying "N" or "N" over "H" over both classes' flags.

Similarly, in a multi-class regatta, you may encounter difficulty where one class has not finish within its time limit, but others may finish within theirs. You may also want to send two classes home because it is getting too late to start another race, but leave the three classes who have already started to finish their races. In each instance, the sailing instructions must contain a description of the class flags. All you do then is display the "N" (or "N" over "H" or "A") over one or more class flags.

A word of caution: If a class for which you do not wish to abandon is in proximity to the class for which you are abandoning, you can cause incredible confusion by abandoning for one class. In that circumstance, abandon only where required (as for a time limit) and dispatch a boat with "N" over class flag to advise affected boats.

Abandoning when no boat finishes within the time limit

Unless the sailing instructions otherwise prescribe, where there is a time limit, one boat sailing the course in accordance with rule 28 and finishing within the prescribed time limit makes the race valid for all other boats in that race (rule 35).

Time limits must be strictly enforced. A race in which no boat finishes within the time limit must be abandoned (rule 35), even if a boat crosses the line only seconds after the time has expired.

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The signal for abandonment for failure to finish within the time limit depends upon whether the wind conditions anticipated afford the opportunity for another race if the boats remain within the starting area.

If you want the boats to stay in the starting area and try again, the signal is flag "N" with three sound signals. If you want the boats to return to the harbor, and further signals will be given ashore, the signal is flags "N" over "H", with three sound signals. If you want to tell the competitors that racing is over for the day, the signal is flags "N" over "A", with three sound signals,

As stated above, the race committee must abandon a race when no boat finishes within the time limit (rule 35). It can not be argued that a race in which no boat finished within the time limit was a race in which every boat should be scored "DNF". Having abandoned, the race committee must then decide whether or not to re-sail the race. There are no guidelines in the rules to help you make your decision.

Notifying concerned boats when and where the race will be resailed after an abandonment

The sailing instructions may prescribe when and where races postponed or abandoned for the day will be re-sailed, (Appendix J2.2(35)). If they do not, a notice posted on the official notice board (accompanied by the display of flag "L" and a sound signal) will suffice.

Describe in the sailing instructions the location of the official notice board (Appendix J2.2(10)), the signals to be made ashore, and the location of signal station(s) (rule J2.2(14)). After postponing ("AP" over "H") or abandoning ("N" over "H") on the water, all you must do is post when and where the race will be re-sailed. When you postpone on the water ("AP" over "H"), the safest procedure is to later signal, ashore, that the race is postponed to a later day ("AP" over "A") with two guns (Race Signals, "AP") and post the date and time of the rescheduled race (although "AP" over "A" at that point is probably redundant).

Abandoning a race in which a competitor has finished

Because of the significance of a race committee's decision to abandon a race in which one (or more) competitor has finished, the only justifiable reason for taking such action is safety considerations.

Rule 32.1(e) says ". . .after one boat has sailed the course and finished, within the time limit, if any, the race committee shall not abandon the race without considering the consequences for all boats in the race or series."

Abandoning under these circumstances requires the race committee to know whether at least one boat has sailed the course in accordance with rule 28.1. It also implies that the race committee has observed the boats sailing the course. What does "without considering the consequences for all boats in the race or series" include? Under rule 64.2, when the protest committee is in

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doubt about the facts or probable results of any arrangement for the race or series, especially before abandoning the race, it shall take evidence from appropriate sources.
Since the race committee is not in a position to "take evidence" on the water, it must also be aware of the relevant facts and of the probable consequences of any arrangement to all boats concerned for that particular race and for the series including boats entered in the series that did not participate in that race. Since the ultimate decision as to what is a "fair arrangement ... for all boats concerned" will be made by the protest committee after the race is abandoned, the race committee should have:

1. significant information concerning the positions of the various boats at previous marks;
2. good information as to the time differentials between boats at the marks (even if the boats are one-design); and
3. positions of the boats on the course at the time the race is abandoned.

How should you go about abandoning? Have the mark-set boat go directly up, down, or across the course bearing an abandonment signal ("N", "N" over "H" or "N" over "A"), and noting approximate positions of all boats. With this information, and the recorded time differential and mark rounding order at previous marks, you should be able to roughly approximate where each boat stood for purposes of recommending to the protest committee how to place them in the final results.

Where can you shorten course?

Rule 32.2 specifies where courses can be shortened:

1. at a rounding mark, between the mark and a staff displaying flag "S";
2. at a line boats are required to cross at the end of each lap, that line;
3. at a gate, between the gate marks.

Finishing at a rounding mark is relatively simple.

Place the race committee boat opposite the rounding mark, in such a location that the boats approaching may pass between the rounding mark (preferably on the side it was to be rounded) and the committee boat. If the mark is to be rounded to starboard, the committee boat should be to port of the mark (vice-versa if the mark was to be rounded to port).

As the boats approach, display flag "S" with two sound signals (gun preferred) and a blue shape or flag ("on station for the finish"), and prepare to record finishes.

When "S" is displayed at the finishing line, it means, "Finish between the nearby mark and this boat". The sailing instructions should prescribe special procedures for finishing a shortened course at a finishing mark if the boats would not expect to pass that mark were the course not shortened.

In real life, I assure you there is no such thing as algebra.
—Fran Lebowitz

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When "S" is displayed at a gate, it means to finish between the gate marks. It is a good practice to anchor the finish boat near one of the gate marks and pull the mark next to or into the boat. Use the course side of the gate marks to define the finish line.

Effects upon scoring in ORR

When using Performance Curve Scoring for ORR fleets, shortening course may require a redefinition of course composition. See Chapter 13, "Scoring and Handicapping" for more guidance. For other handicap racing, it will require you to recalculate the time allowances for time-on-distance racing, but will have no effect on the Time Correction Factor in time-on-time racing.

Sailing the course (rule 28)

You cannot score a boat "DNF" for failing to sail the course.

It is important to remember that you cannot score a boat "DNF" for failing to sail the course as described in rule 28.1. This presents a paradoxical circumstance. On the one hand, you can abandon a race if no boat has finished. On the other, if the only boat which has finished has not properly sailed the course, can you abandon "without considering the consequences for all boats in the race or series"?

The practical solution is: Abandon the race, if it is appropriate, after taking the action mentioned below to record all relevant information, then call a hearing before the protest committee to determine:
1. whether the boat properly sailed the course; and
2. if so, what arrangement is the fairest to all boats concerned.
In the meantime, hold the scores for the race and do not post them.

Recording rounding order

For the reasons mentioned above with respect to abandoning a completed race, and any number of other good reasons, recording the rounding order of all boats is not only a good idea in most racing situations, it has come to be expected by both competitors and the protest committee.

It is extremely important if there is any question of redress (whether the request for redress is against another boat or against the race committee). In addition, knowing rounding order is a safety aid, particularly in low visibility or heavy weather conditions. Boats not accounted for at any rounding can be reported to safety boats so a search can be undertaken.

Such a record will also show if any competitors have "cut corners"; compare lists and report to the race officer and protest committee any indication that some boats may not have rounded all marks. The larger or more important the regatta, the more recording roundings becomes critical.

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Rounding orders are best taken by a stake boat at each mark, although the mark-set boat can sometimes substitute, if it is not otherwise engaged. Stake boats should also record seeing any flags "B" or "I" displayed by competing boats to indicate protests or acknowledgments of infringements. Use two people, one to spot and one to record. A tape recorder also helps. Availability of boats and personnel often dictate some other arrangements.

The finish

Recording finishes

Display the finishing line flag (usually orange) and the blue "on station" flag or shape at convenient locations, and man stations well before the first boat gets near the line. The sighter(s) should be stationed at the line flag with a clear view of the other end of the line. Sight the staff, shroud or halyard on which the orange flag is displayed.

The recorder(s) should be sitting near the line sighter(s), with a view of the finishers nearly the same as the sighter.

The spotter(s) identifying boats approaching the finish line should be within speaking distance of the line sighter(s) and recorder(s) but need not occupy the same immediate space.

If the fleet is large and heavy traffic at the finishing line is a possibility, the spotter can be used to note unidentified or partially identified boats, to help sort out finishes later (in handicap racing it helps if the spotter records the approximate time as well, for use when the two lists of order of finish are compared).

You may also want to have a committee member on a line boat at the opposite end of the line to record the order of finish as a cross-check. Experience will indicate how many people will be needed to record finishes accurately.

In handicap racing, one or more timers are also needed. Timers should be located so they can communicate easily with the recorder without raised voices. If scoring is done with times in hundredths of minutes, it may be easier to record finish times directly in this format. More commonly, recording will be time-of-day and converted later. Avoid unnecessary talking or noise!

The line sighter should call each sail number clearly. As boats approach the finishing line, the line sighter announces: "stand by 172 then either uses the sound signal (see below) or "Mark! to mark the instant of crossing. After the "stand by", the timer should state, "hours are, minutes are and after the signal, "seconds are."

