

----- Original Message -----

From: jon.hamilton@cox.net

Date: 01/30/2022 4:45 PM

Subject: Mug Race 2022

Mark your calendars for the 68th Mug Race on May 7, 2022!

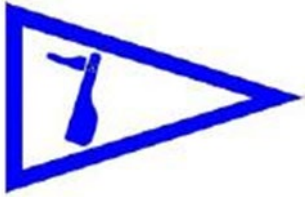
Registration is now open at <https://www.regattanetwork.com/event/23876>.

Friday night's activities will be at their traditional venue in central Palatka. We have secured a small block of rooms at the Quality Inn (386 328 3481). If you call to make a reservation, be sure to say you are coming for Mug Race.

We are happy to announce that World's Greatest Regatta Breakfast will return on Sunday May 8, before trophies. As last year, Saturday night's dinner will be catered so both skippers and crew will need to purchase tickets in advance.

Jon Hamilton, Race Officer

Larry Wagner, Regatta Chair



# NOTICE OF RACE

## The 68th Mug Race

The Rudder Club of Jacksonville  
Jacksonville, Florida, USA  
6 May – 8 May 2022

### 1 RULES

- 1.1 The Race will be governed by *The Racing Rules of Sailing 2021-2024* (RRS) and the prescriptions of the United States Sailing Association.

### 2 ADVERTISING

Advertising is permitted; however, it must conform to the guidelines of ISAF Regulations 20.2.1, 20.2.2, 20.2.4 and 20.2.6.

### 3 ELIGIBILITY AND ENTRY

- 3.1 The term “class” in general usage refers to a set of design characteristics as prescribed by a set of rules referred to as “class rules.” Boats whose configuration does not conform to the configuration prescribed by the class rules for that boat shall indicate this on their race registration and Supplemental Form online or in writing to the Race Committee.
- 3.2 All boats are eligible for entry that have a mast height of 44 feet or less and can meet the requirements of one or more categories listed in 3.4 below.
- 3.3 For scoring purposes boats will be grouped into Mug Race specific groups hereinafter referred to as a “Fleet,” “Division,” and “Sub Division.”
- 3.4 Entrants will be divided into the following Fleets.
- (a) Monohull Fleet (Boats included in the Portsmouth Yardstick Centerboard and Keelboat categories and similar non-listed boats.)
    - (1) Spinnaker Sub Division
    - (2) Non-Spinnaker Sub Division
  - (b) Cruiser Fleet (Boats included in the Portsmouth Yardstick Offshore Classes and similar boats.)
    - (1) Spinnaker Sub Division
    - (2) Non-Spinnaker Sub Division
  - (c) Multihull Fleet (Boats included in the Portsmouth Yardstick Multihull category and similar non-listed boats.)
    - (1) Multihull Division
      - (i) Spinnaker Sub Division
      - (ii) Non-Spinnaker Sub Division
    - (2) Multihull Cruiser Division (must be greater than 20’, have overnight accommodations, self-bailing cockpit and proper safety gear.)
      - (i) Spinnaker Sub Division
      - (ii) Non-Spinnaker Sub Division
  - (d) Windsurfers (Boats included in the Portsmouth Yardstick Windsurfer Tables)
    - (1) Div II (SA = < 6m<sup>2</sup>)
    - (2) Div IIB (SA = 6-7m<sup>2</sup>)
    - (3) Div IIC (SA = > 7m<sup>2</sup>)

Note: Information on the Portsmouth Yardstick may be obtained at

<https://www.ussailing.org/competition/offshore/portsmouth-h-yardstick-table-pre-calculated-classes/> .

Access to the actual list of ratings is restricted to US Sailing members, but these values may be accessed through Regatta Network when you register on line.

