

# Paddle Canada Level 2 Sea Kayaking Skills

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**Overnight touring and intermediate boat  
handling**

Course information Package  
Expectations, Syllabus and Schedule

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# Level-2 Skills Course

## Seamanship and Leadership in Multi-day Touring

### Location, Costs, Logistics

Location:	Sudbury, Ont.
Dates:	June 19 <sup>th</sup> -25 <sup>th</sup> or June 30 <sup>th</sup> – July 6 <sup>th</sup> , 2023
Accommodation:	tenting on trip or on site for the early June program. Pre-trip accommodations available
Meals:	Participants responsibility. Cooking on trip – Every participant will be responsible for part of or all of group meals. Guidelines will be discussed and the focus will be on providing COVID-19 appropriate protocols.
Allergies:	Any food or other allergies <b>MUST</b> be identified to the entire group well before the course so that no hazardous foods are brought to the programme. This information must also be shared with course staff prior both verbally and on trip med forms.
Instructors:	Rick Wise, Kevin Junkers

**See contact information at the back of this document to reach us.**

### Registration:

Once registered, you will be sent a package that will contain basic info about Horizons Adventures, including a waiver of liability, registration and medical forms (also available at <http://www.horizonsadventures.ca>)

### What to Bring:

Please use the specific gear and clothing list in this document at the end ([see last page](#)) and in addition, please bring the following:

- trip log of past paddling experience
- kayak rescue/safety gear and reference materials that you use
- pen, paper or notebook ( a waterproof notebook/pencil is handy)
- camping/cooking gear
- Appropriate Maps/Charts and Navigation Aids

## Level 2 Skills Pre course homework

### 1. View the Risk Management Power Point

Do the accompanying questions and tasks outlined in the presentation.

### 2. Begin a Course Log with detailed weather observations for three days leading up to course: what weather we can expect for Day 1 and 2 of the course. Your observations might include: air and water temp; humidity; pressure; wind speed and direction; sea state; cloud cover (height / density) and precipitation. This log should be updated daily during course. Finally, obtain and record the marine weather forecast from Environment Canada in the following web locations provided here. ([http://weather.gc.ca/marine/index\\_e.html](http://weather.gc.ca/marine/index_e.html), and <http://www.windy.com>

### 3. Using the required maps and charts for the course area, develop a 2 day trip plan and float plan (min. 1 page): Chart 2257 Clapperton to John Island (1:40 000); Chart 2268; Chart 2299 Clapperton Island to Meldrum Bay (1:80 000); Topo Map 41/J2 Algoma, and 41/J1 Spanish

- Trip-context
- location
- basic risk assessment
- resources required

### 4. Navigation Exercise on page 20

### 5. Navigation Assignment NKC-

### 6. Review all course materials and lists.

## Suggested Reading Material

- *Complete Sea Kayak Touring*, Jonathan Hanson.
- *The Complete Guide to Sea Kayaking*, Shelley Hanson.
- *Sea Kayak Navigation Simplified*, Lee Moyer.
- *Sea Kayak Rescues*, Schumann & Shriner.
- *Ultimate Guide to Sea Kayaking DVD*, Ken Whiting & Alex Matthews
- <https://paddlinghq.com/download-resources>
- <https://www.skgabc.com/resources/download-printable-resource-package>
- <http://www.tc.gc.ca/publications/en/tp14726/pdf/hr/tp14726e.pdf>

## Stroke Review

*Three Golden rules of paddling*

<https://www.youtube.com/watch?v=snUIRdelx8>

*Edging*

<https://www.youtube.com/watch?v=JjvWhQSmFRI>

*The Forward Stroke*

<http://www.youtube.com/watch?v=pvi7rllsNRY&feature=c4-overview-vl&list=PL437C13B7D4489670>

*The Sweep Stroke*

<http://www.youtube.com/watch?v=hj60GiBK9AM&feature=c4-overview-vl&list=PL437C13B7D4489670>

*The Draw Stroke and Sculling Draw*

<https://youtu.be/E5ClMfoSwBA>

*Bow Rudder (or Bow Draw)*

<http://www.youtube.com/watch?v=iGmQjKKuh10&feature=c4-overview-vl&list=PL437C13B7D4489670>

*Stern Rudder*

[http://www.youtube.com/watch?v=t\\_yrg-xkRXM&feature=c4-overview-vl&list=PL437C13B7D4489670](http://www.youtube.com/watch?v=t_yrg-xkRXM&feature=c4-overview-vl&list=PL437C13B7D4489670)

[https://www.youtube.com/watch?v=E6uqqdP\\_Fgo&list=WL&index=40](https://www.youtube.com/watch?v=E6uqqdP_Fgo&list=WL&index=40)

*Bracing*

[http://www.youtube.com/watch?v=C\\_ZxLDtiAGc](http://www.youtube.com/watch?v=C_ZxLDtiAGc)

<https://www.youtube.com/watch?v=oKEwcimVrek>

*Bow Rudder (or Bow Draw)*

<http://www.youtube.com/watch?v=iGmQjKKuh10&feature=c4-overview-vl&list=PL437C13B7D4489670>

*Stern Rudder*

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*Bracing*

[http://www.youtube.com/watch?v=C\\_ZxLDtiAGc](http://www.youtube.com/watch?v=C_ZxLDtiAGc)

*Low Brace Turn*

[http://www.youtube.com/watch?v=A0\\_dPoR2aQ4](http://www.youtube.com/watch?v=A0_dPoR2aQ4)

*High Brace Turn*

<http://www.youtube.com/watch?v=ovAyFkTWIzA>

*Sea Kayaking TV (Other relevant stroke, rescues, tow etc. videos)*

[http://www.youtube.com/user/SeaKayakingTV/videos?shelf\\_index=0&view=0&sort=dd](http://www.youtube.com/user/SeaKayakingTV/videos?shelf_index=0&view=0&sort=dd)

# Expectations for Participants

## Be prepared upon arrival.

- **Be F.A.T = Flexible, Available, Teachable.**
- have fitness and energy to go full out for 5 days with fun and vigour
- **Explicitly identify to the group any current severe allergies/medical conditions that we should** know that may affect your participation or that might be compromised/endangered by the group being unaware - don't rely on a medical form - communicate!
- manage time safely and effectively i.e. - be on time, organized and prepared
- demonstrate high quality level 2 skills
- read widely on all aspects of sea kayaking above recommended texts
- show enthusiasm for learning that motivates students to excel
- Accurately assess your personal skill-set and abilities as a paddler.

## Required Outcomes for Successful Completion

- assess and affect constructive change in group dynamics to ensure group safety and growth
- provide context and application for all level 2 course components
- Understand/apply accepted principles of risk assessment/management as they apply to all aspects of course.
- Demonstrate effective application and understanding of no trace camping techniques
- Demonstrate effective application and understanding of waste management, hygiene and water treatment.
- Demonstrate proper food preparation and nutrition for overnight.
- Set up an effective group camping area including precautions against pests
- Demonstrate effective temperature control through use of clothing
- Demonstrate command of all paddle strokes and rescues.
- Demonstrate use of effective time management in travel plans
- Demonstrate effective use of navigation skills using maps/charts, compass and/or GPS
- Demonstrate effective packing and loading skills

## Format - Flexible

An ongoing 5 day course overnight trip on the open water is the ideal format. The course may be modified to allow for flexibility with weather, participant needs, provincial COVID standards or other circumstances Be prepared for full days and evening sessions. Participants will be responsible for planning, packing, cooking their own meals on trip and are encouraged to partner up to share in these tasks (we can help co-ordinate this).

# Schedule

Evening before Day 1: Meet by 4:00 pm in Whitefish near Sudbury.

## Directions to Lessons

From Sudbury

- Hwy 55 West out of Lively to Panage Lake Rd in Whitefish. Follow Panage Lake Rd to River Rd, go right. Follow River Rd, stay right, follow to the end, Private Property Sign. Continue down to the water. Welcome - course admin and overview schedule. Meals to discuss.