Recorders begin their entry with the sail number at "stand by", add to it the hours and minutes, and complete the entry with seconds given by the timer after the finish of the boat. They are then ready for the next entry. In a close finish of several boats, one recorder should note times

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only, and one should take sail numbers only. The lists can be coordinated later. Two sets of finish sheets or cards should be kept, to compare with one another.

When a tie appears imminent, hold a card or something else with a straight edge so that it covers the course side of the line from view. Sight the line along the up-course edge of the card until the first part of one boat crosses.

Do not attempt to locate a sail number on a preprinted form. Write down the sail numbers as the boats finish, and compare with the preprinted form later. A tape recorder is an invaluable aid to locate missing finishers or finishing times.

Finishing properly

There are a number of rules that apply to finishing properly, and the race committee should pay careful attention to the manner in which boats are attempting to finish. The basic rule is the definition of "finish". "A boat finishes when any part of her hull, or crew or equipment in normal position, crosses the finishing line in the direction of the course from the last mark, either for the first time or after taking a penalty under rule 31.2 or 44.2 or, under rule 28.1, after correcting an error made at the finishing line."

1. Crossing the finishing line
   It is not necessary for a boat to cross the finishing line completely. After finishing, she may clear it in either direction (rule 28.1).
2. Touching a finishing mark
   A boat that touches a finishing mark, even after finishing, breaks rule 31.1. However, the race committee cannot penalize a boat for breaking a rule, except the few listed in rule 63.1. If a boat meets the definition "finish," the race committee must score her as finished, even if she has broken a rule. If a boat has broken a rule, such as 31.1, the race committee may protest her (see rule 60.2(a)). A boat that breaks rule 31.1 by touching a finishing mark can exonerate herself by taking a one-turn penalty (see rule 31.2). It is a good practice to keep a record of each time a boat finishes, and to score her in her position the last time she meets the definition "finish."
3. Crew and equipment in normal position
   On downwind finishes, watch for boats letting out spinnaker halyards, sheets or guys (which may change the sail from its normal position—see definition of "finish" above and in the rule book). If you detect this, finish such boats on the stem or spinnaker pole, rather than on the leading edge of the spinnaker.

Sound signals for finishers

Sometimes, a gun or other distinctive signal is given the first place finisher. Making a sound for each subsequent finisher is not neccessary nor is it a good idea. When you are recording finishes on a tape recorder, the constant beeping renders it very difficult to decipher.

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NOTE: A sound signal for finishing is not required, and should not be given if you are in a starting sequence for another class, or if boats not finishing are rounding a nearby mark. Whistles can also be confusing if the protest committee is on the water enforcing rule 42.

Recording protests

If possible, station someone away from the finishing activity to record and acknowledge protests. Note protest flags and, if boats finishing report to the committee boat orally, record the sail number and class of the boat being protested, as well.

Do not accept descriptions of the incident at that point. If the competitor begins a discussion, refer the protestor to the standard written protest procedure.

Remaining in the racing area

Ordinarily, the committee should not leave the finish area until all boats have finished. However, some circumstances may be more compelling (safety of your committee, or of other boats, for example), and even if not, the committee need not remain on station indefinitely.

If the committee leaves, a boat's finish is governed by the US SAILING prescription, rule 34, which provides that, "If a boat finishes when the race committee is absent, to be scored as finishing she shall note her finishing time and her finishing position in relation to any nearby boats and report them to the race committee as soon as reasonably possible."

You may wish to consider, for longer races, or for races where boats may finish at significantly staggered times, a provision in the sailing instructions such as: "Boats finishing after hours shall take their own time when the finish buoy bears ____degrees within a distance of ____ yards."

The prescription to rule 34 contains a provision for the circumstance where there is no longer an established finishing line, but only one finishing mark. It is generally a better practice, however, to set two finishing marks as a finishing line (which you must describe in the sailing instructions).

If late finishers are likely to cross the finishing line after dark, attach a light to each mark.

Accounting for finishers

Having recorded the number of starters after the start, check the record of finishers against boats that started. If a survey of the course with binoculars fails to reveal missing boats, list them as not finishing. As mentioned above, throughout the race, watch for disabled boats being towed home or boats obviously abandoning the race, and note numbers.

Boats withdrawing should report to the committee, but often find it impossible or impractical or, not infrequently, they fail to observe the courtesy. A requirement to report when withdrawing is sometimes included in sailing instructions; the potential for protest encourages compliance.

If a boat otherwise unaccounted for does not finish, it may be prudent to institute a search.

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13 Scoring and Handicapping

Scoring, in general

There aeare three basic scoring systems to measure achievement in boat racing. They are low point, high point, and percentage (or averaging) systems. In regattas, where competitors are expected to enter all scheduled races, low point scoring is the preferred system. For series where competitors are not expected to enter all scheduled races, but qualify by either entering a specific number of races of the total, or a percentage of starts for the series, an averaging system is preferable.

Some one-design classes prescribe the scoring system to be used for their championships in their class rules. Also, some "titled" events may have the scoring systems prescribed in the deeds of gift or regulations governing the "title" event.

All scoring systems make policy determinations on how to award points and, therefore, how to reward a boat's performance. If the scoring system is different from the low point system in Appendix A, the number of races scheduled and the minimum number of races that must be completed to constitute a series must be described in the notice of race (Appendix J1.2(13)). In addition the sailing instructions must also include the scoring system to be used by reference to Appendix A, to class rules, or to other rules governing the event, or state it in full (Appendix J.2.1(9)).

Although scoring systems primarily rank boats on the basis of their finishes if they are one-design boats, or on the basis of their corrected time if the boats are racing under handicap rules, scoring can also be used to rank a skipper's abilities. Round-robin events, where skippers and crews change boats for every race in a regatta, are the obvious example. Another is in fleet racing, where it is desirable to encourage novice skippers to race against experts by dividing the fleet into "A", "B", or "C" rankings. The purpose is to award prizes to skippers in the middle of the fleet as a means of encouraging participation. Once "B" or "C" ranked skippers start winning, they move up to the next category. Conversely, the bottom skippers in the "A" and "B" rankings move down to the next lower category.

Sailing is a hoot! We ought to keep it that way!
-Peter Harken

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Scoring is an important part of our sport, and this chapter will cover the various types of systems, their elements, and how to choose the best for your event. In addition, this chapter includes Handicap racing systems, the procedures for assessing the relative performance potential of the boats in your fleet.

Objectives of a scoring system

A scoring system must be accurate and as simple as possible. Of the two, accuracy is more important. Accuracy means the degree to which a scoring system correctly reflects the relative performance of competing boats. There are differences of opinion about how to best measure performance. A simple system is one that is easily understood and applied by competitors, and easily recorded and computed by scorers.

Characteristics—selecting the system

The racing rules do not prescribe a scoring system. Appendix A4 describes two scoring systems and Appendix A9 describes an alternative for long series. These scoring systems do not address the needs of all regattas or series.

Although regatta design or format may seem unrelated to scoring, there are connections worth remembering. Some scoring systems give equal weight to each race. When scheduling a series with races of different lengths, you may want to weight series races differently. For short, one-design series with equal weight given to each race, the race committee should strive to make each race approximately equal in distance or in time.

Another consideration is that a series of five or six races is better than one of three or four. With more races, no single race has as strong an effect on the final results. With more races, the final score is more likely to accurately reflect the competitors' racing abilities.

There are many types of scoring systems, each designed to accomplish a particular goal of the race organizer or class. First, there are "regattas" and "series" (in a series the competitor is not necessarily expected to compete in every race). Scoring systems are either "straight line" or "curved line" systems, and each uses either a "low point" or a "high point" method of awarding points. All are discussed in this chapter.

Consider the scoring system carefully. To the extent that any system rewards certain factors, it penalizes or disregards others. Some systems are more "scorer-friendly", that is, they are easier for the race committee scorer to use, and the race committee may have a tendency to want to use the system simply because of that fact; but what you are trying to achieve is fairness to the competitors by accurately recognizing their performance and achievement.

Scores of each boat are almost always combined into a single figure for ranking by totaling or by averaging. "Totaling" is simply adding the scores for the races in which a boat sailed, and is generally used in scoring a series in which all boats sail or count the same number of races, as in a regatta. "Averaging" means dividing each boat's total score by the number of races it has

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sailed, and is generally used in lengthy series. Averaging is generally used for series in which boats do not necessarily sail the same number of races.

Straight and curved line scoring systems

All scoring systems are either "straight line" or "curved line" in nature, depending upon how their points for finishing places plot on a graph.

Straight-line systems

In straight line systems, the scale of points between all finishing places is a constant. The point difference between first place and second place is the same as between second and third places, and also the same as between 20th and 21st places. The low point scoring system in Appendix A of the rules is a straight line system. The Olympics use low point scoring.

Straight line systems are simple for the competitors to compute on the race course and for the race committee. They do not, however, take into account other considerations that may be important to your regatta or series.

Curved line systems

In curved line systems, the scale of points between finishing places diminishes progressively from first to last, or from first to some place before last (thus, plotting as a curved line). In some such systems, the "curve" is straightened to avoid fractional points.

The bonus point (formerly known as the "Olympic") scoring system (see Appendix A4) is a curved line system, as is the Cox-Sprague scoring system (see below).

