

Handout #1: Nautical Charts

Exercise #1: Nautical Chart Scavenger Hunt

Find each of the following features on the Casco Bay nautical chart:

1. A dock or pier.
2. A beach.
3. A rock that is exposed at low tide
4. A rock that is just beneath the surface at low tide
5. An area with around 80 feet of depth.
6. A bridge that kayakers could pass underneath
7. An area that turns into a mud flat at low tide
8. A shipwreck.
9. A shoreline with cliffs
10. Two islands that are connected at low tide
11. A compass rose
12. An area that is determined to be critical Right Whale habitat

Exercise #2: Identifying Aids to Navigation

Find each of the following on the Casco Bay chart:

1. Halfway Rock Lighthouse
2. An Aid to Navigation that has a Bell
3. An Aid to Navigation that has a flashing green light
4. An Aid to Navigation that has a gong
5. A green “day marker”
6. A lighthouse with a light that can be visible for at least 19 nautical miles

Exercise #2: Measuring Distance

Measure the distance between these two points, assuming you are paddling around any obstacles in your path.

1. The East End Beach in Portland to the southern tip of Clapboard island in Falmouth
2. Portland Head Light to the northern tip of Jewell Island
3. The distance around Cousins Island at high tide.
4. The distance around Cousins Island at low tide.

Materials Needed for our Navigation Workshop:

- Casco Bay nautical chart #13290 (viewable online [here](#))
- Handheld compass
- Pencil & paper
- A piece of string or ruler for measuring distance (the string on your compass works fine)

Navigation Terms We'll Be Using:

Bearing = compass direction to a landmark.

Course = direction you want to go.

Heading = compass direction boat is currently pointing.

Dead Reckoning = Determining position by taking into account such factors as currents, wind speed, and your projected course and speed.

Knot = a nautical unit of speed measured using nautical miles

Nautical Mile = the average distance on the Earth's surface represented by one minute of latitude, equal to 1.15 statute miles.

Parallel Rules = two rulers, or rules, hinged so that they are always parallel.

Range = Two fixed objects, one behind the other, in line with you and your destination.

Scale: The ratio of distance between the "real" distances on the earth and the distance on the map. Example 1inch = 24,000 feet.

Variation= the difference between true north and magnetic north.

Some Useful Conversions and Numbers

1° of Latitude = 60 Nautical Miles

1° of latitude = 60' ('= minutes)

1' of latitude = 1 Nautical Mile

1 Nautical Mile = 1.15 Statute Miles

1 Knot = 1 Nautical Mile per hour of speed

Average paddling speed for sea kayakers: 2.5 - 4 knots