**Day 1 and 2**

- **Paddling skills tune up**
  - SK 2 paddling skills tune-up - control and propulsion -!!
  - SK2 Rescue skills tune-up/rolling
  - Current work
  - Take up Float Plan exercise

**Day 3**

- **Prepare for trip departure for overnight:**
  - Trip prep- menu planning - gear prep - group and personal
  - Leadership assignments
  - Route planning
  - Safe travel policy/signaling
  - Risk management
  - Evening instructor sessions

**Day 3,4,5 & 6**

- Campsite and camping protocols and practices
- On water skills and rescues
- Theory Presentations
- Rescues and Crises management
- Travel and Navigation practice and challenges

**Day 7**

- Depart the Channel and return to Launch
- Loose ends
- Debrief and assessment review

## *Instructor Led Topics*

- Navigation/route planning
- Weather interpretation
- Decision making - safety vetoes - when it all sounds good but you feel it's not going to work, and nobody wants to be the one to say it.
- Risk management
- No Trace Camping
- Tarps, ropes, knots and tenting
- Logs and journals



## Level-2 Skills Course Details

To provide the skills and knowledge for proficient kayaking in moderate conditions, on overnight trips along a moderately exposed shore with frequent easy-landing opportunities.

<b>Prerequisites</b>	Paddle Canada Level-1 Skills certification or equivalent skill and knowledge At least 3, one-day-long kayaking trips in different locations Wilderness first aid (16 hours) with CPR strongly recommended
<b>Course Length</b>	Minimum 4 days, may include one overnight
<b>Class Ratio</b>	1 instructor : 4 participants 1 instructor + 1 assistant: 6 participants
<b>Minimum Staff &amp; Certification</b>	Instructor: one Level-2 Instructor Optional assistant(s): one Level-1 Instructor
<b>Location</b>	Moderately exposed coastline with frequent easy-landing opportunities
<b>Conditions</b>	Winds moderate (12–19 knots) Combined sea state less than 1 meter Surf < 1 metre Current < 3 knots

### Overview

Rescue Skills	Paddling Skills	Knowledge
<ul style="list-style-type: none"><li>• bow rescue</li><li>• unassisted rescues</li><li>• all in rescue</li><li>• rolling</li><li>• towing</li></ul>	<ul style="list-style-type: none"><li>• launching and landing</li><li>• forward stroke<ul style="list-style-type: none"><li>• sweep</li></ul></li><li>• forward/reverse</li><li>• low / high brace</li><li>• draw / sculling draw</li><li>• bow / stern rudder</li></ul>	<ul style="list-style-type: none"><li>• equipment</li><li>• kayaking resources</li><li>• journeying and seamanship</li></ul>

## *Assessment*

Assessment in Level-2 is done continuously throughout the program as the instructor observes the participant's performance of each skill and overall development as a paddler.

## *Learning Outcomes*

### **Re-entry Skills**

#### **Unassisted Re-entry**

The student will:

- Demonstrate techniques to re-enter the kayak unassisted. The paddler must show confidence and control throughout the exercises and be able to be underway again in a timely manner, and
- Demonstrate an unassisted re-entry using a sea kayak packed for an extended day

#### **Assisted Re-entry**

The student will:

- Demonstrate multiple techniques to re-enter the kayak while being assisted by a peer as well as assisting others. The student must show confidence and control throughout the exercises,
- Demonstrate assisted re-entries in sea kayaks packed for an extended day trip, including emergency gear needed for an unplanned night out, and
- Be made aware of the inherent risks in lifting/draining loaded boats and be introduced to other techniques to mitigate the risk of back or shoulder injury.

#### **All-in Re-entry**

The student will:

- participate in an all-in re-entry whereby two (or more) paddlers capsize and assist each other in emptying and re-entering the kayaks, and
- work together as a group to complete the activity in as short an amount of time as possible while still demonstrating good re-entry technique.
- 

#### **Bow Rescue**

The student will:

- right a kayak from a capsized position using another paddler's assistance, emphasizing the use of a hip flick, and
- Present some portion of a rescue kayak or paddle shaft to assist a paddler in righting him or herself in a timely and effective manner.

### Introduction to Rolling

The students may: (will be introduced to the theory and safe body mechanics)

- demonstrate a roll on one side in a calm and controlled environment, and
- Demonstrate safe body mechanics and articulate how to safely keep developing their roll.

### Towing

The student will:

- demonstrate safe, efficient towing techniques in a variety of scenarios,
- demonstrate the use of a variety of tow systems such as long and short lines,
- pigtails and deck mounted equipment,
- give examples of the inherent dangers of towing and how best to mitigate them,
- and
- Outline the use of accessible safety knives as an entanglement rescue tool.

## Paddling Skills

### Launching and Landing

The student will:

- demonstrate a variety of boat launchings and landings including beach and dock,
- if conditions allow, demonstrate a safe beach landing in gentle surf (knee high or less),
- if conditions allow, demonstrate a safe beach launch in gentle surf (knee high or less), and
- Identify appropriate locations to launch and land which minimize exposure to surf and other water users.

### Forward Stroke

The student will:

- Demonstrate an efficient forward stroke with attention to the catch, power and recovery phases. The principles of lower core engagement, smooth and proper application of cadence as well as use of leg muscles to drive hull will be part of the stroke development coaching, and
- Demonstrate efficient and sustained forward paddling during a journey of 4 nautical miles in 2 hours.

## Turning Strokes

The student will:

- turn the kayak in each direction while in motion (with little loss of forward momentum) from the stern, middle and bow of the kayak, and
- Demonstrate the turns in Level-2 conditions.

## Sweep Strokes

The student will:

- demonstrate effective leg drive for more power to assist with turning,
- look where they are going rather than watch the paddle blade, and
- Experiment with both off and on-side edging.

## Low and High Brace Turns

The student will:

- demonstrate low and high brace turns should be executed under forward momentum and initiated with a sweep stroke on the outside of the turn,
- state the potential risk of shoulder injury with these turns and how to mitigate it, and
- Ensure proper body position for shoulder protection.

## Bow Rudders

The student will:

- demonstrate the bow rudder under forward momentum and initiated with a sweep stroke on the outside of the turn, and
- Demonstrate the turn on both edges (inside versus outside of the turn).

## Low Brace

The student will:

- Demonstrate an effective low brace in class-2 conditions, and
- Demonstrate proper body positioning for shoulder protection to protect against shoulder injury.

## High Brace

The student will:

- demonstrate an effective high brace in class-2 conditions, and
- Demonstrate proper body positioning for shoulder protection to protect against shoulder injury.

## Draws

The student will incorporate confident edging into all draw strokes.

### *Draw Stroke*

- The student will:
- use a draw stroke (with underwater recovery) to move the kayak directly sideways, and
- Use edging to help with weight shift and power.

### *Sculling Draw*

The student will use a sculling draw to move the kayak directly sideways, as well as diagonally.

### *Hanging Draw*

The student will use a hanging (or running) draw to move sideways while moving forward, in order to avoid an object just ahead.

### *Stern Draw and Stern Pry*

The student will:

- demonstrate an effective stern rudder while paddling downwind on small waves, and
- Demonstrate effective torso rotation for solid paddle placement while also looking forward.

### *Paddling in Rough Water*

The student will:

- demonstrate the basic foundation skills needed for paddling in rough water such as small surf and/or current,
- demonstrate an understanding of how a boat reacts to surf and current, and
- Demonstrate a ferry across gentle current or wind using appropriate landmarks to maintain course.

## **Knowledge**

### *Equipment*

The student will describe the key features and attributes of paddling equipment and clothing including:

- Advantages and disadvantages of various sea kayak outfitting/design variations.
- Sea kayak paddle and spray skirt features, designs and materials.
- Advantages and disadvantages of foot, handheld, and electric pumps.
- Life jacket supplementary features designed for sea kayaking.
- Rescue and safety equipment features necessary for coastal kayak tripping.
- Clothing design and fabric attributes for paddling in harsh conditions.
- First-aid kit basics.
- Repair-kit general preparation and use.