Curved line scoring is a relatively recent development. It is based on what most sailors accept as fact. It is harder to move from third to second in a race than from seventh to sixth, which in turn is harder than moving from eleventh to tenth. It recognizes the increasing difficulty of moving up through the fleet, and awards points accordingly.

Selecting straight line or curved line scoring

Consistency

If your regatta is intended to reward consistency, the curved line system may be preferable.

Consider the example in Table 13.1:

Table 13.1

						Low Point Score	Bonus Point Score
Race	1	2	3	4	5		
Boat A	2	2	2	2	8	16	26
Boat B	3	3	3	3	3	15	28.5

If I were two faced, would I be wearing this one?
—Abraham Lincoln

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Some might argue that Boat A has a "better record," since it beat Boat B in all but one race (there are significant differences of opinion whether "who beat whom the most times" is a proper standard for scoring—see "Tie breaking" below).

Any straight line scoring system will make Boat B the winner (without exclusions). Absent exclusions, only under a curved line system will Boat A be the winner.

Improvement

When you want to reward improvement during a series (especially a long series), a boat's ranking should rise as quickly as possible. For example:

Table 13.2

						Low Point Score	Bonus Point Score
Race	1	2	3	4	5		
Boat A	7	6	3	3	2	21	39.1
Boat B	4	4	4	4	4	20	40

In this example, Table 13.2, Boat A is showing relative improvement as the series progresses, and actually beating Boat B three of five times. Nevertheless, absent exclusions, any straight line scoring system would make Boat B the winner. Under a curved line scoring system Boat A may prevail.

Regression

If a boat's performance worsens during a series, do you want its rank to drop as slowly as possible?

In this example, 13.3, Boat A does more poorly as the series progresses, but still beats Boat B three of five times. Again, only in a curved line system will Boat A win the series. Note that Boat A's finishes are exactly the same as in Example #2, except in reverse order. Using a faster rise in ranking and a slower drop in ranking are directly related to one another.

Table 13.3

						Low Point Score	Bonus Point Score
Race	1	2	3	4	5		
Boat A	2	3	3	6	7	21	39.1
Boat B	4	4	4	4	4	20	40

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Low point scoring systems

Most race committees think that low point scoring systems are more "scorer-friendly" than high point scoring systems, that is, more natural, more intuitive and less prone to error. A boat's finishing place is its score. The lowest total score wins. It is easy to pull out the top competitors and tally their scores when the field is large and awards must be distributed before competitors return home.

Low point scoring does not take into account "competition level" or assign a "competition value," as may be desirable when scoring a series of events. A number of methods for managing this problem are discussed below.

The Appendix A low point scoring system

The "low point" system set forth in Appendix A4 is the most common low point scoring system and is a straight line system. Its details have been thoroughly considered and are stated clearly for scorers and sailors alike. Appendix A4 allows the system to be incorporated by reference into any sailing instructions; it is easy to adapt for your use.

Each boat finishing a race and not thereafter retiring or being disqualified is scored points equal to her finishing place. All other boats, including a boat that finishes and retires or is disqualified, is scored one place more than the number of boats entered in the series.

When the sailing instructions do not provide otherwise, a boat's worst score is to be excluded in calculating her series score (Appendix A2). A disqualification under rule 2 or certain other rules (see rule 90.3(b)) cannot be excluded.

Ties are broken as described in Appendix A8. See the section on tie breaking later in this chapter.

The Appendix A bonus point system

The "bonus point system", Appendix A4, is the former "Olympic" scoring system (the Olympics now use the Low Point system). It is a curved line system. Like the low point system, it is clearly defined and can be incorporated by reference into the sailing instructions.

The points are nonlinear for the first six positions and linear thereafter. The shape of the nonlinear portion of the curve rewards each of the first six boats more highly as they move close to first place.

The exclusion and tie breaking provisions are the same as in the low point system.

Considerations to use in selecting low point vs. bonus point

Between the two systems the needs of most regattas can be met. They are complete and easy to use because they can be incorporated by reference in the sailing instructions. The chief difference between them is that the low point system is a straight line system and the bonus point system is a curved line system.

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Table 13.4

						Low Point Score	Bonus Point Score
Race	1	2	3	4	5		
Boat A	4	4	6	8	8	30	55.7
Boat B	1	3	5	7	14	30	49.7
Boat C	3	5	3	1	18	30	45.4

You can test your own feelings about the two systems by looking at three series records in Table 13.4:
Under Appendix A4 low point scoring, all boats rank equally. Under the bonus point scoring system, C beats B and B beats A, by a significant margin.
The Appendix A4 scoring systems have other features in common:
1. both have the same tie breaking provisions;
2. both systems also treat various kinds of non-finishers the same way. There are no differential rewards for starting but not finishing, retiring or being disqualified. Each receives points equal to "number of entries plus one". Without such differential points, scoring is easier for everyone, including the sailors who may need to think quickly during the final race of a series.

In both systems, the number of races scheduled and the number required to constitute a series must be specified in the sailing instructions.

In each system, one exclusion is an integral part of the system. As is discussed in "Excluded scores," the use of discards is not recommended when four or fewer races are scheduled or will constitute a series, or when the series consists of many short races, such as a typical collegiate regatta. In those circumstances, most sailors prefer counting all races, because while on the race course they can more easily determine what must be achieved.

When should you use which system? The bonus point system works better for fleets of ten or more boats, and when there are at least four completed races. With fewer than ten boats or four races, the differential in points is generally unnecessary. The low point system is more appropriate when the fleet is quite small (e.g., in ladder championships), or there are many races (as in intercollegiate regattas).

High point scoring systems

High point systems score competitors according to their finishing place, with first place receiving points equal to the number of boats competing (or entered), second place receiving points equal to the number of boats minus 1, and so on. The highest total score wins.

High point scoring is especially useful in two circumstances: first, when significantly different numbers of boats are expected to compete in different races that make up a series; and second,

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when some races are more important than others in a series. An example of the second circumstance would be in offshore regattas where races may be weighted for distance. Multipliers may be used based upon the comparative difficulty or distance of the various races.

Unlike low point systems, in which a boat's score is based on how many boats beat her, in high point systems a boat's score is based on the number of boats she beat.

High point scoring automatically assigns a "competition value" to an event based upon the level of competition. That is, larger races always have a greater "competition level" (the more competitors you have to compete against, the greater your chances of being defeated).

When the number of competing boats varies significantly from race to race, high point scoring tends to create greater point spreads rather quickly. Seeing winners get further and further ahead can be very discouraging for non-winners.

If you are trying to use a scoring system to rank competitors, a high point scoring system will probably result in a greater point spread than that created by a low point system.

Most race committees think that high point systems are less friendly to the scorer than low point systems; that is, less natural, less intuitive and more prone to error.

Finally, high point tie breaking can be a challenge. Using mathematical averaging is felt by some to not be an equitable system for a "series". To address these shortcomings the "Cox-Sprague system" and the "high point percentage" system have been developed. The difference between the two is that the high point percentage system is a straight line system, while the Cox-Sprague percentage system is a curved line system.

Language such as the following needs to be included in the sailing instructions for any high point scoring system; in addition, any part of Appendix A that is changed or deleted needs to be identified (see rule 86.1(b)):

1. A boat that does not complete the prescribed course after her starting signal, or withdraws or is disqualified, shall be counted as a starter and shall receive the number of points applying to the finishing place one worse than the number of starters in that race.
2. A boat shall not be counted as a starter for the purpose of finishes but may include that race as a start for the purpose of qualification if: she goes to the assistance of any vessel or person in peril during a race and for that reason does not choose to finish, or she is disabled by a boat which has broken a rule and withdraws from the race or is later disqualified through protest by the disabled boat.
3. A boat having no competition in her class shall, if she crosses the starting line, be credited with a start for the purpose of qualification, but shall receive no score even if she completes the course.

The covers of this book are too far apart.
–Ambrose Bierce

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4. Series scores shall be computed to the third digit. In the event of a tie, the tie shall be broken in favor of the boat that has beaten the other the greater number of times. If a tie still exists, the tie shall be broken in favor of the boat with the greater number of 1st places, etc.

The high point percentage system

The high point percentage system is a straight line system. Each starter gets 1 point for every boat she beats, plus 1 point for completing the course. To achieve the boat's final "percentage of perfection" score, each boat's total points scored for the series is divided by the total points she would have scored if she had won every race in which she *started:*

$$\frac{\text{Total points scored}}{\text{Total possible points}} = \text{Percentage of perfection score}$$

This scoring method takes into account both the number of boats you beat, and the number of boats that beat you.

Both the Cox-Sprague and the high point percentage systems are harder to score than low point systems. However, with software programs readily available, difficulty in scoring is far less a consideration. See the race management page of the US SAILING Web site, www.ussailing.org/.

