Bringing winter flounder back to Martha's Vineyard through community engagement

Martha's Vineyard has a long and rich history of recreational and commercial winter flounder fishing. However, current winter flounder populations in New England waters are at an all-time low and new regulations have closed all fishing activity for this species in federal waters. While it is hoped that these more stringent fisheries regulations will allow winter flounder populations to rebuild to historic levels, recovery will not happen quickly. Environmentally responsible enhancement techniques — stocking additional hatchery-reared fish in Vineyard waters, in this case — may help to jump-start their recovery.

A community-driven project

Officials and fishermen from Martha's Vineyard sought collaboration with researchers at the University of New Hampshire who have been involved in winter flounder restoration efforts elsewhere. The enthusiasm and good organization displayed by Vineyard municipalities highlighted their dedication to improving the winter flounder stock in their region. In addition, the island's historically large winter flounder populations, high-quality nursery areas, existing wild spawning stock and nearby aquaculture facilities made it an ideal candidate to scientifically test various winter flounder stocking strategies. This two-year project became a regional collaborative effort that included fishermen, scientists, a Native American tribe, the aquaculture industry and fisheries managers engaged in research to find ways of protecting and enhancing winter flounder and its fishery.

The goals were to bring these groups of people together, better understand winter flounder populations in Martha Vineyard waters, and determine if stocking hatchery-reared fish into these estuaries would help restore winter flounder populations.

"We live in a place that recognizes sustenance as a means of survival. Our community recognizes fishing as a historic tradition. Our community cares about the seas and what lies beneath. Local restoration of winter flounder and perhaps other fish species is feasible and should be promoted."

-Bret Stearns

Director, Natural Resources Dept.

Wampanoag Tribe of Gay Head (Aquinnah)

Project Highlights

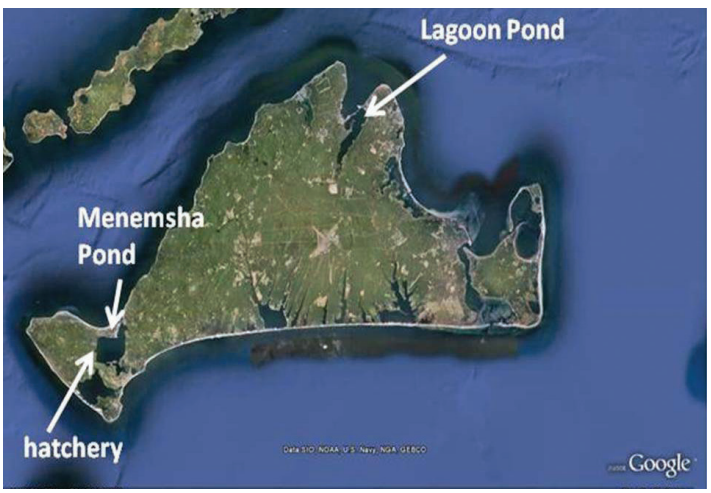
1 Restored a former hatchery

In order to stock winter flounder, researchers first needed a local hatchery where the fish could be raised. A former shellfish hatchery owned by the Wampanoag Tribe of Aquinnah that had been offline for more than six years prior to this project was available. Many hours were put in to get it back into working order to be able to raise flounder. The result: a hatchery retrofitted to raise both shellfish and flounder.

2 Developed ecosystem snapshots

Project technicians evaluated two different estuaries as potential release areas for winter flounder: Menemsha and Lagoon Ponds. Food availability for the juvenile flounders, water quality, presence of wild winter flounder and potential predators were examined at multiple sites within both estuaries for a year to make an educated decision about where the winter flounder would have the best chances of survival upon release. Based on these data, researchers decided that Menemsha Pond would be the better release location.

> "This is a model of how groups can work together to accomplish meaningful results and it highlights the role that aquaculture can play in making our nations fisheries truly sustainable."
>
> -David Alves
> *Northeast Region Aquaculture Coordinator*
> *NOAA Aquaculture Office*
> *National Marine Fisheries Service*
> *Northeast Regional Office*



3 Trained community members

This project helped train local members of the community in finfish aquaculture, hatchery operations, fish tagging and stock enhancement surveys. A local fisherman was trained as the hatchery manager, and high school and college students, along with tribal members and staff and a town selectman, comprised the hatchery technicians.

Highlights, cont.

4 Raised/released 4,500 flounder

After almost two years of training and preparation, thousands of winter flounder were cultured in the Aquinnah tribal hatchery. These fish were spawned from wild-caught adult winter flounder captured by local commercial fishermen near Martha's Vineyard. Of the hatchery-reared fish, approximately 4,500 juveniles were tagged and released into Menemsha Pond.