## Introduction to Tides & Currents

The student will:

- state the basic science behind what tide is and how it can generate current,
- demonstrate how to locate and interpret relevant tide heights and current speeds from reference ports and stations in tides and currents tables or websites (e.g. [tides.gc.ca](http://tides.gc.ca)),
- identify on a nautical chart where those values apply and make inferences on how they will manifest themselves given the local bathymetry in the surrounding areas,
- conclude what current speeds are manageable at a Level-2 skill level as well as how current interact with the sea state, and
- Give examples of potentially hazardous environments due to tide and/or current activity.

## Wilderness Navigation Techniques and Chart/map Work

General navigation teaching notes:

- Wilderness navigation is a core element of Level-2 and thus the instructor should incorporate elements of it into various segments of the course.
- All navigation content is to be taught in the context of a multi-day trip in Level-2 conditions regardless of whether the course will include camping.

## Navigation Techniques

The student will:

- use wilderness navigation techniques in the context of a multi-day trip in level-2 conditions such as: piloting, including the use of handrails and backstops, aiming off, lines of position, deduced reckoning, and declination/variation/deviation,
- determine and follow a range in either wind or current in Level-2 conditions,
- use ranges and other simple piloting methods to aid in navigation, and
- Demonstrate an understanding of the difference between heading, bearing and course.

## Nautical Charts and Topographic Maps

The student will:

- give examples of the benefits, drawbacks and applicable uses of both nautical charts and topographic maps,
- use charts and/or topographic maps to interpret aids to navigation and determine potential hazards as well as identify common symbols on a chart/map. Students should be able to co-locate those features in the real world,
- use charts and/or topographical maps to determine possible launching/landing sites, possible campsites or other practical features for sea kayakers,
- orient a chart/map to the environment,
- use charts and/or topographical maps to navigate a route,
- confidently take a bearing from a chart/map, and

- Confidently shoot and follow a bearing for at least 1 nautical mile.

### Other Navigation Tools or Activities

The student will:

- confidently use a compass for simple navigation,
- calculate the group's speed, time, and distance traveled,
- give examples of how to identify or describe their position to the outside world
- using latitude/longitude and a local description,
- record dead reckoning data and calculations,
- Complete a route-planning exercise that includes the following activities:
  - measure distance on a chart/map for a route that is at least 9 nautical miles
  - in length. The proposed route should include a combination of shoreline
  - paddling and short crossings, and
  - identify significant features along the route including; prominent navigational
  - features appropriate for piloting, alternate landing and camping sites, likely
  - sources of water, and hazards.
- Describe the advantages and limitations of a GPS for navigation.

### Weather Interpretation and Basic Forecasting

The student will:

- describe local and regional weather patterns,
- identify 4 different types of clouds and what types of weather they likely precede,
- identify low or high pressure systems, cold/warm fronts and their effects on
- local/regional weather,
- identify the signs of weather change,
- describe the effects of wind over water or land including channeling/funneling,
- corner effects, land and sea breezes, fog, anabatic and katabatic winds,
- obtain and record a marine weather forecast via VHF, internet or weather radio,
- and
- describe and apply backcountry lightning risk management and avoidance.

### Heat/cold Issues

The student will:

- identify and describe symptoms, causes, effects of hypothermia and hyperthermia,
- state and demonstrate the basic treatment for hyperthermia with a focus on prevention and early intervention, and
- state and demonstrate the basic treatment for hypothermia with a focus on prevention and early intervention.

### Emergency Overnight

The student will:

- state the importance of being prepared for an emergency overnight as well as be

- familiar with the essential necessary gear,
- Demonstrate how to set-up an emergency overnight shelter to keep warm and dry,
- demonstrate how to make an emergency hot meal as well as ensure water is safe to drink, and
- be prepared with the necessary gear in the kayak for a possible overnight
- Emergency throughout the length of the course.

### Leadership and Decision Making

The student will:

- demonstrate effective leadership and decision-making in the context of leading peers,
- participate in scenarios and exercises that reflect differing styles of outdoor leadership,
- demonstrate group awareness by paying attention to the location and energy levels of other members of the group while on the water,
- demonstrate the ability to make good decisions for the group during simulated incidents, and
- lead the group effectively and safely on the water during designated segments of a day trip or environment transitions (e.g. headlands, getting on/off the water).

### Risk Assessment, Incident Management and Evacuation Options

The student will:

- complete a formal route plan for a multi-day journey that accounts for hazards and effectively manages risk,
- assess and mitigate risks as they apply to a multi-day journey with peers in Class-2 conditions,
- demonstrate a strong understanding of current risk assessment concepts and terminology,
- participate confidently in scenarios requiring a complex and efficient response,
- demonstrate effective group management formations for incident management while on the water,
- explain various pieces of technology available to summon help in the event of an emergency. This can include VHF radios, personal locator beacons, satellite messengers, flares, and
- state the procedures for evacuation as well as how to summon outside help (Canadian Coast Guard, police or local search and rescue).



### Knots & Ropework

The student will demonstrate the use of various knots to effectively tie down/secure a kayak and set up a tarp or emergency shelter; e.g., clove hitch, bowline, taut-line hitch, trucker's hitch.

### Collision Regulations

The student will outline the collision regulations as they apply to sea kayakers.

Teaching note:

- The material covered should be appropriate to the location of the course, with a more general view to the principles of collision avoidance.

# Course Topic overview.

## **Weather**

- How to get it - Radio/internet/
- How to interpret it. - Marine/inland/Mayfor
- How to predict it - winds and Clouds
- How to read it - Weather maps

## **Navigation**

- Piloting
- Maps & Charts
- Compass use
- Route plotting
- Predicting and assessing
- DED reckoning

## **Tides & Currents**

- Predictions
- Area differences
- Basic causes
- Rips, overfalls, other hazards

## **Risk Management**

- CLAP – Communication, Line of Sight, Awareness, Position of Effectiveness
- FAT – Flexible, Available, Teachable
- Me, We, the Sea
- Lemon management

## **Strokes and Rescues:**

- See above in Skills outline

## **Camping skills**

- Features of a good campsite.
- Using a chart or map describe how to determine locations likely to provide good campsites.
- Prepare a campsite for safety and comfort during inclement weather.
- Tarps, ropes and shelters
- Fires

## **Heritage**

- Greenland and Aleutian Paddling designs and influence.
- Identify at least 2 other genres of kayaking, and describe how the practice of kayaking differs in these genres (equipment, technique, environment), Flatwater racing, Slalom racing, Surf Ski, White water, Kayak polo

## **Environment**

- Nature interpretation
- Leave no Trace Principles

# Navigation Work book Exercise

## The art of finding one's way

Answer these questions and bring the answers to the course. Be prepared to execute your navigation plotting on day one.

The following questions can be found in the final exam, but the answers to these questions are helpful when doing the exercise that follows.

1. The difference between a chart and a map?
2. The advantage of a chart?
3. The advantage of a map?
4. Cardinal points?
5. The difference between fathoms and feet?
6. The difference between miles, knots and kilometers?
7. Piloting?
8. Ded reckoning?
9. Latitude and longitude?
10. UTM grid system?
11. Contour line?
12. Sounding?
13. What is a range?
14. direction of travel, heading, bearing
15. deck mounted and orienting compass
16. High tide mark on a chart

Level II Navigation Exercise –Chart #1, #4485

**(#1235 and# 9996 only for navigation practice -I have these charts, don't get your own).**

What is our starting position by:

- UTM grid
- Lat & Long

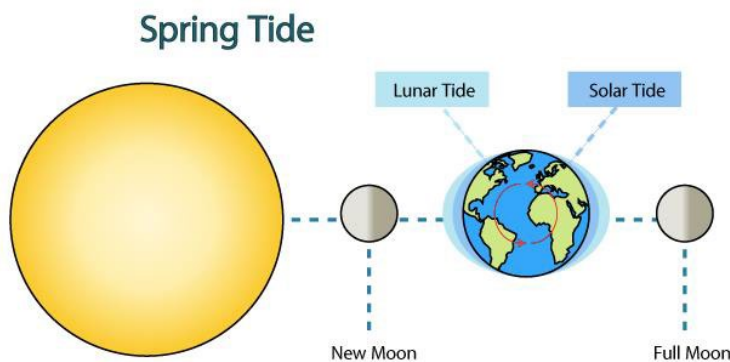
Review the charts:

- What is the scale of this chart?
- What unit are depths measured in?
- What is the magnetic variation on these charts?
- If you were close to the north west shore of one-tree island, how would you know you were there using a line of position?
- What are the advantages, if any, to using lat / long coordinate system?
- What are the disadvantages, if any, to using lat / long coordinate system?