The Cox-Sprague scoring system

The "Cox-Sprague " scoring system was developed by William S. "Bill" Cox (New Canaan, CT) and Henry Bancroft "Benny" Sprague (Naples, FL). It is a curved line system, and is based on the premise that, for a series, the scoring system should satisfy at least three conditions:

1. Points for each finishing place should increase or decrease in some way relative to the variation in the number of starters;
2. The principle of "mathematical weighting" should be built into the system so that races with more starters will have a greater mathematical effect upon the series score, and races with fewer starters will have a lesser mathematical effect upon the series score; and
3. The final step in determining each boat's series score should be to calculate her "percentage of perfection" (a comparison of actual score with points which the boat would have scored if she had won every race). The "percentage of perfection" concept is described in more detail below.

The Cox-Sprague system takes into account both the number of boats you beat, and the number of boats that beat you. This can only be accomplished by using high point systems that are that are adjusted for a (theoretical) perfect score. Each starter receives the points for her finishing place indicated in Table 13.5 in the vertical column for the number of starters in that race. Each boat's "percentage of perfection" of the final series score is then calculated by dividing her total points scored by the total points she would have had if she had won every race in which she started.

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Table 13.5

The Cox-Sprague scoring system as recommended by the Y.R.A. of Long Island Sound

In each race each boat will be credited with the number of points indicated in the table below for its finishing position. The number of starters will determine which column is to be used for each race. Each boat's total score will be divided by the sum of the scores of the winners of the races in which it starts. The highest resulting score (percent) wins. Ties in the final standing will be sailed off.

Number of Starters																			
2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20 or more	Place
10	31	43	52	60	66	72	76	80	84	87	90	92	94	96	97	98	99	100	1
4	25	37	46	54	60	66	70	74	78	81	84	86	88	90	91	92	93	94	2
(0)	21	33	42	50	56	62	66	70	74	77	80	82	84	86	87	88	89	90	3
	(17)	29	38	46	52	58	62	66	70	73	76	78	80	82	83	84	85	86	4
		(26)	35	43	49	55	59	63	67	70	73	75	77	79	80	81	82	83	5
			(32)	40	46	52	56	60	64	67	70	72	74	76	77	78	79	80	6
				(38)	44	50	54	58	62	65	68	70	72	74	75	76	77	78	7
					(42)	48	52	56	60	63	66	68	70	72	73	74	75	76	8
						(46)	50	54	58	61	64	66	68	70	71	72	73	74	9
							(48)	52	56	59	62	64	66	68	69	70	71	72	10
								(50)	54	57	60	62	64	66	67	68	69	70	11
									(52)	55	58	60	62	64	65	66	67	68	12
										(53)	56	58	60	62	63	64	65	66	13
											(55)	57	59	61	62	63	64	65	14
												(56)	58	60	61	62	63	64	15
													(57)	59	60	61	62	63	16
														(58)	59	60	61	62	17
															(58)	59	60	61	18
																(58)	59	60	19
																	(59)	59	20

Points in ( ) are for DNF & DSQ.
For "20 or more" boats, the points for place 13 and higher are (79 – place)

Long series scoring

For regattas, in which the races are held within a short time and each boat is expected to compete in all the races, the scoring systems described in Appendix A4 work very well. However, if a series is held over a long time and not all the boats are expected to compete in all the races, a different system may make more sense.

The principal differences are associated with how boats qualify for the series, and how boats that do not compete in a race are scored.

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The default system (Appendix A9)

Rule A9 describes one such system. In that system, the scores for boats that came to the starting area and are DNS, OCS, DNF, RAF or DSQ are one more than the number of boats that came to the starting area for that race. A boat that did not come to the starting area is scored points for the finishing place one more than the number of boats entered in the series (sic).

This system, unless modified, has no requirement for a boat to participate in a minimum number of races in order to qualify for the series. Since the scores received for races in which a boat is DNC are likely to be quite large, there is an incentive to participate as much as possible.

Qualification criteria

No matter what basic scoring system (e.g., low point, bonus point, high point, Cox-Sprague) is being used, the series organizer may wish to require participation in a minimum number (or percentage) of the races in order to qualify for the series. This is often done in conjunction with a statement relating the number of series prizes to be awarded to the number of boats that qualify in each class.

Number of race scores included in the series score

One simple way to encourage participation is to include in each boat's series score only her best X races. X can be a predetermined number, or can be calculated as a percentage of the total races completed in the series (typically ⅔ or ¾ of the races are included). This means that a boat cannot make her series score worse by participating in more races—she can only improve it. This approach can be used with any basic scoring system.

One common practice is to make the number of race scores included in each boat's series score equal to the number of races required to qualify for the series.

A variation of this method, which works only if there is also a minimum number of races needed to qualify for the series, is to include in each boat's series score only her scores from the races in which she has competed.

Note that there is no standard terminology to describe these systems and there are many variations.

Sample sailing instructions to implement some of these approaches are available on the US SAILING race management Web page.

Computerized scoring systems

Most regatta and series scoring is done using computers. There are many programs available, some written by professional programmers, but most written by volunteers at local sailing organizations. Some of these programs are sold, others are provided as shareware or are completely free. The US SAILING Race Management Committee has reviewed many of the more widely

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distributed programs. Their reviews are available, without cost, on the US SAILING race management Web site, www.ussailing.org/.

It is essential that such programs be kept up to date. While changes in the racing rules are supposed to occur only once each quadrennium (four years), sometimes they are made more often.

The best programs are designed either to permit the entry of registration data, or to accept it from another source or database, such as a spreadsheet. Some flexibility in the content of the registration data is essential. What you need to know about the entries for your club championship may be quite different from what you need to know for a world championship.

For all except local events, people expect regatta results to be available on a Web site very quickly after the racing is complete. Good scoring programs can produce the data in the form needed to load it directly onto a Web site.

The best advice we can offer regarding scoring programs is to test them thoroughly. Many people have had bad experiences when they try to use new programs at major events without adequate testing. Do the testing by entering a similar quantity of data to that you expect for your most complex event (number of classes, number of entries per class, number of races, etc.). Enter the data as you would during the event. For example, enter the pre-registered boats, produce the appropriate reports, and then enter the late registrations, and then the first day's race results. Some programs have difficulty coping with large numbers of DNCs, which can happen early in an event under some circumstances. Try entering boats with duplicate sail numbers, both within one class and in different classes. See if the program can deal properly with subdivisions within a class, such as a masters' category. Test the tie-breaking procedures (see the section later in this chapter). See what happens if you need to add a boat to the finishing list that the race committee erroneously scored as DNC. Is that simple, or do you have to re-enter a lot of finishing data? Check to see if a DNE score works properly. Try printing the reports using the same printer that you will be using at the regatta.

Your hard work during the testing phase will make your experience at a regatta much more pleasant.

Penalties, excluded races and tie breaking

Penalties

Penalties are usually scores given to a boat by either the race committee (Appendix A5) or the protest committee (rule 64.1(a)). If the scoring penalty system of rule 44.3 is in effect, a boat can take a penalty to exonerate herself from a breach of a rule of Part 2 of the racing rules. If arbitration is being used, a boat can also accept a scoring penalty to exonerate herself. Scoring penalties do not change the scores of other boats; see rule 44.3(c).

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Appendix A4.2 explains how to score boats that did not start, did not finish, retired after finishing, or were disqualified. Appendix A1 1 is a list of scoring abbreviations that are useful to put into the results to explain why a boat has received a penalty, e.g. OCS for "on the course side."

Sometimes race organizers are tempted to change the points assigned to certain outcomes. For example, making a DSQ worse than a DNF, or making a DNC worse than an OCS. In almost all cases, these types of changes have virtually no effect on the final results of a series, but they make the scoring more complicated, and may not be feasible with some automated scoring programs. Such changes should be avoided.

Appendix A6(a) explains how to deal with the scores of boats finishing after a boat that is disqualified. Scoring programs usually do this properly, but if you are using a spreadsheet to do the scoring, such adjustments can be difficult.

Penalties less severe than disqualification are sometimes useful. Examples are for failure to properly check in (usually a specific number of penalty points) or, in long distance races, time penalties for being OCS. Any such penalty must be fully described in the sailing instructions.

Excluded scores

The exclusion of a boat's worst race score from her series score is included in Appendix A2. If you want to change that, you must include the change in the sailing instructions. For a short series, having a race excluded (also called a discard or a throw-out) generally does not make sense. For a long series, more than one exclusion may make sense. It is very common to have language in the sailing instructions such as, "Each boat's series score shall be the total of her race scores, excluding her worst score only if X or more races are completed." AppendixA2 also explains which race to exclude if a boat has more than one "worst" race. Note that rule 90.3(b) prohibits the exclusion of disqualifications for the breach of certain rules. Such a result should be scored as DGM disqualification under rule 69.1(b)(2 or DNE—disqualification not excludable.

In interscholastic and intercollegiate racing, no races are excluded in calculating series scores. This is done to promote compliance with the rules, including taking an alternative penalty when a rule of Part 2 has been broken.

Redress

When the protest committee awards redress to a boat (see rule 62.1), the scoring may become complicated. Appendix A6(b) says "if the protest committee decides to give redress by adjusting a boat's score, the scores of other boats shall not be changed unless the protest committee decides otherwise." Most scoring programs can deal with this provision appropriately, but some break down when the protest committee "decides otherwise." Be sure to discuss any limitations that your scoring program has with the protest committee before it makes any decision on redress. Appendix A10 provides guidance to the protest committee when granting redress, but the protest committee is not compelled to accept that guidance. It may become very creative.

