### Southern Straits Race – 2023

Weather, Tactics, Race Prep, & Safety Tech Talk



#### The Early Years

Inaugural Race was in 1969

Only a Long Course Initially

First 3 years were all heavy air races

Lots of small boats sometimes spent two nights racing





#### West Vancouver Yacht Club 53rd Annual



### Long Course Legs - Bearing & Range

#### SS Long 2023

Mark		Latitude	Longitude	Bearing	Range nm
SS Start		49 19.847n	123 10.950w		
Bowen Island Offset	S	49 19.516n	123 21.663w	251	7.00
Halibut Bank	Ρ	49 20.413n	123 43.626w	258	14.37
GS ODASS	Ρ	49 1.538n	123 25.675w	132	22.26
Halibut Bank		49 20.413n	123 43.626w	312	22.26
Sangster Offset	S	49 25.637n	124 15.235w	268	21.27
Sisters Island N	Ρ	49 29.392n	124 26.241w	282	8.09
Sisters Island S	Ρ	49 29.187n	124 26.475w	200	0.26
Entrance 1	Ρ	49 12.403n	123 49.133w	108	29.61
Entrance 2	Ρ	49 12.312n	123 48.766w	095	0.26
Finish Outer Mark		49 19.521n	123 15.880w	055	22.68

### Currents & Tides – Friday, April 7th



### Currents & Tides – Saturday, April 8th

••	Tidal	Heights at C	Point Atkinso olumbia	on, British	<b>))</b>
• s	aturday, J	April 8 2023 (	Ĵ	49°20.2'N123°15.2'W	Mep
	Apr 8 1:31 PDT	Point Atki Apr 8 7:00 PDT	nson, British Columbia Apr 8 13:59 PDT	Apr 8 20:57 PDT	Apr 2:10 f
18 ft—					
16 ft—					
14 ft—					
12 ft—					
10 ft-					
8 ft—					
6 ft—					
4 ft-					
2 ft—					
onrise 6 PDT 2 23		Moonset 7:34 PDT 5 6 7 8 9 10	11 12 13 14 15 16 17 1	Moonris 23:27 PC .8 19 20 21 22 23 0	e DT 1 2





Sketches & Notes from Paul J. Vanderwood













#### Max Flood





#### Approaching Slack





#### Slack Tide





#### **Building Ebb**





#### Max Ebb















### Qualicum Winds – Pat Wong, Environment CA



### Qualicum Winds – Pat Wong, Environment CA

- Typically occur as part of the daily pattern on the Strait of Georgia in the Spring/Summer
- Occur when a large ridge of high pressure lies to the west of Vancouver Island or just after a front has crossed the area as a ridge of higher pressure builds to the west of Vancouver Island.
- Winds are pushed into Barclay Sound and up the Alberni Inlet. The strong winds push across Horne Lake and out onto the Strait of Georgia near Qualicum Beach.
- Typically have a fairly sharp edge. TWS can go from light winds outside the plume to 25 to 30 kts within the plume.
- Typically form late in the day and ease off overnight



### Qualicum Winds – Pat Wong, Environment CA

» Lightstations Reports » US Marine Weather

Internet

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Legend: 
 Buoy 
 Land Station

🚰 Pacific - Georgia Basin - Weather Conditions - Environment Canada - Microsoft Internet Explorer

Listen for winds from autostation at Sisters Islet & Ballenas Island & Lightstation on Chrome Island

FAQ Links

File Edit

C Back

Address











#### **Straits 2023 Rules**





#### Alternate Penalty





#### RRS Appendix TS, Version 2 Section A

#### TS1 Rule 56.2 is changed to:

- 56.2 (a) A Traffic Separation Scheme (TSS) shall be understood to mean an area shown on a nautical chart, or in the notice of race, as a TSS.
  - (b) A boat shall not impede, or present a threat of impeding, the safe passage of a power-driven vessel in a TSS traffic lane.
  - (c) If a commercial, government, or naval power-driven vessel in a traffic lane makes five short and rapid blasts on her whistle (a danger signal, see IRPCAS rule 34(d)) and the boat causing the danger signal can be identified, then the boat is subject to protest under rule 56.2(b).
  - (d) If an official complaint/action is lodged against a boat by a commercial, government, or naval power-driven vessel, by a pilot, by vessel traffic service (VTS), or by other local government authority, it shall be presumed that the boat has broken rule 56.2(b).
  - (e) The race committee will cooperate with and provide relevant information to VTS and other governmental authorities regarding investigations of boats impeding a power-driven vessel



# Rules At Night





West Vancouver Yacht Club

# At Night

Southern Straits 2023 NOR

1.9

Appendix RV, Reduced Visibility: The navigation rules of RRS Appendix RV, Reduced Visibility shall replace RRS Part 2 between sunset and sunrise or other periods of reduced visibility. On Friday April 7, 2023 sunset will be 1952 hours. On Saturday April 8, 2023 sunrise will be 0635 hours and sunset will be 1754 hours.