- 3.5 A minimum of five registered boats is necessary to constitute a division/sub division for scoring and trophy purposes. Divisions may be combined should insufficient numbers register.
- 3.6 Registration
- (a) Registration is on-line with the US SAILING Regatta Network through the event web page at <http://www.regattanetwork.com/event/23876> . Boats registering on-line will receive a \$20.00 on-line registration discount if they register before 2400 on Sunday 24 April 2022. Boats may confirm that their registration has been recorded by selecting the participant lists available on the event Regatta Network Web Site. Boats submitting an on-line registration but not completing the fee submission will receive an automated e-mail providing directions as to how to complete their registrations. For boats needing assistance in registering on-line, please contact Jonathan Hamilton at 904-635-9270 or [raceoffice@rudderclub.com](mailto:raceoffice@rudderclub.com) .
  - (b) Boats not registering in advance may register as in 5.1 and 5.2 as applicable.
- 3.7 All windsurfer and non-race configured canoe entries shall provide a dedicated support boat to follow them along the entire course. The support boat shall be equipped with a Marine VHF Radio capable of receiving and transmitting on Channel 78 and a cellular telephone. Support boats shall also be equipped with operable running lights that meet the requirements of the Inland Rules of Navigation. The support boat shall be in accompaniment when the windsurfer/canoe checks in at the starting line, the mid-course gate and the finish or the entrant will be scored DNS.
- 3.8 Other dedicated support boats for junior entries etc. are encouraged to provide the Race Committee with mobile phone and radio calls sign information to be used in the case of an emergency.

### 4 FEES

- 4.1 Advance, on-line registration (including payment) on or before 24 April 2022 is \$90.00. Registration at Packet Pickup on 23 April will be on-line and receive this discounted fee.
- 4.2 Registration Fee – After April 24 is \$110.00.
- 4.3 Late Registration Fee – After 12:00 am Friday 6 May, registration is \$140. Late race registration in Palatka will be online and open until 5:00 pm on Friday 6 May.
- 4.4 Rudder Club, and Palatka Yacht Club Member Discount: \$ 5.00.
- 4.5 US Sailing Membership Discount: \$5.00. On-line registration will check this automatically when the member number is entered during the registration process.

**5 SCHEDULE OF EVENTS**

- 5.1 Packet Pickup  
Race packets will be available starting Saturday 23 April 2022 from 3:00 pm to 6:00 pm. Assistance will be provided to register on line from 3:00 pm to 5:00 pm.
- 5.2 Late registration and Race Packet Pick Up, Quality Inn, Palatka, Friday 6 May 2022 4:00 pm - 5:00 pm.
- 5.3 Competitors Meeting Friday 6 May at 7:15 pm at the Palatka Riverfront Park Amphitheater.
- 5.4 The Mug Race Saturday 7 May 2022  
The five minute warning signal for the multihull fleet will be at 7:55 am. The five minute warning signal for the monohull fleet will be at 8:05 am. Race committee will signal boats over early in accordance with the Racing Rules of Sailing.
- 5.5 Trophies Sunday 8 May 2022 at 10:30 am at the Rudder Club of Jacksonville.

**6 MEASUREMENT**

Boats with a masthead height greater than 44 feet may not compete in the Mug Race. All boats are subject to measurement by the Race Committee at any time.

**7 SAILING INSTRUCTIONS**

The Sailing Instructions are posted on the Regatta Network Official Web Site at <http://www.regattanetwork.com/event/23876> , available at the Registration Party and posted on the Bulletin Board as well as on the official web site. The Bulletin Board will be on the North Wall of the Rudder Club until 1400 on 30 April at which time it will shift to the glass entry door of the Quality Inn and Suites Palatka.

**8 COURSES**

The course is contained in the Sailing Instructions.

**9 VENUE**

The racing areas are between the Palatka Bridge and the Buckman Bridge as depicted on the following:  
NOAA 1187 (11492c) and NOAA 11492 a and b.

