

WITEK: MRIP (from page 8)

Striped bass in Maryland's portion of Chesapeake Bay, and black sea bass in the northeast are two examples that immediately come to mind.

However, a closer examination demonstrates that MRIP-based measures normally fail when MRIP is used in inappropriate ways, something that most often happens when MRIP is linked with the Atlantic States Marine Fisheries Commission's concept of "conservation equivalency."

Boiled down to its essentials, conservation equivalency is a policy that allows a single state, or perhaps a group of states, to adopt management measures for a species that differ in one or more respects from the measures specified in the relevant ASMFC fishery management plan. The idea is that conservation equivalency allows a state to craft measures that best suit its local fishery, without doing harm to the stock.

In theory, it should work quite well.

In reality, it hasn't been so successful.

One of the reasons for that is that, in allowing states to adopt measures that differ from the coastwide standard, conservation equivalency degrades the precision of MRIP.

There are two things to think about when considering the accuracy of an MRIP estimate. One is that, as NMFS tells us,

"The more samples you draw, the more precise your estimate."

The other is that, no matter how many samples you draw, there will still be some level of error in the resulting estimate. As NMFS explains,

"Because a sample does not include all members of a population, an estimate based on a sample is likely to differ from the actual population value. Indeed, sampling error is inherent in all sample statistics..."

"The most common measure of sampling error is precision, which measures the spread of independent sample estimates around a true population value. This is sometimes understood as the standard error or confidence interval. We account for standard error in our recreational fishing estimates by ensuring these estimates are made up of two parts: a point estimate, which represents our estimate of total recreational catch, and a percent standard error, which represents our confidence in this value and is similar to the margin of error used in polling. The lower the percent standard error, the higher our confidence that the estimate is close to the actual population value."

If we apply that to, say, the 2018 black sea bass fishery, we find that the percent standard error for black sea bass caught by anglers between the Canadian border and North Carolina is 5.7, which suggests a high degree of precision, while the PSE for all black sea bass harvested by those anglers in 2018 is 7.7, which is still very good. If fishery managers base recreational management measures on that coastwide data, then absent any extraordinary events such as an unusually stormy season, those recreational management measures would have a good chance of keeping landings right around the recreational harvest limit.

However, the Mid-Atlantic Council decided that the recreational black sea bass fishery could be managed on a conservation equivalency basis, with the ASMFC approving each state's proposals. So at its February 2018 meeting, ASMFC's Summer Flounder, Scup and Black Sea Bass

Management Board decided to allocate 61.35% of the recreational harvest to New York and New England, where most of the recreational harvest is caught, to include New Jersey with the southern states between it and North Carolina (even though New Jersey arguably shares most of its black sea bass fishing grounds with New York, and fishes on the same sub-stock of black sea bass as western Long Island and New York City during the summer, and the on the same sub-stock as New England and eastern Long Island during the winter), to give New Jersey and the other southern states 38.65% of the recreational landings, and to give New Jersey 78.25% of the fish awarded to the entire southern region.

So far, so good, but then conservation equivalency sets in.

Addendum XXX to the Summer Flounder, Scup, and Black Sea Bass Fishery Management Plan set a basic 15-fish limit, 12 1/2-inch minimum size and May 15-December 31 season for the states between Delaware and North Carolina. North of that, conservation equivalency held sway. New Jersey was permitted to adopt a complex set of regulations that included four different combinations of size limit, bag limit and season, interrupted by two different season closures, while New York and New England were provided with a standard set of rules, but was permitted to choose conservation-equivalent regulations so long as such regulations did not "exceed a difference of more than 1" in size limit and 3 fish in possession limit from the regulatory standard."

That set the stage for a situation where no state between New Jersey and Massachusetts—the states that account for more than 90% of the black sea bass catch—shared the same regulations, even though their boats might fish side by side when targeting sea bass in federal waters.

It also illustrated the wrong way to employ MRIP estimates.

Consider New Jersey, which provides the most extreme example.

Just going from a coastwide estimate of black sea bass harvest to a New Jersey-specific estimate significantly reduced the precision of landings estimates, with the present standard error increasing from 7.7 to 16.3; even so, a PSE of 16.3 is good enough to support reasonably effective management measures, if they were calculated on an annual basis.

But that's not what New Jersey did.

Instead, the state adopted an intricate set of rules that saw the season begin on May 15, with a 12 1/2-inch size limit and 10-fish bag, only to close on June 22. At that point, the season closed for 8 days, only to reopen on July 1 with the same size limit, but a bag limit reduced to just 2 fish. Those rules remained in place through the end of August. The season then closed again for 37 days, to reopen on October 8, when the bag limit returned to 10 fish. Finally, on November 1, the bag limit increased to 15 fish, the size limit increased to 13 inches, and those regulations remained in force through the end of the year.

In order for New Jersey anglers to come close to, but not exceed, their share of the coastal black sea bass harvest, all of those measures would have to depend on one of two things—precise data, or pure luck. **(to page 37)**