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Southern Straits 2023 NOR

1.9

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#### **Modification 1**

RV1.1 The definition *Keep Clear* is changed to:

**Keep Clear** A boat **keeps clear** of a right-of-way boat if the right-of-way boat can sail her course with no need to take avoiding action and with no less than 40 metres between the boats.



#### **Modification 1**





RV2.1 Rule 17 is changed to:

17 ON THE SAME TACK; PROPER COURSE

17.1 A *leeward* boat shall not sail above her *proper course* while she is within 80 metres of the *windward* boat.

17.2 When boats on the same *tack* are within 80 metres of each other, a boat being **overtaken** shall sail her **proper course** until the **overtaking** boat becomes overlapped with her.

17.3 If there is reasonable doubt that a boat is *overtaking* another boat, it shall be presumed that she is.



West Vancouver Yacht Club





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RV1.5 The definition *Zone* is changed to:

**Zone** The area around a *mark* within a distance of 200 metres of it. A boat is in the *zone* when any part of her hull is in the *zone*.









# 3 takeaways

#### 1. Stay at least 40m from other boats



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2. When on the same tack, **Overtaken Boats** and **Leeward boats** can go no higher than **Proper Course**.



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3. The Mark Zone is 200m.



#### Race Preparation – Understanding the Weather Outlook

"OSR 1.02 The safety of a boat and her crew is the sole and inescapable responsibility of the Person in Charge who shall do his best to ensure that the boat is fully found, thoroughly seaworthy, and manned by an experienced and appropriately trained crew who are physically fit to face bad weather."

Person in Charge has a fundamental responsibility under OSR 1.02 to be aware of the risks a weather forecast may pose on the crew (before and during a race) and to make appropriate decisions to protect crew and craft

The 2010 Straits Race is an instructive case study to appreciate why studying NE Pacific Ocean weather in the days leading up to the start day is so important for the Person in Charge



A strong <u>zonal</u> upper air flow – over 100 knots of airspeed in places

Rule of thumb: surface lows and fronts will travel at 33% to 50% of 500mb wind speed (approx. 35 to 50 knots)

1700 hrs – April 1st





1000 hrs – April 1st

1600 hrs – April 1st





2200 hrs – April 1st

0400 hrs – April 2nd





1000 hrs – April 2nd

1600 hrs – April 2nd



A weather 'bomb' or 'bombogenesis' in meteorological terms is defined as a low pressure system that experiences a drop of 24mb in 24 hours

From 2300hrs on April 1<sup>st</sup> until 1100 hrs on April 2<sup>nd</sup> Georgia Strait experienced a 22 – 24 mb drop in 12 hours!

- The centre of the fast moving low that crossed northern Vancouver Island on April 2<sup>nd</sup> dropped 30 mb and travelled 1,000 miles in 24 hours!
- Environment Canada posted a <u>gale</u> warning the evening before and the morning of race (34 to 47 knots) and raised it to a <u>storm</u> warning mid-day (48 to 62 knots)

# Offshore Personal Survival Course training reminder:

- Wind speed forecasts are <u>'sustained</u>' wind speed averages over 10 minutes
- ➤Gusts can be <u>40% higher</u> than the sustained average
- ➢As wind speed <u>doubles</u>, wind force <u>quadruples</u>

Wind Speed		Force	Factor on 17		
MPH	Knots	Lbs/sq.ft.	knots		
20	17	1.6			
30	26	3.6	x 2.25		
40	35	6.4	x 4.0		
45	39	8.1	x 5.0		

What decision will you make if faced with the same forecast information this year? Here's three perspectives:

Experienced offshore skipper who decided to <u>not start</u> in 2010

Experienced offshore skipper who decided to <u>continue racing</u> until race was abandoned

SAR capabilities/risk perspective



#### **Summary Comments:**

➢ Person in Charge is responsible for crew, craft, and mission

- Person in Charge should exercise due diligence on weather forecast and conditions to decide whether or not to race, or continue to race if conditions worsen
- ➢ Each boat needs to make their own unique decision experience and fitness of crew, capability of boat (design, sails, equipment), and risks to SAR capabilities
- ➢Any one forecast may prove to be inaccurate seek multiple forecast sources, lightstation report trends, numerical model projections, and/or barometric pressure trends when considering a decision

