


ESSENTIAL FISH HABITAT: CAN WE SUSTAIN OUR FISHERIES AND OUR INDUSTRIES?

By Elizabeth Coleman

Some people might say that “fisheries management” is an oxymoron—after all, wild fish have minds of their own and it is usually the behavior of the fish harvesters that must be managed. Indeed, this was the purpose behind the Magnuson Fisheries Conservation and Management Act, which in 1976 established the federal Exclusive Economic Zone (EEZ) 200 miles seaward of the U.S. territorial limit and created regional councils to manage EEZ fish. The councils became national stewards of public marine fisheries, issuing annual management plans that have regulated the harvest of key fishery stocks ever since.

In 1996, the renamed Magnuson-Stevens Act was again authorized, with the addition of a new concept: the notion that measures to achieve healthy, sustainable fish populations must also provide for the health



A strengthened Sustainable Fisheries Act would affect both the commercial and recreational fishing industries in Louisiana, though the consequences would be greater for commercial fishermen.

of the aquatic habitats in which the managed species live. The idea was expressed in a collection of amendments known as the Sustainable Fisheries Act (SFA), which emphasized the importance of fish habitat to the perpetuation of U.S. fisheries and introduced an entity that must be protected: essential fish habitat.

The SFA requires regional fisheries management councils, using regulations developed by the National Marine Fisheries Service (NMFS), to describe and identify the essential habitat for all life stages of each of the species they manage and to amend their management plans to meet these needs. They must identify any activities, in either the area itself or those adjacent to it, that can damage essential habitats, and make recommendations for

conservation. The act also requires federal agencies to consult with NMFS if they are undertaking any activities that may adversely affect essential fish habitat and to provide detailed descriptions of mitigation or prevention measures.

These provisions, along with the NMFS regulations for implementing them, leave a number of challenging questions for both fisheries managers and scientists, and the answers may have economically painful consequences for some stakeholders. First, and most basic, what are the indicators that a habitat is essential? According to the SFA, essential habitat is "the water and substrate necessary to fish for spawning, feeding, breeding, and growing to maturity." The term "necessary" embraces everything

that sustains a fishery throughout the species' entire life cycle.

"One could argue that all of our coastal and marine waters fall within this definition," says Scott Burns, director of the Fisheries Conservation Program for the World Wildlife Fund.

Richard Gutting of the National Fisheries Institute is concerned that the NMFS guidelines to be used by fisheries management councils in characterizing essential fish habitat include too much. For example, the guidelines state that "the loss of the habitat of prey species is an adverse impact on the essential fish habitat of the managed species." This, says Gutting, "effectively expands the definition of essential fish habitat to cover the habitat of prey species as well



"... it would affect recreation, too — Louisiana sells a huge number of recreational fishing licenses. Running outboard motors into sensitive nursery areas to cast for redfish is something that can be regulated. "

Photo above courtesy of Mike Liffmann.
Background photo courtesy of Don Davis.

as those species under management."

The SFA described essential habitat as "waters and substrate necessary to fish," without elaborating further, but the NMFS guidelines expand the description. Water is defined as "aquatic areas having the physical, chemical, and biological properties used by fish" while substrate is expanded to include "sediment, hard bottoms, structures underlying the water, and associated biological communities." (Artificial reefs are considered underlying structures but coral reefs and any submerged aquatic vegetation that form a habitat are "associated biological communities.") Gutting sees the added phrases as introducing a broad ecological element that could seriously complicate the task of identifying essential habitat.

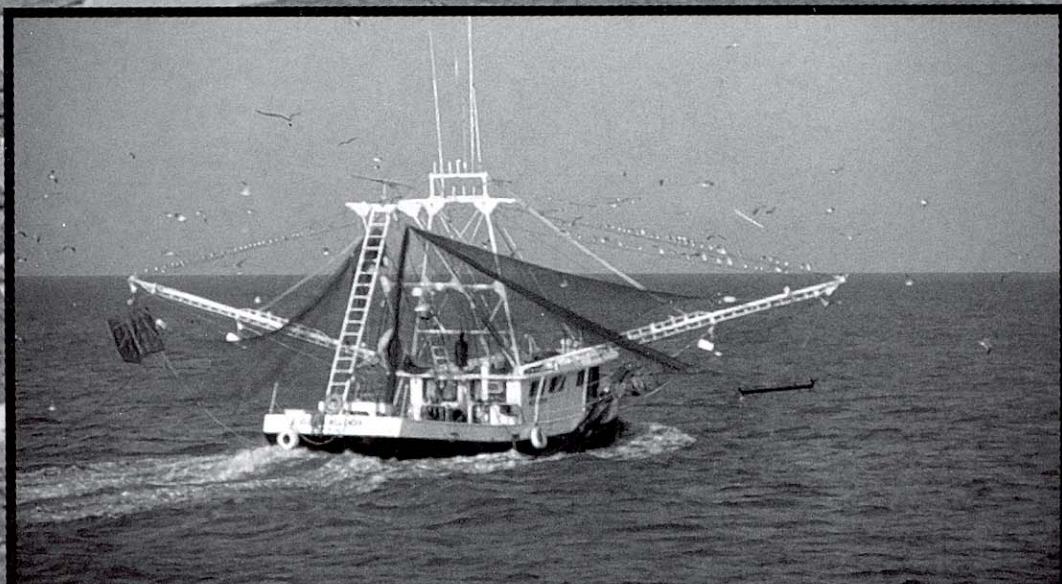
In addition, the regulations define "necessary habitat" to mean "the habitat required to support a sustainable fishery and a healthy ecosystem".