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Be sure that when the protest committee grants redress, it is very specific about how the score is to be calculated, including how excluded races are to be handled in calculating average points. Note that if the protest committee follows Appendix A10(a), the boat's score for the race for which she has been granted redress may change after every race.

Tie breaking

Tie breaking is an integral part of any scoring system. Appendix A7 explains how to score boats that are tied in a race. Appendix A8 explains how to break series ties. This method works well for low point scoring systems, but may not produce a fair result if a high point scoring system is being used.

The set of scores in Table 13.6, illustrates how the tie-breaking provisions of Appendix A8 work. In a seven-race series using the low-point scoring system of Appendix A, unmodified, the top five boats (A, B, C, D and E) have the following scores:

Table 13.6

Race	1	2	3	4	5	6	7	Total
Boat A	5	2	3	1	4	6.5	(8)	21.5
Boat B	1	3	4	5	(8)	6.5	2	21.5
Boat C	2	1	6	3	(7)	5	4	21
Boat D	3	5	1	2	(6)	4	6	21
Boat E	(7)	4	2	4	3	1	7	21

The first step is to calculate the series scores for each boat.

The scores in parentheses are the ones excluded. D's 6th in race five and E's 7th in race one are excluded because each is the worst score in the race sailed earliest in the series; see Appendix A 2.

This produces two ties: one for 1 through 3; another for 4 and 5. Among C, D and E, each has one 1, one 2, and one 3. However, E has two 4s, and C and D only one each. Therefore E is the series winner (see Appendix A8.1). After excluding one race each (see Appendix A2), C and D have identical scores, so Appendix A8.1 does not break that tie. Appendix A8.2 does break the tie, because in the last race, C beat D, so C finishes second in the series. Note that even if C or D had excluded her score from race seven, that race would have been used to break the tie; see the last sentence of Appendix A8.2.

After exclusions, A and B have identical scores, but B beat A in race 7, so B wins the tiebreaker. The final series places are: E, C, D, B, A.

You're only as young as the last time you changed your mind.
–Timothy Leary

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Handicap racing systems, in general

Handicapping any sailboat race requires two basic steps:

1. A procedure for predicting the relative performance or sped potential of the boats in the fleet (or expected to be in the fleet); and
2. A procedure for quantifying these predictions in the form of time allowances to be applied to the actual times required for each of the boats to complete the race.

The object of this exercise is to use the relative speed potential predictions as handicaps and time allowances to compensate for design and size differences. The competition will then be decided upon human performance, not the inherent speed differences between boats. Successful handicaps permit slower boats to compete effectively against faster boats.

Empirical handicapping systems vs. measurement rating rules

Handicap systems generally use one of two methods:

1. Measurement systems determine those boat characteristics that determine its speed potential, quantitatively measure those characteristics and finally use some numerical formulation to calculate speed predictions from those measurements. Race handicaps are then derived from the speed predictions. ORR, IRC and MORC are measurement rules.
2. Empirical systems observe the actual racing performance of boats and derive handicaps that will equitably represent the observed differences in speed between boats. The United States Performance Handicap Racing Fleet (PHRF©) and the North American Portsmouth Yardstick are empirical systems.

Handicap systems can variously use both measurement and empirical methods. (PHRF©) and the North American Portsmouth Yardstick systems include some measurement, if only to assure that boats comply with their class rules or to monitor changes to the boats that might effect performance.

Both the Offshore Racing Rule (ORR) and IRC are measurement rules that attempt to predict boat speed. IRC contains "subjective elements" to assist in this.

The performance of boats can vary greatly with the wind and course conditions in which they race. Some boats are designed to perform better in light air, some in heavy. Others are designed for offwind performance, some to go upwind well. Some handicap systems, such as ORR, take these factors into account and are capable of providing handicaps customized to wind and course conditions.

In general, it can be said that a boat's handicap is an approximation of its speed when sailed to its full potential.

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Scoring of competitive events

Any handicapping system must correlate the performances of the boats racing against each other. All scoring methods use the concept of a scratch boat as a suitable reference. The elapsed time of each boat is adjusted by the difference in its handicap relative to that of the scratch boat to result in a "corrected time." The fleet is then ranked by the corrected times with smallest, i.e. fastest, time winning. Virtually any boat, real or theoretical, can serve as the scratch boat. Most handicapping systems in use in the United States provide a single number time allowance, which is used to adjust the actual elapsed time of every boat. The two common methods are time-on-distance (TOD) and time-on-time.

TOD uses seconds/per mile handicaps to represent boat speed. If the handicap difference between two boats is 10 sec/mile, then the faster boat owes the slower 10 seconds for every mile raced. Scoring requires knowledge of the race distance, often determined with navigational tools. Note that the fundamental assumption of TOD is that the speed differences between boats are fixed, sec/mile numbers. In our example, the faster boat is 20 sec/mile faster in all conditions of wind speed or course type. TOD scoring is calculated using:

Corrected Time = Elapsed Time + (Boat Handicap – Scratch Handicap) x Race Distance

TOT uses a time correction factor (TCC) for scoring. The scratch boat has a TCF of 1.0. Faster boats have TCF's greater than 1.0, slower boats less. A TCC of 1.25 implies that the boat is 25% faster than the scratch boat. Note that the assumption underlying TOT is that the ratio of speeds between boats is fixed. Our boat with a TCC of 1.25 is always 25% faster than the scratch boat. TOT scoring is calculated using:

Corrected Time = Elapsed Time x TCC

TOT scoring does not require knowledge of the race distance, only the elapsed time.

The following graph (Figure 13.7) illustrates the various scoring methods. The curves of boat speed vs. wind speed (for some assumed course such as windward/leeward) are shown for both a scratch boat and a target boat. The speed is expressed as sec/mile, although knots would be just as fine. Single number TOD would pick an assumed wind speed, say 10 knots, tabulate the differences in sec/mile, and use them as handicaps regardless of the actual wind in the race. The curve labeled Time-on-Distance shows effectively that the performance of the target boat is being predicted too fast in light air and to slow in heavy air. See the arrows. This curve is always the same sec/mile distance from the scratch boat. For this pair of boats, the target boat is being penalized in light air, favored in heavy.

The Time-on-Time curve, derived from the speed ratios at 10 knots, is closer to the actual performance curve for the target boat. In this example, you can fairly conclude that TOT scoring is more accurate than TOC.

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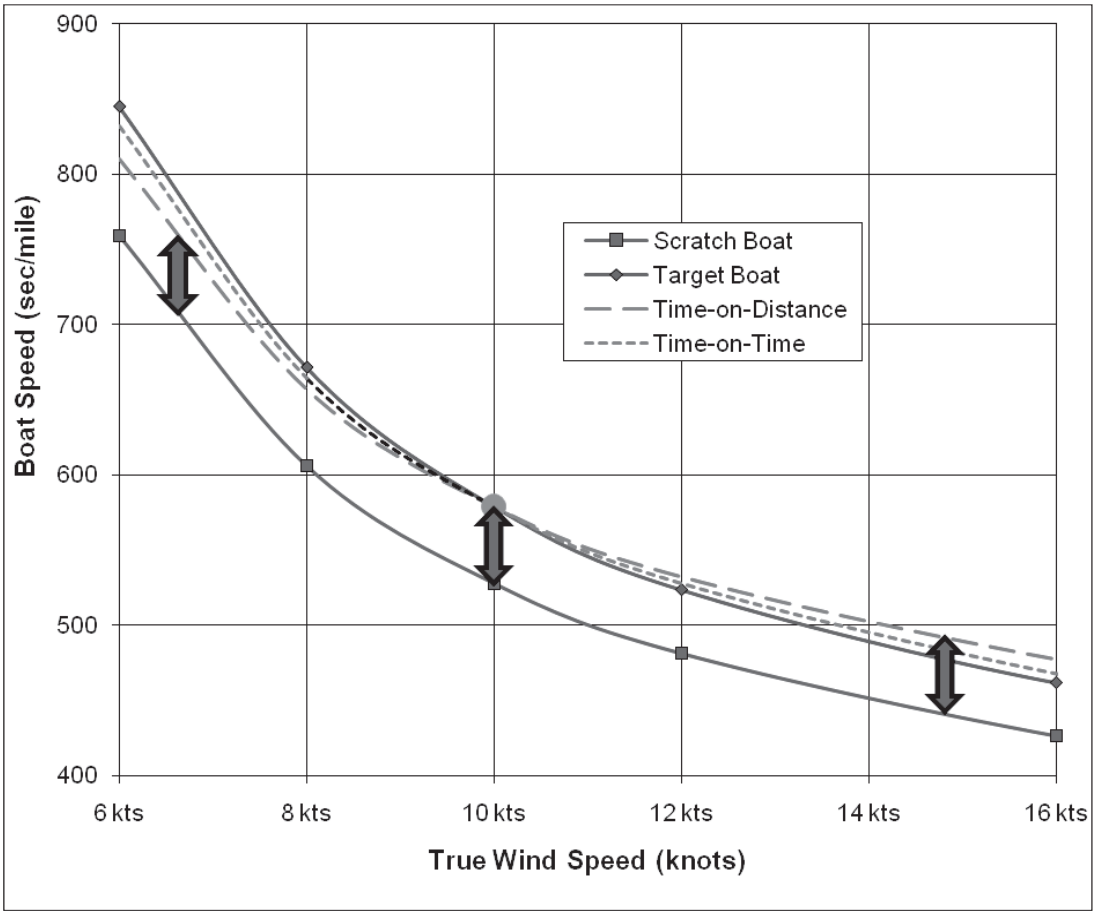
Figure 13.7



TOT scoring clearly provides a better approximation to actual performance than TOD when wind speed is unknown. It also does a reasonable job in dealing with current, such as tidal flow, that makes races longer or shorter. However, where periods of near drifting conditions may be encountered, TOT systems usually favor the smaller boats in the fleet, because for every hour they are on the water they are accumulating a growing time allowance, even if the fleet is essentially not moving.

