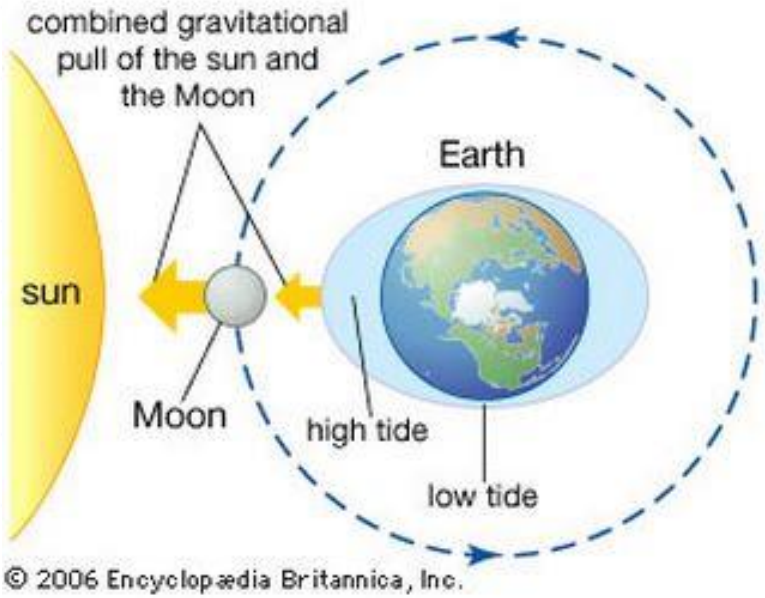
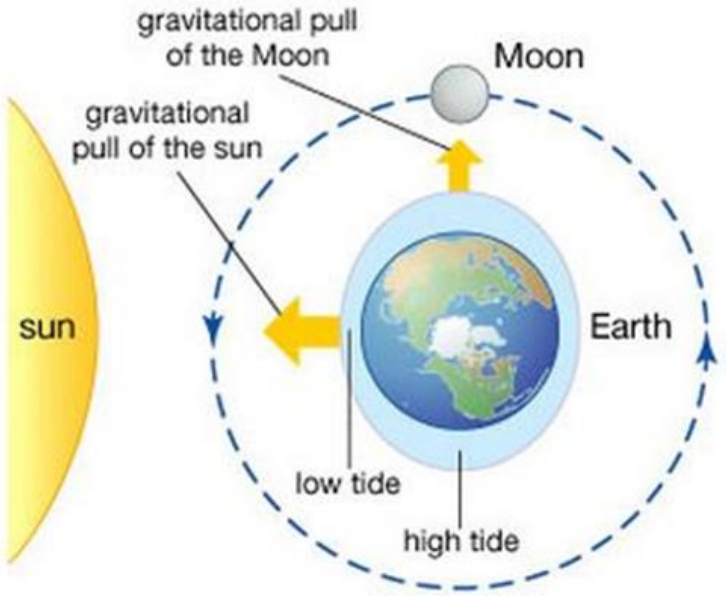
Tides and Currents

