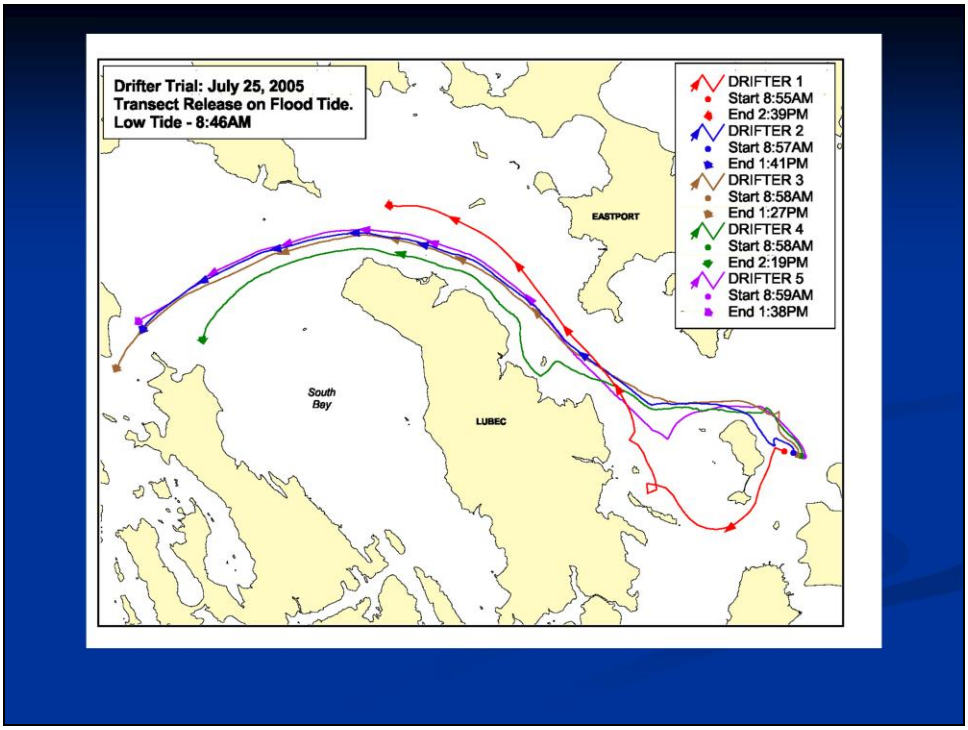
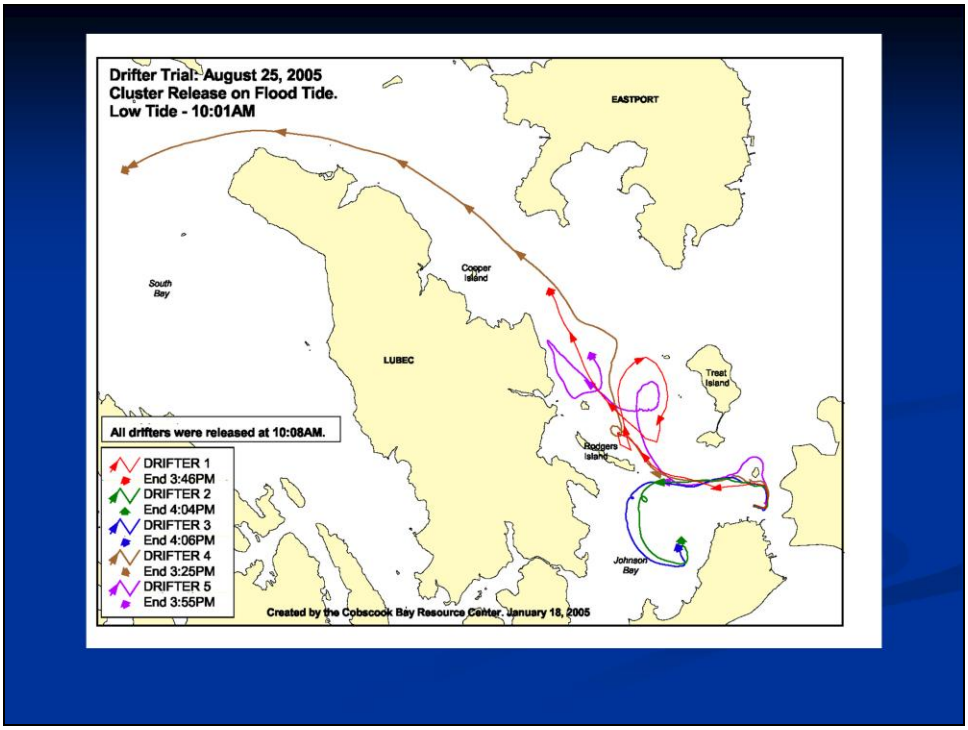
In 2005, we completed the third season of our project to document the currents of the Cobscook/Passamaquoddy Bay area.

We use barrel drifters with on-board GPS and satellite positioning capability. This gear allows us to put the drifters in the water, let them float freely with the currents, and come back and find them later. We download the GPS data into a computer and use the information to create maps of the currents.



