STANFORD LAW SCHOOL
ENVIRONMENTAL AND NATURAL RESOURCES
LAW AND POLICY PROGRAM

SLS Case No. 98-018

The Red Snapper Fishery

Part 1

Introduction

It's January 1998, and you are the regional administrator for the southeast regional office of the National Marine Fisheries Service ("NMFS"), the Department of Commerce agency responsible for regulating marine fishing. Your job is far from pleasant. Last year, you had to close the overfished red snapper fishery in the Gulf of Mexico to commercial fishers after only 73 days, the second shortest commercial fishing season ever for red snappers. Moreover, for the first time ever, you had to close the fishery to recreational fishers before the end of the year. These actions were far from popular in a region where reef fish constitute the third most valuable fishery ($40 million annually in revenue, surpassed only by crab/oyster and shrimp fisheries), where recreational saltwater fishing contributes $7 billion annually to the local economy, and where December is one of the busiest recreational seasons. Yet you have no doubt that these actions were necessary if the red snapper fishery is to be restored.

In the Gulf coast fishery, red snapper has historically been the most valuable species. But its contribution to the value of the commercial Gulf fishery declined from 93 percent in 1970 to 36 percent in 1995. Scientists link the decline of the fishery to overfishing, loss of juvenile red snapper as shrimp trawler bycatch, and illegal fishing and fish sales. Despite these problems, red snapper remains a very popular sport fish for both private recreational anglers and charter boats and headboats.

The Gulf of Mexico Fishery Management Council ("Gulf Council"), the agency responsible under federal law for developing management plans for Gulf coast fisheries, has tried a variety of approaches to managing the red snapper fishery since the early '80s, in an

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attempt to develop a sustainable fishery with optimum annual yields. But past and existing management approaches appear to be inadequate. Annual commercial red snapper landings declined from over 10 million pounds in the 1960's to less than 6 million pounds in the 1980's. Since 1990, the Gulf Council has capped annual commercial red snapper landings at 2.04 to 4.65 million pounds, in an effort to allow the fishery to replenish itself. Scientific advisors to the Gulf Council currently estimate that under the existing fishery management plan, however, the red snapper fishery will not reach a sustainable level until 2019, *if then*.

You are faced with the question of what to do next. Although scientists believe that the total catch must be further reduced to save the fishery, the Gulf Council recently voted to use the same quota as last year. And you are far from convinced that the Council is willing to adopt the tough measures needed to reduce fishing.

The Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson Act, enacted by Congress in 1976 and amended and re-authorized in 1996 as the Magnuson-Stevens Act, 16 U.S.C. §§1801-1883, is the most important federal law governing U.S. fisheries. Implementing regulations for the Gulf coast fisheries are codified at 50 CFR Part 622. Exhibit A to this case study contains selected statutory and regulatory provisions of specific relevance to the Gulf of Mexico.

The Magnuson-Stevens Act (the "Act") establishes United States sovereignty over fishery resources in coastal waters three to 200 miles from shore, the Exclusive Economic Zone, or EEZ. (State jurisdictional waters are zero to three miles off shore.) Section 1852 of the Act creates eight regional councils responsible for developing management plans for fisheries within the EEZ, of which the Gulf Council is one. The regional councils are largely made up of state and federal officials and representatives of the fishing industry. In cooperation with the NMFS, the eight regional councils regulate commercial and recreational fishing in the coastal waters of the United States in an effort to avoid the "tragedy of the commons" in which overfishing leads to the depletion and ultimately the extinction of fish species. Fishery management plans must be consistent with national standards set forth in §1851 of the Act and the content provisions of §1853. All plans must be reviewed by the NMFS and approved by the Secretary of Commerce. Once the Secretary approves a plan, the NMFS implements the plan.

The Gulf Coast Regional Council

Under §1852(a)(1)(E) of the Act, the Gulf Council must have 17 voting members. The Secretary of Commerce appoints eleven of these members from lists submitted by each of the governors of the five Gulf coast States. The Secretary must appoint at least one council member from each of the Gulf states. The Act requires that the Secretary appoint members that are, or represent, active participants in the commercial and recreational fisheries that are under the regional council's jurisdiction. The 17 voting members consist of:

The principal fisheries management officials from each of the five Gulf coast states;

The regional administrator of the NMFS; and

The 11 members appointed by the Secretary of Commerce from the lists submitted by the governors of the Gulf states.