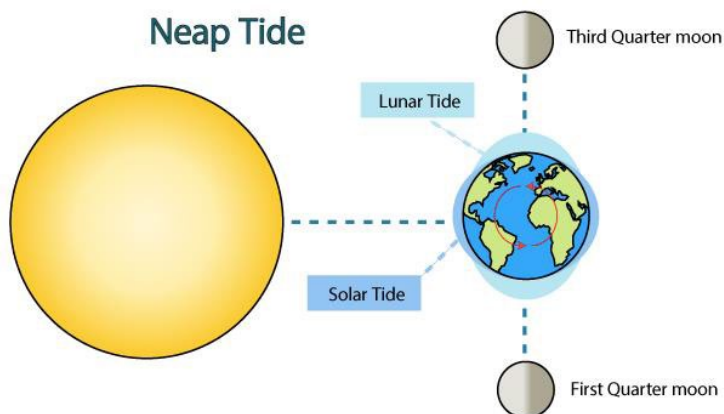
## TIDE

Tide is the 'vertical' movement of water; they are periodic rises and falls of large bodies of water. Tides are caused by the gravitational interaction between the Earth, Sun and the Moon.

The moon exerts the greatest influence, up to 85%, and it is that gravitational attraction which, causes the Earth's oceans to bulge out in the direction of the moon; another bulge occurs on the opposite side, since the Earth is also being pulled toward the moon (and away from the water on the far side). Since the earth is rotating while this is happening, two tides occur each day, a semidiurnal tide. Due to the greater influence of the moon the daily tide oscillations follow a lunar day, which is approximately 50 minutes longer than our normal solar day, therefore low and high water is approximately 50 minutes later each day.



**Spring Tide:** When the moon is in line with the earth and sun, a 'new moon' or 'full moon'; the rise and fall of the tide is greater.



**Neap Tide:** When the moon is to the side of the earth, 'first' and 'third quarter' moon the rise and fall is less.

## ***TIDES AND CURRENTS EXERCISE***

**Match the following terms with its pair**

**Find the odd one's out**

Neap

ebb

rip

apogi

slack

flow

spring

perogee

high

full moon

low

overfall

new moon

Questions-

- What is a tide and how is it created?
- How many tides are there per day?
- Do tides go in and out or up and down?
- What is a current?
- What is the rule of 12"?
- Where is the high tide mark on a chart?
- What is a rip?
- What is an overfall?

## ***MAP AND COMPASS***

What is our present position by -

- UTM grid
- Lat and long

### **Nautical Charts**

Review the strip charts for the Gulf Islands.

- What unit are depths measured in?
- What is the speed of the average ebb flow through Pimbury Pt on the Porlier Pass to Departure bay chart?
- What is the Magnetic variation on these charts?
- On sheet 3310-3 interpret the channel markers along deep ridge near Swanson channel (approx-Long-125.22, lat 48.48)
- Find the whirl pool in active pass.
- Find the overflow near this whirl pool.
- When would be a good time to be in this channel

### **Resources**

<http://www.waterlevels.gc.ca/eng>

<http://www.waterlevels.gc.ca/eng/data/currents/2018>

<http://www.tides.gc.ca/eng/station?sid=7735>

# Theory of Accidents - How Accidents Occur

## Dynamics of Accidents Formula (Rick Curtis-Princeton University)

### Dynamics of Accidents Model



These two factors can overlap to a greater or lesser extent. The greater the overlap the higher the Accident Potential. The effect of combining Environmental Hazards and Human Factor Hazards multiplies the Accident Potential rather than simply being additive. The greater the number of hazards, the more quickly the Accident Potential can rise. For example:

Accident Potential Increase			
2 Environmental Hazards	+	2 Human Factor Hazards	= 4 times higher Accident Potential
3 Environmental Hazards	+	3 Human Factor Hazards	= 9 times higher Accident Potential

Here are some sample accident scenarios. Read each one and analyze it to determine the following:

- What the the Environmental Hazards?
- What are the Human Factor Hazards?
- What can be done to reduce the Accident Potential?

# Sample Accident Scenarios

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Here are some sample accident scenarios. Read each one and analyze it to determine the following:

- What are the Environmental Hazards?
- What are the Human Factor Hazards?
- What can be done to reduce the Accident Potential?

Write your analysis down and then check the answer page to see how you did.

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## ***Whitewater Kayaking***

It's been raining steadily for several days. The rivers are rising, and local boaters are getting itchy. After all, it's been a long winter and the promise of rising water and rising temperature is too good to miss. Sarah feels it. She's a good Class IV kayaker, 29 years old, physically strong. She's a little out of shape after the winter off, but she's itching to get back on the river. One of her paddling partners calls Friday night and says, "tomorrow morning: season opener." Excited, Sarah starts digging her gear out of the closet.

The next morning, Sarah meets her four friends at the put-in. It's a Class III run they know well--a good place to warm up for the spring season. The river is higher than usual with the rain--by about a foot and a half. The water has that muddy brown color and touches the tree line, inundating most of the familiar eddies. After a careful look, they decide to make their run. The group starts to work its way down the entrance rapids generally aware of where everyone is.

After a mile, the group settles in to a paddling pace. Sarah stops to surf her favorite hole; the rest of the group continues around the bend because there are so few eddies where they can stop and watch. The hole is grabby in the high water. Sarah does a few spins and then moves to exit the hole, but gets pulled back in to the deep trough. She tries to get her bow out into the current to pull herself out, but drops back in and flips. She rolls back up but then flips over again. After three more rolls Sarah is exhausted and comes out of her boat. Before she can recover from the initial shock of the cold water, Sarah and her kayak flush out of the hole.

The current pushes Sarah and her boat toward a fallen tree at the outside bend of a turn. The water is too swift for her to swim away. She turns and swims toward the strainer and manages to pull herself up onto it. She watches her paddle and swamped kayak disappear around the bend. When the others see the boat, they quickly take out and work their way back upstream through the flooded shoreline to retrieve Sarah, shaken but unharmed, from the tree.



## ***Sea Kayaking***

John was introduced to sea kayaking about a year ago at a symposium sponsored by a local outfitter. Looking for a new sport John bought a kayak, paddle, spray skirt and life jacket. He taught himself to paddle on a nearby lake. Except for what he gleaned from a few books; he doesn't have any formal training. His most adventurous trips have been two six-mile paddles out on the bay on calm days.

John met someone at work who kayaks with a local club. She tells him the club is having a coastal trip next weekend. It's a 3 1/2-mile crossing to a small island where they'd have lunch, explore some tidal pools, and come back. John agrees, excited about his first "real" paddling trip.

John spends the next few evenings on the lake practicing his strokes and braces on power boat wakes. He buys a flashing signal light for his life jacket, and a whistle, but the paddling shop was out of float bags, so he'll have to do without.

When John arrives at the put-in the wind has started to kick up. The 3-foot waves are crashing on the gravel beach. John sees his friend among huddle of people and joins her. After introductions, people wander back to their cars to get their gear. Most people pull on dry tops or wetsuits. John pulls a paddle jacket over his wool sweater and carries his boat to the water.

After several attempts at getting off the beach, John manages to pick his way through the surf and into deeper water. He is paddling hard to catch up with the rest of the group when a wave crests over his stern. Before he can really think, John leans away from the wave on a brace. His paddle sinks and he's over. The sudden cold water on his face makes John panicky. He struggles out of his boat and pops up beside it, holding on to the grab loop and his paddle. He blows his whistle and the group quickly responds. But the cold water and the wind have taken their toll, and by the time John is back in his boat, he's shivering violently. The group guides him back into shore to get warm.