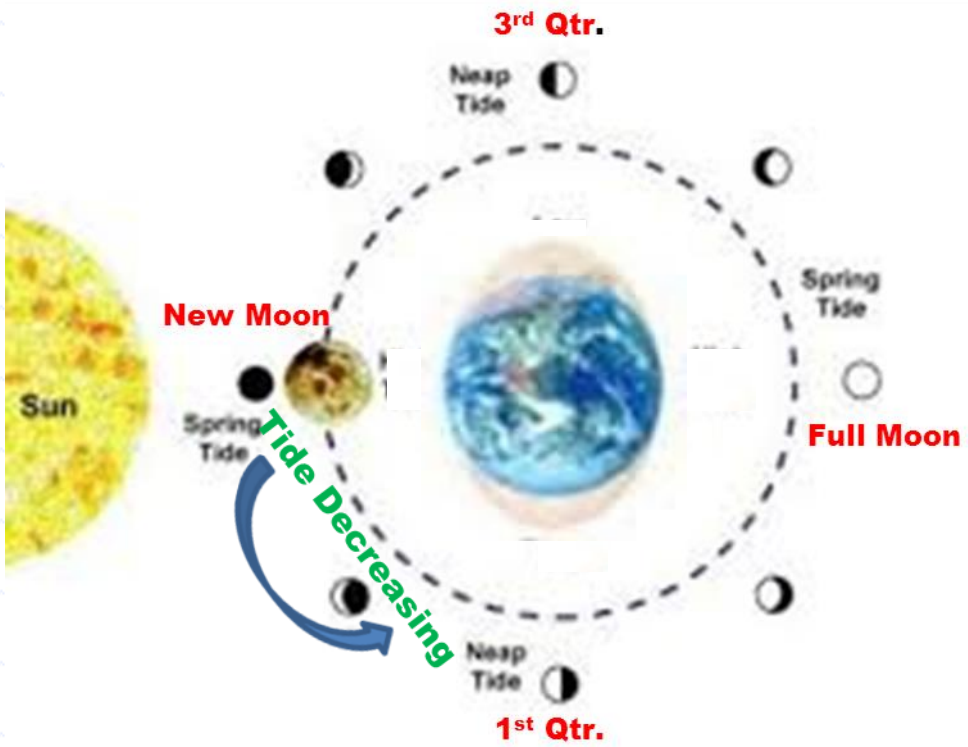
The Technical Stuff

(I know, it's back to Middle School. But hang on for a bit!)





Moving Towards First Qtr.

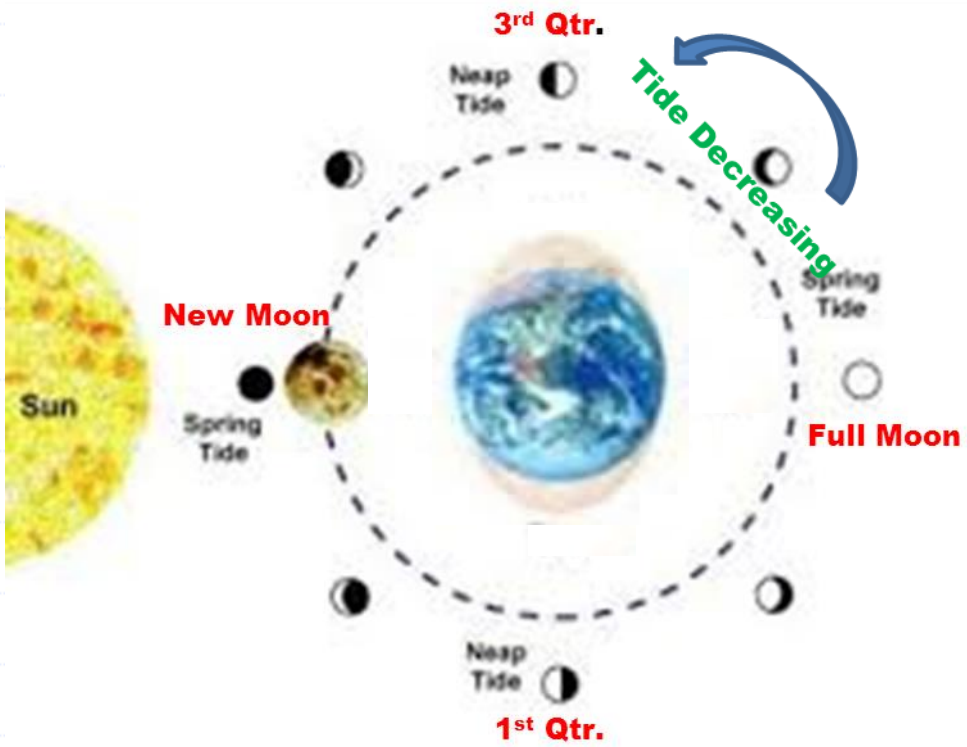


The water line is moving down the beach with each passing day.
Currents will become weaker.

Approaching Full Moon

The water line is moving up the beach with each passing day.
Currents will become stronger.

Moving Towards 3rd Qtr.



The water line is moving down the beach with each passing day.
Currents will become weaker.

Heading Towards New Moon

The water line is moving up the beach with each passing day.
Currents will become stronger.

