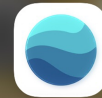


ADVANCED PASSAGE PLANNING FOR BC WATERS



PredictWind



PredictCurrent



Windy



Boating



iNavX



Aqua Map



WEEK 2: ELECTRONIC PLANNING (GARMIN BOATING & ORCA)

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QUESTIONS FROM
LAST WEEKS
SESSION?

Have
questions?
Ask.



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VIDEO TUTORIALS COMING SOON.....



ADDITIONAL ELECTRONIC CHART DETAILS



- CHS Move to Electronic Charts:
 - Moving from Raster Charts to ENC's (Electronic Navigational Charts)
 - Part of the Global Navigation Satellite System (GNSS) - CHARTS IN S-57 FORMAT
- In 2025 launched S-100 Sea Trials on St. Laurence River.
 - The S-100 Universal Hydrographic Data Model is a universal set of guidelines and definitions for designing and maintaining hydrographic products and services.
 - Developed by the International Hydrographic Organization (IHO)

ONLY S-57 CHARTS - NOT S-67



b) Manufacturers licensed to use CHS charts or data in value-added digital products

This is a list of manufacturers who have been licensed to use CHS charts or data in their derived digital products. Digital products created by these manufacturers **do not** meet the chart carriage requirements of the *Navigation Safety Regulations, 2020* under the *Canada Shipping Act, 2001*. However, digital products created by these manufacturers do comply with the *Copyright Act*.

i.e. Garmin, Cmap, NavX, Orca, Savvy Navvy, etc

a) CHS Official chart products

This is a list of electronic charts **which meet** the chart carriage requirements of the *Navigation Safety Regulations, 2020* under the *Canada Shipping Act, 2001* and the *Copyright Act*.

Producer	Products
Canadian Hydrographic Service (CHS)	Canadian Hydrographic Service digital charts (Raster Navigational Charts (RNC) in the BSB format) and Electronic Navigational Charts (ENC) in the S-57 v3.1 format). For a complete list of the CHS official chart products, please visit: Chart Index
United Kingdom Hydrographic Office (UKHO), Taunton, UK	Admiralty Raster Chart Service (ARCS). Specific charts in raster format adopted by the UKHO by arrangement with CHS. Agreement # 2025-0210-1260-U.

<https://www.charts.gc.ca/copyright-droitdauteur/manufacturers-fabricants-eng.html>

LOCAL KNOWLEDGE - “INTIMATE”



Exception — less than 100 gross tonnage

(3) Subsection (1) does not apply in the case of a vessel of less than 100 gross tonnage, if the person in charge of navigation has sufficient knowledge of the following about where the vessel is to be navigated such that the safety and efficiency of navigation in that area will not be compromised:

(a) the location and character of charted

(i) shipping routes,

(ii) lights, buoys and marks, and

(iii) navigational hazards; and

(b) the prevailing navigational conditions, taking into account such factors as tides, currents, and ice and weather patterns.

TONIGHT'S SESSION



The graphic for the session includes the CanBoat NautiSavoir Nanaimo and LATITUDE SAILING logos at the top left. The main title is 'ADVANCED PASSAGE PLANNING FOR BC WATERS'. Below this is a collage of images: a person writing on a map, a scenic view of a lake and mountains, and a grid of app icons including PredictWind, PredictCurrent, Windy, Garmin Boating, iNavX, and Aqua Map. At the bottom, it says 'LIVE STREAMING' with a play button icon, 'WEEK 2: ELECTRONIC PLANNING (GARMIN BOATING & ORCA)', and the website 'www.CanBoat-Nanaimo.ca'.

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TONIGHTS SESSION



- Completion of Step 1
- Steps 2 & 3 of Preliminary Planning
- Electronic Navigation Tools
 - Garmin Boating (Navionics)
 - Orca

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WE HAVE COME
A LONG WAY IN
NAVIGATION
SAFETY!