---

## ***Backpacking Trip Scenario***

Sally is leading a group of ninth graders on the school's annual 4-day wilderness trip. This is Sally's fourth such trip. Dan the other teacher from the school is new this year and doesn't have any backpacking experience. But it's hard to find teachers at the school who are willing to go. Dan is young and a good athlete and seems to be learning quickly.

It's early September in the Shenandoah's and the group of 8 students and two teachers has started their second day of hiking. The temperature has soared up to the nineties with humidity around 80%. The group slept in and cooked pancakes so they got a late start on the trail. After a 2-mile hike, the group stops for lunch. Sally notices cumulus clouds starting to build. It's already after one and eager to get on to camp, they finish lunch quickly and head off for a long descent down Little Devil's Staircase, a edgy section of rock trail along a stream gorge. The upper section is dry and the rock is slick and polished. As the afternoon progresses, the group is moving more slowly down the gorge. The smaller students are having

trouble handling the steep sections with their packs one once or twice Dan has had to take a student's pack as well as his own over the difficult sections. The clouds have now become thick thunderheads and the sky is darkening. They still haven't reached the bottom trail. The wind is picking up and large raindrops are spattering here and there on the rocks. Suddenly the sky opens up and the rain is falling in torrents. Dan while carrying a student's pack, slips on the wet polished rock and falls backwards striking his head sharply against a boulder. The student next to Dan screams. Sally is at the front, picking her way down the trail when she hears the scream. She drops her pack and scrambles up to Dan who is unresponsive when she first arrives. She quickly checks for breathing and pulse and then Dan starts to open his eyes.

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# Hypothermia

Hypothermia is defined as a lower than normal body temperature. It is caused by the body's inability to generate sufficient heat to replace the heat lost to the environment. The body loses heat in 4 ways; conduction, convection, evaporation, radiation and respiration.

Heat is produced by the body's metabolism which relies on food and water, muscular activity, and by various chemical reactions within the body.

The body's core temperature is normally 37°C. Technically, hypothermia has set in when the core temperature has dropped below 35°C. Above 35°C, the person is technically not hypothermic, but is simply COLD. This is a good thing in that the treatment for COLD patients is considerably simpler than those who have progressed to a state of hypothermia.

The body responds to cold by trying to conserve heat and to increase heat production. In the early stages of COLD, the body tries to conserve heat by shunting the blood away from the surface to the core. As the core temperature continues to drop, the body responds by increasing heat production through shivering and increased chemical activity.

A wide range of factors can contribute to the onset of hypothermia; many are preventable; malnutrition, dehydration, immobilization, fatigue, shock, drugs, brain damage, body type and age.

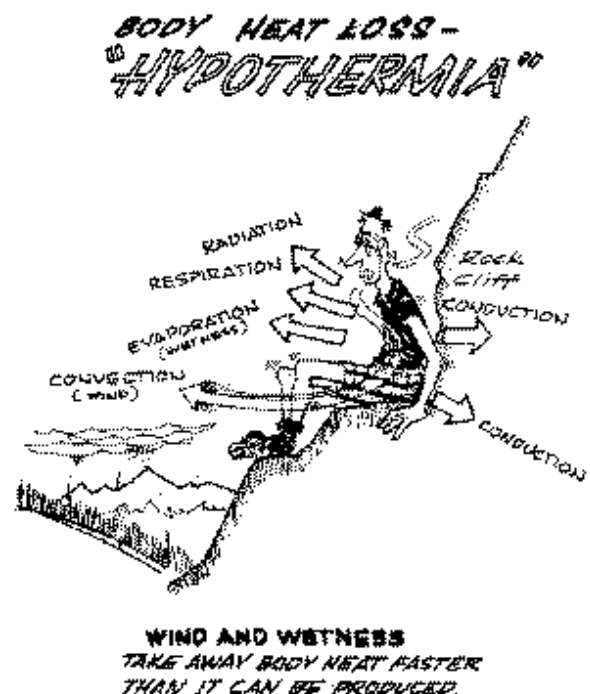
## Signs and Symptoms:

- The first obvious signs of COLD stress/hypothermia are people complaining of being cold
- Later on, you will notice shivering, pale, cool skin, increased pulse and respiration rates
- As the core temperature continues to drop, blood will be shunted away from the brain, and you will begin to notice impaired mental function often manifested in speech impairments, confusion, mood changes, decreased coordination and muscle strength. In the late stages, respiration and pulse rates decrease to the point of being almost undetectable. These are serious signs and symptoms – the patient's life is in jeopardy at this point.

Because of the involuntary shivering reflex of COLD/hypothermic patients, oral thermometers are dangerous; they may shatter in the patient's mouth. If you suspect hypothermia, you can confirm with a rectal temperature reading. When in doubt, suspect the worst and evacuate as quickly as possible.

## Prevention:

The first and best treatment for hypothermia is prevention. If people are well fed, hydrated, not over taxed exercise-wise, and properly dressed, you shouldn't have a problem. Sometimes people have underlying problems like infections or chronic illnesses that undermine your ability to keep them warm. If you can't warm them, get them out and to a medical centre that can.



Water is an excellent conductor of heat and will rapidly speed up the onset of COLD and hypothermia. If a person inadvertently enters the water, get them out as fast as possible. Remove their wet clothing and replace it with dry gear. A lot of heat is lost through the head and neck, so a wool/fleece hat is an important piece of gear to carry. Give them food and water. Monitor them closely for signs of COLD or hypothermia. Exercise (i.e. paddling) increases metabolic functions, and is an excellent way to warm somebody up as long as they have the energy stores to meet their body's demand for fuel.

## Treatment:

### COLD STRESS– Core temperature above 35°C

If a person is cold, take the time to figure out why and get them warm before you continue with the trip. Stop what you are doing; conserve heat loss, and give the body the energy it needs to produce heat by feeding them and placing hot water bottles around the core of the body. This process may take some time i.e up to 2 hours, but if you don't take the time the situation can deteriorate quickly.

### Hypothermia – Core temperature below 35°C

If the patient is unconscious, initiate Basic Life Support (Airway, Breathing, Circulation, Deadly Bleeding).

**See also Red Cross Cold Card in separate attachment.**

## TREATMENT IN THE FIELD

### BODY SIGNS/SYMPTOMS TEMP. (rectal)

37.5°C NORMAL

36 FEEL COLD

Seek dry shelter, replace wet clothing with dry including socks, gloves, hat, cover neck, insulate whole body including HEAD from cold. Exercise but avoid sweating. External warmth (bath, fire) ONLY if CORE TEMP. above 35°C. Warm sweet drinks and food (high calories).

35 SHIVERING

### BODY CORE TEMPERATURE BELOW 35°C = HYPOTHERMIA = HOSPITAL

34 CLUMSY  
IRRATIONAL  
CONFUSED  
(may appear drunk)

NO EXERCISE, HANDLE GENTLY, REST.  
NO EXTERNAL WARMTH (except to chest, trunk, eg. Hiebler Jacket).  
Warm sweet drinks and calories.  
Internal warming via warm moist air (exhaled air, steam) or warm moist oxygen (40 - 42°C at mask).

33 MUSCLE STIFFNESS

Monitor pulse, breathing. Restrict all activity, lie down with feet slightly raised.

### 32 SHIVERING STOPS, COLLAPSE. TRANSFER TO HOSPITAL. URGENT.

31 SEMI CONSCIOUS  
30 UNCONSCIOUS  
No response to painful stimuli

Nothing by mouth. Check airway remains open.  
May tolerate plastic airway, put in recovery position, check airway, turn every 2 hours to protect skin, monitor pulse and breathing.

29 SLOW PULSE AND BREATHING

Slow mouth-to-mouth breathing, at victim's own rate (may be very slow).

28 CARDIAC ARREST  
No obvious pulse or breathing  
Pupils dilated

Check airway. CPR, with mouth-to-mouth breathing. Aim for normal CPR rates of 12-15 breaths/min. and 80-100 compressions/min. but slower rates of 6-12 breaths/min. and 40-60 compressions/min. may be adequate. Continue for as long as you can.

