Example current calculations

For videos of paddling in currents go to: nwoc.com/Class-Resources and click on the FOSK handout for links

This example covers the rule of thirds and the slow water rule. The current and tide numbers are from NOAA for Deception Pass. The prudent paddler always checks current and tide numbers in more than one place. While this example covers Deception Pass the methods used can be applied to other areas.

Vocabulary:

EBB generally speaking water moving away from shore, specific direction varies depending on topography and other factors

FLOOD generally speaking water moving toward shore, specific direction varies depending on topography and other factors

SLACK is time of slow/no current between Ebbs and Floods

MAX is the time of maximum velocity in knots (nautical mph) of the current in that cycle

VEL is the maximum **velocity** of the current in that cycle

DIR is the **direction**, ebb or flood

MAIN STATION CURRENTS F(Flood)= 90°True

Deception Pass E (Ebb)= 270° True

SLACK	MAX	VEL	DIR
8:30 AM	11:48 AM	5.18	**Flood**
2:18 PM	5:24 PM	7.68	**Ebb**

If we know the time and velocity of the max ebb, flood, and slack we can calculate approximately what the current will be for the times in between using the rule of thirds. To do this we take the time difference between max and slack and divide by 3. For example, the time difference between 8:30AM(slack) and 11:48AM(max flood) is 3 hours and 18 minutes. Divide that number by 3 and you get 1 hour and 6 minutes. According to the rule of thirds, the current will reach approximately 60% of the max velocity in the first third of time. In this case that will be 1 hour and 6 minute after slack, or at 9:36AM. To calculate the velocity we multiply the max flood (5.18kn) by .6 for a velocity of 3.11 knots. In the second third of time the current will reach approximately 90% of the maximum velocity. In this example that will occur at 10:42AM, and have a velocity of 4.66knots. We can calculate the deceleration of the current using the same method. In the first third of time the velocity will decrease to 90% etc. The table to the right calculates what the current will be doing between slack and max.

NOAA **RULE OF THIRDS, 60/90 RULE**

	TIME	VEL	DIR		
0%	8:30 AM	0		SLACK	
60%	9:36 AM	3.108	**Flood**	270° True	Time Dif/3
90%	10:42 AM	4.662	**Flood**	270° True	1:06
100%	11:48 AM	5.18	**Flood**	MAX	
90%	1:40 PM	4.662	**Flood**	270° True	Time Dif
60%	3:32 PM	3.108	**Flood**	270° True	1:52
0%	2:18 PM	0		SLACK	
60%	4:10 PM	4.608	**Ebb**	90°True	Time Dif
90%	6:02 PM	6.912	**Ebb**	90°True	1:02
100%	5:24 PM	7.68	**Ebb**	MAX	

SLOW WATER RULE

How long do the slack waters last?

If we want to find out how long the water is going to be slow around the midday Slack, we need the maximums before and after. Divide 60 by the maximums, and you have the minutes of SLOW WATER before and after the predicted slack. SLOW WATER means less than 1/2 knot in either direction.

For example, 60/ 5.18 **11.6** minutes Before Slack

For example, 60/ 7.68 **7.8** minutes After Slack

SLACK	MAX	VEL	DIR
8:30 AM	11:48 AM	5.18	**Ebb**
2:18 PM	5:24 PM	7.68	**Flood**

Assuming you are there 30 minutes early to get a 90% chance of hitting the Slack, you will have ~

19 minutes of water moving less than 1/2 of a knot.

High tide is the point when the water is at its highest point on the shore, low tide is the lowest. The difference between high and low tide can vary greatly, meaning some areas may be underwater at high tide and completely dry during low tide. As such it's important to be aware of the tides and how it impacts where you can launch, land, and how far you might have to carry your boat to get to and from the water. Usually tides are a concern getting to and from the water, and current while you are on the water.

Tides: 10:12 AM 1.15 L

4:14 PM 8.59 H