
Habitat Hotline Atlantic

Issues of Concern for Atlantic Marine Fish Habitat

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Fishery Management Council Prohibits *Sargassum* Seaweed Harvest

The South Atlantic Fishery Management Council (SAFMC) took a difficult step in the interest of protecting essential fish habitat. The SAFMC chose to phase out a viable fishery for the pelagic seaweed *Sargassum*, based on the importance of the seaweed to other marine species and the recent designation of *Sargassum* as “essential fish habitat” under the Magnuson-Stevens Act.

Pelagic *Sargassum* mats are unique floating habitats found in warm waters of the western North Atlantic. A diverse assemblage of marine organisms is found in association with the seaweed, including federally regulated fish and federally protected sea turtles. Pelagic *Sargassum* has been designated as essential fish habitat (EFH) and as a “habitat area of particular concern” for coastal pelagic species (king and Spanish mackerel, dolphin, and cobia) managed by the SAFMC. Under the Magnuson-Stevens Act, federal fishery management councils are required to designate habitats that are necessary to a managed species for spawning, feeding or growth to maturity as “essential fish habitat.” Adverse impacts to habitats identified as “EFH” are given increased attention by federal agencies under this Act.

Sargassum Ecology - Two species of brown algae, *Sargassum natans* and *S. fluitans*, comprise up to 90% of the total drift macroalgae in the Sargasso Sea, a large portion of the western Atlantic Ocean located east of the Bahamas and south of Bermuda. Both species reproduce only by vegetative fragmentation. There are several species of benthic *Sargassum* living in coastal areas that can become detached and be found drifting offshore, but these species don’t survive very long in the pelagic environment.

Most pelagic *Sargassum* drift with the Gulf Stream and Florida Current. The greatest amounts are found within the Sargasso Sea with an estimated standing crop of 4 to 11 million metric tons. In the nutrient-poor waters of the Sargasso Sea, pelagic *Sargassum* may contribute as much as 60% of the total primary production in the upper meter of the water column. The fate of pelagic *Sargassum* depends on the prevailing surface

currents—material may stay on the continental shelf for extended periods, be trapped in the Gulf Stream, or be washed ashore.

A large and diverse assemblage of marine organisms has been found in association with pelagic *Sargassum* including fungi, epiphytes, at least 145 species of invertebrates, over 100 species of fish, 4 species of sea turtles, and many marine birds. Many of the fish found associated with *Sargassum* are also known to associate with various types of drift material and fish aggregating devices. Various reasons have been suggested for such associations, including protection, cleaning, shade, structural affinity, feeding opportunity, tactile stimulation, visual reference, and use as a spawning substrate.

Factors affecting the species composition and abundance of fish associated with *Sargassum* include surface residence time, season, geographic location, and age (growth stage and colonization by other organisms) of *Sargassum*. The type of *Sargassum* habitat e.g., individual clumps, small patches, large rafts, or weedlines, also is a factor relating to the distribution and abundance of associated fish.

Sargassum Harvest - *Sargassum* harvest has been a contentious and difficult issue for the SAFMC. On one hand, the harvest of *Sargassum* can be viewed as contradictory to its designation as EFH. Bycatch of juvenile fish and turtles in harvested *Sargassum* is another concern. On the other hand, a viable fishery and market for *Sargassum* and its products has been established by harvester Aqua-10 Laboratories. Moreover, Aqua-10 contends that its harvest method actually enhances seaweed reproduction. Calculated gross estimates of the standing stock for *Sargassum* in the North Atlantic are highly variable (4-11 million metric tons) and better estimates are needed to accurately evaluate its abundance.

Products made from *Sargassum* extracts are currently used in livestock feed and dietary supplements; however, use of these extracts could provide medical benefits for people. A

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December 1998 South Atlantic Fishery Management Council Meeting Motion Summary

The Council voted to prohibit all harvest and/or possession of *Sargassum* from the South Atlantic EEZ [exclusive economic zone or U.S. federal waters] effective January 1, 2001. Until January 1, 2001 harvest will be capped at 50,000 wet pounds and harvesters will be required to: (1) acquire a permit, (2) allow on board observers if requested, (3) harvest only in the area seaward of the longitude line representing 100 miles from shore bounded by the latitude lines representing the North Carolina/Virginia border and the North Carolina/South Carolina border, (4) maintain logbooks, (5) call into the NMFS [National Marine Fisheries Service] when leaving and returning to port, and (6) use nets of four inch stretch mesh or larger.

scientist in the Midwest is selling products containing the *Sargassum* extract to help AIDS and herpes patients. Bill Campbell, owner of Aqua-10, believes that his *Sargassum* extract may help eliminate the use of antibiotics in livestock and reduce the amount of nitrogen in hog waste—a major environmental concern for North Carolina.