### BELOW 28°C. NO VITAL SIGNS. COLD. DO NOT GIVE UP TREATMENT.

### NOTE: NOT DEAD UNTIL WARM AND DEAD!

Avoid rapid rewarming and HANDLE GENTLY AT ALL TIMES.

Core temperature may lag behind skin temperature and continue to drop, so keep monitoring.



## ***COLD WATER IMMERSION***

<b>Cold shock</b>	can lasts 3 – 5 minutes (can cause water inhalation and drowning)
<b>Swimming Failure</b>	kills in 5 – 30 minutes
<b>Hypothermia</b>	kills after 30 minutes (Typically in hours)

**First two stages of immersion are responsible for 50% of drowning deaths**

### **COLD SHOCK**

- caused by rapid skin cooling
- results from the 'shock' of sudden immersion
- a sudden and huge aspiratory gasp often causing inhalation (not swallowing) of significant quantities of water
- followed by severe hyperventilation (breathing rate increased fourfold)
- can occur to some in water temperatures as high as 25 C
- all of these increase the risk of drowning as a result of the head being immersed in water (dipping under, wave splash)

### **SWIMMING FAILURE**

- caused by rapid cooling of the muscles and nerves
- mental capacities dwindle, fine motor skills diminish, grip strength is reduced
- for paddlers who wear lifejackets and have access to a kayak/canoe swimming failure is more about how cold water compromises the physical tasks necessary to undertake a rescue

### **GETTING THROUGH THE INITIAL TWO STAGES**

- mental preparation (think about it)
- physical preparation (splashing water on face, doing a roll, cold showers)
- gear (clothes appropriate to water temperature)
- maintaining buoyancy (head above water – life jacket, boat)

### **HYPOTHERMIA**

<b><i>Cold Shock/Mild/Moderate Hypothermia</i></b>	
Identified by: <ul style="list-style-type: none"><li>• mentally weird</li><li>• lethargic or irritable or both</li><li>• shivering (usually persistent)</li><li>• loss of fine motor coordination</li></ul>	Treated by: <ul style="list-style-type: none"><li>• avoid in the first place</li><li>• remove from cool</li><li>• increase heat production (food, hot water bottle)</li><li>• improve heat retention (clothing)</li><li>• increase calories (food)</li></ul>
<b><i>Severe Hypothermia</i></b>	
Identified by <ul style="list-style-type: none"><li>• decreasing AVPU</li><li>• no shivering</li><li>• decreased pulse, breathing rate</li><li>• unconscious</li></ul>	Treated by <ul style="list-style-type: none"><li>• gentle movement</li><li>• add heat packs to heat loss areas</li><li>• remove from cold factors</li><li>• evacuate</li></ul>

## Weather:

In our age of modern technology obtaining a weather forecast is easy but to paddle safely we need to know more than whether it's going to rain or be sunny. Kayakers need a forecast to provide information on wind direction, wind strength, barometric pressure plus clouds, precipitation and fog. The best resource for this information is the 'Marine Weather Forecast' issued by Environment Canada.

### **[www.weather.gc.ca/marine/region](http://www.weather.gc.ca/marine/region)**

The forecast can be found on line, on a VHF marine radio by pressing the WX button and by calling your local coastguard (recorded message). The forecast is issued **4 times per day; 04:00, 10:30, 16:00 and 21:30**, each new forecast supersedes the previous one. When taking the forecast it is import to know which Marine Forecast Area you are paddling in. Kayakers might also want information on an adjacent area. In addition to the Regular Forecast (1 -2 days) an 'Extended Forecast' (3 - 5 days), 'Technical Marine Synopsis' and 'Marine Weather Statement' are also provided. Real time weather conditions are available from 'Weather Reporting Stations' 'Marine Weather Buoys' and 'Lighthouses'. Marine Weather Warnings are also given; a 'Strong Wind Warning' 20 - 33 knots and 'Gale Warning' 34 - 47 knots.

Will also be using various weather applications to support our weather forecasting. I have listed a few here.

- <https://www.windytv.com/globe?42.163,-78.926,4>
- <https://www.windfinder.com/#5/54.2267/-89.1211>

In addition to weather radios and digital phone apps, we need to be able to predict weather when those valuable assets fail due to technical issues. To do this we need to be able to interpret the clues that nature gives us. Cloud types and wind directions are the first line of interpretation. Here is a link to learning cloud types.

- <https://www.thoughtco.com/types-of-clouds-recognize-in-the-sky-4025569>

Finally, wind direction is instrumental in interpreting and forecasting coming weather in general terms. Here is a simple guide.

- Wind from the...
  - East is a Beast – Rough, Rainy weather
  - West is Best – Good, sunny, stable weather
  - North-Good Weather comes forth –clearing but may be windy
  - South has rain in its mouth – precipitation likely.

## ***Study Guide for the Restricted Operator's Certificate RIC-2311***

**Table 1**

<b>Word or Phrase</b>	<b>Meaning</b>
ACKNOWLEDGE	Let me know that you have received and understood this message.
AFFIRMATIVE	Yes, or permission granted.
BREAK	To indicate the separation between portions of the message. (To be used where there is no clear distinction between the text and other portions of the message.)
CHANNEL	Change to channel ...XX ..... before proceeding.
CONFIRM	My version is _____. Is that correct?
CORRECTION correct	An error has been made in this transmission (message indicated). The version is _____.
GO AHEAD	Proceed with your message.
HOW DO YOU READ?	How well do you receive me?
I SAY AGAIN	Self-explanatory (use instead of "I repeat").
MAYDAY	The spoken word for the distress signal.
MAYDAY RELAY	Is the spoken word for the distress relay signal.
NEGATIVE	No, or that is not correct, or I do not agree.
OVER	My transmission is ended and I expect a response from you.
OUT	Conversation is ended and no response is expected.
PAN PAN	The spoken word for the urgency signal.
PRUDONCE	During long distress situations, communications can resume on a restricted basis. Communication is to be restricted to ship's business or messages of a higher priority.
READBACK	Repeat this entire message back to me exactly as received after I have given OVER. (Do not use the word "repeat".)
ROGER	I have received all of your last transmission.



<b>Word or Phrase</b>	<b>Meaning</b>
ROGER NUMBER	I have received your message number...
STANDBY	I must pause for a few seconds or minutes, please wait.
SAY AGAIN	Self-explanatory. (Do not use the word “repeat”.)
SÉCURITÉ	Is the spoken word for the safety signal.
SEELONCE	Indicates that silence has been imposed on the frequency due to a distress situation.
SEELONCE DISTRESS	Is the international expression to advise that a distress situation is in progress. This command comes from a vessel or coast station other than the station in distress.
SEELONCE FEENEE	Is the international expression for a distress cancellation.
SEELONCE MAYDAY	Is the international expression to advise that a distress situation is in progress. The command comes from the ship in distress.
THAT IS CORRECT	Self-explanatory.
VERIFY	Check coding, check text with originator and send correct version.
WORDS TWICE	(a) As a request: Communication is difficult, please send each word twice. (b) As information: Since communication is difficult, I will send each word twice.



## ***Phonetic Alphabet***

The words of the International Telecommunication Union (ITU) phonetic alphabet should be learned thoroughly. Whenever isolated letters or groups of letters are pronounced separately, or

when communication is difficult, the alphabet can be easily used. The phonetic alphabet should

always be used when transmitting call signs.

When it is necessary to spell out call signs or words, the following table should be used. The syllables to be emphasized are shown in bold type.