### Safety Lessons from 2010 Straits Race

- Mains should have a second deep reef and carry a proper storm jib
- Inflatable life vests should have spare cartridges and always use crotch straps
- Securely store and tie down all ship's equipment and post location chart
- Secure intake hose of bilge pump so it remains under water if flooded
- Clean fuel tank & maintain fuel filters
- Practice MOB procedures and how to deploy life sling
- Plan safe harbours you can run to and have paper charts available
- If in doubt about a competitor's situation, stop racing and investigate
- Reduce sail early and suspend racing if conditions beyond ability of crew
- Stay tethered to boat
- Secure hatch boards in position and tether to boat
- Have bolt cutters and/or mini-grinder with disk to cut rigging if dismasted

# Weather Tip #1: One week out, start studying and recording what's happening offshore using the Northeast Pacific Briefing Package <a href="https://ocean.weather.gov/Pac">https://ocean.weather.gov/Pac</a> tab.php





#### Weather Tip #2: On Thursday, April 6<sup>th</sup>, read Bruce's Brief posted on www.sailish.com – excellent synopsis and analysis on the weekend's marine forecast for the Salish Sea

#### Bruce's Brief for Southern Straits 2019

#### 🝃 Bruce's Briefs, Racing & Bruce Hedrick

M April 18, 2019 D Comment



As you undoubtedly noticed, we had the remains of a weak frontal system move over the area today and it will continue to move inland overnight. As it does, it will continue to weaken and behind the front, a weak ridge of high pressure will start to build along the coastal waters producing an onshore flow. Since the frontal system is weak and the high building along the coast is weak, the timing of these events is not well-defined.

The satellite picture and the Sea/Tac Doppler Radar give us a nice view of the current situation.



Weather Tip #3: Three days out, start studying and recording what's happening at the 'mesoscale' level – first source is University of Western Washington 4/3 km GFS Meteograms for YVR and Comox

https://a.atmos.washington.edu/mm5rt/rt/meteograms d4.cgi?GFS+2022030812



# Weather Tip #3 (cont'd): Three days out, start studying and recording what's happening at the 'mesoscale' level – 4/3 km GFS Meteograms for YVR and Comox

#### PacNW WRF-GFS 4/3 km Forecast Meteograms Initialization Time: 2022022712 UTC | 04:00 PST Sun 27 Feb 2022

 Location:
 Vancouver,BC 49.18N,123.17W
 Select a New Location, Domain, or Product

 Domain:
 4/3 km
 Loop all 4/3 km Meteograms

 Left:
 Forecast Hour 0 04:00 PST Sun 27 Feb 2022
 Run-independent link (always shows latest available version)

 Right:
 Forecast Hour 72 04:00 PST Wed 2 Mar 2022

#### PacNW WRF-GFS 4/3 km Forecast Meteograms Initialization Time: 2022022712 UTC | 04:00 PST Sun 27 Feb 2022

Location:	Comox,BC 49.72N,124.9W	Select a New Location, Domain, or Product
Domain:	4/3 km	Loop all 4/3 km Meteograms
Left:	Forecast Hour 0 04:00 PST Sun 27 Feb 2022	Run-independent link (always shows latest available version)
Right:	Forecast Hour 72 04:00 PST Wed 2 Mar 2022	



\* Note: times shown are UTC – subtract 7 hours for Pacific Daylight Time

Weather Tip #4: Three days out, start studying and recording what's happening at the 'mesoscale' level – second source is University of British Columbia Ensemble Meteograms at UBC ESB Rooftop (2 and 7 day forecasts available)

#### https://weather.eos.ubc.ca/wxfcst/



#### Weather Tip #5: Two days before race, start monitoring Environment Canada regular and extended forecasts

knots

Strait of Georgia - north of Nanaimo				
	GALE WARNING IN EFFECT			
orecast Weather Condit	ions Ice Conditions Warnings Synopsis			
Winds	Tonight and Monday.	Extended Forecast		
Issued 04:00 PM PST 27       Gale warning in effect.         February 2022       Wind southeast 15 to 25 knots increasing to southeast 25 to 35 early Monday morning then diminishing to south 15 to 25 Monday evening.         Image: Strong wind warning program has ended for the season.       Strong wind warning program has ended for the season.		Issued 04:00 PM PST 27 February 2022 <b>Tuesday</b> Wind southeast 15 to 25 knots diminishing to		
Weather & Visibility		southeast 5 to 15 late in the day.		
Issued 04:00 PM PST 27	Tonight and Monday.	Wednesday		
February 2022	Showers changing to rain overnight and ending Monday afternoon.	Wind southeast 5 to 15 knots becoming northwest 10 to 15.		
		Thursday Wind northwest 10 to 20		