The Gulf Council is responsible under §1851(a) of the Act for drawing up fishery management plans ("FMPs") for fisheries in the Gulf of Mexico. To date, the Gulf Council has developed FMPs for a number of Gulf fisheries including coastal pelagics (such as King Mackerel & Spanish Mackerel), reef fish (such as red snapper, vermillion snapper, and Red Grouper), other varied fish (such as Red Drum and Gulf Butterfish), shrimp, and spiny lobster. Exhibit C contains an overview of the Gulf of Mexico fishery that is excerpted from a recent report prepared by the Natural Resources Defense Council.

A Brief Overview of the Red Snapper Fishery

Red snapper are sedentary reef fish that can live more than 50 years. The snapper gets its name from its habit of rising to the surface and snapping at bare hooks or whatever is offered. Fishermen catch red snapper in coastal reef areas, usually 15 to 20 miles offshore. Recreational charter boat and headboat expeditions usually last at least 12 hours, and are often overnight excursions. Much of the time on the charter boats and headboats is spent getting to and from the reef fishing areas, which can be as much as 50 miles off the coast.

To catch red snapper, fishermen use baited hooks and lines on electric and hydraulic reels, as shown in the video produced by the Texas Parks and Wildlife Department featuring a commercial red snapper fishing vessel, the *Mattie Grace*. Each line may hold two to forty hooks. Some commercial fishermen claim that in a good fishing spot, snapper will bite on all the exposed hooks within seconds. Commercial reef fishing boats are on average about 38 feet long with 277 horsepower engines. Some boats have more powerful engines that allow them to travel to and from reef fishing areas faster.

In 1984, the Gulf Council determined that the red snapper fishery was “slightly overfished” and imposed a minimum size limit on catch and restrictions on gear. The Council expected that these initial regulatory measures would lead to noticeable stock improvements within a year. After assessing the fishing stock again, however, the Gulf Council concluded in 1988 that the red snapper fishery was “significantly overfished” and that current harvest levels could not be sustained.

Scientists all agree that the red snapper fishery remains overfished. (See Exhibit B, which summarizes the conclusions of a peer review of the scientific studies of the fishery.) According to a 1995 study by one scientist at the National Marine Fisheries Southeast Fisheries Science Center, the red snapper fishery suffers from both “recruitment overfishing” and “growth overfishing.” The former results when fishing so reduces adult stocks and egg production that the fish population may not be able to reproduce itself; “growth overfishing” results when so many small fish are caught that the population shifts toward smaller fish. Except in 1989, “recruitment” (measured by the number of postlarval fish survivors) has been poor since 1981. The mean size of red snappers landed in Florida has decreased approximately a third from about 24 inches to less than 18 inches.

For regulatory purposes, the health of a fishery often is measured by its "spawning potential ratio" or SPR, the ratio of the number of eggs that can be produced by an average female over its lifetime under current fishing conditions to the number that could be produced by an average female if there were no fishing allowed. The target SPR for the red snapper fishery is 20%. By contrast, the NMFS in 1997 estimated that the red snapper fishery currently has a SPR of only 3 percent, and some scientists believe that the SPR is as low as 0.4%. According to NMFS predictions, current regulatory policies will return the fishery to a 20% SPR by the year 2019.

Most commercial and recreational fishers, as well as many members of the Gulf Council, do not share the pessimism of these numbers. Many fishers report encountering more and larger red snappers than in prior years. These fishers question the accuracy of the scientific models. (See Exhibit D for an example of the views of many fishers; the author is a former commercial fisher who is now a member of the Gulf Council.) Recent scientific studies also shows an improvement in recruitment, lending a degree of credibility to the fishers' perceptions. The "recruitment index" (which measures the number of age 1 fish entering the fishery each year) has risen from 2.96 in 1991 to 7.56 in 1996. And a recent stock assessment that attempted to calculate the total weight of all red snapper in the Gulf suggested that "red snapper biomass" might be six to ten times higher than it stood in 1990.