**Table 2**

<b>Letter</b>	<b>Word</b>	<b>Pronounced as</b>
A	Alfa	<b>AL</b> FAH
B	Bravo	<b>BRAH</b> VOH
C	Charlie	<b>CHAR</b> LEE
D	Delta	<b>DELL</b> TAH
E	Echo	<b>ECK</b> OH
F	Foxtrot	<b>FOKS</b> TROT
G	Golf	GOLF
H	Hotel	HOH <b>TELL</b>
I	India	<b>IN</b> DEE AH
J	Juliett	<b>JEW</b> LEE ETT
K	Kilo	<b>KEY</b> LOH
L	Lima	<b>LEE</b> MAH
M	Mike	MIKE
N	November	NO <b>VEM</b> BER
O	Oscar	<b>OSS</b> CAH
P	Papa	PAH <b>PAH</b>
Q	Quebec	KEH <b>BECK</b>
R	Romeo	<b>ROW</b> ME OH
S	Sierra	SEE <b>AIR</b> RAH
T	Tango	<b>TANG</b> GO
U	Uniform	<b>YOU</b> NEE FORM
V	Victor	<b>VIK</b> TAR
W	Whiskey	<b>WISS</b> KEY
X	X-ray	<b>ECKS</b> RAY
Y	Yankee	<b>YANG</b> KEY
Z	Zulu	<b>ZOO</b> LOO

# **Radio Basics**

## **Why Carry VHF Radios?**

- they work! (in most areas, a normal 3–5 watt hand-held can raise a passing boat, marina or Coast Guard due to series of relay transmitters)
- emergencies
- weather info
- security info ( safety notices)
- kayaker to kayaker communication

## **What Radios Work Best and Best Working Location**

- for sea kayak guiding-a waterproof, hand-held accessible on the PFD
- on shore, should be kept with gear kit, and taken into tent overnight

## **Who Can Use a Radio**

In theory, all vhf radio users should have a Restricted Radio Operator's License in practice – if you need help, use the radio and do your best-we've never had anyone at the Coast Guard decline a transmission because the operator didn't have a license-in fact they have no way of knowing and unless your use is abusive or simply incoherent, they don't mind

## **Care and Feeding of Radios**

- They cannot sustain prolonged submersion-so don't use them during rolling practice
- ALWAYS use hand tether!!! Repeat-ALWAYS use hand tether!!
- Every time you take your pfd off-lay it in a safe spot carefully to protect radio-don't toss it on a rock!
- Only use radio on when you need it-common mistake is to take pfd off and forget to turn off radio
- Battery life lessens through use – transmission eats it up very quickly as opposed to simple monitoring

## **Getting a Good Signal**

- VHF is line of sight, you need to be in open and as high as possible (climbing a tree may be necessary)
- use high watt option if having weak signal and move to various locations if on land
- on water, hold high if weak signal (from boat - boat transmission distance is < 3 nautical miles)

## **When to Use**

- Effective for kayakers to maintain contact with each other
- if conditions moderate and group is close, no need to have it on, use it for when things get challenging
- Establish daily check-in times and monitor so the outside can reach you
- weather check at least twice a day
- if deteriorating weather, turn radio on for weather warnings and watches
- radio check with Coast Guard or Marina to establish transmission strength/clarity

- emergency (mayday or pan)

### **Monitoring and Normal Communication**

- on water, lock in a working channel and 16 (lock in prevents buttons getting bumped on water)
- if only using for kayaker to kayaker – use low watt option
- after turning on, wait and listen 1 minute to make sure transmissions aren't in progress
- speak slowly and enunciate every word and speak any number in terms of each digit (eg. "15 km would be transmitted as "one five kilometers"
- use the 24 hour clock expressed as 4 figures ("zero four three zero" means 4:30am)
- study radio terminology/phonetic alphabet and use where fluent, otherwise use common language and speak clearly
- essentials are: the call – the reply – the message-the acknowledgment – the ending

### **Distress**

**"Mayday"** is only spoken in instances of grave and imminent danger and when spoken, should preface all further communications by being spoken prior to message.

- be logical-you want them to know:
- where you are
- nature of distress
- what you need
- number of people involved
- and any other info that will facilitate rescue

"Mayday" trumps all other radio traffic. If you aren't in a position to respond, but can relay the message, then simply say "Mayday Relay" and pass on the info. Otherwise, stay off the radio to keep communication line open.

### **Urgency**

**Pan Pan** – is only spoken in instances of a very urgent message concerning safety ( a boat drifting in heavy seas is a pan whereas if the boat is sinking then it's a mayday)  
use the same logic of information

### **Safety**

**-Securite** is spoken to indicate a safety notice (for eg. A buoy is out of position) or a weather warning

### **Radio Check**

- you should do a radio check periodically to ensure it is operating effectively
- you can call Thunder Bay Coast Guard on Channel 16 (they don't seem to mind-but if possible, use a coast guard working channel so you don't tie up 16)
- they will acknowledge and ask you to go to different channel
- once there, ask for a radio check and they will give you a word description or a number from 1-5 in terms of signal strength/clarity
- you then thank them and end the call (it's ok to be a bit less formal when you're off 16)

- if you can't get T-Bay, call "All Stations" which means that anyone within your signal will respond --this can also be used for other communication where you're simply trying to reach another station. You should ask them to switch to a working channel to keep 16 clear

### **Channel Use**

- 16                      distress and calling only
- 68                      marinas
- 21 and 83            weather
- 9 and 26             working channels

## Level 2 recommended Kit

- approved life jacket
- water proof flashlight (preferably headlamp--and petzls aren't the best in wet)
- mini-repair kit
- wetsuit/dry suit-optional in warm weather
- Emergency kit (ouch kit, first aid kit, fire lighting, immediate energy etc...)
- night lights (light sticks or other)
- towing system
- knife (on lifejacket)
- marine whistle and \*other loud sound making device
- water tight boat with deck rigging
- self rescue system
- pens and paper
- waterproof notebook and pencil
- navigation supplies
- orienteering compass
- deck mounted compass \* (but highly recommended)
- waterproof map case
- ruler
- GPS\*
- bilge pump
- sling (14-15 ft non-floating rope made into a loop (useful to have carabineer on end)
- warm hat, gloves/mitts and spare clothing
- paddle tether or paddle park\*
- VHF Radio

\*= optional items

### Plus...

- Maps and Marine Chart for the same area.
- Sleeping Bag
- Trip log of past paddling
- Reference: material

This list is for all weather. Clothes can be modified as required. Use your judgment.

# **Paddle Canada Level 2 Skills Test Questions**

## ***Resources***

1. What is the purpose of the Paddle Canada?
2. List at least 2 paddling magazines, 2 sea kayaking texts, 2 places on the web to access paddling information and 2 sea kayaking dvd's.
3. What is Chart 1 and why is it important?
4. Where can you get hydrographic charts, topographic maps, tide/ current charts?
5. What is the BCU ? ACA ? FQCK? What is their purpose?

## ***Equipment***

1. Describe 3 different paddle blade shapes and their purpose.
2. What are considerations in choosing paddle length? Shaft width?
3. What are 3 common materials kayaks are made of? What are attributes of each?
4. Explain advantages of a hand pump? foot pump? Electric bilge pump?
5. Explain the differences in function of a skeg and a rudder.
6. Explain how length, beam, depth, rocker and chine affect comfort; seaworthiness; speed; maneuverability?
7. Explain Swede form/fish form/symmetrical form and how each might affect boat handling?
8. Why does weathercocking occur and how can it be reduced?
9. Why are perimeter deck lines useful? Paddle leash?
10. Explain continuum between primary/secondary stability as it refers to the hull of a kayak.
11. Compare the way a kayak handles in waves to the way an airplane handles in air, particularly with respect to rolling, yaw and pitch. (ie rotational, lateral and vertical stability)

## ***Safety & Rescue***

1. What are the features of a safe and effective line tow system? contact tow system?
2. When would you use a contact tow instead of a line tow?
3. How would you stabilize a boat/paddler to put it under a line tow?
4. Somebody capsizes and you are the designated rescuer-who are your three priorities ( for ensuring safety) in order.
5. Explain the model of lemons (as referred to by James Raffin) in risk management/assessment?
6. A swimmer is separated from her boat and you are the rescuer-what actions would you take?
7. A sudden squall upsets everyone in a paddling group-what actions should individual paddlers take to recover?
8. A fellow paddler tips over and remains motionless underneath his boat-what actions should you take to help?
9. Can you identify and use approved aerial rocket flares?
10. What are good ways of keeping a group together in...
  - a. calm waters?
  - b. rough seas?