Mr. Campbell said he is only interested in harvesting *Sargassum* that occurs off the coast of North Carolina in water depths greater than 6,000 feet. The seaweed from this area is purported to have strong concentrations of the chemical of particular interest for making the extracts. Other methods for obtaining *Sargassum* material may be viable, including propagation, but will have to be developed.

In early December, the SAFMC voted to phase out the harvest of *Sargassum* over the next two years until January 1, 2001. After this date, harvest and/or possession will be prohibited in federal waters (3-200 miles offshore). Prior to this date, a limited quantity will be allowed to be taken within 100 miles of the North Carolina coast (see motion summary for more details).

December was the second time that the SAFMC voted on this issue. In September, when the SAFMC took its first vote on prohibiting *Sargassum* harvest, the vote was split 5-5 with two members absent and one abstaining. In December, the two-year phase out was offered as a compromise and approved by a vote of 8-4. The phase out will not be implemented immediately. The SAFMC-approved *Sargassum* fishery management plan, which includes the prohibition on *Sargassum* harvest, must still be approved by the National Marine Fisheries Service and the U.S. Secretary of Commerce. The federal review process could

take as long as a year to complete. The North Carolina Marine Fisheries Commission may also address the issue of harvesting *Sargassum*, but in state waters. The Commission has already agreed to allow Mr. Campbell to harvest *Sargassum* in state waters (up to three miles offshore).

The lack of scientific data on *Sargassum* distribution and abundance and the ecological and functional relationships between *Sargassum* and the many marine species associated with it has contributed to the uncertainty of determining the impact of harvesting. Furthermore, to better evaluate impacts, more data are needed on *Sargassum*'s growth and propagation. As essential fish habitat, and habitat in general, are increasingly incorporated into fisheries management, the need for data to support effective decisions will continue to grow. Without these data, risk averse management is the most prudent approach.

Sources

- Kristen Fox, December 6, 1998. *50,000 Pound Limit Passed by Council*. The Coastland Times, vol. 64, no. 66, pp. 1, 14A.
South Atlantic Fishery Management Council, October, 1998. Final Habitat Plan for the South Atlantic Region: Essential Fish Habitat Requirements for Fishery Management Plans of the South Atlantic Fishery Management Council. South Atlantic Fishery Management Council, Charleston, South Carolina. pp. 125-133.
South Atlantic Fishery Management Council press release. October 2 1998. *Sargassum Management Plan Tabled Until December Meeting*.

Rhode Island Establishes No-Discharge Area for Boat Sewage

Rhode Island has become the first state to implement a ban on releasing boat sewage in a state's marine waters. Boaters will have to use pumpout stations to empty their holding tanks. The New England administrator for the U.S. Environmental Protection Agency, John

DeVillars, issued the ruling in response to the state's request that a "no-discharge" area for boat sewage be declared for all marine waters within 3 miles of Rhode Islands's coastline.

Adapted from Fisheries, November, 1998, vol. 23, no. 11, p. 45.

Transportation Act Funds Available For Water Quality Protection

The Transportation Equity Act for the 21st Century (TEA-21) creates new opportunities to improve air and water quality, restore wetlands and natural habitats, and revive urban areas through transportation redevelopment, increased transit, and sustainable alternatives to urban sprawl. A total of \$217,573 billion was earmarked for various TEA-21 programs of which \$8.1 billion will be used to protect the environment.

TEA-21 includes provisions that target nonpoint source runoff—the nation's leading cause of water pollution. TEA-21 strengthens federal support for state nonpoint source control measures. Some of the provisions include:

Clean Vessel Act. Funding is continued for constructing dump and pumpout facilities in marinas. This provision is becoming increasingly significant as more states seek to designate coastal and inland waters as no-discharge areas.

Transportation Enhancements. These projects improve communities' cultural, aesthetic, and environmental qualities (for example, bicycle and pedestrian pathways, historic preservation, acquisition of conservation or scenic easements, rails-to-trails projects, and mitigation of water pollution due to highway runoff). These projects will be funded through a 10% set-aside of the Surface Transportation Program (STP) with an estimated funding of \$3.3 billion over 6 years.

Environmental Restoration and Pollution Abatement. State transportation departments can spend up to 20% of the cost of reconstructing, rehabilitating, resurfacing or restoring a transportation facility to address water pollution or environmental degradation associated with current or past projects. For example, this could involve retrofitting or constructing a stormwater treatment system or restoring riparian or wetland areas.