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**PRELIMINARY
PLANNING (CONTINUED)**

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PRELIMINARY PLANNING STEPS



- **STEP 1:** Rough Plan for Each Day/ Whole Trip (Covered Session 1)
- **STEP 2:** Detailed Plan for Each Day
- **STEP 3:** Pre-Departure Check

INTERMEDIATE TIDAL CALCULATION



- Rule of Twelfths for estimating intermediate tidal height
 - **1st hour** ($1/12$ of total range - **8.3%**)
 - **2nd hour** ($2/12 + 1/12$ of total range - **25%**)
 - **3rd hour** ($3/12 + 2/12 + 1/12$ of total range - **50%**)
 - **4th hour** ($3/12 + 3/12 + 2/12 + 1/12$ of total range - **75%**)
 - **5th hour** ($2/12 + 3/12 + 3/12 + 2/12 + 1/12$ of total range - **91.7%**)
 - **6th hour** ($1/12 + 2/12 + 3/12 + 3/12 + 2/12 + 1/12$ of total range - **100%**)

INTERMEDIATE CURRENT CALCULATION



- “Rule of Thirds” for estimating current between slack water
 - Hour ZERO - 0% of max speed (Slack Water)
 - End of 1st hour - 50% of max speed
 - End of 2nd hour - 90% of max speed
 - End of 3rd hour - 100% of max speed
 - End of 4th hour - 90% of max speed
 - End of 5th hour - 50% of max speed
 - End of 6th hour - 0% of max speed (Slack Water)

DODD NARROWS EXAMPLE



March				2026				April				115
SP	SL	SLK	MAX	SP	SL	SLK	MAX	SP	SL	SLK	MAX	
01	07:50	07:50	+6.1	16	12:12a	-6.1	01	07:50	07:50	+6.1	16	12:12a -6.1
02	07:50	07:50	+6.1	17	01:00a	-5.9	02	07:50	07:50	+6.1	17	01:00a -5.9
03	07:50	07:50	+6.1	18	01:50a	-5.7	03	07:50	07:50	+6.1	18	01:50a -5.7
04	07:50	07:50	+6.1	19	02:40a	-5.5	04	07:50	07:50	+6.1	19	02:40a -5.5
05	07:50	07:50	+6.1	20	03:30a	-5.3	05	07:50	07:50	+6.1	20	03:30a -5.3
06	07:50	07:50	+6.1	21	04:20a	-5.1	06	07:50	07:50	+6.1	21	04:20a -5.1
07	07:50	07:50	+6.1	22	05:10a	-4.9	07	07:50	07:50	+6.1	22	05:10a -4.9
08	07:50	07:50	+6.1	23	06:00a	-4.7	08	07:50	07:50	+6.1	23	06:00a -4.7
09	07:50	07:50	+6.1	24	06:50a	-4.5	09	07:50	07:50	+6.1	24	06:50a -4.5
10	07:50	07:50	+6.1	25	07:40a	-4.3	10	07:50	07:50	+6.1	25	07:40a -4.3
11	07:50	07:50	+6.1	26	08:30a	-4.1	11	07:50	07:50	+6.1	26	08:30a -4.1
12	07:50	07:50	+6.1	27	09:20a	-3.9	12	07:50	07:50	+6.1	27	09:20a -3.9
13	07:50	07:50	+6.1	28	10:10a	-3.7	13	07:50	07:50	+6.1	28	10:10a -3.7
14	07:50	07:50	+6.1	29	11:00a	-3.5	14	07:50	07:50	+6.1	29	11:00a -3.5
15	07:50	07:50	+6.1	30	11:50a	-3.3	15	07:50	07:50	+6.1	30	11:50a -3.3
Sun	07:50	07:50	+6.1	31	12:40a	-3.1	16	07:50	07:50	+6.1	31	12:40a -3.1

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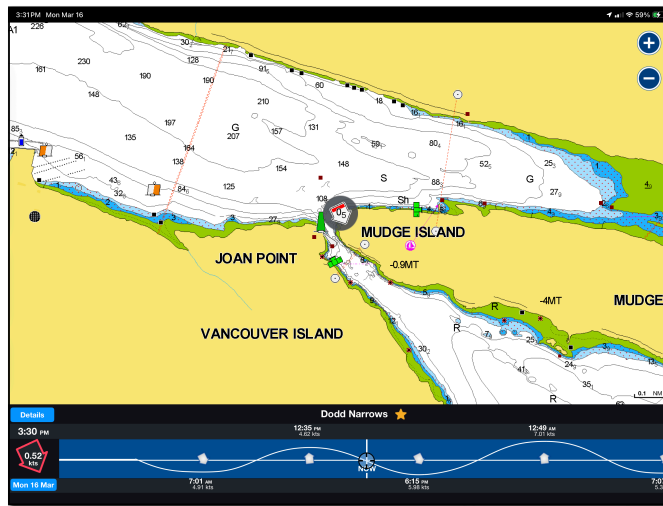
12 07:50 07:50 +6.1

13 07:50 07:50 +6.1

14 07:50 07:50 +6.