**10 SCORING**

- 10.1 The Race will be scored using the North American Portsmouth Yardstick, non-wind adjusted (D-PN).
- 10.2 US Portsmouth ratings are available for US Sailing members at <https://www.ussailing.org/competition/offshore/portsmouth-yardstick-table-pre-calculated-classes/>  
When registering on-line, look up your code by clicking on “Lookup Code” to the right of the USSA Portsmouth Code box. Find your boat in resulting drop down menu. This will list your DPN number and your code. Click on the code and your boat type will be entered in your registration.
- 10.3 For boats with no Portsmouth Handicap, a rating will be assigned by the Rudder Club Handicapper based on similarly configured boats and/or an existing time on distance rating.
- 10.4 Boats configured differently than the configuration assumed for the class by the North American Portsmouth Yardstick in assigning a DPN will be adjusted in the case of monohulls in accordance with Table VI – **Optional Allowance Modification Factors** and for Multihulls in accordance with **Modification Factors for Multihulls**.
- 10.5 If five or more boats are entered in a one design class as defined by class rules, they may be scored as a separate division as well as for an overall position.
- 10.6 Boats finishing after sunset 8:09 pm on 7 May will be scored DNF as per direction of the US Coast Guard. Boats crossing the mid-point gate after 6:30 pm on 7 May will likewise be scored DNF. This changes Rule 90.3.

**11 RADIO COMMUNICATION**

- 11.1 While racing, except in an emergency, a boat shall neither make radio transmissions nor respond to radio communications not available to all boats.
- 11.2 This restriction also applies to mobile telephones. Competitors can use mobile phones to contact race committee to drop out or in emergencies. Competitors are strongly urged to have a mobile phone or VHF radio on their boats.
- 11.3 Communication with the Race Committee and support boats shall take place on Marine VHF Channel 78. Boats, where equipped, shall also maintain a listening watch on Channel 16.
- 11.4 DSC boats are encouraged to have an assigned MMSI (Maritime Mobile Service Identity) and a working GPS connected to or integral to their VHF radio. Boats may obtain a free MMSI at <http://www.boatus.com/mmsi/> .

**12 TROPHIES**

The Mug Cup	First boat to finish. (line honors)
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Ed Burroughs Trophy	First Monohull or Multihull to finish on corrected time
Commodore's Trophy	First Rudder Club boat to finish on corrected time
Palatka Chamber of Commerce Trophy	First multihull cruiser to finish on corrected time
Sullivan E. Howard Trophy	First Portsmouth Monohull Fleet boat to finish on corrected time.
Archie Markland Trophy	First Portsmouth Offshore Fleet boat to finish on corrected time
John Saare Trophy	First Multihull Fleet Boat to finish on corrected time.
Bobbie Lee Johnson Trophy	First All-female crewed boat to finish on corrected time.
Youngest Sailor Trophy	First boat to finish on corrected time with person in charge (PIC) and all crew under the age of 19
Colin MacKenzie Trophy	First Putnam County resident to finish (registered PIC) with the shortest overall corrected time.
Corinthian Trophy	Last boat to finish
Sportsman's Trophy	Best sportsman, exemplary race behavior
Class Trophies	Up to five deep, depending on size of class

### 13 DISCLAIMER OF LIABILITY

NOTE: This Quick Response Code when scanned on a smart phone or other scan capable mobile device, will take the user to a specific mobile device structured site on Regatta Network containing information on the Mug Race and the ability to register on-line. It will also contain the latest information on the race status as well as the NOR, the SIs and any changes there to. The actual link to this page is <http://www.regattanetwork.com/event/23876>.



13.1 Sailing is an activity that has an inherent risk of damage and injury. Competitors in this regatta are participating entirely at their own risk. See RRS 3, *Decision to Race*. Completion and submission of a registration form for this regatta constitute an acceptance of and agreement to abide by the Racing Rules of Sailing, this Race Notice and the Sailing Instructions.

### 14 INSURANCE

Each participating boat shall be insured with valid third party liability insurance. This rule is not protestable.