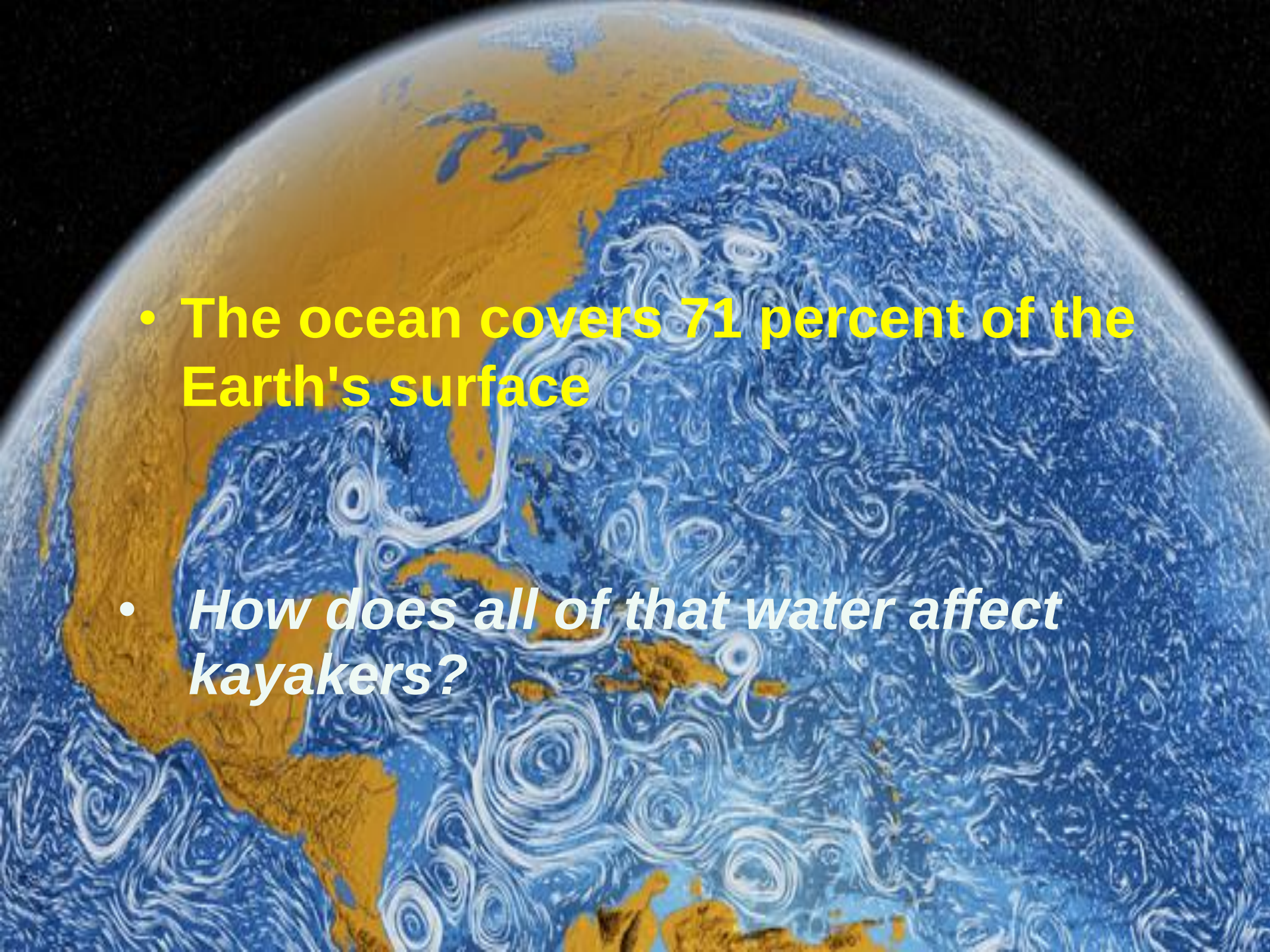
So What Did We Learn From Our Trip Back to Our Middle School Years?

- **Tides are caused by the gravitational tug-of-war between the sun, moon and the earth.**

One additional thing!