5 Determined best release strategy

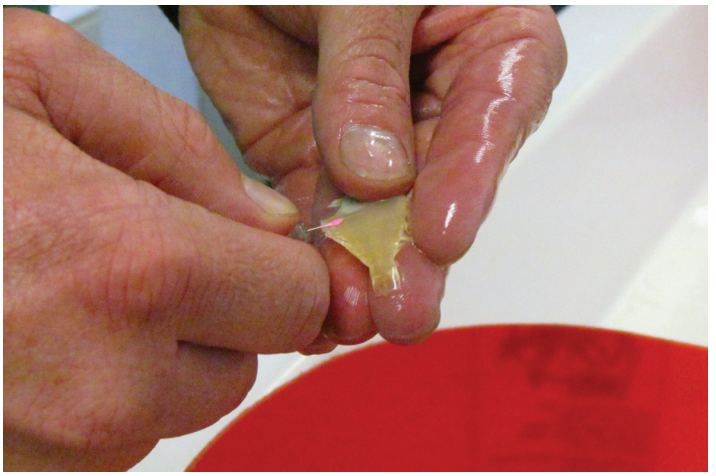
While some of the winter flounder were released directly from the hatchery, the rest were put into underwater cages for two days to get used to the pond before they were released into the wild. These two methods were used to determine if one way resulted in higher flounder survival rates upon release. Researchers determined that winter flounder conditioned in the underwater cages tended to stick around the release area longer than the hatchery-raised fish, which may mean more of the cage-conditioned fish survived.

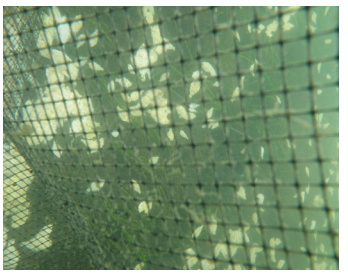
6 Brought people together

This project brought together often disparate groups, including academics, scientists, regulators, a native American tribe, municipalities, commercial fishermen, conservation groups, students and shellfish groups, to tackle rebuilding winter flounder in a positive way. All groups saw the communal merit in rebuilding an important fish population and put any differences aside to pitch in and work together – whether in the hatchery, on the water or raising awareness around town – and advocate for the project. Lasting partnerships were created that will carry forward into daily life.

7 Garnered media attention

This project garnered attention in the press. News articles appeared in media outlets on Martha's Vineyard and in N.H., and in more widespread publications including *Hatchery International* and *Aquaculture North America.*





"This work was a great example of a collaboration that uses the strengths of both our programs (UNH and Mass. DMF) to work with local fishermen to address issues on the ground."

-Mike Armstrong
Assistant Director,
Fisheries Management Section
Mass. Dept. of Marine Fisheries

Next Steps

The project team made great strides over the course of two years in getting personnel and equipment prepared to conduct analyses and to produce and raise winter flounder. A first-of-its-kind project, Martha's Vineyard and UNH are leading the way by supporting dynamic, innovative research and providing manpower to improve winter flounder populations. The challenge is to secure future funding to keep these advancements moving forward. Additional funding would provide opportunities to re-evaluate some of the rearing protocols and to increase production for larger stocking efforts. This will likely result in improved winter flounder populations and will enable researchers to conduct more detailed analyses of their efforts. Researchers can use the knowledge gained from larger stocking efforts to make recommendations to fisheries managers about the efficacy of winter flounder restoration and to potentially expand operations to include other communities or states to help them develop localized stocking initiatives.

Acknowledgements

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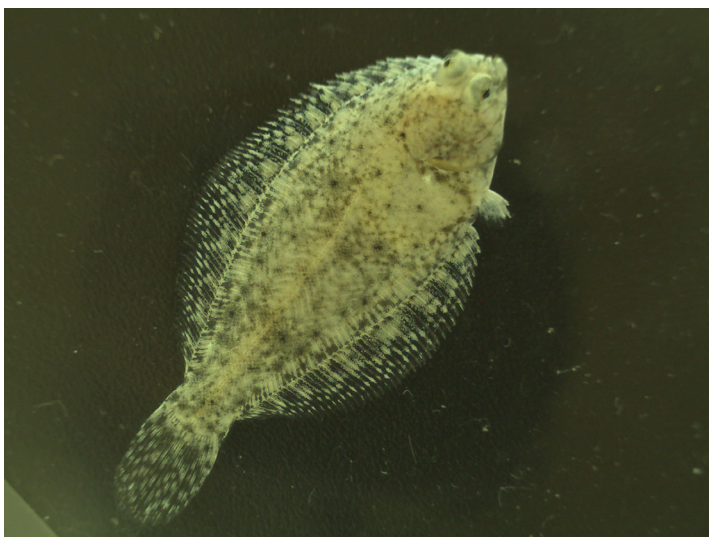
For additional information:
Elizabeth Fairchild
elizabeth.fairchild@unh.edu
603.862.4475

"We hope our endeavor will inspire other tribes, states and communities to enhance sustenance fish populations in an effort to restore the historic levels of fish and shellfish available."

-Bret Stearns
Director, Natural Resources Dept.
Wampanoag Tribe of Gay Head (Aquinnah)



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