### 15 TRAILERS

The Mug Race is a one-way race. Trailers, vehicles and crew distribution between the two points of the race shall be arranged before setting sail in the race.

### 16 SHUTTLE BUS SCHEDULE

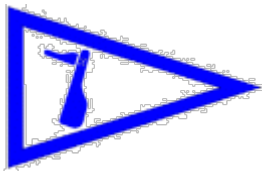
	Rudder Club to Palatka	
<b>Friday,</b> 6 May 2022	Only Bus:	5:30 pm
<b>Saturday</b> 7 May 2022	1st Bus:	5:15 am
	2 <sup>nd</sup> Bus	9:00 pm

### 17 FURTHER INFORMATION

For further information please contact the:

The Rudder Club of Jacksonville, Inc.  
8533 Malaga Avenue Jacksonville, FL 32244  
[www.rudderclub.com](http://www.rudderclub.com)

Email – [raceoffice@rudderclub.com](mailto:raceoffice@rudderclub.com)  
[office@rudderclub.com](mailto:office@rudderclub.com) (904) 264-4094



# SAILING INSTRUCTIONS

## The 68th Mug Race

Organizing Authority - The Rudder Club of Jacksonville  
8533 Malaga Ave.  
Jacksonville, FL 32244 USA  
6 May – 8 May 2022

### 1 RULES

- 1.1 The Regatta will be governed by the rules as defined in *The Racing Rules of Sailing 2021-2024* (RRS).
- 1.2 Rule SI 10.9 changes RRS A4 by providing that a boat starting later than 30 minutes after the starting signal will be scored “Did Not Start” (DNS) without a hearing.
- 1.3 Rule SI 10.7 changes RRS rules 29.1 and 30.1 by providing an alternative to restarting when OCS.
- 1.4 Rule SI 12 Time Limit changes RRS 90.3(a)
- 1.5 Rule SI 13 changes RRS 60 Protests and Requests for Redress by providing for arbitration as set forth in Appendix T Arbitration.
- 1.6 Rule SI 15.15 changes RRS 41 by providing that a boat accepting assistance under RRS Fundamental Rule 1.1 is exempt from the provisions of RRS 41, Outside [Help](#).

**2 NOTICES TO COMPETITORS** Notices to Competitors will be placed on the official web site at <http://www.regattanetwork.com/event/23876> and the notice board located in the registration area of the Quality Inn, Palatka.

**3 CHANGES TO SAILING INSTRUCTIONS**  
Changes to Sailing Instructions will be posted on the Official Web site Bulletin Board, and The Official Mug Race Bulletin Board on the north exterior wall of the Rudder Club. At 2:00 pm 6 May, the Official Bulletin Board shifts to the lobby window of the Quality Inn in Palatka. Changes will be posted there prior to 0630 pm on 6 May.

### 4 SCHEDULE OF RACES

- 4.1 There will be one race.
- 4.2 The scheduled time for the warning signal for the Multihull Fleet is 7:55 am on 7 May 2022. The scheduled time for the warning signal for the Monohull Fleet is 8:05 am on 7 May 2022.
- 4.3 Time will be based on the National Institute of Standards and Technology time as broadcast by radio station WWV in Fort Collins Colorado. These may be accessed by telephone at 303-499-7111, by Internet at <https://time.gov> or by radio. The station radiates at 10,000 Watts on 5, 10, and 15 MHz; and 2500 Watts on 2.5 and 20 MHz

### 5 CLASS FLAGS

The class flag for all competitors will be as follows:

Class		Pennant
Multihull Fleet	P1	
Monohull Fleet	P2	

### 6 RACING AREA

The racing area is between the Memorial (US 17) Bridge in Palatka and the Buckman Bridge as depicted on NOAA charts 11487 and 11492. See attachment A

### 7 COURSE

- 7.1 The course is as depicted in Appendix A to this document.
- 7.2 From the Start Line sail north along the river through the mid-course gate located just south of the Shands Bridge at approximate position N29° 58.9' W81° 37.4' then to finish line located on the east side of river approximately 1/4 mile south of The Buckman Bridge. Approximate position of the finish line is N30° 11.1' W81° 39.7'.