Red Snapper Quotas and Landings

In the 1990's, the Gulf Council began establishing an annual total allowable catch ("TAC") that represents the amount of fish that can be caught by all fishermen in the red snapper fishery. Based on historical data from 1979 (when recreational fishing survey data was first collected) through 1987, the Gulf Council allocated 51% of the TAC to the commercial sector and 49% to the recreational sector. Using historical landing data and real-time data, the NMFS projects the date on which the commercial fishing quota will be met and closes the commercial red snapper season on that date. As shown in Figure 2, the commercial fishing season since 1991 has lasted from a minimum of 52 days (in 1995) to a maximum of 236 days (in 1992). Prior to 1997, the Gulf Council did not try to enforce the recreational quota by limiting the recreational season; the recreational red snapper fishing season was permitted to operate year-round. In 1997, however, the NMFS closed the recreational red snapper fishing season on November 27 when the NMFS projected that the annual recreational quota had been met.

As shown in Figure 3 below, the recreational fishermen have often dramatically exceeded their annual allocations; while doing a better job of compliance, the commercial fishermen also have often exceeded their quotas. Pre-1990 harvest data is set forth in attached Exhibit B. Recreational red snapper harvest data is an estimate, based in part on the number of individual licenses issued, records of fish caught based on headboat log books, and dockside surveys of charter boat passengers and operators. (Headboats may carry 30-40 individuals out to the reef fishing areas; each passenger pays an individual fee. Charter boats are smaller; they usually carry six to ten individuals and charge a flat fee.) In comparison to recreational harvest data, commercial data is based on licensed fish dealer records.

The landing records, however, may not tell the whole story. Many experts believe that significant unreported red snapper fishing takes place, and that current surveillance by state agency enforcement officials, the U.S. Coast Guard, and the NMFS is inadequate to detect and stop illegal fishing by American and foreign fishing boats. Though red snapper dealers are required to be licensed and to keep records of their purchases from permitted reef fishing vessels, due to lack of enforcement personnel, no structured dealer enforcement program currently exists. While enforcement officials respond to tips and complaints regarding dealers that may be operating illegally, resulting in an occasional sting operation, most enforcement takes place through spot checks of vessels at sea for compliance with regulations. No on-boat observers are used. Identifying and verifying violations is challenging. In most of the Gulf states, recreational red snapper fishing is allowed year-round in state waters zero to three miles from shore. Enforcement authorities may find it difficult to prove that red snapper was caught illegally in federal waters unless the fishermen are literally caught "in the act." Commercial fishermen may also start fishing for red snapper a few hours (or days) before the federal season opens. The first day of the season historically has the most recorded landings, and some boats return to port with full loads just a short time after the season opens at noon.

Despite the enforcement difficulties, some successful enforcement actions have been taken. In June 1998, a federal district court in Texas sentenced a Louisiana seafood company owner to 18 months in federal prison, after the owner pled guilty to trafficking in out-of-season red snapper during 1995. The owner had purchased 9,000 pounds of red snapper for resale. When the government auctioned off the illegal snapper, the fish brought more than $27,000.

Fig. 1 Commercial and Recreational Red Snapper Fishing Grounds

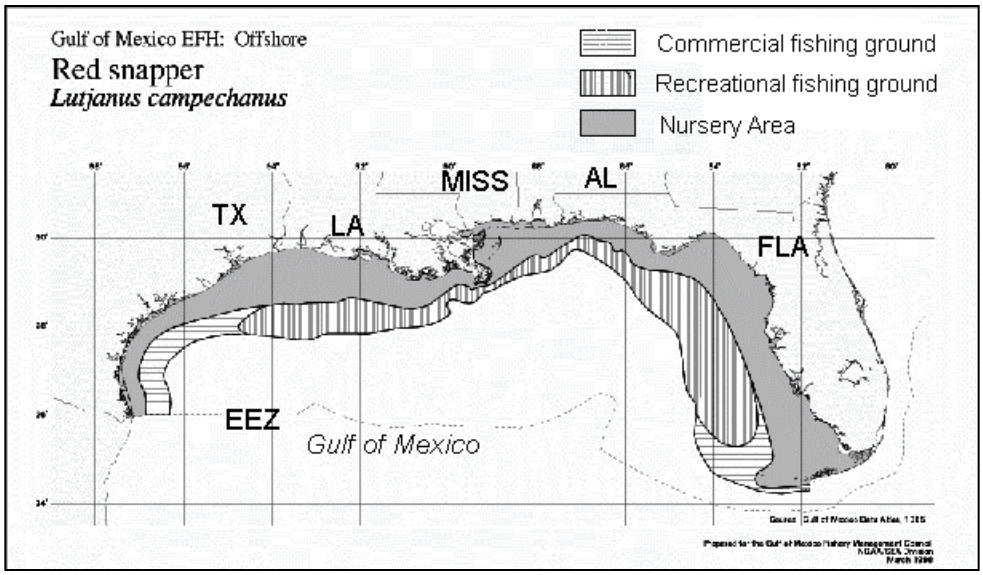

Fig. 2 Commercial Red Snapper Harvest (in millions of pounds)