#### Strait of Georgia - North of Nanaimo

#### FORECAST ISSUE TIMES:

Technical Marine Synopsis: 0400, 1030, 1600, 2130 hrs

Regular Forecast: 0400, 1030, 1600, 2130 hrs

Extended Forecast: 0400, 1600 hrs

#### Marine Forecasts for the Pacific waters

#### Choose a Province or Territory

BC MB NB NL NS NT NU ON PE QC SK

#### \* NOTE: Corrected and/or amended bulletins are listed first \*

#### FQCN13 CWVR 011830

Marine forecasts for Pacific waters issued by Environment Canada at 10:30 a.m. PST Tuesday 1 March 2022 for today tonight and Wednesday. The next scheduled forecast will be issued at 4:00 p.m. PST.

Fog implies visibility less than 1 mile.

Strait of Georgia - north of Nanaimo. Wind southeast 15 to 25 knots becoming southeast 15 to 20 early

Wednesday morning then diminishing to southeast 10 to 15 Wednesday evening. Showers.

#### Strait of Georgia - south of Nanaimo.

Wind southeast 10 to 15 knots increasing to southeast 15 to 20 this afternoon then diminishing to southeast 10 to 15 this evening except southeast 15 to 20 near Vancouver Island tonight. Wind diminishing to light Wednesday afternoon. Showers.

#### **Marine Text Forecasts**

# Weather Tip #5: Two days before race, start monitoring Environment Canada weather station reports

Strait of Georgia - north of Nanaimo					
Forecast         Weather Conditions         Ice Conditions         Warnings         Synopsis					
Current Conditions Past 24 Hour	r Conditions Regional Sun	nmary			
Buoys [Land Stations]					
This table is a summary of weather conditions from buoys in a marine area. Please note that these observations might not always be representative of weather conditions over their associated marine area.					
Wind (knots)	Wave height (m)	Wave period (s)	Pressure (kPa)	Air temp (°C)	Water temp (°C)
East Dellwood - 46207 02:00 PM PST 01 March 2022					
S 19 gust 23	2.9	10.7	100.6	8	7
Georgia Strait - 46303 02:00 PM PST 01 March 2022					
ENE 10 gust 13	0.3	2.5	101.6	9	7
Halibut Bank - 46146 02:00 PM PST 01 March 2022					
E 13 gust 15	N/A	2.9	101.6	9	7

#### **Regional Summary**

- Select "Weather Conditions"
- Select a light station
- Select "Regional Summary"

#### Georgia Strait & Juan de Fuca Strait

#### Issued at 17:40 UTC 13 March 2022

CHROME	CLDY 15 E05E RPLD
MERRY	OVC 10L- SE04E RPLD
ENTRANCE	OVC 12 EØ4E RPLD
TSAWWASSEN	OVC 10 S07E RPLD
TRIAL IS	CLDY 14 NE10E 1FT CHP
SUPPLEMENTARY	WEATHER INFORMATION
MERRY	1740 CLD EST 5 FEW 10 BKN 20 OVC 07/07

#### Lightstation Reports - Decode Information

#### Light Station Reports

- Select "Weather Conditions"
- Select "Lightstation Reports"

#### Bonus Weather Tip for Hawaii Race Navigators: Download one or more numerical model (grib) files in Expedition and run an optimal routing using your boat's polars



Pacific Daylight Time	Mark	Sail	Twd°M	Tws	Twa	Targ	Bsp
24-Mar-23 01:11		A2	193	12.4	139	162	6.9
24-Mar-23 01:20		A2	190	12.3	136	162	7.0
24-Mar-23 01:29		A2	186	11.7	132	158	7.0
24-Mar-23 01:38		A2	176	10.2	130	150	6.7
24-Mar-23 01:48		A2	153	7.6	115	143	6.3
24-Mar-23 01:59	Finish Outer Mark	A3	109	6.9	73	044	5.9

Name	G 1nm TG 12:14:24
Route distance	97.62nm
Optimal distance	102.42nm
Optimal route time	15h 28m 39s
Motoring time	00s
Motoring fuel	0 litres
Created	23-Mar-23 12:14:24
Sail chart	Longboard Sail Chart 2019
Polar	J109

### Thursday evening - check online for Bruce's Brief: <u>www.sailish.com</u>

### Will also be presented at Skipper's Meeting

# Questions?