**Note:** All positions are approximate. Rhumb lines between marks do not necessarily provide for safe navigation. Each boat is responsible for its own safe navigation.

### 8 MARKS

The mid-course gate will have a race committee signal boat at the eastern end of the line and an inflated cylinder at the western end.

### 9 AREAS THAT ARE OBSTRUCTIONS

All government navigation markers marking shoal areas and the shoal areas they mark are considered continuing obstructions for boats whose draft requires passing the marks on the channel side. This is not to restrict shoal draft boats from passing shoreward of the marker.

### 10 THE START

- 10.1 The Multihull Fleet warning signal will be at 7:55 am on 7 May. Rule 26 will be in effect, with Code Flag India used as the Preparatory Signal.
- 10.2 The Monohull Fleet warning signal will be at 8:05 am on 7 May. Rule 26 will be in effect, with Code Flag India used as the Preparatory Signal
- 10.3 The starting line shall be between an orange flag on the Signal boat and US Government Red lighted buoy #48, north of the US 17 bridge in Palatka.

- 10.4 Starting flags and sound signals will be displayed from the committee boat at the east end of the starting line.
- 10.5 An automated signal device (Ollie) will be used; its signals will be broadcast on Marine VHF Channel 78. The broadcast and any repeated signals are as an assist.
- 10.6 A boat is “racing” from four minutes prior to its start time.
- 10.7 The “I” flag rule (RRS 30.1) will be in effect except that RRS30.1 is modified as follows. Any boat that is on the course side and within five of her boat lengths of the starting line or its extensions during the last minute before her starting signal may accept a five minute penalty applied to her elapsed time, in lieu of restarting. If she chooses not to accept the alternative penalty or is greater than five of her boat lengths from the starting line on the course side, she shall comply with RRS 30.1. This changes RRS 29.1 and 30.1
- 10.8 Boats should ensure that Mug numbers are clearly displayed to the Committee Boat.
- 10.9 A boat starting later than 30 minutes after the starting signal will be scored did not start (DNS) without a hearing. This changes RRS A4

## 11 THE FINISH

- 11.1 The finish line will be between a staff bearing an Orange Flag on the Signal Boat and an inflated cylinder to its west marking the other end of the line. The site for the finish will be south of the Buckman Bridge on the East side of the channel approximately N30° 11.1’ W081° 39.7’. When finishing, ensure that the boat’s Mug Number is clearly visible to those on the Finish Boat.
- 11.2 The finish line is closed except for boats actually finishing. If you do not hear a horn sounded as you finish, come by the Signal Boat on the non-line side and ensure that they were able to see your number.
- 11.3 Mid-course Gate.
- (a) A mandatory mid-course gate will be set in accordance with SI 7.2. The Race Committee will record the time of all entries passing this line. Times for entrants passing this line will be used to compute class prizes when no entrant of that class finishes within the time limit, even if the entrant is later forced to retire in accordance with SI 12. These times will not be used in the scoring of overall finish positions unless this line is used as a shorten course finish line in accordance with RRS 32.2(c).
- (b) The mid-course gate will be between an orange flag displayed on the Mid Course Signal Boat and an inflated cylinder to her west.
- (c) All boats passing the mid-course gate must display their Mug Number to the Mid-Course Signal Boat.

## 12 TIME LIMIT

Racing ends at 8:09 pm. Boats finishing after that time will be scored Did Not Finish (DNF). Yachts south of the mid-course gate after 6:30 pm are required to retire from the race and will be scored as DNF. This changes RRS 90.3(a).