- **The moon orbits the earth in the same direction as the earth rotates on its axis, so it takes slightly more than a day (about 24 hours and 50 minutes) for the moon to return to the same location in the sky.**

- **That's why the tides times change each day.**



- **The ocean covers 71 percent of the Earth's surface**

- ***How does all of that water affect kayakers?***

Tides vs. Currents

Tides

- are the vertical movement of water

Currents

- are the horizontal movement of water

Tides

Approximately 6 hours between high and low tides

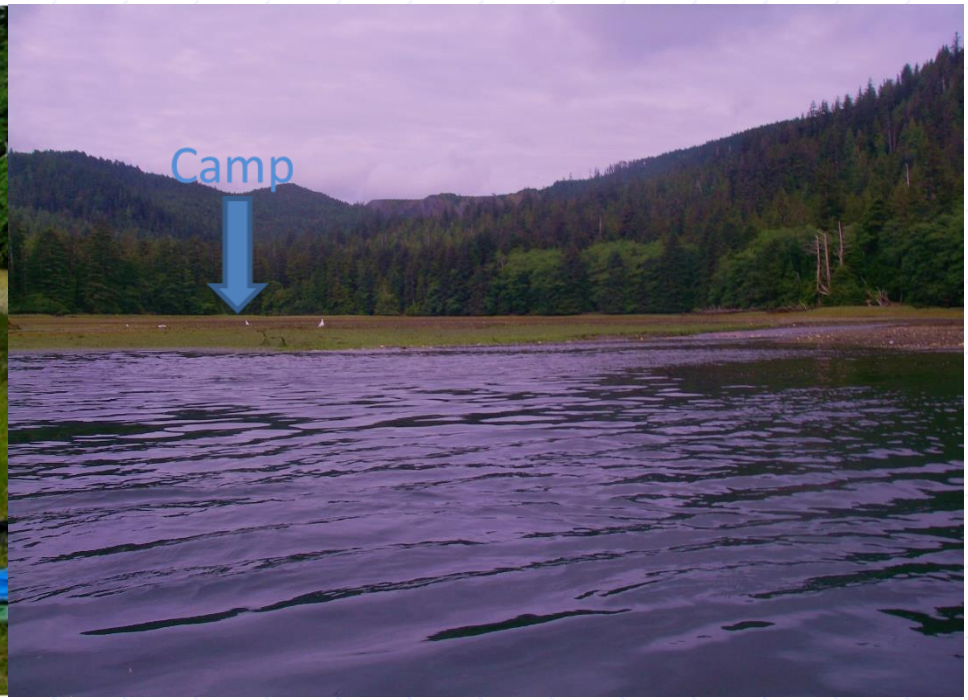
- In the Pacific Northwest we have 2 highs of different heights and 2 lows of different heights per day.
- Tomorrow's tides are approximately 50 minutes later than today.

How Do Tides Affect Kayakers?

- Launching and landing
- Camp site location/lunch spot, will it remain dry?
- Rocks are covered/uncovered
- Shallow water passage & beaches

So what about those campsites…

Have you ever gotten wet?



What Aspects Of Tides Do Kayakers Care About?

- Time
- Height
- Location

Current Definitions

- **Flood:** current created by the water coming in.
- **Ebb:** current created by the water going out.
- **Slack:** the period when the current slows and turns in the other direction.

How Does Current Affect Kayakers?

- **Easier to paddle with the current**
- **Navigating**
- **Time from point A to B**
- **The greater the tidal exchange the faster the water will flow.**
  - **Tacoma Narrows**

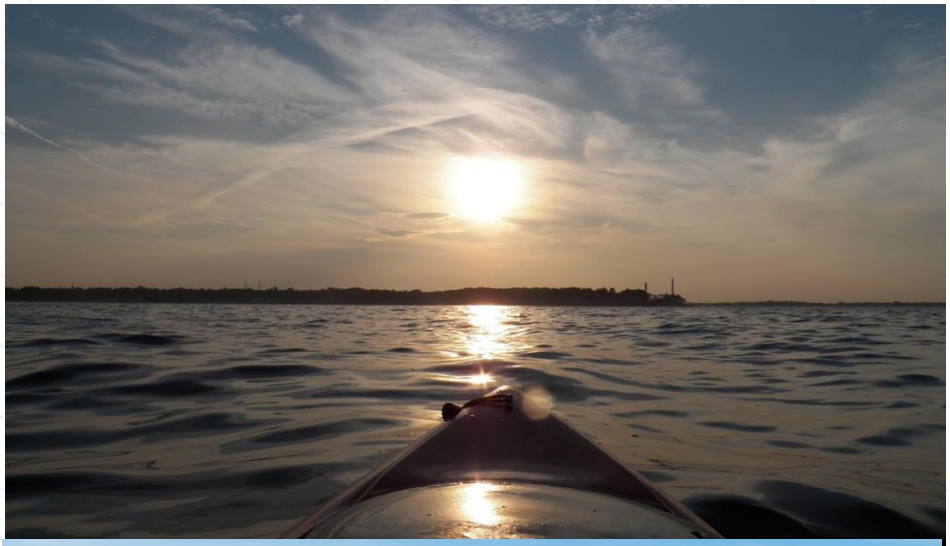
The Rule of Twelfth

For paddlers, tides are very important.