Year	Commercial Quota	Commercial Harvest	Days Open (#+# = split season)
1990	3.1	2.66	365
1991	2.04	2.23	236
1992	2.04	3.14	52 + 42
1993	3.06	3.45	104
1994	3.06	3.12	78
1995	3.06	2.95	50 + 2
1996	4.65	4.40*	64+13
1997	4.65	4.68*	53+20

***preliminary data**

Fig. 3 Recreational Red Snapper Harvest (in millions of pounds)

Year	Recreational Allocation	Recreational Harvest
1990	No specified allocation	1.28
1991	1.96	1.28
1992	1.96	3.71
1993	2.94	5.91
1994	2.94	5.24
1995	2.94	4.18
1996	4.47	4.21
1997	4.47	5.73 (close date: 11/27/97)

Fig. 4 Overall Red Snapper Harvest (in millions of pounds)

Year	TAC	Total Directed Harvest
1990	no specified TAC	3.94
1991	4.0	4.31
1992	4.0, plus emergency season	6.95
1993	6.0	9.36
1994	6.0	8.36
1995	6.0	7.13
1996	9.12	8.61
1997	9.12	10.41

The Shrimp Bycatch Problem

Shrimp trawlers capture a significant amount of red snapper as bycatch. Some scientists predict that the shrimp bycatch will adversely impact the long term recovery of the red snapper fishery more than overfishing by commercial or recreational fishermen. The NMFS estimates that the current ratio of finfish bycatch to harvested shrimp is 4:1 by weight. The Gulf coast shrimp bycatch includes an estimated 34 million red snappers annually, most of them juveniles, or about 2.2 million pounds. Most shrimpers throw their bycatch back into the water, and therefore the bycatch does not appear on landing reports. An estimated ninety percent of the red snapper caught by shrimp trawlers as bycatch is dead or will die.

Many recreational and commercial red snapper fishermen object to red snapper fishing restrictions and early closures of their fishing seasons, while shrimp trawlers continue to pose a significant threat to the red snapper fishery's recovery. To address this problem, the Gulf Council has considered and rejected various fishery management techniques including seasonal shrimping closures and restriction of shrimping in specified areas. Biologists have concluded that these approaches would not significantly reduce bycatch. Shrimpers have also strongly resisted any attempt to limit shrimper licenses.

A Brief History of Red Snapper Fishery Management

The Gulf Council began to regulate the red snapper fishery in the Gulf of Mexico in 1984 with its adoption of the "Fishery Management Plan for the Reef Fish Resources of the Gulf of Mexico." Fig. 5 on the next page summarizes the major fishery management approaches adopted to regulate the commercial red snapper fishery in the Gulf of Mexico (source*: Managing the Gulf of Mexico Commercial Red Snapper Fishery* by P. Baker, F. Cox, and P. Emerson, January 27, 1998 (GMFMC 1997)).

The Commercial Derby System: on your mark. . . get set. . . go!

Commercial fishers of red snapper have faced the greatest regulatory restrictions. Since 1984, the Gulf Council has set minimum size limits (initially 12 inches and now 15 inches). In 1990, the Gulf Council set the first annual commercial fishing quota of 3.1 million pounds. Fishing was so bad that year, however, that commercial fishermen landed only 2.66 million pounds. Even so, with the imposition of a commercial fishing quota, commercial fishermen raced to the reefs to catch as much fish as possible as soon as the season opened.

The Gulf Council also required in 1990 that each commercial reef fishing vessel obtain a reef fish permit in order to fish for red snappers. To get a reef permit, a vessel owner or operator must prove that at least 50% of their earned income is derived from commercial reef fishing. The Council placed a moratorium on new reef permits in 1992, lasting until the year 2000.