"Exactly where does this 'ecosystem' begin and end?" asks Gutting. "Is it the particular body of water occupied by the managed species, or does it extend to the global 'web of life'? And how is the notion of 'healthy' to be defined and implemented?"

Burns predicts that these kinds of regulatory ambiguities will create a continuous tension between the desire for a comprehensive habitat protection program and a focused effort with clear priorities. Scientific uncertainty will be another vexing issue. "Whichever approach we take, narrow or broad,"

Burns says, "our job will be complicated by the problems of scientific uncertainty and a lack of sufficient data on the relationship between habitat and fish productivity. Given this lack of data, how do we go about drawing lines on the map that identify essential fish habitat?"

The regional management councils must depend on information generated through fisheries research. If some fisheries scientists are nervous about producing the quality of data needed to establish essential fish habitat, they may be feeling pressured to deliver more than science can deliver at present. Dr. Don Baltz, fisheries scientist with the LSU Coastal Fisheries Institute, thinks that the requirement for identifying and protecting habitat makes the fisheries



"The only viable course for Louisiana's fishing industry is to take the initiative in making changes that will enable them to keep their industry economically sound but also make it socially and environmentally sustainable."

Photo above courtesy of Richard Condrey.

management act more effective but agrees that scientific uncertainty may be a problem. "There's good science available," says Baltz, "but there aren't data for all species in all categories."

The SFA allows for four levels of data, increasing in complexity, that can be applied when verifying an aquatic area as "essential" to fish:

(1) The most basic is simply the presence or absence of fish species in the area.

(2) The second level requires more specific information about habitat-related density of a species. What is the connection between habitat and species at different points in the animal's life cycle?

(3) Growth rate forms the third level and requires information that is not available for many species. What are the reproduction and survival rates of the species related to various habitat types?

(4) The most difficult level to attain is "ideal world" production rates by habitat, or the quantity and quality of habitat necessary to produce a species.

"For some relatively important species," says Baltz, "we may be stuck with the lowest level of data."

Acquiring and assessing reliable information cannot be done quickly. In a recent Sea Grant-supported project, Baltz and his colleagues explored the influences of food, population density, and microhabitat use on the early growth of juvenile redfish and speckled trout in shallow-water nursery habitats. "We wanted to find out what was really important to the fish, and if there were measurable variables that would help us account for differences in individual growth rates. It took us about three years to collect adequate data and then there were problems with the analyses. It can be difficult to convince yourself—and your peers—that you've done it right. We often end up with more questions than answers. It's possible to do things in a hurry and get an answer, but it may be a long way from the correct answer."

"Of course, dealing with scientific uncertainty is a regular feature of environmental policy," says Burns. "It's just worse with fish, since they don't line up to be counted and don't have the good sense to stay in one place."

The SFA requires fishery management plans to include measures that will mitigate the adverse impacts of fishing on essential fish habitat, a provision that "if

carelessly implemented," according to Burns, "has the potential to be extremely divisive. If adverse impacts are identified, it is important that NMFS and the councils develop collaborative partnerships with fishermen to identify workable ways to address these problems."

To Jerald Horst, fisheries biologist and Sea Grant marine agent with the Louisiana Cooperative Extension Service in Marrero, Louisiana, the most profound effect of the Sustainable Fisheries Act will be on the fishing industry, in both state and federal waters. "Right now, outside of federal waters, the essential fish habitat provisions are mainly advisory, because the act doesn't give management councils the authority to make regulations for state waters. But it

other stakeholders in our fisheries really need to weigh in with their elected officials."

The ante has already been raised, according to Horst. He cites as significant a recent ruling that is the direct result of SFA habitat regulations—the outlawing by the South Atlantic Fisheries Development Council of the harvest of sargassum seaweed in the south Atlantic. "Much of the decision to do this was driven by the council's identification last September of sargassum weed as essential fish habitat. What's important here is that in areas under their jurisdiction they are already making management decisions predicated on essential fish habitat considerations. The company that harvests sargassum



Menhaden account for most of Louisiana's annual commercial fishery landings, about 1.5 billion pounds. Photo courtesy of LSU Coastal Fisheries Institute.

may be paving the way for that."

By requiring fisheries management councils to identify essential fish habitats in state waters as well as in the federal EEZ, the act is, in Horst's opinion, authorizing the first venture by federal managers into waters under state jurisdiction. At present, the councils manage only the fishery resources of federal waters.

Except for adverse impacts caused by fishing, the SFA does not place new mandatory controls on any activity that would previously have been permitted. However, says Burns, "...in my opinion, the mere designation of an area as essential fish habitat can significantly 'up the ante' for that area's protection. Fishermen and

weed will probably have to go out of business."

Sargassum, covering about two million square miles in the Atlantic Ocean, is used by some fish species for shelter and feeding. It is harvested to produce animal feed additives and fertilizer. "I've not seen anything in the research indicating that sargassum was being depleted," says Horst, "and there was no evidence that harvesting it was affecting fisheries recruitment or causing a serious bycatch problem. But the approach was 'we've identified this as essential to fish, so we can't touch it.' The vast kelp beds off the Pacific coast are also essential habitat, but they're harvested."

Horst thinks that the essential fish