## 13 PROTESTS AND REQUESTS FOR REDRESS

Protests must be filed at the Rudder Club Race Office. No protest will be accepted after 90 minutes past the race time limit. If you intend to protest, notify the Finish Signal Boat after you have finished and cleared the finish line. Protest hearings will be scheduled as soon as possible and posted on the official notice board at the Rudder Club. Appendix T, **Arbitration** is in effect for this race. Competitors are encouraged to review this rule. Appendix T is a US Sailing Prescription. This changes RRS 60.

## 14 SCORING

The scoring system is Portsmouth North American Yardstick. Ratings will not be wind speed adjusted (D-PN)

## 15 SAFETY REGULATIONS

- 15.1 All boats must sail past the Signal Boat on its non-starting side and check-in prior to starting. Before 7:50 am, boats should pass the signal boat so that their Mug Number is clearly visible to those on the boat and acknowledged.
- 15.2 Rudder Club race support boats will patrol the race course to render assistance in the event of an emergency. Any of the support team members may assist you and you will not be charged or need to worry about vessel salvage rules. It is their commitment to the race to assist boats in danger and to help the boat reach the designated ramp area assigned the sector in which they are sailing. Support boats will emergency tow a boat from danger and only to these designated points. Support boats may display a red and yellow checkered flag to signify their role as support boats. If approached by a support boat, boat shall display their Mug Number placard.
- 15.3 All skippers must notify the Race Committee if they retire from the race. This is a United States Coast Guard Requirement. Violators may be required to pay the cost of any search initiated as a result of their failure to comply with this requirement. The following means are available:
- (a) Rudder Club telephone (904) 264-4094;
  - (b) VHF Channel 78 through any Rudder Club Support Boat.
  - (c) Email to [raceoffice@rudderclub.com](mailto:raceoffice@rudderclub.com)
- 15.4 All boats while racing will display a colored banner from their backstay, starboard shroud or sail plan in that order of preference. This banner shall be removed when the boat is no longer racing. The banners will be provided in the race packet.
- 15.5 All entrants sailing single-handed shall wear a U.S. Coast Guard approved lifejacket while racing. A violation of this requirement is protestable.
- 15.6 After sunset at 8:09 pm, boats still on the race course or in its vicinity must display running lights and proceed in accordance with the Inland Navigation Rules.
- 15.7 All participants are reminded that a vessel under sail may not impede the passage of a vessel that can safely navigate only within a narrow channel or fairway. Tugs pushing barges ahead are frequently encountered in the

- racing area and fit this category and should not be impeded. They must be given ample sea room.
- 15.8 In accordance with RRS 42.3(i), when necessary to avoid impeding the passage of vessel whose passage is not to be impeded under the Inland Rules of Navigation, a boat may use its engine or any other means of propulsion provided it does not gain a significant advantage in the race.
  - 15.9 Likewise in accordance with RRS 42.3(i) a boat may use any other means of self-propulsion provided it does not gain a significant advantage in the race in order to transit under the Shands Bridge. The area where this is permissible is from north of the mid-course gate to two boat lengths north of the Shands Bridge.
  - 15.10 The Racing Rules of Sailing govern the relationship between yachts while racing. These rules do not apply between racing yachts and non-participating vessels or yachts after completing the race and departing the race area. After sunset at 8:09 pm, all boats are in a non-racing status. In above cases, the Inland Navigation Rules apply.
  - 15.11 Participating boats are encouraged to carry on board day and night distress signals. The simple orange rectangle displaying a black ball and circle is suitable for day while flares or star shells are best for night. Signals are required for operating after sunset.
  - 15.12 All boats are to have on board a tow line to be used if the vessel requires towing to the nearest shoreline for the boat's safe removal from the river. Vessels offering an emergency tow are not required to provide a tow line.
  - 15.13 It is the person in charge's (skipper's) responsibility for the logistics, safety and sportsmanship of his crew and boat.
  - 15.14 Each boat will be provided a large number on a placard. This number will be used to record mid-course and finish time and to identify the boat at any time during the race. The boat shall conspicuously display it to the check-in, finish and mid-course line boats as well as to any race support boat that approaches them. It is the boat's responsibility to ensure that the number has been seen by the race support boats in each instance.
  - 15.15 A boat accepting assistance under RRS Fundamental Rule 1.1 is exempt from the provisions of RRS 41, Outside Help. This changes RRS 41.
  - 15.16 All DSC equipped boats are encouraged to have a Mobile Marine Service Identity Number (MMSI) and have a working GPS connected to their VHF DSC equipped Radio. See <http://www.boatus.com/MMSI/>.
  - 15.17 All boats are recommended to have a VHF radio or mobile telephone on board in case of emergency.
  - 15.18 All windsurfers, non-race ready sailing canoes (does not include International racing and other race ready canoes), and small, open, non-self-rescue entries shall provide a dedicated support boat to follow them along the entire course. The support boat shall be equipped with a Marine VHF Radio capable of receiving and transmitting on Channel 78 or a cellular telephone. Support boats shall also be equipped with operable running lights that meet the requirements of the Inland Rules of Navigation. The support boat shall be in accompaniment when the vessel checks in at the starting line and finishes or the entrant will be scored DNS. The cell phone number