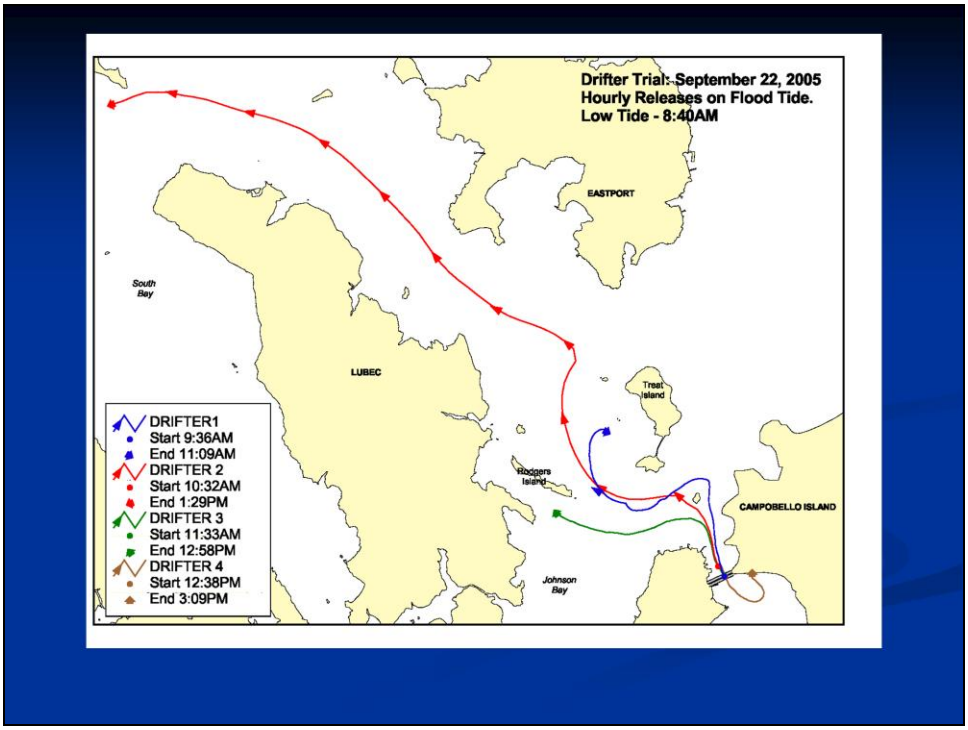
The original funding to do the drifter work came from the Maine Oil Spill Advisory Committee and was focused on information needed for spill planning. Because of this we needed to gather information about the currents in the areas most likely to have lots of boat traffic. Three of those sites are the Eastport Breakwater, the Estes Head Pier, and the Lubec Narrows area. In order to get really good information about how the currents in these areas work we set out the drifters using one of three different methods.

The method we have used most often is deploying along a transect. When we set out the drifter in a transect, we place them in the water from one point to another in a straight line. This map shows a trial we did on July 25, 2005. The drifters were deployed in a line between Treat Island and Friars Head Campobello. This run was interesting because the drifter set out closest to Treats entered Cobscook Bay by going to the south of Treats Island. The other four drifters moved into Cobscook by going around the northern end of the island.



The second of these methods is called a cluster release. Basically, we just put all the drifters over the side at the same time and in the same location. This type of deployment is similar to a sudden release from a location.

The map displayed here is an example of a cluster release. The drifters were deployed at 10:08AM at the mouth of the Lubec Narrows. It is interesting to note how they dispersed and moved at varying speeds. Some ended up in Johnson Bay, others hung out in an eddy off Rodgers Island before moving into Cobscook Bay.



The third kind of deployment is an hourly release. We release the drifters one per hour at a particular point.

The map shown here is an example of hourly releases. We started letting one drifter go every hour from under the International Bridge in Lubec. The first drifter in blue hung out in that eddy between Rodgers and Treat Island. The second drifter in Red took off for Cobscook Bay. The third drifter in green went into Johnson Bay and we picked it up behind Rodgers Island. The last drifter in brown went in the total opposite direction. It ended up on the beach below the Canadian Customs station on Campobello. I should note that wind was a factor on this day. We normally end a run when the wind speed approaches 15 knots. On this day we ended the run about two hours early because the wind was blowing from the southwest at 15-20 knots. I had a wild ride with Frank Ayers trying to get the red drifter into the boat off Birch Point.

This data has been of interest to several different groups beyond those interested in spill planning. This past summer, the group studying the possibility of a tidal power demonstration project in the Cobscook region used our drifter data as they considered various sites. We also share our data with scientists at the St. Andrews Biological Station who are doing similar field trials in Passamaquoddy Bay.

To this point we have been focused on doing the field work and looking at the direction and pathway of travel of the drifters. We haven't looked at velocity of the drifters along the way. We are working with the scientists at St. Andrews on developing velocity data. So while we will still continue to do the field work in the future, we also want to start trying to analyze the data we've already collected in a more in-depth fashion.

As you look at these maps, if you see things that are familiar or are different from your experience, please let us know. We'd like to hear what you think about this project and how it fits into what you know about the currents in Cobscook Bay.