

## education in the natural realm .....

### 'A biologist right from her earliest days'

#### The science career of Abigail Franklin, Univ. of Massachusetts at Amherst

This past summer was the first that Abby Franklin can recall that she was not working for Mass Audubon's Wellfleet Bay Wildlife Sanctuary on Cape Cod.

In all of her younger years, Franklin spent her summer months helping children to get up the nerve to touch a crab or a lobster. She would talk to groups of youngsters and their parents, explaining the lifestyles of various critters to be found on the shores of Cape Cod Bay. And, once old enough, she would sail as the on-board naturalist on three-hour marine life cruises, explaining to everyone on board, for example, how the smooth dogfish (shown at right) goes about its life on the bay. But all that is past.

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Instead of explaining the ways of marine life to wide-eyed children, this summer she spent much of her time preparing her research proposal while studying and sharpening her scientific skills as a graduate student in fisheries management at UMass Amherst. Among items on her read-



Photo: Elizabeth Hagan, South Orleans, Mass., Zlncgoh@comcast.net

ing list for the summer was the textbook *A Primer of Ecological Statistics*, a little-known title for poolside reading that includes chapters on data analysis, statistical thinking and design of experiments.

Among tasks that often kept her face to face with her computer (instead of at the beach or out on the bay) were a need to master Microsoft Visual Basic and Microsoft Access Database, both useful tools for graduate students. She also spent time trying to learn the statistical program called SAS, a comprehensive statistics, graphics and data management software package available for PC users.

"I always knew I wanted to study animals, but I had no idea when I was younger that I would have to learn all these technical skills," she explained. "But once I've mastered

them, I can begin to properly analyze the data from my research project. It's all geared towards understanding what the fish are doing."

Yes, the tools of her trade have become a bit more sophisticated. But Abigail Franklin is still out there netting fish and talking about them. These days the fish in her net are mostly anadromous species that include various types of river herring, the alewife being the most common.

"Ever since I was a little kid I've been interested in anadromous fish," she explained. "My parents always brought me to herring runs every spring, and we always spent out summers out in the Wellfleet area so we would certainly visit the herring run in Brewster.

"I'm a herring devotee," she continued, "mostly because I feel they



are so important both for the economy of our state, and for the ecological health of the oceans. I strongly believe in community rehabilitation of herring runs. I think that is a really important endeavor.”

Franklin, 27, who lives in central Massachusetts, spent a good part of this past spring and summer studying the effectiveness of a so-called nature-like fishway that was installed recently on Town Brook in Plymouth, Mass. (A nature-like fishway is designed to mimic the natural substrate of the rivers used by migrating fish such as herring to move upstream towards spawning areas). The fishway in Plymouth was installed after removal of the former Billington Street Dam. Since only a handful of these fishways have been constructed on U.S. waterways, the National Marine Fisheries Service sponsored a study

**Abby Franklin, above, processes herring caught in the Town Brook, Plymouth, Mass., as part of her summer study of fish passages on the stream. At left, Abby shows off a dogfish caught during a three-hour coastal cruise sponsored by Mass Audubon out of Wellfleet, Mass.**

of the effectiveness of the fishway in Plymouth.

“The idea was to ascertain if the nature-like fishway does actually work,” she said. Town officials in Plymouth were also interested in the study because they are contemplating removal of another dam on the stream, with likely installation of additional fishways.

Franklin said she caught and tagged about 400 herring in April and May 2006. In each case she logged data about the fish and surgically implanted a tiny coded transponder called a pit-tag (PIT, short for positive integrated

transponder). After a month of hard work she had data on 175 fish. The others, she said, might have swum out of the system, been devoured by birds or animals, or died. Fish that continued upstream towards the spawning pond had to pass under a series of eight antennae that were erected over the brook over a distance of about a quarter mile, she explained.

