Avoidance program IDs river herring hot spots

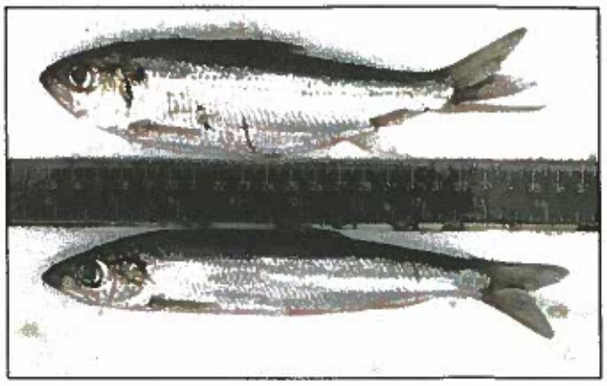
NEW BEDFORD, MA – Born in freshwater in the spring, river herring head downriver to estuaries and nearshore waters by the winter. From there, they set out on extensive ocean migrations, traveling as far north as northern Canada or as far south as southern Florida before returning to their home region to spawn.

As a result, river herring – a collective term for alewife, blueback herring, and American shad – have a complex life history that makes it difficult to estimate stock sizes and to determine reasons for stock declines. However, decreases in the number of river herring returning to coastal rivers to spawn have alarmed people, even prompting a petition to list river herring as an endangered species.

Though the role that midwater and bottom trawl Atlantic herring and mackerel vessels may play in the overall decline of river herring is unclear, the University of Massachusetts Dartmouth School for Marine Science and Technology (SMAST) and the Massachusetts Division of Marine Fisheries (DMF) are working with a number of these vessels to develop strategies for minimizing river herring bycatch.

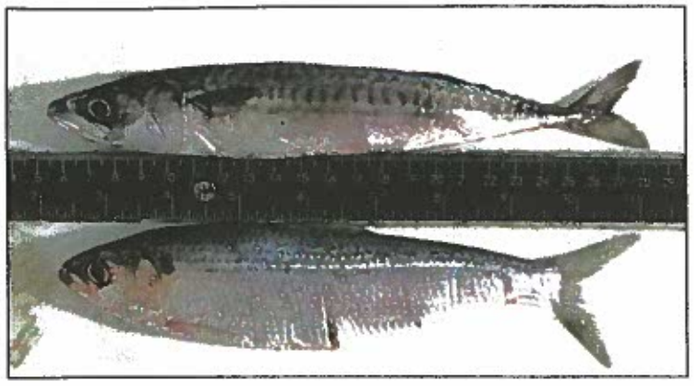
Since January 2011, a dozen midwater trawl vessels have participated in a river herring bycatch avoidance program funded by the National Fish and Wildlife Foundation. This winter, thanks to funding from the Nature Conservancy, small-mesh bottom trawl vessels from Rhode Island joined the effort.

Our hypothesis is that river herring do not continuously school with Atlantic herring and mackerel while at sea. Therefore, with enough information and clear, quick communication, we can identify areas where vessels can fish that contain adequate amounts of target species but not large amounts of river herring.



SMAST photos

Top fish, an alewife, which is a type of river herring. Bottom fish, an Atlantic herring.



Top fish, an Atlantic mackerel. Bottom fish, a river herring.

Top fish, a juvenile American shad, another type of river herring. Bottom fish, an Atlantic herring.

This approach is similar to and influenced by the SMAST Yellowtail Bycatch Avoidance Program (see CFN March 2011) but adapted to make the approach appropriate for a fishery that operates on a metric-ton scale and for fishes that are highly migratory and similar in appearance.

There were major difficulties to overcome in establishing this program, including: defining how much river herring bycatch is too much; finding a way to estimate how many river herring the vessels were catching; and developing an easy way to communicate information.

