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SEA GRANT PROGRAM



LAGNIAPPE

WEB OF LIFE

It has long been accepted as fact that all species of plants and animals in an ecosystem such as our waters are influenced by each other. This "web of life" includes man, because man is a predator in the ecosystem just as is a shark, a bass or a porpoise.

The current "balance" in our ecosystem, whether freshwater or saltwater, includes the human harvest of some species more than other species. Therefore, it stands to reason, that any change in the harvest or activities of humans can have far-reaching changes on species other than the one being harvested.

As more fisheries are being brought under close management, the possibility of impact on other species increases. This creates two challenges. The first challenge is for biologists to become better at ecosystems management rather than individual species management.

This is a complex task and will probably involve the use of computer models. Unfortunately, models are only as good as the data that goes into them. Knowing the population age structure, growth rates, food habits, natural mortality, reproductive ability

and environmental tolerances of not only one fish, but every other creature that the fish eats and that eats it and also the other fish that compete with it for food and space is a difficult task indeed. When research data is missing, a biologist must make assumptions about how management of one species affect other species in the ecosystem. Obviously, good research data is needed and that is expensive.

An even bigger challenge will be for fishermen not to expect management to produce maximum populations of every species. While most fishermen are vaguely aware that there is a trade-off between species, accepting it in reality is different. That these animals eat each other is a fact, but even biologists hesitate to put a number on the effects of predation and competition between species, because of the lack of research data.

Two recent events, the freeze of 1989 and Hurricane Andrew, are enough to make both fishermen and biologists wonder about how much predation and competition can affect fisheries populations. The 1989 freeze killed huge numbers of marine fish including predators like speckled trout and redfish. As with the freeze of 1983, commercial blue crab catches increased significantly for the two years after the freeze. Shrimp harvest the year after the 1989 freeze jumped 22%, in spite of biological predictions of an average season. (After the 1983 freeze and fish kill, shrimp harvest jumped 30%).

Hurricane Andrew passed through the Atchafalaya Basin in August of 1992 killing many millions of freshwater fish. Biological sampling showed almost no living fish in the entire swamp except for the main channel of the Atchafalaya River. In the spring of 1993 the Basin was overrun with crawfish and crawfishermen had one of their best years ever. Even in 1994 a crawfish production boast was experienced.

Did the reduction of predator fish cause the increases in the prey species of crabs, shrimp and crawfish. No credible biologist will say yes without research proof, but biologists are not blind either. Neither are fishermen.

How can these predator-prey relationships in the "web of life" be affected by current management decisions? One example may be in finfish bycatch reduction in shrimp trawls. Will the zillions of hardhead catfish (and other fish) that will be released by bycatch reduction devices (BRDs) result in fewer shrimp to harvest because they will eat them? They will eat something.

Trawl bycatch includes good numbers of white trout but very few speckled trout. When bycatch reduction occurs, will the decreased trawl mortality on white trout increase their population? If it does, will it decrease speckled trout populations because of competition for food and habitat?

In 1995, legislation was passed which will almost certainly dramatically decrease the commercial harvest of black drum. If recreational fishermen don't pick up the slack and increase their harvest of black drum, will the population increase? If it increases, will it decrease the population of redfish? Since most biologists say black drum and redfish

are so ecologically similar that a management plan for one could be the management plan for the other, they probably compete somewhat for food and space.

If black drum populations increase, what if any, will be their affect on oyster farmers. While there is very little research on the subject, an oyster farmer sitting below decks on a still night, listening to bull drum crushing and eating his freshly planted seed oysters on his lease, will definitely have an opinion.

This is not an argument against changing fisheries management measures. Far from it. This is an alert to the role that we as human harvesters play in the whole ecosystem. We affect much more than the species we directly harvest.

Lessons learned by several decades of wildlife management also apply to fisheries management.

LESSON 1. You can't expect stable maximum populations of all species at one time. They compete with and eat each other. (You can't eat your cake and have it too).

LESSON 2. You can't stockpile fish. Hunters have long accepted that wildlife can't be saved up and stockpiled. If they don't harvest the animals, mother nature will through weather, disease, predation or starvation. The same thing applies to fisheries. (Use it or lose it).

PROPOSED T.E.D. REGULATION CHANGES

Near the end of February, Andy Kemmerer, Regional Director of the National Marine Fisheries Service met with a small group of shrimpers at Department of Wildlife and Fisheries Headquarters to discuss his agency's proposed changes to turtle excluder device (TED) regulations. A summary of the proposals for the Gulf of Mexico is listed below.

- * Create a shrimp Fishery -- Sea Turtle Conservation Area (SFSTCA) from the beach out to 10 nautical miles between Mississippi River South Pass and the Rio Grande.
- * Outlaw the use of soft TEDs immediately in the SFSTCA and everywhere else by December 31, 1996.
- * Require the use of TEDs in try nets with more than 12 feet of head rope and more than 15 feet of foot rope immediately in the SFSTCA and every where else by December 31, 1996.
- * Outlaw the use of bottom shooting hard TEDs in the SFSTCA.

* In SFSTCA waters off of Texas, for 3 weeks before the Texas closure and for 3 weeks after the Texas opening only allow the use of shrimp vessels 60 feet or less with 100 feet or less of total (not counting try net) combined head rope length on all trawls rigged.

According to Kemmer, the purpose of these regulations is to reduce sea turtle strandings. At least one public hearing on these proposed regulations will be held in Louisiana.

SEA TURTLE STRANDING REPORT

In a preliminary report, the National Marine Fisheries Service has announced the 1995 sea turtle stranding figures. Strandings are dead turtles that wash up on land. The figures as compared to 1994 are show in the table below. They are for the whole U S part of the Gulf of Mexico and the south Atlantic through North Carolina.

