



Coastal Kayak Navigation

(Sample Skills Course)

Overview

1. A certain degree of navigational knowledge and proficiency is important in order to be a safe, effective, efficient paddler, paddlecraft leader, and paddlecraft instructor. The appropriate degree of navigational knowledge and proficiency is inextricably linked to the paddling venue; e.g., for L1 purposes (i.e., highly protected waters in a very small area), navigation is of little to no consequence. On the other hand, for a trip in an L5 venue, it is critical to be able to navigate effectively incorporating, for example, route planning strategies, the ability to plot and follow a compass course, dead reckoning to predict the time of the passage, tidal vectors to compute/predict ferry angles, and so forth.
2. The purpose of this skills course document is to provide guidance regarding appropriate navigational knowledge to impart, and navigational skills to develop, for various venues. This document is not intended to be prescriptive, but rather to serve as a reference/framework for consideration. Each instructor will determine which knowledge and skills are appropriate to teach, for the specific students, and the target venue that they will be operating in.
3. Note that each of these suggested groupings is cumulative and builds upon the previous venue (e.g., L2 Knowledge and Skills is a foundation for L3 Knowledge and Skills).

Essential Eligibility Criteria (EEC)

ACA courses are open to all individuals who acknowledge the ability to perform the following essential eligibility criteria.

1. Breathe independently (i.e., not require medical devices to sustain breathing)
2. Independently maintain sealed airway passages while under water
3. Independently hold head upright without neck / head support
4. Manage personal care independently or with assistance of a companion
5. Manage personal mobility independently or with a reasonable amount of assistance
6. Follow instructions and effectively communicate independently or with assistance of a companion
7. Independently turn from face-down to face-up and remain floating face up while wearing a properly fitted life jacket*
8. Get on / off or in / out of a paddlecraft independently or with a reasonable amount of assistance*
9. Independently get out and from under a capsized paddlecraft*
10. Remount or reenter the paddlecraft following deep water capsize independently or with a reasonable amount of assistance*
11. Maintain a safe body position while attempting skills, activities and rescues listed in the appropriate Course Outline, and have the ability to recognize and identify to others when such efforts would be unsafe given your personal situation*

** To participate in adaptive programs, participants must acknowledge only the first six EEC listed above. Entry-level adaptive programs will involve teaching and practicing EEC #7-11.*

Course Instructor: Navigation courses may be taught by any certified ACA instructor. Instructors are to choose topics based upon their own personal knowledge, skills, and experience.

Course Prerequisites: As per the discretion of the instructor.



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Course Duration: As per the discretion of the instructor. For example, this course could be taught as an all-day course, a multi-day course, or “in chunks,” with the content incorporated into other course modules or topics.

Course Location/Venue: The course must be limited to venues within the certification scope of the instructor (e.g., a Level 3: Coastal Kayaking Instructor could teach any navigation topics – but must not exceed Level 3 conditions when on the water).

Class Ratio

- a. For classroom instruction: up to 10 students : 1 instructor
- b. For on the water instruction: up to 5 students : 1 instructor. With a qualified assistant, the ratio may be up to 10:2.

Level 1 Navigation

- Knowledge: Stay out of the way of all other vessels.
- Underway Skills: Stay out of the way of all other vessels.

Level 2 Navigation

- Knowledge
 - Direction: True vs. Magnetic North. Should use Magnetic (not True) on a kayak.
 - Charts: Identify magnetic north on the chart (or map) of the area. Identify lateral buoys and day marks (red and green) and understand significance (e.g., boating and shipping channels). Identify lights/lighthouses from chart. Measure distance (distance scale and/or minutes of latitude). Read depth from the chart.
 - Tides: What it is (vertical movement of water), Why it is important (not get stranded, boat does not float away at lunch, etc.), Sources to predict tides.
 - Current: What it is (horizontal movement of water), Why it is important (will make trip shorter or longer, impacts how rough the water is etc.), Sources to predict.
 - Float plans (sources for outlines, develop a simple one).
 - VHF: Emergency calling (16) (the four key elements – Name, Location, Nature of Distress, Number of Victims); check weather.
 - Recognizing risk of collision using bow angle, and movement with respect to land features.