Wetlands Restoration and Mitigation Banking. STP and Federal Highway System funds can be used to address wetlands losses caused by past, current, or

future federally aided transportation projects.

Environmental Streamlining. Federal agencies are required to work together to streamline environmental review of transportation projects, for example, review of wetlands and stormwater permits.

Transportation and Community System Preservation Pilot. A total of \$120 million is earmarked over the next six years for a pilot project that encourages state and local agencies to plan, develop, and implement strategies that integrate community planning and transportation.

Transportation-Environment Cooperative Research Program. A program will be funded to research the relationship between highway density and ecosystem health.

Metropolitan and Statewide Planning. State transportation departments and metropolitan planning organizations must consider environmental protection and enhancement in preparing long-term transportation plans. This provides an opportunity to look at urban sprawl and to integrate consideration of watershed plans, wetlands, habitat, and open space.

Ultimately, state transportation departments will decide how to use funds received under TEA-21, however, citizen groups, municipalities and others can influence their decisions. Such groups can encourage environmental awareness at project sites, the development and enforcement of erosion and sediment control programs, and good environmental management practices. For more information see website www.fhwa.dot.gov/tea21/index.htm or contact Fred Bank of the Federal Highway Administration at (202) 366-5004.

Adapted from the U.S. Environmental Protection Agency's Nonpoint Source News-Notes (November 1998 Issue 54, pp. 1-3) which is also available on EPA's website: www.epa.gov/owow/info/NewsNotes/index.html.

RI Council Adopts Policies to Protect Submerged Aquatic Vegetation

The Rhode Island Coastal Resources Management Council (Council) has adopted policies to protect and where possible, restore Rhode Island's submerged aquatic vegetation (SAV). SAV refers to rooted vascular flowering plants that, except for some flowering structures, live and grow beneath the water line. The most common type of SAV in Rhode Island waters is eelgrass (*Zostera marina*), although widgeon grass (*Ruppia maritima*) is also a SAV species of concern.

Eelgrass beds were widespread in Narragansett Bay in the 1860s, but in the 1930s, 90% of eelgrass beds in the Atlantic range were lost due to wasting disease. By the 1960s, healthy

populations were generally re-established. Currently, eelgrass beds cover fewer than 100 of the 96,000 acres in Narragansett Bay. The most important factor contributing to the continuing decline of eelgrass has been increasing amounts of nitrogen. Excessive nutrients stimulate algal growth in the water column which can limit the amount of light reaching SAV. Excessive levels of sediments in the water column can also prevent adequate light reaching SAV, interfering with the plants' capacity for photosynthesis.

Many activities under the Council's jurisdiction can

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impact SAV, either directly or indirectly. Examples of such potential impacts include shading of eelgrass beds from dock structures, physical destruction of SAV habitat associated with dredge and fill activities, and loss of adequate light levels due to increased sedimentation associated with construction activities. Recognizing the need to address these impacts, the Council has adopted SAV protection policies. In addition, the Council is proposing new requirements for nitrogen-reducing septic system technologies for use in areas where excessive nitrogen has been associated with eelgrass declines.

Furthermore, an advisory committee, made up of

representatives from state and federal agencies as well as interest groups has been established to assist the Council in its efforts to protect SAV. The purpose of the advisory committee is to make recommendations to the Council's Planning and Procedures subcommittee on various issues relating to the protection and restoration of SAV. Issues to be considered by the advisory committee include requirements for applicants with respect to conducting SAV inventories, mitigation strategies, and restoration activities.

Adapted from RI Coastal Resources Management Program's Coastal Features, Fall 1998, vol. VII, no. 3, p. 7.

Canadian Drilling Moratorium on Georges Bank Set to Expire: U.S. Officials Urge Re-enactment

The Canadian moratorium on petroleum exploration and drilling that has protected marine resources of Georges Bank is due to expire in January 2000. U.S. officials have responded by urging the Canadian government to extend the moratorium and maintain protection of these vital marine resources, which occur in both Canadian and U.S. waters.

Georges Bank is an area of fairly shallow waters in the Gulf of Maine, located between Cape Cod and the southwest tip of Nova Scotia. Jurisdiction of the area is geographically split between the United States and Canada by the "Hague line," which was established in 1984. The bank is recognized as one of the most highly productive continental shelf areas of the world and supports valuable fisheries as well as endangered marine mammals. It has also been identified as an area with potential value for hydrocarbon production.