and/or the boat's call sign shall be recorded on the registration form.

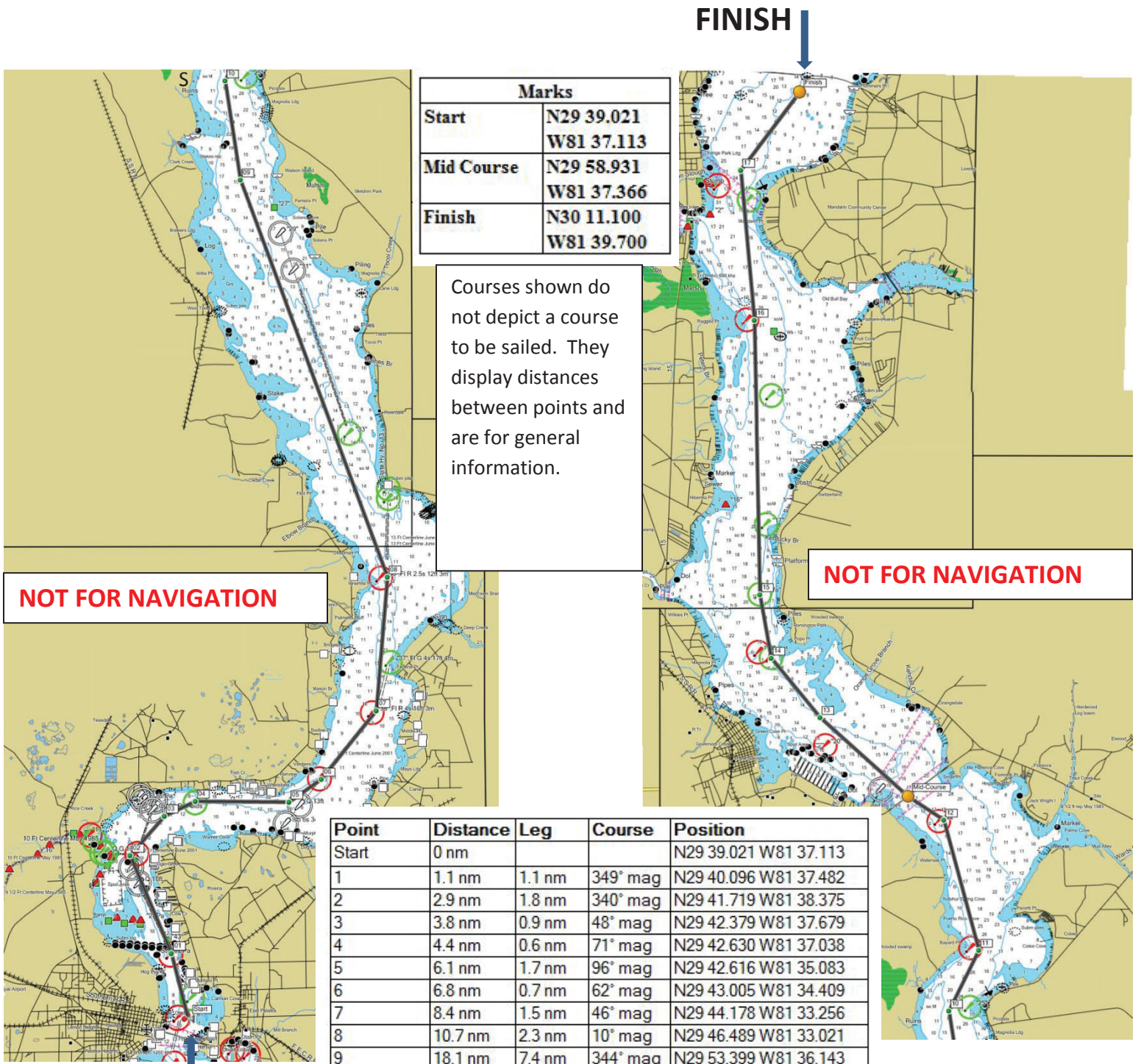
- 15.19 The Florida Fish and Wildlife Conservation Commission provides information on all ramps in Florida on its web site at <https://public.myfwc.com/LE/boatramp/public/default.aspx>.