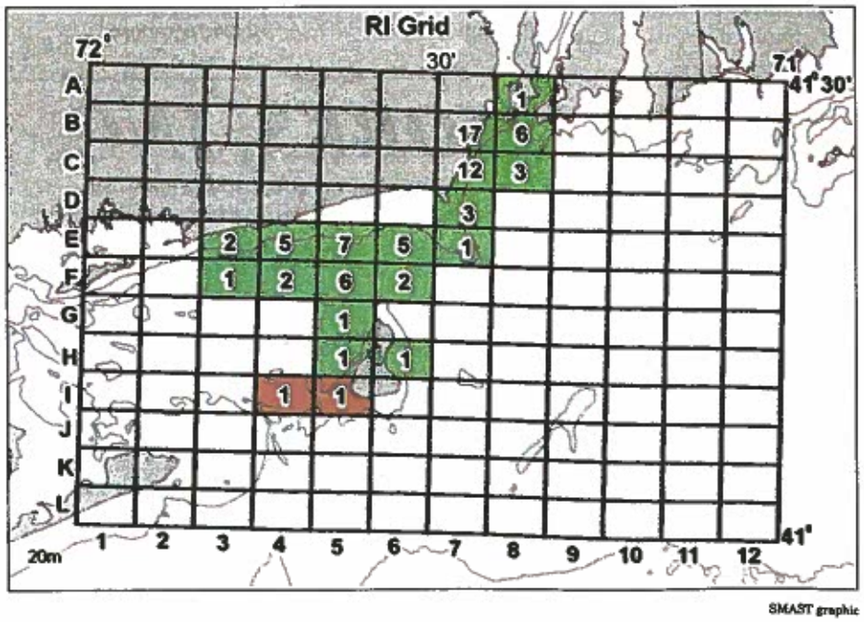
Tracking bycatch

A key issue that had to be addressed was how to define a "high bycatch" event. There are no set limits on the amount of river herring that can be taken by a vessel. There also are no stock size estimates for river herring. Therefore, there's no way to classify trips based upon regulatory or biological values.

So, we decided to focus on reducing the relative amount of bycatch by trying to reduce the uncommon but very large river herring catch events that account for the vast majority of bycatch.

To estimate the amount of each species captured in a trip, we worked with the DMF portside sampling program, led by Bill Hoffman and Brad

See RIVER HERRING, next page



SMAST graphic

River herring

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Schondelmeier, to estimate the amount of species captured in a trip.

Portside sampling is an efficient, cost-effective method to estimate bycatch of small fishes that are similar in size to the target catch – as river herring are compared to Atlantic herring and mackerel – and that are pumped aboard vessels along with the target catch.

Vessels e-mailed or phoned DMF and SMAST to report their departure and landing times, hail weights, and landing ports. Portside samplers met the vessels at offloading sites and sampled the entire catch, which sometimes took several days to unload.

Vessel captains voluntarily recorded tow locations in DMF trip logs. We also communicated with the Northeast Fisheries Observer Program to verify tows with high bycatch and tow location information.

All of this information was combined to create bycatch advisories that we e-mailed to participating vessels. The advisories classified areas as having low, moderate, or high bycatch potential. They also included additional information such as weekly bycatch rates or catches of river herring outside of the areas of focus.

Letters and numbers were used to refer to specific areas on avoidance grids, which were distributed to vessel captains (see Figure 1 previous page).

Collaboration

During this and last winter's avoidance programs, we identified areas of high bycatch and then encouraged captains to shift fishing effort away from these areas and, instead, focus on areas with little bycatch.

So far, we have classified a total of 10 areas as having high bycatch and fishing vessels have re-entered only two of these areas after that classification. In one of these cases, the captain explained that he felt he could avoid catching river herring in the area using a different fishing technique. He was, in fact, able to reduce his river herring bycatch percentage from 3.0% to 0.3%.

In the fall of 2011, we circulated information indicating that river herring bycatch was unlikely to occur at depths greater than 73 meters.

