

## Hard Winters Claim Chesapeake Croakers

The virtual loss of two successive croaker year classes in lower Chesapeake Bay was confirmed by trawl surveys last summer of the Virginia Institute of Marine Science (VIMS). The loss is attributed to the very cold winters of 1976-1977 and 1977-1978, the Institute reports.

In announcing the survey findings, VIMS director William J. Hargis, Jr. indicated that the croaker year class losses will likely diminish the commercial and recreational croaker catches more noticeably next spring and summer. A mild 1978-1979 winter is needed to avert a more serious croaker decline such as occurred following the freezing winters of the 1918, 1958, and 1964 periods.

The lack of young croakers in last summer's trawl survey had been expected by VIMS fishery scientists because only dead juveniles had been taken in the 1977 and 1978 winter trawl samples. Croakers spawn at sea and the very small juveniles enter the estuary nursery areas in late fall, winter, and very early spring at a stage in their lives in which they are extremely sensitive to low water temperatures. Under normal winter water temperature conditions, juveniles taken in the VIMS sampling program would be alive and, had they survived for about 2 years, would form the basis for the commercial and recreational catches later.

"Our average summer catch of young croakers from the 1977 spawn was less than one fish per tow," said John Merriner, who heads VIMS finfish studies. "This compares with more than 15 fish per tow during the summer surveys preceding the 1976 and 1977 winter freezes."

Water temperatures of 32.5°F (0.3°C) killed young croakers in laboratory studies, according to Mer-

riner. Also, their swimming ability was slowed by temperatures of 36.5°F (2.5°C) suggesting that they are placed at the mercy of river currents when low temperatures set in.

Large numbers of croakers have been caught in Chesapeake Bay for several years, following very poor catches in the 1960's. Those caught in 1978 were mostly older and larger fish with a noticeable absence of small ones that should have been present from the 1976 year class.

The VIMS scientists feel that a mild 1978-1979 winter should support good survival of the 1978 year class and provide a return of croaker numbers by 1979. However, a third successive freezing winter may cause a more severe downward trend, according to Merriner.

## TEXAS FISH KILLS LAID TO WEATHER

Hot, dry weather was blamed for two major fish kills reported on the Texas Gulf Coast in mid-summer, according to the Texas Parks and Wildlife Department. The weather apparently caused excessive evaporation and higher salinity levels at Sabine Lake near Port Arthur where an estimated 9,262 pounds of redfish died in the south spoil disposal compound on 7 July. The total kill amounted to about 100,000 to 125,000 fish, but was not complete, as some fish were observed alive after the kill.

Another fish kill occurred later that month in a cove in Baffin Bay, where about 5,000-plus pounds of speckled trout succumbed to low oxygen and high salinity levels. High salinities last summer were noted in Texas' Upper and Lower Laguna Madre areas, where

most commercial crabbers had removed their crab traps to move them to the Trinity Bay area where salinity levels were lower.

## WASHED SHELL COULD BOOST CAROLINA SHELLFISH CROP

Oyster mounds that accumulate naturally in South Carolina's coastal area could help boost the state's shellfish crop, according to a state report. A survey by the South Carolina Wildlife and Marine Resources Department located about 370,000 cubic yards of exposed oyster shell called "washed shell" because it is washed into mounds by wave action and boat wakes. Additional washed shell material may occur below the low tide mark but this area was not surveyed.

According to shellfish biologist William Anderson of the department's Office of Conservation, Management and Marketing, washed shell planted on oyster beds makes an ideal substrate for the attachment of free-swimming oyster larvae or spat. Anderson also noted that while washed shell has advantages over freshly shucked, or "green" shell for providing cultch material for oyster spat, its use for this purpose has not been previously attempted on a large scale in South Carolina.

Oyster spat attach to washed shell at lower densities which allows them more area to grow to a larger size, the biologist noted, while oyster spat often attach to green shell at such high densities that their growth is hampered. Small oysters have little commercial value. Commercial oyster lease holders are required to plant 65 South Carolina bushels of shell per leased acre each year, but sufficient quantities of green shell are not always available for planting. Washed shell could serve to supplement supplies for the required planting operations, Anderson said.

Washed shell also could be used to upgrade and improve some of the areas available for public shellfish harvesting. In addition, washed shell could be used as a substrate for establishing hard clam beds for both commercial and recre-

ational utilization. Because washed shell is light in weight and possibly could be washed away before oyster spat could attach to it, Anderson said that washed shell might have to be topped with a layer of heavier green shell or planted in areas which are not subject to wave action.