## ***Weather***

1. You're paddling in a group about 15 minutes from shore on a hot day when a storm approaches. You see a lightning bolt in the distance and thunder reaches you 18 seconds later. How far away is that bolt? What actions should your group now take to minimize risk of getting hit both on the water and upon reaching shore?
1. What are three ways to obtain a weather forecast?
2. What is the difference between a marine forecast for mid lake vs what may occur near shore.
3. What other broadcast weather information is useful other than a marine forecast?
4. What observations can you make to help you predict weather changes in your immediate area?
5. What are the characteristic signs of...

- a. an approaching warm front ?
  - b. Approaching cold front?
6. Explain using a diagram how a low pressure system develops?
7. Explain using a diagram how a cumulonimbus cloud develops with possible associated precipitation/lightning/wind/squall lines,
8. Describe the direction and strength of winds associated with a low pressure cell?
9. What is a trough of low pressure? A ridge of high pressure?
10. How does wind direction change as a trough passes and high pressure moves in?
11. What are two different ways that fog might develop?
12. What is a land breeze and how does it form? A sea breeze?
13. What is “channelling” when referring to the effect of topography on wind and waves?
14. Convergence? Refraction?
15. What are the possible effects on wind and waves of a headland-consider if
- a. the wind is parallel to the coast and
  - b. if it is directly onshore.
16. Explain how katabatic and anabatic winds occur and their significance for trip planning?
17. What are gap winds and what importance do they have in planning a trip?
18. What value is considered “chart datum” for air pressure in kilopascals?
19. What approx. value is a
- a. deep low?
  - b. Strong high?
20. What is difference between millibars and kilopascals?
21. Where would the strongest winds be found in
- a. low pressure system?
  - b. high pressure?
22. What are units of measurement used in a marine forecast vs land forecast regarding wind speed?



23. Explain: storm surge, backing and veering winds, seiche.

### ***Communication & Leadership***

1. Poor communication is the root of most problems. Before heading out on the water, what communication strategies would you want to discuss and have in place with the group ? In your answer, include specific visual/audio signals.
2. Guess what, poor leadership is also the root of most problems! Before heading out on the water, what strategies would you use to ensure that leadership within the group is clear, accepted by everyone and decided on merit?
3. What techniques would you use to stabilize/manage your group of friends on water while coordinating a capsized rescue.
4. What group formation(s) maximize safety when paddling with a group in moderate winds?
5. What channels do marinas listen to on a vhf radio? What is calling and distress channel?
6. You want to do a radio check with the Coast Guard on your vhf-explain how to do that?
7. Explain when and how you would call in a Mayday (include order of details given)

### ***First Aid & Injury Prevention***

1. You have a friend complaining of lower back pain while paddling. What suggestions would you offer to help?
2. Someone complains of pain in the wrist while paddling. What suggestions would you offer to help?
3. A fellow paddler complains of being hot, dizzy and nauseous during a hot day of paddling. What would you do to help her?
4. What are the signs and symptoms of mild hypothermia? Severe hypothermia? How do you treat each in the context of it occurring halfway through a multi-day paddling trip?
5. What are the most significant areas of heat loss in a body and how can you dress to minimize?
6. What are the major ways heat is lost from the body. Eg. Evaporation.....

## ***Trip Planning & Navigation***

1. What is piloting? Ded reckoning?
2. What are the differences and similarities between topo maps and hydrographic charts?
3. What is declination? variation? deviation?
4. Using a topo map/compass take any two points and determine the bearing including declination. Do the same using a hydrographic chart.
5. Give an example of a backstop? Handrail?
6. What is an intentional wrong track and why is it useful?
7. Explain the purpose of a bifurcation buoy? cardinal mark? port and starboard hand buoy? Fairway buoy?
8. What are transits or ranges and how can they be employed in piloting your way.
9. What is an average paddling speed for an intermediate solo paddler? a beginner group?
10. What is the light sequence for an east cardinal marker?
11. What does FI 12s mean?
12. If you see only a boat's red light, which way is it travelling?
13. What are necessary components of a float plan? Where should the plan be registered?
14. From the seat of a kayak, what is approx. maximum range in nautical miles to see another kayak?
15. Explain "chart datum" What is the chart datum for the great lakes?
16. What information would you need to plan a trip to a new paddling area?
17. What is the # of times a minute a light flashes if it is labelled as: FI ? Q ? QkFI ?
18. From what range of angle is a green running light visible on a boat?
19. What is the symbol for a rock awash?

## ***Tides and Currents***

1. Using a diagram(s), show how high and low tides occur and indicate how and when springs and neaps form.
2. Become familiar with a tide table and understand how to interpret it for a particular area. Do the same for a current table+
3. Read the general info at the front of a tide and current publication.
4. Be able to explain how current speed and tidal height can be affected by geography.
5. Be able to estimate time and duration of slack-water.
6. What is the strongest current you could reasonably paddle against?
7. Explain some simple ways of estimating ferry angle? Distance off?
8. Explain the difference between a rip tide and a rip current.
9. Describe what an overfall is?
10. What is a tidal reference station?
11. What ferry angle would you estimate using if you were paddling at 3 knots across a beam current of 1.5 knots. What is your speed made good for this ferry?
12. Explain the differences between diurnal, semi-diurnal and mixed tides.
13. The moon in apogee and perigee affects the height of tides-so does the position of the moon above the equator-explain how each occurs?

## ***Environment***

1. What are some environmental considerations when choosing a campsite and tent site?
1. In what sort of situations would kayakers impact wildlife?
2. Describe how you would dispose of waste/recyclables on a kayak trip on the Great Lakes.
3. Explain how you would set up a latrine? Camp kitchen? (with consideration to hygiene and environmental impact)
4. What are ways you could minimize environmental impact if an open fire was used on a trip?
5. Open fires are rarely required and are more for enjoyment in the right environmental conditions-what would they be?

## Paddle Canada Sea Kayak Level-2 Skills

Course Information		Paddling Skills									Rescue Skills						Knowledge											Level Awarded
Instructors, Dates, Location	Waivers Collected	Forward & Reverse stroke	Low/High brace	Sweep stroke	Draw	Stern rudder	Edge control	Bow rudder	Low/High brace turns	Launching/Landing	Bow Rescue	Assisted re-entry	Unassisted re-entry	All-in rescue	Rolling	Towing	Communication	Camping skills	Navigation	Tides & Currents	Equipment & Kayak design	Forecasting & Weather	Hypothermia	Trip planning	Knots	Judgement & Risk assessment	Heritage & Environment	
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## ***Level 2 recommended Kit***

- approved life jacket
- water proof flashlight (preferably headlamp--and petzls aren't the best in wet)
- mini-repair kit
- wetsuit/dry suit
- neoprene hat, gloves and/or pogies
- Emergency kit (ouch kit, first aid kit, fire lighting, immediate energy etc...)
- night lights (light sticks or other)
- towing system
- knife (on lifejacket)
- marine whistle and \*other loud sound making device
- water tight boat with deck rigging
- self rescue system
- pens and paper
- waterproof notebook and pencil
- navigation supplies
- orienteering compass
- deck mounted compass \* (but highly recommended)
- waterproof map case
- ruler
- GPS\*
- bilge pump
- sling (14-15 ft non-floating rope made into a loop (useful to have carabineer on end)
- warm hat, gloves/mitts and spare clothing
- paddle tether or paddle park\*

\*= optional items

## **Plus...**

- Maps – topographic series 1:50,000 41J/1 and J/2 and Marine Chart #2299 Clapperton Isl. to Meldrum Bay (can usually be purchased in Spanish at Marina)
- Sleeping Bag
- Trip log of past paddling
- Snacks and ***drinks*** for the cabin or tent.
- Reference: material

This list is for all weather. Clothes can be modified as required. Use your judgment.

**Notes:**



## Instructor Profile and contact information

Rick Wise – Level 3 Instructor Trainer, Level 4 Skills, Owner and principle instructor for Horizons Adventures in Ontario

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### ***REFUND POLICY:***

***If we are unable to accept your application a full refund will be issued. Cancellations four weeks or more before the program start date may incur a 25% administration fee. No refunds will be issued after that date without medical certification. Refunds are not issued if participant withdraws from an ongoing program early. HORIZONS reserve the right to cancel registration at any time. In such a case, a full refund will be issued.***