Though red snapper fish prices had been rising steadily since the mid-1960s, during 1990 to 1994 prices fell from over $2.00 per pound to under $1.50, a drop attributed at least in part to this derby system in which fishermen landed massive quantities of red snapper during

Fig. 5 Summary of Red Snapper Commercial Fishery Management

DATE	MANAGEMENT ACTION
1984	**Reef Fish Fishery Management Plan implemented:** Minimum size limit set at 12 inches. Prohibitions set on using certain gear types in inshore stressed areas.
1988	**First red snapper stock assessment conducted:** Red snapper found to be "significantly" overfished.
1990	**Total Allowable Catch ("TAC") established:** Commercial quota set at 3.1 million pounds (but only 2.66 million pounds landed). **Reef fish vessel permits required for commercial fishing:** Sale of recreationally caught red snapper prohibited. Minimum size limit increased to 13 inches. Stock recovery target date set for the year 2000.
1991	Commercial quota reduced to 2.04 million pounds. Stock recovery target date moved to 2007.
1992	**Derby fishery begins.** **Moratorium imposed on new reef fish vessel permits.** Commercial quota set at 2.04 million pounds (but 3.14 million pounds landed).
1993	**Red snapper endorsement program implemented:** 2000 pound trip limit for endorsement holders; 200 pound limit for those with reef fish vessel permits but no endorsements. Commercial quota raised to 3.06 million pounds. Stock recovery target date moved to 2009.
1994	Commercial quota remains at 3.06 million pounds. Minimum size limit increased to 14 inches.
1995	**Individual Transferable Quota ("ITQ") program approved by NMFS.** Commercial quota remains at 3.06 million pounds. Minimum size limit increased to 15 inches. Stock recovery target date moved to 2019.
1996	**ITQ moratorium established by Congress until October 1, 2000.** Reef fish vessel permit moratorium extended through 2000. Endorsement program extended through 1997. Commercial quota increased to 4.65 million pounds.

1997	**Mini-derbies established.** Commercial quota remains at 4.65 million pounds.

a short open season. Prior to the derby, red snapper fishing had been relatively uniform throughout the year. But by 1995, commercial fishermen were harvesting their annual quota in just 52 days. Some fishermen bought faster boats to increase their hauls during the short-lived derbies.

The Endorsement Program

In 1993, the Gulf Council began issuing "endorsements," a special license issued to commercial fishermen that had a reef permit *and* a record of at least 5,000 pounds of red snapper landings in two of the three years between 1990 and 1992. Vessel owners and operators with endorsements could harvest up to 2,000 pounds of red snapper per trip. Fishermen that had reef permits but no endorsements could harvest up to 200 pounds per trip. The endorsements could be transferred only to another vessel owned by the endorsement holder, or if the endorsement holder died or became disabled. By 1996, the Gulf Council had issued endorsements to 129 red snapper fishermen, and had issued reef permits, but no endorsements, to another 302 vessels. Although the endorsement system limited how many pounds of red snapper any vessel could catch in a trip, it did not eliminate the derby mentality.

The 1995 Proposed ITQ Program

To replace the unsatisfactory derby system, the Gulf Council began putting together a proposed Individual Transferable Quota system for managing the commercial red snapper fishery. Several other regional fishery councils had already successfully implemented quota systems for other commercially valuable species. Under the Gulf Coast's proposed ITQ program, the commercial red snapper quota would be divided into individual shares and distributed to fishermen based on their historical participation in the red snapper fishery. (See Exhibit A attached, 50 CFR §622.16.) The Gulf Council proposed to allocate ITQs to vessel owners or operators with red snapper landings between 1990 and 1992 *and* a reef permit as of August 29, 1995. The Council would issue shares of the commercial quota based on the average of the highest two years' landings in the three-year base period of 1990-1992. The minimum allocation would be equivalent to 100 pounds of red snapper. Individuals could adjust their harvest by buying or selling shares, the ITQs. The proposed ITQ program was to last for four years, after which it would be modified, extended, or terminated. The shares would be freely transferable to U.S. citizens and resident aliens.