Although the recent survey located an extensive washed shell resource, Anderson said that the renewal rate once the shell is removed is not known. "Once we learn more about washed shell and how it can best be utilized, then washed shell could become another valuable, renewable marine resource," Anderson said.

### **Maryland Seeks Striped Bass Improvements**

A Maryland committee of commercial watermen, sport fishermen, biologists, and charter boat skippers are meeting regularly in an attempt to find out why rockfish, or striped bass, populations appear to have been dropping and to recommend steps to help turn the situation around. The Citizens Advisory Committee on Striped Bass Management was formed by the Maryland Department of Natural Resources after a regional workshop in September 1977. The panel's work intensified after a spawning season restriction was imposed last spring on taking rockfish in certain waters.

The committee has been meeting since late March. It has heard from scientists including representatives of DNR's Fisheries Administration, the University of Maryland's Center for Estuarine and Environmental Studies, and sport and commercial fishermen's organizations. The committee is eager to hear from as many segments of the public as possible with regard to the rockfish situation.

The committee also has input into the deliberations of a regional citizens' advisory unit comprised of representatives of Atlantic coastal states from Maine to North Carolina. Goal of the regional bodies is development of a management plan for striped bass similar to successful State-Federal plans for northern shrimp, American lobster, and surf clams.

While the Maryland Advisory Committee has yet to adopt any specific recommendations, it has addressed in depth these general issues: 1) Regulations regarding the taking of rockfish including seasons, types of permissible equipment, size limits, and licensing; 2) research needs; 3) a striped bass hatchery; 4) water quality; 5) aquatic grasses; 6) possible increased financing for striped bass management and research; and 7) law enforcement.

### **South Carolina Gives Sea Turtles Extra Protection**

More protection has been granted the loggerhead sea turtle in South Carolina waters by the State legislature acting on a regulation written by the state wildlife department that classifies the turtle in a "threatened" status. The regulation provides for a fine of up to \$500 and 6 months in jail for each violation of the regulation which would include harassment, hunting, killing, capturing, possession, or the selling or shipping of any turtle, part, nest or egg.

Shrimpers who incidentally catch turtles in their nets will not be prosecuted, although biologists with the South Carolina Wildlife and Marine Resources Department are encouraging shrimpers to make every effort to return turtles to the water alive, said a department spokesman. The protection is provided through the South Carolina Nongame and Endangered Species Conservation Act of 1974. While the State act has no provision for threatened status, as written in the regulation protection is now provided the turtle which roughly parallels the Federal designation of "threatened."

### **ALABAMA SETS NEW LIMITS ON THREE SALTWATER FISH**

By a regulation issued on 8 August, the Marine Resources Division of the Alabama Department of Conservation and Natural Resources established creel and size limits on speckled trout, redfish, and red snapper caught by recre-

ational fishermen in Alabama waters and on these species caught outside of Alabama waters but landed in Alabama.

Limits were set at 50 speckled trout, 25 redfish, and 25 red snapper per day. Fishermen returning from trips of two or more consecutive days may have in their possession not more than twice the daily catch limit. Minimum sizes are 12 inches for speckled trout, 8 inches for red snapper and 14 inches for redfish, but no more than two redfish more than 36 inches in length may be retained.

These restrictions were enacted in an attempt to halt the decline in the numbers of these species, particularly speckled trout and red snapper, according to the Department of Conservation. Alabama was the last Gulf Coast state to enact such regulations on these two species.

### **Washington State Eyes Manila Clam Developments**

The Manila clam, introduced to the U.S. West Coast by accident with imports of Japanese oyster seed, is good eating. Supply does not equal demand, however, and for the past 5 years the University of Washington College of Fisheries (with Washington Sea Grant support) and the state's Departments of Fisheries and Natural Resources have been focusing on ways to maintain already established clam populations and to develop new ones.

Seeding of beaches with hatchery-spawned clams shows promise of doing this, but several factors must be taken into account. The beach, for example, should be gradually sloping with natural or artificial protection, according to researchers. The ideal substrate is gravel, coarse sand, a certain amount of mud or clay, and some shell. Planting should be done in the spring so that growth can start before the seed is exposed to cold temperatures, storms, or predation. Permission from the Washington Department of Fisheries is required for planting or transplanting seed clam, and other state agencies must be contacted if the substrate is to be altered in any way.