TOT handicapping is also used extensively on small inland lakes, where distance is hard to measure because of lack of navigational aids and other factors. The advent of low cost and very accurate GPS units has solved the problem of determining ranges and bearings but the TOT system still dominates on inland lakes.

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Producing of certificates at competitive events

Every boat entering a race must hold a valid measurement or rating certificate (see rule 78.1). From the race committee's perspective, either the notice of race or the sailing instructions should require that a copy of the measurement certificate be provided to the race committee prior to racing.

However, racing rule 78.2 provides the owner who cannot produce a certificate the alternative of signing and lodging with the race committee an "Undertaking to Produce Certificate." The form is set forth in the rule. The owner must produce a certificate by the end of the regatta or be subject to disqualification from the regatta.

The Performance Handicap Racing Fleet

Characteristics of PHRF©

Within the United States the largest group of sailors that race now compete under the Performance Handicap Racing Fleet ("PHRF©) system. This system provides handicaps for monhull and multihull meeting ISAF Safety regulations, typically for Categories IV, V, and VI. PHRF© provides a single handicap number that is applied regardless of the conditions of the race. Several large sophisticated fleets also provide offwind and distance handicaps as well. Handicaps are determined regionally or locally to reflect actual performance of the boat type sailing in regional or local conditions. As a result, exactly the same boat may have different handicaps assessed in San Francisco Bay (a heavy air area) and Long Island Sound (a light air area); yet differential handicaps among boats that typically compete together remain quite similar.

Each affiliated PHRF© fleet has a locally elected or appointed handicapping organization. Using a variety of best practices and tools published by US PHRF© Technical Committee and the US SAILING Offshore Sailing Office, VPP Information from measurement rating rules, analysis of race results and local experience, they establish the handicaps to be used in their area. Handicaps are not portable. That is to say, that a handicap determined for racing in one region must not be used in any other that a skipper and their boat travels to for competition. Boats must be handicapped for the area in which they race.

Affiliated regional and local US PHRF© organizations rely on skipper self-report of critical hull, rig, and sailplan dimensions submitted that leads to the determination of a handicap. When a boat has been modified, or there is an obvious error in the self report of these critical dimensions, exact measurements are required.

There is no fee assessed for the determination of a handicap, although every participant must join the regional or local fleet organization at nominal cost. As a result, PHRF© is very inexpensive for the participant. Sophisticated fleets require membership in US SAILING before a certificate of handicap is issued with the current US SAILING member number reported on the certificate.

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The apparent simplicity of the PHRF© rule often lends itself to the charge that it is not accurate in its determination of a handicap. When best practices in empirical handicapping are followed the handicap produced is similar to those produced by measurement rating rules. Some PHRF© fleets are casual in the way races are managed and the reporting of results. Modification or refinement of empirical based handicaps is dependent upon the accurate reporting of race data and its analysis. Where this is lacking refinement of a handicap for a class suffers. Moreover, there is a conviction that because the rule is not scientific, there is a strong local bias in the determinations of a handicap. It is not often realized that determination of a handicap is systematic and statistical and incorporates local conditions for wind and water and course. This is one of the PHRF© rule's strengths.

On the other hand, it is charged that the simplicity has cost accuracy of handicapping. Because PHRF© handicaps are based upon scientific estimates of speed potential as well as actual performance, its accuracy is more than just satisfactory because of the application of algorithms for estimating speed potential and reporting of performance while racing. There is a strong element of local experience reflected in the determination of numbers.

Competitors accustomed to "scientific" establishment of handicaps (provided in more structured systems like ORR or ORCi) are sometimes disturbed by what they consider to be personal bias either in assigning handicaps casually or in the responses to appeals of handicaps by influential people. This is largely an unsubstantiated perception of US PHRF© affiliated fleets operations by those who have not taken the time to learn about PHRF© handicapping within the US.

The PHRF© Fleet Handbook

The US SAILING Offshore Office in conjunction with the US PHRF© Committee collates and distributes national local PHRF© fleet handicaps for production boats. Additionally, member fleets are provided with the Fleet Handbook and monthly bulletins, including approved guidelines for fleet organization and handicapping. More information and useful handicapping tools may be found on the US SAILING Web site, http://www.ussailing.org/phrf.

Appeals of PHRF© handicaps

Each fleet must have an established appeals system. The US PHRF© Committee hears appeals from members of local or regional fleets after the local or regional appeals group has made a decision. When the local or regional appeal process has been exhausted, the fleet member may appeal further to the US PHRF© Committee. Hearing appeals at any level may not be refused when appellants follow published procedure. The US PHRF© website may be consulted for details.

Despite its perceived weaknesses, far more handicap sailors race under PHRF© than in all the other systems combined. US PHRF© serves its constituents well.

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PHRF© scoring

For PHRF© racing, a single number is used to represent the speed potential of each boat in all sorts of wind and wave conditions. Better competition is achieved if when the boats are divided into divisions based upon hull form, displacement, and rig, and further subdividing the established divisions into sections into sections where the handicap spread is fairly small to provide for tight competition (15 to 18 sec/nm if possible given the number of entrants).

For time-on-distance scoring, handicaps are multiplied by course distance, and the result is subtracted from elapsed (or finish) time.

Time on distance scoring procedure uses the following calculation:

TA = D x PHRF x F ÷ 60, where
TA = the Time Allowance in minutes
D = course length in nautical miles
PHRF = rating in seconds per nautical mile
F = a factor, usually 1.0, but often set at 1.3 for non-spinnaker classes
Finish Time (recorded clock time of the boat's finish)
Start Difference (between clock zero and start of boat's class)
Elapsed Time (the boat's time on the course (note Appendix A3))
Elapsed time – time allowance = corrected time

One can see that combining the Start Difference and the Time Allowance into a single number (call it a Deduction Factor) would result in just one subtraction, rather than the two-step process set forth above. This is often done while the race is underway, after accounting for postponements and any changes in course length.

The time-on-time scoring procedure uses the formula is following calculation:

$$TCF = \frac{650}{550 + PHRF}\ \text{(all purpose)} \quad \text{or} \quad \frac{650}{650 + PHRF}\ \text{(very light air or windward/leeward)} \quad \text{or} \quad \frac{650}{480 + PHRF}\ \text{heavy air or all off the wind}$$

where,
TCF = Time Correction Factor, a multiplier PHRF = rating in seconds per mile

All purpose:

TCF = 1.14 where PHRF = 20
= 0.97 where PHRF = 120
= 0.844 where PHRF = 220

Very light air or Windward/leeward

TCF = 0.97 where PHRF = 20
= 0.844 where PHRF = 120
= 0.747 where PHRF = 220

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Heavy air or all off the wind

TCF	= 1.3	where PHRF = 20
	= 1.083	where PHRF = 120
	= 0.928	where PHRF = 220

Elapsed time is obtained in the same manner as in time on distance. Corrected time = Elapsed Time x TCF.

The Portsmouth Yardstick Handicapping System

Characteristics

The Portsmouth system was derived from a British system developed to allow different small one-design centerboard classes to race on the same course. It is a "time on time" system, which uses an assigned number as a multiplier to provide corrected time. These corrected times are then ranked to provide corrected finish orders.

In the United States, the Thistle is the standard boat, at a rating of 83, which means that it will sail a common distance in 83 minutes. A boat with a rating of 100 will sail the same distance in the same race in 100 minutes. While PHRF generally handicaps what we term "offshore boats", the Portsmouth Yardstick addresses up to medium-sized production cruiser-racers, but includes multihulls and centerboard classes as well. Consequently, it is the system of choice for mixed fleets. The formula for its use is:

CT (corrected time)=ET (elapsed time) x 100/HC (Handicap)

Derivation of Portsmouth numbers

Portsmouth numbers are published by US SAILING each year, based upon new data provided by the Portsmouth Yardstick Committee.