ch	DAY	SLK	MAX	F/E
16	Mon	3:32a	12:12a	+6.5
		9:50a	6:45a	-5.2
		3:19p	12:28p	+4.7
		9:27p	6:19p	-6.3
17	Tue		12:44a	+6.9
		4:02a	7:19a	-5.7
		10:22a	12:59p	+5.6
		4:00p	7:00p	-6.8
		10:12p		

NAVIONICS - DODD NARROWS



PRELIMINARY PLANNING – STEP 2



STEP 2: DETAILED PLAN FOR EACH DAY

- Tidal Considerations and Current Considerations
- Rough Plan of Path (using electronic planning tools or manually)
- Compass Headings and Conversions
- Speed, Distance, Time



VESSEL COMPASS CARD

- All vessels should have a compass deviation card on board
- Created by 'swinging the compass'
- Needs to be updated anytime electronic or other metallic items are installed near compass.



LATITUDE ATTITUDE
COMPASS DEVIATION CARD
Calculated June 29, 2024

Magnetic	Compass	Magnetic	Compass
0° / 360°	358°	180°	178°
10°	11°	190°	192°
20°	21°	200°	202°
30°	29°	210°	215°
40°	36°	220°	230°
50°	45°	230°	239°
60°	54°	240°	244°
70°	65°	250°	260°
80°	74°	260°	271°
90°	83°	270°	281°
100°	92°	280°	290°
110°	103°	290°	298°
120°	112°	300°	309°
130°	122°	310°	317°
140°	134°	320°	325°
150°	145°	330°	332°
160°	158°	340°	342°
170°	168°	350°	350°



**“COMPARE PROGRESS EN-ROUTE WITH
PLANNED TIMING TO DETERMINE
IMPACT OF WEATHER, CURRENT,
VESSEL, ETC. TO ADJUST AS
NECESSARY.**



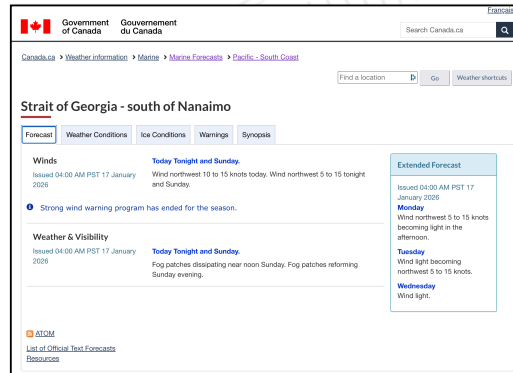
PRELIMINARY PLANNING – STEP 3



STEP 3 - PRE-DEPARTURE CHECK - WEATHER

<https://weather.gc.ca/marine/>

- Weather Check
 - Forecast
 - Buoy's or land status
 - Recorded
- 604-664-9011



STEP 3 - PRE-DEPARTURE CHECK - WEATHER

Telephone and Weatheradio Information

Sites with marine information are in **bold**

City and Vicinity	Telephone number	Weatheradio Frequency
Abbotsford	1-604-556-3146	
Campbell River	1-250-286-3575	
Castlegar	1-250-365-3131	162.550 MHz
Chilliwack	1-604-858-9427	162.400 MHz
Comox	1-250-339-9861	
Cranbrook	1-250-426-1994	162.400 MHz
Crawford Bay		162.425 MHz
Dawson Creek	1-250-784-2244	
Fort Nelson	1-250-774-6461	99.3 MHz & 163.550 MHz
Fort St. John	1-250-785-7669	162.475 MHz
Gold River	1-250-283-7498	
Hope	1-604-869-5765	
Kamloops	1-250-785-7669	101.9 MHz & 162.400 MHz
Kelowna	1-250-470-5155	162.550 MHz
Kitimat	1-250-632-7864	
Masset		162.425 MHz
Mackenzie	1-250-997-5952	
Nanaimo	1-250-245-8899	
Nanaimo alternate	1-250-245-8877	
Nelson	1-250-352-1858	
Penticton	1-250-492-6991	162.475 MHz
Port Alberni	1-250-723-1333	162.525 MHz
Port Hardy	1-250-949-7147	103.7 MHz & 162.525 MHz
Prince George	1-250-561-6912	162.400 MHz
Prince Rupert	1-250-627-1155	162.525 MHz
Quesnel	1-250-889-1599	

