# The New Bedford fishery now and onward

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It's been a while since I've had a chance to sit down, think and write about the changes in New Bedford over the past couple of years. A lot has happened in the fisheries. I remember the town meetings to discuss the development of sectors in the ground fishery. Basically, fishermen formed into groups and pooled their resources. Quota was given based on fishing history, some people bought quota and went fishing, others sold quota and tied up their boats. This might have worked for some owners, but it left a lot of crews without jobs. Some people felt this was a two-step around having a referendum, which would have been the case if it had been a straight quota instead of a sector system. In any case, it was a big upset. Had it saved the stocks, or led to some sign of improvement, people probably would have accepted it. However, the worst has happened and the latest estimates of New England groundfish stocks are incredibly low, reductions of 60% to 77% for Georges Bank and Gulf of Maine cod. Yellowtail flounder quota, which is divided between Canada and the US, is so low that it could shut down both the groundfish and the scallop fishery. The scientific uncertainties in these estimates are huge and a lot of people are questioning the Federal surveys and stock assessments. Many fishermen are saying, "This is it, it's over."

Ironic to think that 14 years ago the scallop fishery was in a similar situation, then about a third of the boats were facing bankruptcy. That was quite a time for me, coming to work to do research with Brian Rothschild, the founding Dean of SMAST. A combined, cooperative survey had just been completed with five vessels using commercial dredges but there was a big debate over dredge efficiency. It was a critical question since you have to know how many scallops the dredge collects to calculate how many scallops are on the sea floor, and then you can set your allowable catch based on what proportion of the resource you want to harvest. That debate was never truly settled in my

mind and I suspect it's a big problem for the ground fishery assessments as well. Anyway, for scallops trying to count them per meter squared turned out to be the way to go. The drop camera system Brian and I developed using video worked like a charm. It's hard to argue with a picture of scallops on the sea floor.

I don't think people realize what a cooperative effort this was with the fishermen, particularly the New Bedford fleet. We had no money for those first trips; they were all backed by individual fishermen, people donating their time, vessels, know-how, food and fuel. Now 150 week-long trips later and over 10 years of surveying the continental shelf from Virginia to the Canadian line 200 miles off shore on Georges Bank, that is still the case. The food, fuel, vessels and fishermen's labor are still all donated. The fishermen and my students have made our efforts a success. Our video survey is the largest in the world (that I know of), it provides an estimate of the numbers of scallops by size by location for the entire resource. This has enabled a rotational management plan that moves the fishing fleet around different closed areas on Georges Bank and in the Mid-Atlantic depending on how numerous and large the scallops are in each area. This system has been reviewed and accepted by the National Marine Fisheries Service and is combined with their research to provide yearly estimates of scallop abundance. This scallop management system seems to have worked well; the stock is above the estimated maximum sustainable yield and landing increased from a low of 5,500 mt in 1998 to an average of 26,000 mt from 2003 to 2010 worth about $455 million. New Bedford has been the number 1 fishing port by value in the US for the last 14 years due largely to scallop landings; the fleet landed $289 million worth in 2010 and $297 million in 2011 just in New Bedford.

The economics are important but it's the community of New Bedford that is the driving force of the fishery. Here there are people with the technical skills and expertise to keep the fishery sustainable and viable as it has been for over a hundred years. You can get anything built in New Bedford. A lot of it has to do with the essence of fishing itself, the idea that when you are out there you have to get the job done so you make do and fix what you need. This work ethic has been passed down through family businesses, mixing experience with innovation. On my scallop research several generations of fishing families work with us. This atmosphere feeds into, and is fed by, the artistic and creative community. Marine education is an important thread in the fabric of learning. Students can begin with presentations in elementary grades, middle school, and high-school, and can continue through the Sea Lab program, into college, and graduate school. All of these elements are celebrated every fall in New Bedford's Working Waterfront Festival.

So "what's the future?" You may well ask. The closed areas may have played a part in the scallop recovery but there was also a huge recruitment in the Mid-Atlantic in 2003 that has sustained the scallop fishery for the last 10 years. There seems to be a cycle in scallop populations. There is large year class about every 10 years; no one really understands it. The biggest scientific question in fisheries continues to be "what is the relationship between the spawning adults and the new recruits?" I think there are several underlying patterns to recruitment. There can be a relatively low average about 20% to 40% of the total population and then the correct environmental conditions occur and "wham" you get a huge year-class. That is what rebuilds your fishery. The trick is having the scientific techniques to see the recruitment as soon as it occurs and the management structure in place to act quickly and protect it. This just happened with scallops, we (our video survey and the NMFS scallops survey) saw another good recruitment in the mid-Atlantic and with the support of

the fishermen, the management council quickly closed the area protecting the scallops and allowed them to grow undisturbed until they were ready to harvest. Of course now we have climate change and so measuring these kinds of shifts in populations and marine communities will be even more important as we try to understand and live with these changes.

We're working on new ways to try and measure groundfish using acoustics and video techniques. To me the way forward is to reduce the scientific uncertainty and the best way to do this is to get out there with the fishermen and measure what's going on. If we can use new technology to look at these populations clearly and simply, perhaps we can start to grasp their underlying dynamics. There's also lots of talk of renewable energy. Aquaculture continues to grow, on a world-wide scale and has just surpassed wild fishery harvest. There is still an incredible amount of potential in the wild fisheries of New England, and the people willing to figure out how to make it work. It's quite a place to work and live.