While some fish could make it from the tagging site to their final destination in a couple of hours, she had one, apparently unmotivated, herring that swam around within the system for 27 days. Following are



Natural fishway built on Town Brook, Plymouth, Mass.

some notes from Franklin regarding the performance of her tagged fish: (“There was one fish that took 27 days (DAYS!) to get from antenna 1 to 8 – could be a lack of motivation, or it could be he had trouble finding the entrance to the second fishway. Ninety-six percent of the fish made it through the nature-like fishway. 95% made it to the antenna just before the dam. Only 31% found the entrance to the old fishway, and only 12% actually

made it up to the pond. Of those that made it all the way up to antenna 8 (and then to the pond) their average time in the system was 11.7 days. The minimum was 1 hour and 43 minutes and the maximum was 27 days. Median is 2.9 days. This is one area where I need to do more analysis. I know that some fish are capable of doing it in a couple hours – but are they super fish? Did the 27 day fish really try for 27 days or was he just “hanging out?”)

## STRONG INFLUENCE FROM MASS AUDUBON DIRECTOR

“Abby always seemed to be headed in the direction to become a biologist of some sort, right from her earliest years,” said Bob Prescott, director of Mass Audubon’s Wellfleet Bay Sanctuary where Abby Franklin worked almost every summer of her teenage years. “She was always out in the fields and wetlands, out in the marsh and out on the tidal flats exploring whatever she could find, and at an early age she developed a strong interest in marine life.”

The way Abby Franklin tells it, many of her youthful summers were also spent under the beneficial influence of Bob Prescott.

“I think I’ve wanted to be like him ever since I was about six years old,” she explained. “On our marine

life cruises which I had done with him for many years, he would pick up the various creatures and he seemed to know absolutely everything about them, and he was so enthusiastic it was infectious. I just wanted to be that kind of person.

Prescott acknowledges that he seems to have lost the services of Abby Franklin for now as she moves into new phases of her life. “But it’s still possible that we could get her back one day as a professional biologist,” he said. “That would be great not only for Mass Audubon but also for the community here in Wellfleet which has already benefited from her work and her energy.”

“We have not fully analyzed the data, but so far the results are looking pretty good for the new fishway,” she said. “If this is the way it works out, I think a lot of people are going to be interested in these results.”

By the end of summer, Franklin was back attending classes at UMass Amherst, and working as a lab technician at the Conte Anadromous Fish Laboratory in Turners Falls, Mass.

At the beginning of her second semester, her fall classes included Advanced Fisheries Management, Multi-Variate Statistics and a seminar on communicating science information. She also sighted up for classes in scuba diving.

At the Conte fish lab she is involved with various studies done with the 100-foot model fishway that operates with water from the nearby Connecticut River, using herring netted from Massachusetts streams and then released. Franklin, who is developing her graduate thesis around these studies, works under the guidance of Dr. Alex Haro, a section leader at the lab and faculty member at UMass Amherst. She earned her undergraduate degree at Hampshire College.

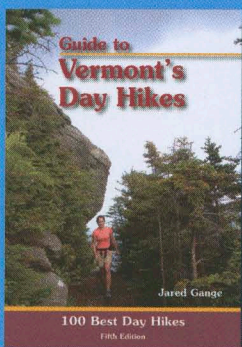
“When I’m done with my studies, I can see myself



working in fisheries with anadromous fish like herring for my entire career,” she said. “I may end up teaching, but in the meantime, I’d like to share my enthusiasm and expertise with all those communities that are struggling to improve their own fishways.”

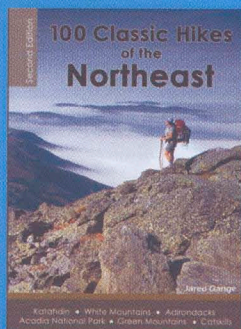
Contact Abby Franklin at [aef99@hampshire.edu](mailto:aef99@hampshire.edu)

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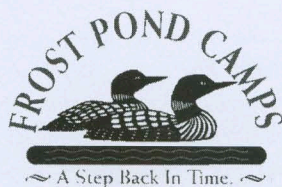


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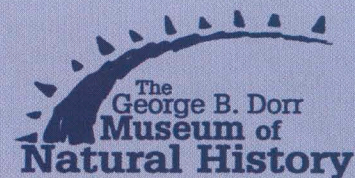


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