The moratorium was first established in 1988 in response to public outcry regarding industry attempts at exploratory drilling. In mid-1998, the United States extended its own moratorium on offshore oil and gas development in the area into the year 2012. Review of this issue by Canadian officials is entrusted to a panel appointed by the Ministers of Natural Resources for Canada and Nova Scotia. Their report is due to the Ministry by July 1, 1999.

The primary steward for U.S. marine resources is the National Oceanic and Atmospheric Administration (NOAA). NOAA Administrator Dr. James Baker has urged the Canadian government to extend their moratorium. "The review of Canada's current moratorium is central to NOAA's environmental stewardship efforts on Georges Bank and in the Gulf of Maine and waters off southern New England," stated Dr. Baker in a letter to the Review Panel. "We strongly encourage Canada to extend the moratorium."

Georges Bank is one of the most productive areas for New England groundfish and scallop fisheries, many of which are severely struggling. Intense fishing pressure by an aggressive and resourceful fishing fleet has severely depressed Georges Bank stocks of cod and haddock. Stringent regulations imposed

by the New England Fishery Management Council and Canadian government have just begun to show some effect, with recent signs of stock recovery. Dr. Baker stated, "Although much of Georges Bank is currently closed to harvesting in both U.S. and Canadian waters, there are promising signs of recovery for these severely depleted stocks. NOAA would not want to see that progress jeopardized by the threat of environmental harm from hydrocarbon development."

Endangered marine mammals including the North Atlantic right whale, humpback whale, fin whale, sperm whale and sei whale are also threatened by drilling activities. Potential impacts to these species include acoustic disturbances which could effect whale communication, disruption of food chains, and an increase in ship strikes, thought to be the largest source of human related mortality to northern right and humpback whales.

Eastern Canadian waters have recently become active in oil and gas development. Productive fields are in operation off Newfoundland, Labrador, and Nova Scotia. The industry has substantially contributed to the strained economies of areas formerly supported by the ailing fishing industry. It is expected that the oil and gas industry will seek to lift the Georges Bank moratorium, and extend development in this area as well. The prospect of oil and gas development on what has historically been prime fishing grounds could be another hardship that leads to the end of a long fishing tradition for the New England and Nova Scotian groundfishing fleets.

The Atlantic States Marine Fisheries Commission has joined the U.S. government (through NOAA) in requesting a moratorium extension. Comments from the states of Massachusetts and Maine are also expected to emphasize the fisheries resources of the area, and press the Canadian government to continue the moratorium. Individual and organizational input in the form of public comment may be provided by **January 31, 1999** to: John Mullally, Chair, Georges Bank Review Panel, P.O. Box 698, Halifax, Nova Scotia, CANADA, B3J 2T9.

ASMFC Horseshoe Crab Plan Requires Extensive Monitoring & Habitat Identification

The Atlantic States Marine Fisheries Commission (ASMFC) approved the *Interstate Fishery Management Plan for Horseshoe Crab* at its October 1998 Annual meeting. The plan includes extensive monitoring requirements and requires each state to identify potential horseshoe crab habitat. Currently, only a few states, Maryland, Delaware and New Jersey, have identified important spawning areas. Protection of essential habitat such as spawning beaches is critical to the continued survival of horseshoe crabs.

The plan's monitoring components include the following measures:

Mandatory monthly reporting—all states must continue or initiate mandatory monthly reporting of all harvest and identify percent mortality of horseshoe crabs captured for biomedical use up to the point of release;

Benthic Sampling Programs—Rhode Island, Massachusetts, Connecticut, New York, New Jersey, Delaware, Maryland, North Carolina, South Carolina and Georgia must continue existing benthic sampling programs and collect data on horseshoe crabs;

Coastwide Survey Workshops—states will participate in two coastwide workshops to formulate standardized and statistically robust surveys to estimate annual egg deposi-

tion and the number of spawning crabs. The states of New Jersey and Delaware must implement pilot programs to survey horseshoe crab eggs and the number of spawners by the 1999 horseshoe crab spawning season. Maryland must also implement a pilot program to survey horseshoe crab spawning by the 1999 horseshoe crab spawning season.

Biomedical Tagging Program—all states must ensure that any biomedical industry in their state implement a tagging program to evaluate post-release mortality of horseshoe crabs used by the biomedical industry.

Horseshoe Crab Habitat—all states must identify horseshoe crab habitat within its jurisdiction by December 31, 1999.

Plan development was initiated in 1997 in response to concerns over increases in harvest levels in recent years (for bait) and the impact of this harvest on the horseshoe crab resources and other dependent species, especially migratory shorebirds. The monitoring components provide for an ambitious 1999 work schedule but, if accomplished, will begin to provide the necessary information to make effective management decisions in the future.