YEAR	TOTAL OFFSHORE	KEMPS ONLY OFFSHORE	TOTAL INSHORE	KEMPS ONLY INSHORE
1994	1798	451	309	72
1995	1694	289	409	63

While total inshore and offshore sea turtle strandings were slightly higher in 1995 (2175) than in 1994 (2149), the number of Kemps ridley strandings is down from 523 to 352.

The 1995 pattern of strandings was quite different than the year before. Texas offshore strandings were down from 450 to 273. Louisiana offshore strandings dropped from 181 to 89. (With the exception of the area off of Cameron Parish, Louisiana's strandings are always some of the lowest in the Gulf and south Atlantic.

Strandings in 1995 were much higher in some other areas such as the central Gulf Coast of Florida, where very little shrimping occurs. In one zone, strandings increased from 28 in 1994 to 123 in 1995.

Strandings remained very high along the south Atlantic coasts of Florida, Georgia, South Carolina and North Carolina.

There have also been over 400 reports of sea turtle strandings in the northeast U.S. and the total may end up going over 600. Cold weather is blamed for these turtle deaths. Reports suggest that over half of them are Kemps ridley turtles.

Source: Shrimp Fishery Biological Opinion Emergency Response Plan. Summary Report for 1995. January 29, 1996.

LOUISIANA FINFISH STOCK ASSESSMENTS

Act 1316 of the 1995 Louisiana Legislature requires that the Louisiana Wildlife and Fisheries Commission shall deliver to the legislature before March 1 of each year, a peer-reviewed report on the biological condition of mullet, black drum, sheepshead and flounder.

The act further requires that if the spawning potential ratio (SPR) of any of these fish is below 30% that the Department of Wildlife and Fisheries must close the season for that fish for one year. SPR is the ratio of the egg-producing ability of all the mature fish in a fished stock of fish as compared to the egg producing ability that would exist if the stock was unfished. SPRs are often used as targets for managing stocks of fish.

The department delivered its first such report to the Commission in February. The results of the departments' analyses were presented in a range from more to less conservative figures.

Mullet	SPR 43%	TO 80%
Black Drum	SPR 42%	TO 67%
Sheepshead	SPR 48%	TO 75%
Flounder	SPR 17%	TO 44%

Mullet, black drum and sheepshead are well above the 30% SPR figure set by the legislature. The more conservative estimates on flounder do, however, fall below the figure.

The act does not specify whether all commercial and recreational harvest shall be closed, whether just commercial shall be closed or whether just strike net harvest shall be closed.

SHRIMP VIRUSES

Recently there has been concern that foreign shrimp viruses have been transplanted to Gulf of Mexico waters. The concern, is that these viruses could possibly infect and kill our native white, brown and pink shrimp.

At its last meeting, the Gulf of Mexico Fishery Management Council Joint Habitat Advisory Panel looked at this potential problem. Panel chairman Phil Bowman provided us with the following information from the meeting.

Three foreign shrimp viruses have been identified in the U. S., the Taura syndrome virus (TSV), white spot baculovirus (WSBV) and the yellowhead virus (YHV). In 1995 a TSV epidemic in Texas caused huge losses in their small shrimp mariculture industry. As many as 90% of the shrimp in the ponds died and many feared the spread of the virus to natural waters.

The mariculture industry was blamed for the introduction of this virus, especially since they raise the non-native pacific white shrimp. Some people called for a ban on the culture of non-native shrimp. Now it appears that the shrimp farms were not the cause of the problem but the victim. Shrimp from the same hatchery were used to stock ponds in Texas, South Carolina, California, Hawaii, and Arizona. Only the Texas ponds came down with TSV. This rules out diseased stock from the hatchery.

The current theory on how TSV, WSBV and YHV got into Texas is from shrimp re-packing plants located near the farms. The plants import shrimp from countries that have these viruses. They thaw and repack the imports for resale. The solid wastes from these plants go to landfills. Sea gulls feed at these landfills and roost at the shrimp ponds and nearby estuaries. Sea gulls have shown that they can pass TSV through their wastes.

There is no research that shows that these viruses are or are not a threat to our native shrimp in the wild. Laboratory studies at the University of Arizona have shown WSBV and YHV to infect brown, white, and pink shrimp and are classified as a serious disease. Pink shrimp and brown shrimp were shown to be resistant to TSV although white shrimp were mildly susceptible to the disease.

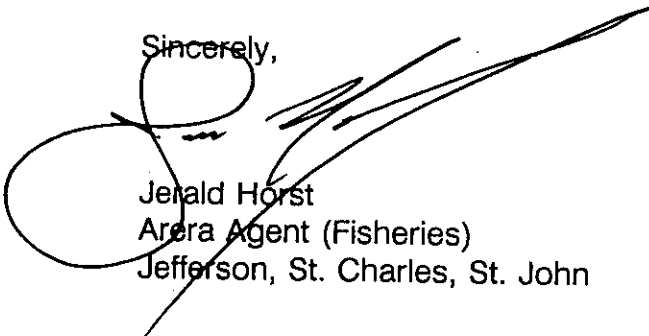
FINFISH REPORTS DUE MONTHLY

Officials with the Louisiana Department of Wildlife and Fisheries would like to remind commercial fishermen that are required to send in monthly reports that they should do so promptly. Monthly reports are required of users of mullet strike nets, pompano strike nets and holders of bull drum permits and shark permits.

A checklist is kept of the reports sent in or missing from each permit holder. The report must be sent in monthly. Some permit holders miss 2 or 3 months and then send them all at one time. This is not permitted.

The possibility exists that fishermen not sending in their reports monthly may lose their permits.

Sincerely,



Jerald Horst
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Jefferson, St. Charles, St. John