- What may be a serene harbor or cove at one hour of the day, may later become a very different place, because tides don't simply move in and out at a steady rate.
- The difference in water depth between high and low tide is unevenly distributed across every six-hour change.

1st hour -	tidal flow is equal to **1/12** of the tidal range
2nd hour -	tidal flow is equal to **2/12** of the tidal range
3rd hour -	tidal flow is equal to **3/12** of the tidal range
4th hour -	tidal flow is equal to **3/12** of the tidal range
5th hour -	tidal flow is equal to **2/12** of the tidal range
6th hour -	tidal flow is equal to **1/12** of the tidal range

- The 3rd and 4th hours after a tide are the most hazardous times to paddle tidal currents. Within these two hours, half of the tidal range flows in or out!
  - Harbor mouths, narrow tidal straits, and tidal rivers flow at their quickest during those times.



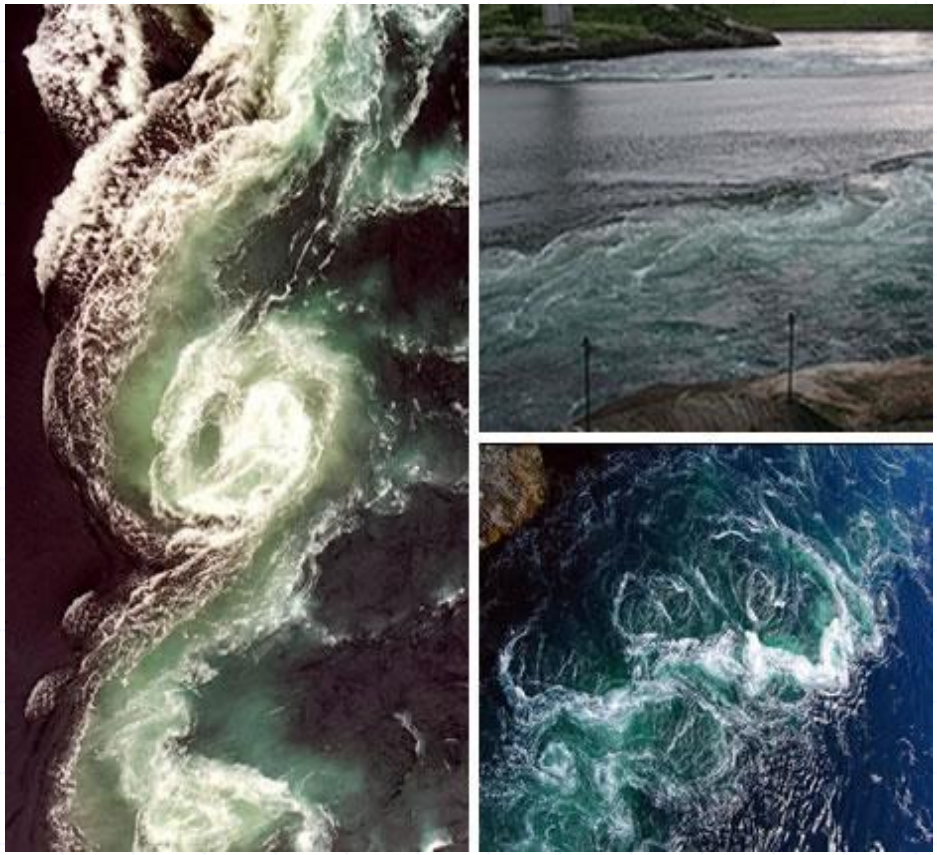
http://www.outdoorsbycracky.com/2013/09/safe-paddling-and-rule-of-twelfths.html

What Aspects of Current Do We Care About?

