

NOAA: LARGEST (from page 9)

Building on earlier research

The new research applies previous findings that questioned longtime assumptions of fisheries management. Traditional thinking held that reproduction is a function of biomass. That means that fish representing a certain mass would produce similar numbers of offspring regardless of their age or maturity. However, syntheses of previous research by some of the same authors demonstrated that larger, older, and more mature fish produce more offspring. Also, previous work suggests that offspring of these older, larger mothers may survive at higher rates.

Management measures, such as establishing **Marine Protected Areas** that provide refuge for fish to grow larger, can help boost the yields of fisheries and replenish depressed species. They can in effect provide a reservoir of more mature fish with greater reproductive capacity.

“We need to ask, ‘How can we make the most of these fish that reproduce more efficiently—both to sustain the species and to support sustainable fisheries?’” said **E.J. Dick**, a fisheries research biologist at NOAA Fisheries’ Southwest Fisheries Science Center and senior author of the paper.

By contrast, when fishing removes the more prolific larger fish, the traditional assumptions tend to overestimate the production of eggs and the population’s capacity to replenish itself. That can lead to overharvesting which for many of the largest fisheries could remove around twice as many fish as intended, the scientists found.

“In this paper, we connect the dots between early findings that large, old Pacific rockfish produced more eggs per body mass than smaller ones did, and Professor Marshall’s more recent work showing that many other species do, too,” said **Marc Mangel**, professor emeritus of mathematical biology at UC Santa Cruz and a coauthor. “Without recognizing this, fisheries scientists and managers may overestimate the number of spawning fish needed to produce a certain level of recruitment, and set mortality levels from fishing too high.”

Recognizing greater capacity

In their new analysis, the scientists examined whether the largest fisheries in the world take the findings into account. In many cases, they found, fisheries do not.

“This systematic error could help to explain why some stocks have collapsed despite active management,” the scientists wrote. They recommended that managers recalibrate future species stock assessments to recognize the greater reproductive capacity of larger fish. This could reduce overharvesting and may even boost the yields of fisheries.

“Such reductions could have negative repercussions in the short-term, for both food security and the economy, but will yield positive benefits in the long-term,” the scientists wrote. They said that better recognizing the capacity of larger fish could help boost the catches of Atlantic cod fisheries in the longer term, for example.

“Our work suggests that modern management could respond to this challenge by better leveraging the reproductive potential of larger, older fish in exploited stocks more so than is presently the case, using relatively simple policy innovations,” they said.

The research was conducted by scientists from NOAA Fisheries, UC Santa Cruz, Monash U. & Queensland U.



ELECTION Committee

Gisele Golembeski, Chair



ELECTIONS FOR 2022

The 2021 Election Committee has formed and consists of the following members: Gisele Golembeski (Chair), Gary Perschau (Vice Chair), Jennie Hurst (Secretary) and Richard Golembeski.

Any member who is considering running for office as an Officer or Board Member, can find out more online. The RISAA By-Laws explains the duties of officers and directors and also sets forth how the election process works. You can view the By-laws at the RISAA web site by going to:

www.risaa.org/members_only/bylaws_index.html

**The Election of Officers will take place at the
RISAA Annual Meeting on
Monday, December 27, 2021**

**The close of nominations for
Election of Officers and Directors is
October 15, 2021**

**Any member who wants to declare his/her desire
to run for office should contact me right away.**

I can be reached by email at gisele@risaa.org or
by phone at 401-935-0827.

CIRCLE HOOK STUDY (from page 10)

This is very similar to the rate used in the stock assessment (9%) and consistent with other studies on striped bass release mortality rates, but researchers want to tag more fish before they are confident in these results. It’s too early to determine whether circle hooks have a lower mortality rate.



This summer, researchers are on the water tagging more striped bass to increase the sample size of this study. In the long-term, the MA DMF team plans to collaborate with state scientists in Long Island Sound and Chesapeake Bay to look at release mortality rates in other regions, as well as for other seasons and other hook types including artificial lures. The Commission is following this research closely to make sure the best available science is used in the assessment and management of striped bass.

* For more information on this project, go to MA DMF at <https://www.mass.gov/orgs/division-of-marine-fisheries> or YouTube channel at <https://www.youtube.com/user/massmarinefisheries>