Each fleet using the Portsmouth Yardstick is required to collect data from each of their races and submit them to the national committee, who collate and update their database each year. The resulting national numbers are generally used "as is" by most fleets in the United States, although local modifications are not unusual.

An example of the US SAILING Portsmouth Number Data Sheet is shown in Figure 13.8.

Each boat listed has four numbers assigned, based on wind strengths. Some fleets determine which wind strength will be used for the entire season, based upon average climatological data. Others ask the race committee to judge the conditions and signal which wind strength will be used (before or after the race).

By providing four numbers per boat (which allows more accurate matching of a handicap number to the conditions actually encountered), the Portsmouth Yardstick is considered more flexible than PHRF.

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Figure 13.8

BN	MPH	Knots
0	0–1.7	0–1
1	1.8–4.0	2–3
2	4.1–7.4	4–6
3	7.5–12.0	7–10
4	12.1–18.9	11–16

FIGURE I

PORTSMOUTH DATA SHEET

(Please reproduce copies as needed)

BN	MPH	Knots
5	19.0–24.7	11–21
6	24.8–31.6	22–27
7	31.7–38.5	28–33
8	38.6–46.6	34–40
9	46.7–53.9	41–47

Sec	*Dec Min*
1	*.02*
2	*.03*
3	*.05*
4	*.07*
5	*.08*
6	*.10*
7	*.12*
8	*.13*
9	*.15*
10	*.17*
11	*.18*
12	*.20*
13	*.22*
14	*.23*
15	*.25*
16	*.32*
17	*.28*
18	*.30*
19	*.32*
20	*.33*
21	*.35*
22	*.37*
23	*.38*
24	*.40*
25	*.42*
26	*.43*
27	*.45*
28	*.47*
29	*.48*
30	*.50*
31	*.52*
32	*.53*
33	*.55*
34	*.57*
35	*.58*
36	*.60*
37	*.62*
38	*.63*
39	*.65*
40	*.67*
41	*.68*
42	*.70*
43	*.72*
44	*.73*
45	*.75*
46	*.77*
47	*.78*
48	*.80*
49	*.82*
50	*.83*
51	*.85*
52	*.87*
53	*.88*
54	*.90*
55	*.92*
56	*.93*
57	*.95*
58	*.97*
59	*.98*

CLUB NAME_____ LOCATION_____

INSTRUCTIONS

1. Please report average wind velocity by knots, mph or ***specific*** Beaufort Number, not by Beaufort ranges 0-1, 2-3 or 5-9.
2. Report elapsed time and corrected times preferably in decimal minutes (2 decimal places; see conversion table at left to conveniently convert seconds to decimal minutes).
3. Group all classes sailing the same course under similar winds on a sheet; you may include additional races lower on the page.
4. Report each finisher in handicap and level rating fleets, the first boat in one-design classes, and **each** windsurfer.
5. Report classes either by US SAILING class code or, in cases where confusion might exist in class name or in versions of a class, describe the class fully; i.e., sail area, type of boat, keel configuration, etc.
6. If available, indicate average number of boats in each class per race, series or regatta.
7. Include genoa size (%) when applicable and indicate with letter "S" or "AS" if standard or asymmetrical spinnaker used.
8. **Please type or print class codes and times legibly**. If you submit a ***copy***, please be sure the information is legible.
9. For questions or additional information, contact Darline Hobock at 918-744-8803 or 918-744-9760 (fax).

EVENT				DATE:		DATE:	
CLASS OF BOAT INCLUDING MODIFICATIONS USED	US SAILING CLASS CODE	GENOA% SPI? S/AS	AVG. # BOATS CLASS	BN = ELAPSED TIME	CORRECTED TIME	BN = ELAPSED TIME	CORRECTED TIME

Publication of Portsmouth numbers

The Portsmouth Yardstick manual (available on US SAILING's Web site, www.ussailing.org/, provides specific guidance to the race committee for scoring and submission of the data which results. The Portsmouth numbers are only available on-line and may be found at www.ussailing.org/. Committees must become familiar with the system prior to its use.

Use of pursuit starts

At the finish of a one-design race all competitors and viewers instantly know the finishing positions. In handicap racing the results are not known for sure until the handicapping system calculations are applied. An option is available for handicap racing that allows instant results as well. It is called the "pursuit start." Here the handicap factors are applied at the start and the order of finish determines the final results. This variation in handicap racing is a way to do things a little differently resulting in a "fun" race with easy to manage starts.

The pursuit start or "reverse handicapping" as it is sometimes referred to, has the slowest boat starting first, and the fastest boat starting last, and with all other variables being exactly equal, the boats should theoretically finish at the same time. Different organizations have used many methods to create the offset time allowances for the starts. Two practical ways of calculating the offsets are described here that are based on two of the most commonly used handicapping systems, PHRF and Portsmouth.

To create a reasonable set of offset times the length of the course should be known. In the not-so-distant past this could be a difficult task, especially on inland lakes. The use of relatively inexpensive, handheld GPS units has essentially eliminated that problem. Applying the pursuit start to time-on-time handicap systems is difficult and depends on local experience with a set course over a range of wind conditions. The application of time-on-time systems is not considered here,

PHRF© method

The Performance Handicap Racing Fleet, PHRF©, assigns handicaps to most keel boats by geographical locations.

PHRF© was exclusively a time on distance based system, but there are now time on time variations being used. The time on distance method is adopted for Pursuit Starts.

In PHRF© the actual elapsed time (ET) in minutes is corrected by a time allowance (TA) in minutes, calculated by:

TA = (D x PHRF) ÷ 60
Where D = Course distance in nautical miles
and
PHRF = Rating in seconds per nautical mile.

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If the course length is known then it is a rather simple task to create a list of TA's for the boats in the race.

Example;

Course length = 7.1 nm
Boat "A" PHRF = 111
Boat "B" PHRF = 177
Boat "C" PHRF = 245
Boat "A" TA = (7.1 x 111) ÷ 60 = 788,1 ÷ 60 =13.135 min, or 13 min.8 sec.
Boat "B" TA = (7.1 x 177) ÷ 60 = 20.945 min. or 20 min. 57 sec.
Boat "C" TA = (7.1 x 245) ÷ 60 = 28.99 min, or 28 min. 59 sec.

Subtracting the TA of the fastest boat ("A") from the TA's of the other boats further simplifies the process.

Boat "A" TA = 0
Boat "B" TA = 7 min. 49 sec,
Boat "C" TA = 15 min. 51 sec.

Select a convenient starting time for the race. For this example the time is 2 PM. The "slowest" boat starts first. The difference in that boat's TA and the next slowest boat's ("B") TA determines the next starting time, with the process repeating itself, always comparing to the TA of the slowest boat. The starting times would be:

Boat "C" 2:00:00 PM
Boat "B" 2:08:02 PM
Boat "A" 2:15:51 PM

The "reverse" handicap can easily be seen when setting up the starting times! Typically a starting line is established and all boats have synchronized their watches (another good way to use the GPS unit!). An honor system is often used for the starts, or a race committee can be on the line to ensure that nobody starts early. The finish order determines the final results.

Portsmouth method

The Portsmouth handicap system is a time-on-time system that is used for many smaller boats, such as centerboards and catamarans. The database also includes numbers for displacement boats. In a proper application of the system, one of four wind ranges is used in selecting the handicap number to be used. These numbers are derived from the base or DPN number. A formula for converting PHRF numbers to Portsmouth numbers is provided:

DPN =(PHRF/6) + 55

Solving this for PHRF:

PHRF = (DPN x 6) - 330

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While this is by no means an exact representation of PHRF© handicaps, it does provide a means for locations not using or having access to PHRF© to create a set of TAs and use them for a pursuit start event. The process used would be the same as for PHRF©.

The Offshore Racing Rule (ORR)

In the fall of 2004, three major US yacht clubs, the Chicago Yacht Club, Cruising Club of America and Transpacific Yacht Club joined forces in an alliance called the Offshore Racing Association (ORA). The ORA was formed to promote and support the use of VPP-based handicapping and has undertaken the task of developing the Offshore Racing Rule (ORR), a measurement-based rating rule intended to provide the fairest handicapping possible over a variety of wind and course conditions.

The ORR is an objective rule. Its ratings are based on full measurement of all the speed-related features of sailboats and on a Velocity Prediction Program (VPP) that calculates the speed potential of each boat at any combination of wind speed and course direction. The VPP is a set of algorithms developed through systematic research that use fundamental scientific methods. The speed potential on each point of sail in varying wind strengths may be displayed on a Polar Diagram of Performance

Like any other boat race handicapping system, ORR is a method of adjusting course elapsed times with "time allowances" . These allowances are meant to equate the performance differential between boats which results, primarily, from differences in size and design.

The goal is that the outcome of races between mixed designs should be determined only by the same factors as pertain in one-design racing: skill, planning, condition of the boat and so forth.

General features of ORR

Measurement

The ORR requires a description of the full geometry the hull and its appendages (keel and rudder). This can be measured with a machine when the boats is out of the water or ORR will use "designer lines" validated with measurement checks of the actual boat.

