North Cape Oil Spill Restoration

National Oceanic and Atmospheric Administration
United States Fish and Wildlife Service
Rhode Island Department of Environmental Management
Ocean Technology Foundation

Lobster Restoration Program

Background

In January 1996, a 340-foot oil barge, the *North Cape*, ran aground off Moonstone Beach, Rhode Island after its tugboat caught fire during a severe winter storm. As a result, over 828,000 gallons of home heating oil spilled into local waters killing millions of surf clams, fish, birds and other organisms. An estimated 9 million lobsters were killed as a result of the spill.

USFWS

On January 19, 1996, the Tug Scandia and barge North Cape ran aground, spilling 828,000 gallons of home heating oil.

Restoring Lobsters

Over the past six years the responsible party funded a large-scale program to restore the lobsters injured by the oil spill. Individual lobsters were marked with a v-shaped notch in their tail. Notched lobsters are then protected by law and cannot be legally harvested until they molt, or change their shell, and the v-notch disappears. With this protection, the reproductive lives of the lobsters are extended.

Under the terms of the consent decree, the RP was required to v-notch and release 1.24 million legal size female lobsters. These 1.24 million v-notched lobsters will produce an estimated 23 billion eggs which will yield the 9 million lobsters lost by the spill

Methods

The Ocean Technology Foundation (OTF) was hired by the RP to manage the restoration effort and jointly determined with DEM, NOAA, and the commercial fishing industry that the best approach to accomplish this project was to use trained observers and fishermen to capture and release v-notch lobsters. Lobster fishermen that were involved in the program were paid for each lobster they v-notched and returned to the ocean. Restoration was conducted as far as 60 miles offshore and 30 miles east towards Martha's Vineyard.

Trained observers were assigned to lobster boats to accompany fishermen on their trips. As female lobsters were captured, they were inspected to determine eligibility, v-notched and released at their capture location. While onboard, observers also recorded recapture information of previously v-notched lobsters.

A rigorous monitoring program was also established to closely document the numbers of animals notched, their locations, and their health.

Highlights

Coordinated the v-notching of 1.24 million legal sized female lobsters.
Conducted restoration from western Rhode Island to southern Massachusetts.
Increased lobster egg abundance in southern New England waters.

NOAA

An OTF observer v-notches a lobster on-board a commercial vessel.

Increased Egg production

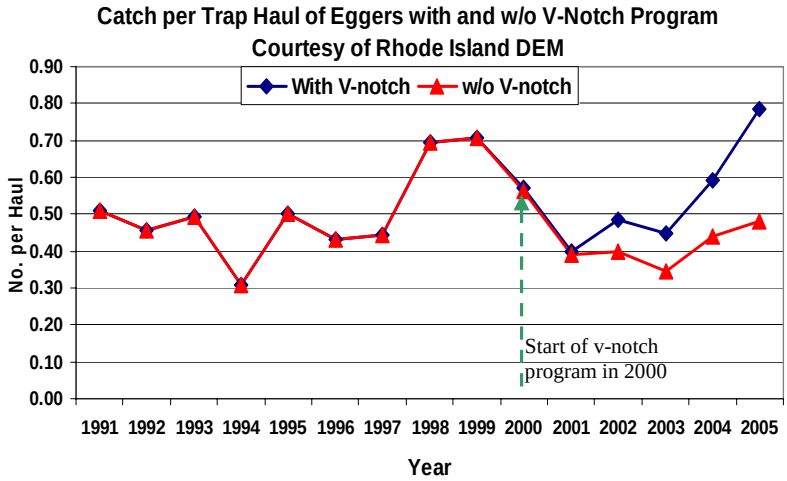
A v-notched lobster is a future egger! That's the motto of the *North Cape* Lobster Restoration Program. By prolonging harvest of female lobsters for two additional years (the approximate time it takes to lose their v-notch), the females are allowed another chance to reproduce. The success of the v-notch program is evident by the number of previously v-notched lobsters bearing eggs upon recapture.

OTF

A previously v-notched female lobster is recaptured carrying eggs. Without the v-notch, this lobster could have been harvested before having the chance to reproduce again.

Achievements

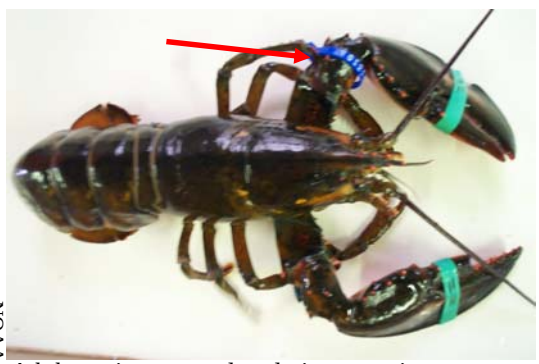
Recapture data from v-notched lobsters is demonstrating that many of the animals are reproducing, evident by the high number of v-notched lobsters bearing eggs upon recapture. In the graph to the right, scientists from Rhode Island DEM compared the contribution of egg bearing females in the lobster population with a v-notch (blue line) to lobsters without a v-notch (red line). Lobster fishermen and marine resource managers recognize the significant contributions being made by this restoration program to the future of the lobster fishery.



Scientific Assessment of the Lobsters

To track movement and determine survival rates of the v-notched lobsters, the Ocean Technology Foundation, NOAA and DEM cooperated to complete a successful tagging project that was conducted in conjunction with the v-notch program. A percentage of the notched lobsters was also equipped with a special tag which identified that individual lobster. Over 35,000 individual lobsters have been equipped with tags from 2003 to 2006.

When the lobster is released, the size, location and date of capture are recorded. When a lobster that has been tagged is recaptured the tag is not removed from the lobster. Instead the date, location of recapture, size of the lobster, shell condition and whether or not that lobster is carrying eggs or not is recorded. This recapture information gives scientists and managers valuable information such as migration patterns and survival of the animal. This type of information will help increase our understanding of lobsters and help ensure a strong lobster fishery in the future.



NOAA

A lobster is captured and given a unique identification number. When the lobster is recaptured, biologists can track the movement of the lobster, as well as gain other valuable data. The green rubber bands are removed before release.

Tank Studies

NOAA, RIDEM, and OTF also conducted scientific experiments to test the effect that v-notches had on lobsters, and to try to determine how long the legal v-notch lasts after the initial notch takes place. Preliminary analysis of the experiment shows no increased mortality from v-notching and no increase in the likelihood of shell disease from notched lobsters.

NOAA

Lobsters are held in tanks at the RIDEM wet lab in Jamestown, RI to perform v-notch experiments.

Our Thanks

NOAA, RIDEM, USFWS, and OTF would like to thank the community for their support of this effort. Particularly, we would like to thank the men and women of the commercial lobster fishery.

For more information, contact:

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