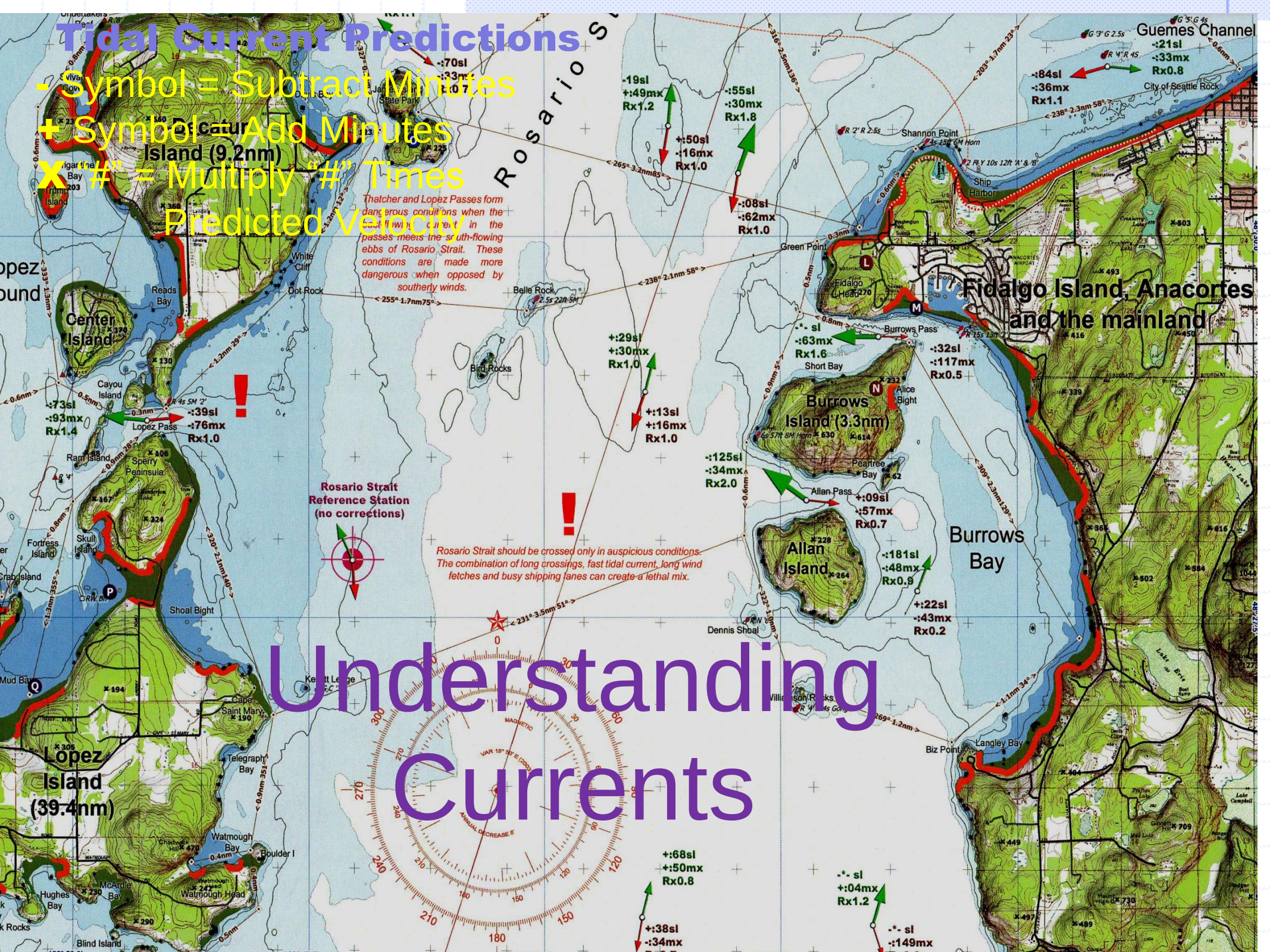
- Time (Slack/Max)
- Speed
- Direction (Ebb/Flood Directions)
- Location (Are corrections required?)

Where Can We Find Tide and Current Information?