The boat is then placed in the water in "measurement trim" where freeboards are measured and an inclination test is performed. The freeboard measurement provides information on how deep the hull is immersed in the water and determines the displacement or weight of the boat, while the inclination test provides information about the stability of the boat.

Measurement of the rig and sails is required as well.

Ability will never catch up with the demand for it.
—Malcolm Forbes

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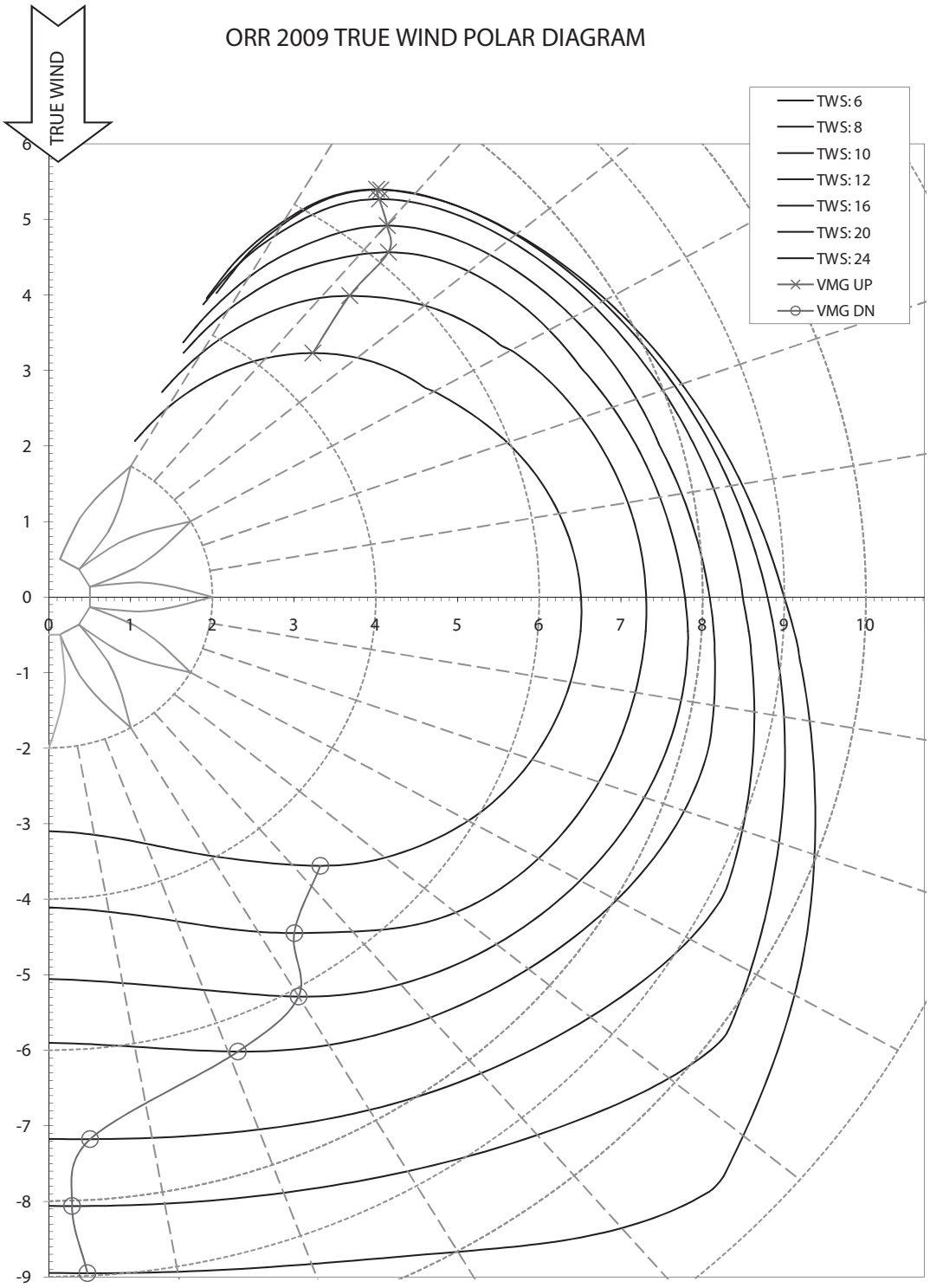

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Speed prediction, the Velocity Prediction Program (VPP)

The ORR employs computer simulation model called the VPP. The VPP is based on scientific experiments with boat models of various shapes, sizes and sail configurations in testing tanks and in wind tunnels.

The VPP takes into account many variables. For example, it calculates the resistance of the hull in the water in racing trim with full crew weight and all the necessary equipment on board under different angles of heel. It also calculates the forces from the rig driving the boat forward and simultaneously pushing it sideways with all possible sail combinations and selects the optimum one for the given wind conditions. The speed potential on each point of sail in varying wind strengths may then be displayed on a Polar Diagram of Performance (see figure 13.9).

Scoring Options

The ORR uses single number time-on-distance, time-on-time, and performance curve scoring (PCS.) PCS is an automatic system that closely approximates the wind speed, and handicap, experience by each boat on the race course. Arguably the most accurate scoring method available, it does require a numerical interpolation algorithm expressed in computer code. The ORA makes available SMART Scratch sheets in the form of Excel spreadsheets, customized to each race. This permits immediate on-board scoring with the use of a computer.

The ORR single number handicaps are generally customized to the specific conditions expected for each race. The pre-eminent examples of this are the offwind races that start in California and end in Hawaii or Mexico. These handicaps are heavily weighted with offwind speed predictions. Where conditions are unpredictable, a generalized handicap is employed.

IRC Handicap Rule

IRC is a system of measurement which classifies a broad range of cruising and racing ballasted monohull keel boats for competition by providing ratings comprising single figure allowances based on time. IRC is the development of the Channel Handicap System (CHS). It continues and expands upon the essential ingredients of the CHS and follows the basic principles of strict administration, user-friendliness and ease of application for administrators, sailors and race organizers.

IRC is a rating rule based upon hull, rig and sail measurements. The alogrithms and detailed calculations behind the rating will remain secret. The emphasis is on simplicity and concise rules.

US SAILING, the local IRC rule authority, working in relation to the RORC, (see the RORC Web site at http://www.ircrating.org/) is offering IRC Ratings. In order to use IRC, all that is required in the sailing instructions is: "The IRC Rules, Parts 1, 2, and 3 (or 4) shall apply."

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The IRC rating is calculated as a Time Corrector (TCC) to three decimal places. Corrected time (CT) to the nearest second for each boat is calculated by multiplying its elapsed time by its TCC as follows:

CT = ET (Elapsed Time) x TCC (IRC Time Corrector).

Midget Ocean Racing Fleet (MORC)

MORC is a measurement system of single-number handicapping, limited to offshore capable boats of less than 30 feet overall. The measurements are done by volunteers from each fleet, generally, and certificates are issued by the national organization. MORC is a time-on-distance system which uses its own time allowance tables, published in its handbook. Committees starting MORC fleets should use these tables to score. The MORC Handbook is available on-line at www.morc.org/.

Race Management Committee forms and worksheets

A collection of forms and worksheets that will help you get organized are available on the RMC section of US SAILING's web site at http://www.ussailing.org/racemgt/RMC_Tools/index.htm. They may be copied and used freely.

Computer scoring programs

You will find evaluations of a number of computer scoring programs and links for obtaining these programs on the RMC section of US SAILING's web site at www.ussailing.org/racemgt/Scoring_Programs/index.htm.

Race results

The importance of prompt dissemination of race results

The timely preparation and dissemination of race results cannot be overemphasized. Competitors race for results, and await, with great anticipation, the posting of the results of each race. Prompt dissemination of such results ensures a favorable relationship between the competitors and the race committee. Cellular telephones and private channel radios make the task of getting results in to the shoreside office in a timely manner an easy one.

Contents

The summary of results should list all yachts in order by classes and include yacht name, name of owner, finish position and corrected time of finish, if pertinent. If a protest is pending, it should be noted on these copies and the boats concerned indicated, since the results may affect the standings of not only the boats involved, but those who finished behind or ahead of them.

Computer programs to handle series and season standings are now commonplace aids to race committees. See the chapter on "Race Committee Equipment", under the subsection

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"Computers and calculators", and above in this chapter, "Computer scoring programs." If you do not have a computer, sample regatta scoring sheets are available on-line as described in the section on Race Management Committee forms and worksheets, above.

Distribution of results

Distribution of results should be the responsibility of a committee member in charge of scoring or publicity. The first person to receive the results should be the chairman of the protest committee, if protests are pending. The second should be the person responsible for any awards ceremony.

Copies should be posted near the event notice board and near the dock or drysail area. If the club is a member of an association which keeps records, another copy should be mailed to the association promptly after the race. Individual classes may also request copies. Keep a copy of the summary handy in the club office and send one to local papers and to US SAILING. After major races it is customary to mail relevant information to each boat.

An electronic version suitable for Web posting should be distributed as soon as possible. Clubs that do not have direct access to Web sites can find services that will post results at little or no cost.

I'm a great believer in luck, and I find the harder I work the more I have of it..
—Thomas Jefferson

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