Controversy Erupts

The ITQ proposal proved extremely controversial. Environmental organizations were largely opposed to it, with some notable exceptions such as the Environmental Defense Fund ("EDF"). EDF supported ITQs as the most cost-effective way to develop a sustainable fishery. Many other environmental groups opposed ITQs, fearing the approach would force small fishermen out of business and concentrate commercial fishing in the hands of a few large companies. (Experts estimate that four or five large commercial fishing vessels could

catch the entire annual commercial quota. And, even under an ITQ system with a year-round fishing season, many experts agree that the red snapper commercial fishery in the Gulf can support only about 40 boats.)

Some small commercial fishermen who own and operate their own boats supported ITQs, because they felt they would benefit under the proposed baseline period and allocation formula. Other small commercial fishermen feared they would be pushed out of the industry by an ITQ system and that their share of the fishery would be absorbed by the recreational fishing sector, which was eagerly pursuing opportunities to enlarge its own red snapper allocation.

Larger commercial fishing operations and fish processing companies, whom had perhaps reaped the greatest benefit from the derby system, opposed the ITQ program vehemently. These vessel operators, owners, and fish processors feared that using a pre-endorsement ITQ baseline period of 1990-1992, as proposed in 1995, would reduce their allowable catch. The processors, who rely on lower cost Mexican red snapper imports during the off-season, believed ITQs would drive up red snapper prices.

Congress resolved the ITQ dispute, at least until October 2000, in its 1996 amendments to the Act. Section 1883 of the Act, added by amendment in 1996, prohibits until October 1, 2000 the implementation of an individual transferable quota ("ITQ") program for the commercial red snapper fishery in the Gulf of Mexico. Also under §1883, any commercial red snapper ITQ program implemented after the moratorium expires must be approved by a special referendum described in the statute. Only commercial fishermen and vessel operators who held reef vessel permits and red snapper endorsements during the dates specified in the statute may participate in the referendum vote. The referendum must pass by a majority of the votes cast in order for the Gulf Council to adopt any future ITQ program.

The Gulf Council's proposed 1995 commercial red snapper ITQ program remains codified at 50 CFR §622.16 (attached in Exhibit A), but implementation of the regulation has been stayed indefinitely as a result of the 1996 statutory amendment.

When the Gulf Council's proposed ITQ system did not come to fruition, the Council extended the endorsement system through 1997. The Gulf Council also established mini-derbies for 1997. Under the mini-derbies, the Gulf Council made two-thirds of the commercial quota available for catch beginning February 1. This quota was exhausted, and the fishery closed, after 53 days. The final one-third of the commercial quota became available at two week intervals beginning in September. The Gulf Council also restricted sale of red snapper to federally licensed buyers only.

The Recreational Fishery

Until 1997, recreational fishers could fish year-round, but they were subject to a variety of restrictions designed to minimize total catch and help preserve the red snapper fishery. First, to avoid commercial fishers getting around their limits by claiming to be recreational fishers, the Gulf Council prohibited the sale of recreationally caught red snapper.

Second, recreational fishers were required to comply with the same minimum size limits as commercial fishers. Third, "bag limits" were imposed on recreational fishers beginning in 1990. These "bag limits" originally prohibited any recreational fisher from catching more than seven fish on any trip; the bag limits were reduced to five fish in 1995.

In 1997, as noted earlier, the NMFS for the first time shut down the recreational fishery because data indicated that its quota had already been exhausted. The Gulf Council did not propose to include recreational red snapper fishers in its proposed ITQ program, though some argued that charter boat and headboat operators could easily be included in the initial ITQ allocation.

The 1998 Red Snapper Fishing Season

As regional administrator for NMFS, you are faced with a number of decisions about the coming fishing season and about long-term management options. Although the Gulf Council prepares fishery management plans and amendments, NMFS must evaluate them to determine whether they are consistent with the national standards set forth in § 1851 and with the other provisions of the Act. If the plans or amendments are not consistent with the Act, the Secretary must disapprove them pursuant to § 1854(a).

The NMFS, however, must tread carefully, particularly in challenging the views of the Gulf Council. As an official at the Center for Marine Conservation has recently noted, "Anytime you're talking about a fishery issue in the Gulf, it's a highly politicized environment. The power of the Gulf congressional delegation always strikes fear into the hearts of NMFS."