Speak to a Marine Meteorologist

- ▶ 5 am to 9 pm Weekdays
- ▶ 6 am to 6 pm Weekend & Holidays
- ▶ 1-844-505-2525



STEP 3 - PRE-DEPARTURE CHECK - RADIO



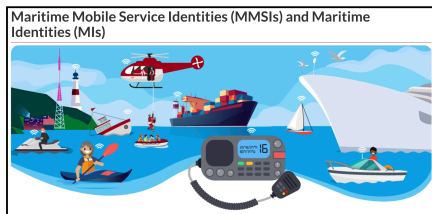
- DSC VHF
 - DSC - Digital Selective Calling
- Assigned unique 9-digit number to vessel or station - BELONGS TO VESSEL - programmed into radio
- MMSI - Maritime Mobile Service Identity (MMSI)
- MI - Maritime Identity for handheld VHF-DSC (MI)



STEP 3 - PRE-DEPARTURE CHECK - RADIO



- MMSI and MI
- Obtained from Innovation, Science and Economic Development Canada - search for "MMSI or MI application Canada"



Maritime Mobile Service Identity (MMSI)		Maritime Identity (MI)	
		Consists of 9 digits	
Canadian vessels	316xxxxxx		
Group call	0316xxxxx	Preceded by 8	83169876P
Shore stations	00316xxxx		
MUST BE PROGRAMMED INTO YOUR RADIO			

"LATITUDE ATTITUDE"



- MMSI: 316011031
- Call Sign: CFA3690
- Lyle MI: 831604212



STEP 3 - PRE-DEPARTURE CHECK - RADIO

- Victoria Coast Guard Radio Check - Regular and DSC
 - 83A
 - 003160011
- Whiskey Gulf - Winchelsea Control
 - 10
 - 003160184

VHF	FUNCTION	MMSI/MI	VHF	FUNCTION	MMSI/MI
04	RCM-SAR		68	Recreational Vessels - Internship (West Coast Vancouver Island Default)	
06	InterShip for Safety Messages		69	Recreational Vessel - Internship	
08	Recreational Vessels		70	Digital Selective Calling - NO VOICE COMMUNICATIONS	
09	Commercial Vessels - Internship		71	Comex Commercial Traffic Control	
10	Winchelsea Control	003160184	72	Recreational Vessels - Internship	
11	Victoria Coast Guard (Maritime Control Traffic Service)		73	Recreational Vessels - Internship	
12	Vancouver Commercial Control		74	Vancouver Traffic and Ship Movement	
14	Vancouver Port and Pilot Operations		77	Tugs and Large Vessel Pilots	
16	DISTRESS, URGENCY, SAFETY, & CALLING		78A	Commercial Fishing Boats	
18A	Johnson Street Bridge Victoria	PH (250-385-5717)	83A	Canadian Coast Guard Working Channel - All repeater towers	
22A	US Coast Guard Working Channel		84	Canadian Coast Guard Working Channel	
26	Canadian Coast Guard Working Channel - non Distress or Urgency	003160011	87	Recreational Vessels - Internship	
66A	Marina Contacts in Southern BC (Max 1 Watt)			Prince Rupert Coast Guard Radio Station	003160013
67	Recreational Vessels - Internship & Safety Messages				



STEP 3 - PRE-DEPARTURE CHECK - EMERGENCY

- EPIRB, PLB, & MOB
 - EPIRB - Emergency Position Indicating Radio Beacon
 - PLB - Personal Locator Beacon
 - Uses satellite positioning and transmits emergency signal
 - MOB uses AIS and/or DSC for close response



STEP 3 - PRE-DEPARTURE CHECK - EMERGENCY

- LATEST TECHNOLOGY
 - **ACR 2933 ResQLink AIS PLB or Ocean Signal RescueME PLB3**
 - Automatic Identification System (AIS) functionality, Return Link Service (RLS), and Near Field Communication (NFC)
 - Transmits homing signal to guide Search and Rescue services when on scene
 - AIS Transmits an AIS Safety Message or MOB Alarm with

the Beacon MMSI and location on any AIS Screen

- NFC capabilities allows users to access beacon data from mobile phones
- Return Link Service lets you know that their distress signal has been received and their location detected by Coast Guard
- Designed to install within an inflatable life jacket and activate upon inflation of the jacket (semi-automatic)



ELECTRONIC NAVIGATION OPTIONS

ELECTRONIC NAVIGATION TOOLS

- Chartplotter Proprietary Tools:
 - i.e. Raymarine Lighthouse on Axiom; Simrad CMAP
 - Many can use other tools such as Garmin Boating (Navionics)
- Other options:
 - Garmin Boating (Navionics), Orca, Aqua Map, Savvy Navvy, C-Map, OpenCPN, Wavve Boating, iBoating, iNavX, Argo, etc

ELECTRONIC NAVIGATION TOOLS - GENERAL



- Garmin Boating (Navionics) - highly detailed, frequently updated charts - adds sonar details
- Orca - stand alone or hardware connection
- Aqua Map - Accurate detailed charts especially USA/Canada
- Savvy Navvy - Google Maps for boats
- iNavX - great for US charts and waters - FREE or international charts

“THE KEY WITH ANY NAVIGATION APP / CHARTS IS THEY NEED TO HAVE AN ACTIVE SUBSCRIPTION AND BE UPDATED BEFORE YOU LEAVE THE DOCK!”