The average depth of tows within the avoidance area was 97 meters. Initial fishing effort was focused in the northeast part of the avoidance area with low bycatch. We shared this information with the fleet and fishermen continued to direct their effort in the area for the remainder of the fishery with no high bycatch events.

These results are promising and, as we continue to gather data on bycatch and fishermen input, the system will improve by building on what we have learned.

This collaboration provides a way to reduce the relative amount of river herring bycatch as we work to understand how many river herring are caught in these fisheries, how river herring from different natal regions mix at sea, patterns of bycatch, and the impact of river herring bycatch on river herring populations.

As managers of the Atlantic mackerel and herring fisheries consider adding regulations to reduce river herring bycatch, the River Herring Avoidance Program provides fishermen with a tool to work towards the shared goal of reducing river herring bycatch.

Dave Bethoney

Dave Bethoney is a fisheries research technician for the Fisheries Oceanography Program of the University of Massachusetts Dartmouth School for Marine Science and Technology. He may be reached by e-mail at <nbethoney@umassd.edu>. More information on the River Herring Avoidance Program may be found online at <www.smast.umassd.edu/Bycatch_Avoidance>.

NMFS institutes TALs for whiting stocks

GLOUCESTER, MA – Come May 1, commercial fishermen will begin working under hard total allowable landing (TAL) limits for whiting.

The new catch limits are part of a secretarial amendment to the groundfish plan, which the National Marine Fisheries Service (NMFS) published on March 30. The amendment covers five small-mesh hake stocks that are managed as a subset of the groundfish plan and collectively referred to as whiting.

The final TALs for the 2012 through 2014 fishing years are:

- Northern red hake – 90.3 metric tons (mt), equivalent to 199,077 pounds;
- Northern silver hake – 8,985 mt, equivalent to roughly 19.81 million pounds;
- Southern red hake – 1,336 mt, roughly 2.95 million pounds; and
- "Southern whiting," which covers both southern silver hake and offshore hake – 27,255 mt, or roughly 60.1 million pounds.

Offshore hake typically is caught as bycatch in the southern silver hake fishery. The combined catch is marketed as "whiting," which is why NMFS lumped the two stocks together for TAL purposes.

The amendment also includes two "accountability measures" (AMs) to ensure that catch limits aren't exceeded, and, if they are, to "mitigate the potential harm" to small-mesh stocks.

The first is an in-season AM that automatically triggers an incidental catch possession limit when 90% of a TAL is protected to be reached. For red hakes, the incidental possession limit is 400 pounds. For silver hakes, including offshore hake, it's 1,000 pounds.

The second AM – a post season one – involves overage paybacks in the second year after the overage occurred, which, effectively, is year three. For example, if an overage occurs in 2012, NMFS will work up final numbers during 2013 and then implement the deduction in 2014. The overage will be based on the annual catch limit (ACL), not the TAL.

The 2012-2014 specifications start off with an overfishing limit – and another acronym, OFL – for each stock. The OFL, adjusted for "scientific uncertainty," results in an acceptable biological catch (ABC). This number, when adjusted for "management uncertainty," produces an ACL. The ACL, minus discards and an estimated 3% for state landings, produces the TALs. The TALs are what fishermen are bound to.

For more information about the secretarial amendment and new TALs, call NMFS's Moira Kelly at (978) 281-9218 or e-mail her at <moira.kelly@noaa.gov>.

Amendment 19

The New England Fishery Management Council is in the middle of developing its own whiting amendment, known as Amendment 19 to the groundfish plan. In fact, Amendment 19 was just aired at five public hearings from New Hampshire to New Jersey in mid-April.

But Amendment 19 isn't on track to be implemented until October 2012, and the Magnuson-Stevens Fishery Conservation and Management Act mandated that ACLs and AMs be in place for *all* stocks around the nation by 2011.

Given that the council missed this legal deadline, NMFS stepped in with the secretarial amendment to implement whiting catch limits and accountability measures until the council's amendment takes over.

See WHITING, next page