

By

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It has been my pleasure to contribute to the Sea Grant column for some 25 years. During that time, I've covered estuarine ecology, the health of Mobile Bay, fishery regulations, fishery management, and short profiles of interesting sea creatures. In this, my last column, I would like to rehash some principles of fishery biology that seem to be lost at times in discussions about fishery management.

Generally speaking and particularly here in the warm south, an un-fished population will produce, on average, many more offspring than can survive to become reproductive adults. This surplus production can be seen as insurance for when natural environmental conditions are bad, or anytime some factor reduces the population below the long term average. This surplus production is why fish and shellfish are a renewable resource. Fishermen can take some fish out of population as long as enough adults are left to replenish what has been taken.

Any fish population that is fished will be reduced from what it was before it was fished. You will often hear it said that there is not as many fish of a certain species as there were 30, 40, or 50 years ago. The statement is often true. Typically, there are fewer fish because there is less suitable habitat (loss of wetlands, grass beds, pollution, etc) and because fishermen are catching some. We cannot have reasonable levels of fishing without reducing the adult fish populations.

The question for fishery biologists and managers is not are there fewer fish than in the past but are there enough fish to sustain the population and the current fishing pressure.

The trick is to find the amount of fish that can be harvested and keeps the population going at an acceptable level. In fishery biology theory, the maximum production for a population occurs at a point where one half of the unfished population is removed. At that point, more young fish have the greatest chance to survive and become adults. Recent experiences

show that trying to manage a fish population exactly at the maximum production (maximum sustain yield) is risky business because of natural fluctuations and uncertainty in actually estimating populations. Current thinking suggests that reduction of populations by less than 50% is safer. For some very productive, short lived species, reductions greater than 50% may be sustainable while for long lived, low productivity species, reduction by even 40% may not be sustainable.

The point is that just about any fish population is reduced from what it was before fishing started. Fishing continues and is sustainable as long as enough fish remain in the population to produce future generations. It is the task of fishery biologists to determine scientifically how much is too much. The responsibility of managers and the public is to decide if the maximum sustainable amount should be caught or some smaller, less riskier amount.