- **Online (e.g. NOAA, WWW Tide and Current Predictor)**
- **Captain Jack's Current Almanac**
- **Tide and Current Tables**
  - **Paper**
  - **Online**
- **GPS**

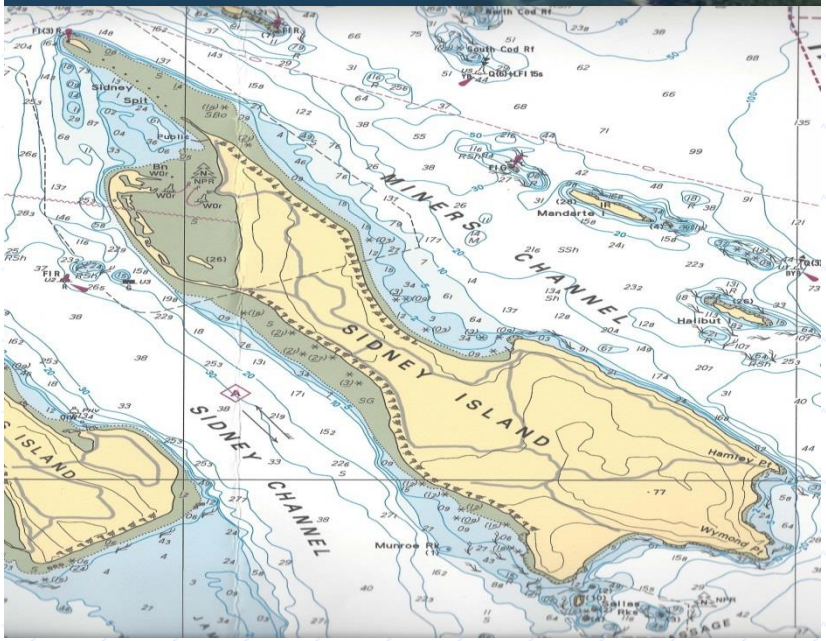



Pacific NW - Tides & Currents
5
2
405
101


Tidal Current Predictions
- Symbol = Subtract Minutes
+ Symbol = Add Minutes
X "#" = Multiply "#" Times Predicted Velocity
Understanding Currents
Rosario Strait
Thatcher and Lopez Passes form dangerous conditions when the southbound current in the passes meets the south-flowing ebbs of Rosario Strait. These conditions are made more dangerous when opposed by southerly winds.
Rosario Strait should be crossed only in auspicious conditions. The combination of long crossings, fast tidal current, long wind fetches and busy shipping lanes can create a lethal mix.
Rosario Strait Reference Station (no corrections)
Fidalgo Island, Anacortes and the mainland
Burrows Island (3.3nm)
Allan Island
Burrows Bay
Lopez Island (39.4nm)
Decatur Island (9.2nm)
Center Island
Guemes Channel
City of Seattle Rock
Shannon Point
Ship Harbor
Green Point
Fidalgo Head
Burrows Pass
Short Bay
Alice Bight
Peartree Bay
Allan Pass
Dennis Shoal
Belle Rock
Bird Rocks
Dot Rock
White Cliff
Reads Bay
Cayou Island
Lopez Pass
Ram Island
Sperry Peninsula
Skull Island
Fortress Island
Crab Island
Shoal Bight
Mud Bay
Cape Saint Mary
Telegraph Bay
Watmough Bay
Watmough Head
McArdle Bay
Hughes Bay
Boulder I
Blind Island
Langley Bay
Biz Point
-:70sl :33mx Rx1.1
-:19sl +:49mx Rx1.2
-:55sl -:30mx Rx1.8
+:50sl -:16mx Rx1.0
-:08sl -:62mx Rx1.0
-:84sl -:36mx Rx1.1
Rx0.8
+:29sl +:30mx Rx1.0
+:13sl +:16mx Rx1.0
-*- sl -:63mx Rx1.6
-:32sl -:117mx Rx0.5
-:73sl -:93mx Rx1.4
-:39sl -:76mx Rx1.0
-:125sl -:34mx Rx2.0
+:09sl -:57mx Rx0.7
-:181sl -:48mx Rx0.9
+:22sl -:43mx Rx0.2
+:68sl +:50mx Rx0.8
+:38sl -:34mx
-*- sl +:04mx Rx1.2
-*- sl -:149mx

The Real Deal!

Green on the chart is the color for the intertidal zone, meaning that at high tide the green area is covered with water and at low tide the area is dry.