## **16 PRIZES**

- 16.1 Trophies will be awarded at the awards ceremony at 10:30 am on Sunday 8 May 2022 at The Rudder Club.

# Mug Race 2022 Course Diagram (Sailing Instructions Appendix A)

Caution - Chart is not for navigation. Direction of Travel – Bottom to Top Left Side First



Marks	
<b>Start</b>	N29 39.021 W81 37.113
<b>Mid Course</b>	N29 58.931 W81 37.366
<b>Finish</b>	N30 11.100 W81 39.700

Courses shown do not depict a course to be sailed. They display distances between points and are for general information.

**NOT FOR NAVIGATION**

**NOT FOR NAVIGATION**

Point	Distance	Leg	Course	Position
Start	0 nm			N29 39.021 W81 37.113
1	1.1 nm	1.1 nm	349° mag	N29 40.096 W81 37.482
2	2.9 nm	1.8 nm	340° mag	N29 41.719 W81 38.375
3	3.8 nm	0.9 nm	48° mag	N29 42.379 W81 37.679
4	4.4 nm	0.6 nm	71° mag	N29 42.630 W81 37.038
5	6.1 nm	1.7 nm	96° mag	N29 42.616 W81 35.083
6	6.8 nm	0.7 nm	62° mag	N29 43.005 W81 34.409
7	8.4 nm	1.5 nm	46° mag	N29 44.178 W81 33.256
8	10.7 nm	2.3 nm	10° mag	N29 46.489 W81 33.021
9	18.1 nm	7.4 nm	344° mag	N29 53.399 W81 36.143
10	19.9 nm	1.8 nm	356° mag	N29 55.166 W81 36.484
11	21.1 nm	1.2 nm	33° mag	N29 56.234 W81 35.850
12	23.5 nm	2.4 nm	349° mag	N29 58.522 W81 36.606
Mid-Course	24.3 nm	0.8 nm	307° mag	N29 58.931 W81 37.366
13	26.4 nm	2.1 nm	316° mag	N30 00.319 W81 39.243
14	27.8 nm	1.4 nm	324° mag	N30 01.353 W81 40.280
15	28.9 nm	1.1 nm	355° mag	N30 02.460 W81 40.522
16	33.7 nm	4.8 nm	4° mag	N30 07.234 W81 40.639
17	36.3 nm	2.6 nm	0° mag	N30 09.779 W81 40.920
Finish	38.0 nm	1.7 nm	44° mag	N30 11.100 W81 39.700

**START**