Copies of the fishery management plan are available from the ASMFC at (202) 289-6400. For more information, contact Tom O'Connell, Maryland Department of Natural Resources, at (410) 260-8271.

DOD Determines Feasibility of Contaminated Sediment Disposal on Abyssal Seafloor

In response to decreasing availability of disposal sites on land, in 1993 the U.S. Congress directed the Department of Defense (DOD) to assess the technical and scientific feasibility of isolating contaminated dredged material on the abyssal seafloor. The assessment was conducted by the Naval Research Laboratory (NRL) in collaboration with participants from academic institutions and industrial organizations. The project was supported by DOD funds.

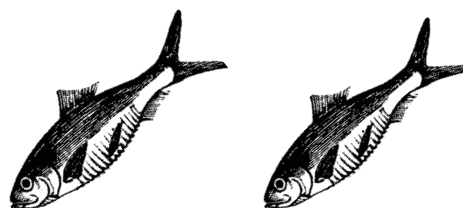
The big attraction to the concept of seafloor isolation as a management option is the assumption that air, land and water supplies would not be in danger of contamination. The participants concluded that this method is technically and environmentally feasible and may be cost-competitive in ports where shipping costs are high. The participants outlined the architecture of a system to monitor site conditions and to detect and measure possible leaks of contaminated material—a challenging task given the levels of measurement sensitivity and the stability required in the high pressures and low temperatures of the abyssal regions. Furthermore, a suitable area in the Hatteras Abyssal Plain (992 miles south of Boston and 620 miles east of Jacksonville) was identified.

The participants determined that the optimal method of transporting the contaminated material would be to put it into large bags made of synthetic fabric which hold 400-600 cubic meters of material. Barges would haul the containers from the dredge site to the ocean isolation site, where they would be

released and allowed to free fall to the abyssal seafloor. Container walls and seams are thought to be strong enough to prevent tearing during release from the barge and sinking to and landing on the seafloor. The participants identified only one probable pathway that contaminants could enter the productive surface ecosystem: the eggs of certain abyssal fish. However, they determined that the quantity of such transport would be negligible.

Findings of Years One and Two which address the engineering system and environmental consequences of such a contaminated dredged material management concept are available in NRL reports and conference proceedings. Findings of Year Three will soon be published in NRL reports. For more information contact Philip Valent of the Naval Research Laboratory at (228) 688-4650 or by e-mail at phil.valent@nrlssc.navy.mil.

Adapted from U.S. EPA's Contaminated Sediments News, Fall 1998, EPA-823-N-98-007, no. 22, pp. 2-3.



EPA's Contaminated Sediment Strategy Available

The U.S. Environmental Protection Agency (EPA) has published **EPA's Contaminated Sediment Management Strategy** to address the ecological and human health risks that contaminated sediment pose in many watersheds. The Strategy describes actions that EPA believes are needed to provide for consideration and reduction of risks posed by contaminated sediments and includes EPA's summaries of the extent and severity of sediment contamination.

The Strategy establishes four goals: (1) to control sources of sediment contamination and prevent increases in the volume of contaminated sediments; (2) to reduce the volume of existing (in place) contaminated sediment; (3) to ensure that sediment dredging and dredged material disposal are managed in an environmentally sound manner; and (4) to develop a range of scientifically sound sediment management tools for use in pollution prevention, source control, remediation and dredged material management.

A number of key actions are set forth in the Strategy. EPA programs will use consistent and scientifically sound sediment assessment methods. EPA programs will use the first

National Sediment Quality Survey Report and future updates to target chemicals and watersheds for further assessment, pollution prevention, and remediation. For clean watersheds, EPA will promote best management practices, test new pesticides and other chemicals to ensure that they won't contaminate sediments, and prevent sediment contamination through point and nonpoint source controls. For watersheds being contaminated, EPA will take action through its point and nonpoint source control programs to reduce or eliminate contaminant inputs. For watersheds already contaminated, EPA will implement source controls and develop risk management strategies.

Copies of **EPA's Contaminated Sediment Management Strategy** (EPA-823-R-98-001) can be ordered by phone (800) 490-9198, fax (513) 489-8695, or INTERNET <http://www.epa.gov/ncepihom/orderpub.html> or it can be viewed or downloaded from <http://www.epa.gov/ost/cs/>.

Adapted from U.S. EPA's Contaminated Sediments News, Fall 1998, EPA-823-N-98-007, no. 22, pp. 1,3.

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