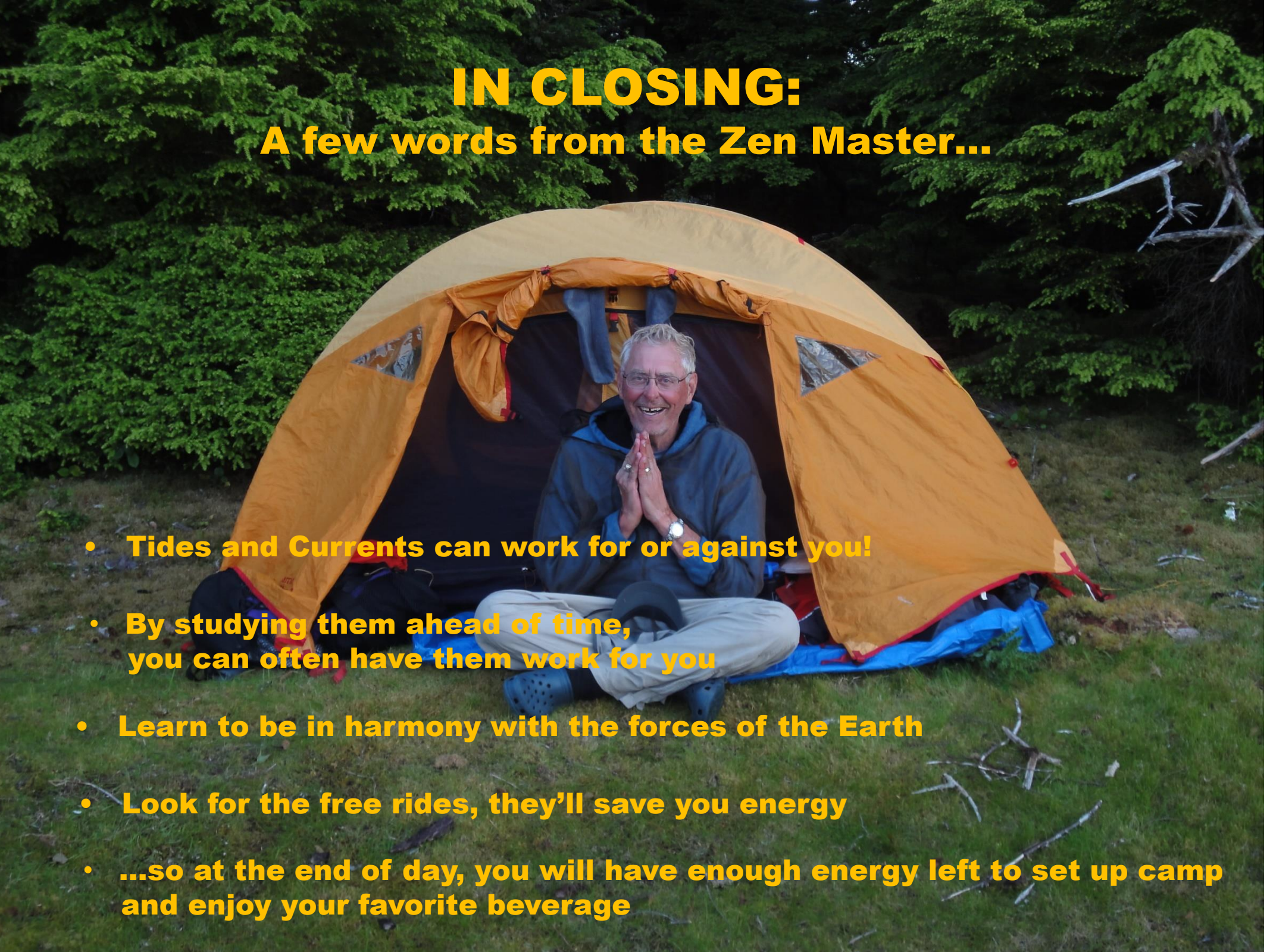
What's the best time to land or launch?

How much time is there for lunch or to go for a hike?

Takeaways

- There are two highs and two lows of different heights each day.
- Time of high & low tide doesn't usually coincide with max current.
- Current & Tide information are estimations, ***expect something different***!

IN CLOSING:
A few words from the Zen Master…



- Tides and Currents can work for or against you!
- By studying them ahead of time, you can often have them work for you
- Learn to be in harmony with the forces of the Earth
- Look for the free rides, they'll save you energy
- …so at the end of day, you will have enough energy left to set up camp and enjoy your favorite beverage