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- Underway Skills
 - Identify key buoys/day marks/lighthouses and channels.
 - Maintain approximate estimate of position by correlating what is seen and what is on the chart (e.g., “piloting” and “handrailing”).
 - Recognizing risk of collision by using bow angle, and movement with respect to land features.

Level 3 Navigation

- Knowledge
 - Direction: Understand what reciprocal bearings are - to and from an object/180°.
 - Charts: Ranges, Depth Contours, Latitude and Longitude. Plot a course (distance, course, and estimated time).
 - Tides: Tidal reference stations and offsets.
 - Currents: Definitions of “Set” and “Drift”.
 - Dead Reckoning: Distance = Speed x Time; Time = Distance/Speed.
 - Boat Traffic: Recognizing risk of collision using compass bearing (in addition to bow angle and movement with respect to land features).
 - VHF: Additional VHF channels (e.g., 13, 22A/1022, 68, 69, 71, 72, 78A/1078), Securite, Pan Pan, and Mayday calls.
 - Develop, and submit, a Float Plan for the day’s anticipated journey.
- Underway Skills
 - *Effectively* use a deck mounted compass to follow, and verify, a pre-computed course.
 - Dead Reckon position (at 20-minute intervals, assuming 3 kt boat speed).
 - Recognize risk of collision using constant compass bearing (in addition to bow angle and movement with respect to land features).
 - VHF: Communicate within group using proper routine protocols; broadcast Securite call if/as appropriate (e.g., crossing a shipping channel, rescue practice).



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Level 4 Navigation

- Knowledge
 - Direction: True, Variation, Magnetic, Deviation, Compass, Add West when uncorrecting and add East when correcting (“TVMDCAW”).
 - Compensating for annual change in Variation.
 - Position Fixing: Plot and cross two bearings to get a position.
 - Charts: Identify shoals, seamounts, and tide races/overfalls on a chart. Use of Topographic Maps (vs. Marine Charts).
 - Tides: Rule of 12ths (estimate height of tide), impact of wind on tides.
 - Current: Impact of wind on current; 5/9 rule to estimate current speed; Plot a tidal vector (specifically, given a desired course, and a known current offset, which direction should you paddle).
 - Dead Reckoning: $Speed = Distance/Time$.
 - Beaufort Sea State – general awareness.
 - Light and sound characteristics of navigational objects.
 - Discussion of Night/Low Visibility Navigation.
 - Key Concerns: Maintaining awareness of position, collision avoidance, group control.
 - Strategies and Tactics – e.g., extensive pre-planning, going from mark to mark, handrailing, aiming off, importance of sound signals, sounding off, etc.
- Underway Skills
 - Shoot a bearing and plot it on the chart (*while rafted to another kayak*).
 - Identify and use ranges/transits for determining/managing impact of current.
 - Recognize light and sound signals.
 - Manage group with VHF (appropriate use and protocols).



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Level 5 Navigation

- Knowledge
 - Discuss/Review key navigation/group management strategies in limited visibility.
 - International Buoyage (IALA area A vs. area B).
 - Rules of thumb for determining impact of wind speed on kayak speed.
 - Introduction to GPS use (especially Latitude/Longitude (Lat/Long), determination and use of waypoints).
 - Trip planning exercise giving due consideration to key drivers including environmental conditions, time available, personnel, equipment, etc.; break into logical segments and analyze each segment.

- Underway Skills
 - Assessing Risk of Collision using movement with respect to a variety of “fixed” features (e.g., land, low clouds, stars, etc.).
 - Plot and cross bearings on chart, while underway, in order to determine position (*while NOT rafted to another kayak*).
 - Night navigation.
 - Fog navigation.
 - GPS to determine Latitude/Longitude (Lat/Long), use of waypoints.