1. **What, if any, steps should be taken to reduce the red snapper bycatch from shrimp trawling?**

Red snapper fishermen have lobbied strongly for new regulations requiring that shrimpers install equipment on their trawlers that would allow juvenile red snapper to escape unharmed. In 1996, the Gulf Council voted to require shrimp trawlers to use certified Bycatch Reduction Devices ("BRDs") to help reduce red snapper losses. BRDs provide small holes in the top of shrimp trawls so that red snapper and other finfish can escape. NMFS experts estimate that BRDs could reduce shrimp bycatch losses by as much as 77%, particularly once shrimpers have gained several years of experience using them, but also admit that the reduction in bycatch could be as low as 15 percent. Bycatch reduction will be only 0% if shrimpers launch a successful judicial challenge to any rule, as they threaten to do.

Shrimpers question whether BRDs will be very effective and suggest that any snappers that are released are likely to be eaten by pelicans and other sea birds waiting near the water. Shrimpers, moreover, complain that "fisheye" BRDs, which are the only BRD design currently approved, will permit shrimp to escape. Shrimpers claim that fisheye BRDs will result in a 10-30 percent decrease in their shrimp catches, cutting income and endangering jobs. Congressman Ron Paul (R-Surfside, TX) has threatened to introduce a bill voiding any rule mandating current use of BRDs on shrimp trawls.

Last summer, the NMFS expressed tentative approval of the Gulf Council's BRD requirement, but has not taken final action. One issue, therefore, is whether to issue a final rule mandating BRD use or to look for some other approach.

2. What total allowable catch should be set for the red snapper fishery for 1998?

NMFS scientists have recommended an allowable biological catch ("ABC") of between 3-6 million pounds. The ABC represents the scientists' estimate of the amount of fish that can be taken without decreasing the population, assuming existing environmental conditions remain the same. Fishers, however, have lobbied to maintain the same total allowable catch ("TAC") as applied during the last two years' 9.12 million pounds.

Earlier this month, the Gulf Council voted 15-2 to permit the larger TAC. (You were one of the two dissenting votes.) The Gulf Council majority justified maintaining the larger TAC in part on the new requirement that shrimp trawlers use BRDs, which the Council majority argued will make more fish available to be caught by commercial and recreational fishers. As noted above, however, how well BRDs will reduce bycatch is open to considerable debate. The NMFS plans to conduct a four-month, intensive research program beginning May 1, in which 2000 observers will be placed on shrimp trawlers to try to measure the effectiveness of the BRDs. But preliminary data from this observation program will not be available until late summer or early fall at best.

3. How should the TAC be divided between commercial and recreational fishers?

The Gulf Council voted to divide the TAC by the same percentages as in all prior years, 51% to commercial fishers and 49% to recreational fishers.

4. How should commercial fishing be regulated?

The Gulf Council has recommended that the commercial fishery's management rules remain largely the same as last year. You would like to eliminate the derby mentality created by the current regulatory system. You also would like to eliminate the many inefficiencies inherent in the current system, which seems to push all fishing into a few weeks of the year and to reward a small group of longterm fishers. But how? The Council believes that the commercial fishing year again should be divided into two seasons. The first season would begin in early February and run until two-thirds of the commercial quota is exhausted. The second season would begin in September and run two weeks on, two weeks off, until the remainder of the commercial quota is exhausted.

5. How should recreational fishing be regulated?

Recreational fishers clearly are a major source of the overfishing problem, but it's hard to see how best to regulate them. Last year, as noted earlier, NMFS had to close down the recreational fishery on November 27. Because December is one of the most popular tourist months, the recreational fishery industry was irate over the shutdown. You would like

to avoid another early shutdown this year, but under current management rules, recreational fishers are likely to exhaust their quota even earlier this year, particularly if they are awarded a smaller quota than last year.

6. Are there other changes that should be made in the current regulatory scheme? Are there more effective approaches to managing the red snapper fishery?

You can't help but believe that there are better alternatives out there. The ITQ approach looked very attractive, but Congress appears to have limited that option, at least for the moment.

Case Study Exhibits

Exhibit A:	Selected statutory and regulatory provisions
Exhibit B:	*Consolidated Report on the Peer Review of Red Snapper Research & Management*, Dec. 1997 (excerpts)
Exhibit C:	Natural Resources Defense Council, *Hook, Line, & Sinking: The Crisis in Marine Fisheries*, Feb. 1997 (excerpt)
Exhibit D:	Albert King, Sr., *A Perspective on Fishery Science*, Sept. 1998