ELECTRONIC NAVIGATION TOOLS - PRICING



	Annual Updates	Discount
Garmin Boating	• US & Canada - \$79.99 CAD / year • Navionics+ Canada - \$199.95 CAD / year	
Orca	• App - FREE • Offline Charts - \$219 / year	
Aqua Map	• USA & Canada Charts - \$14.99 US/Year • Advanced Tool Subscription - Master - \$24.99 US/Year	CanBoat • Charts - \$11.24 US/year • Master - \$18.74 US/year
Savvy Navvy	• Basic Version Free • \$189.00 CAD per year	• 20% NauticEd Discount • \$151.20 CAD

SOME SPECIAL FEATURES AVAILABLE



- NOTE: This list is not complete as many apps are adding features all the time.
- Smart Routing - based on real time weather, current and tide data, boat specifications, local regulations (Orca, Savvy Navvy)
- Sail versus Power Planning (Orca)
- Over the Horizon AIS (Orca, Savvy Navvy, Predict Wind DataHub)
- Marine Weather Forecast (Savvy Navvy)
- Departure Time Planning (Orca, Savvy Navvy, Predict Wind)
- Connect to onboard instruments (Orca, Savvy Navvy, Aqua Map)
- Map Sharing with friends - location (many)
- Community updates (most)



Essential Everything you need	Explore Best value	Elite All our features
CA\$ 99 per year	CA\$ 179 per year	CA\$ 189 per year
Start Free Trial	Start Free Trial	Start Free Trial
Features ✓ All Savvy Charts™ included ✓ GPS active tracking ✓ Over the Horizon AIS - 3nm ✓ Four day trip planning ✓ Marina & anchorage information ✓ Distance measurements ✓ Automated weather & tidal routing ✓ Automated CTS Course To Steer ✓ Night / Dark mode	Features ✓ Everything in Essential plus: ✓ Tidal heights graph ✓ Offline charts & weather ✓ Export route to chart plotter ✓ Departure schedule planner	Features ✓ Everything in Explore plus: ✓ Tidal streams atlas ✓ ECWMF Mixed weather forecasting ✓ Satellite mode ✓ Anchor alarm ✓ NMEA Connect ✓ Over the Horizon AIS - Unlimited

GARMIN NAVIONICS



EXPLORE!



www.CanBoat-Nanaimo.ca

www.LatitudeSailing.ca

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ORCA & ORCA CORE 2

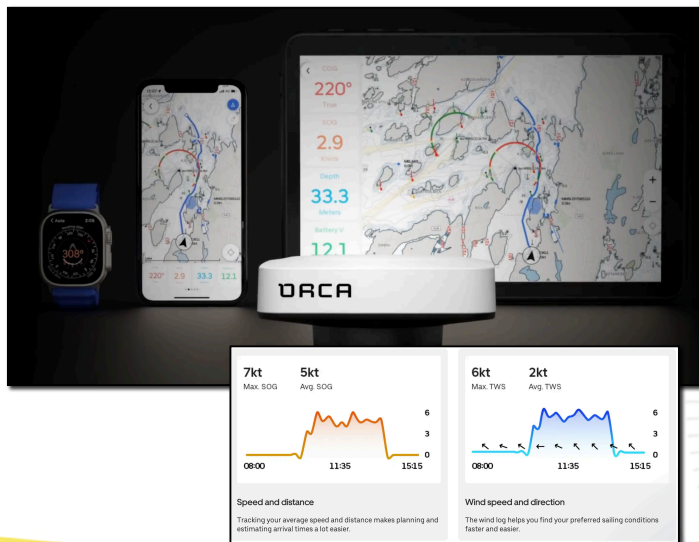


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EXPLORE!



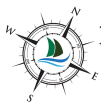
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LATITUDE
SAILING

ADVANCED PASSAGE PLANNING FOR BC WATERS



PredictWind



PredictCurrent



Windy



Boating



iNavX



Aqua Map



LIVE
STREAMING



WEEK 2: ELECTRONIC PLANNING (GARMIN BOATING & ORCA)

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