
Atlantic and Gulf of Mexico Migratory Pelagic Fisheries

INTRODUCTION

Coastal pelagic fishes inhabiting waters off the southeastern United States include king and Spanish mackerels, cero, dolphinfish, and cobia. These species range in coastal and continental shelf waters from the northeastern United States through the Gulf of Mexico and the Caribbean Sea and as far south as Brazil. Coastal pelagics are fast swimmers that school and feed voraciously, grow rapidly, mature early, and spawn over many months.

U.S. and Mexican commercial fishermen have fished Spanish mackerel since the 1850's and king mackerel since the 1880's. The Spanish mackerel fishery began off New York and New Jersey but shifted southward through the decades to the southern U.S. Atlantic and Gulf of Mexico. In 1996, over 90% of the commercial catch was landed in Florida. Although early commercial fisheries harvested Spanish mackerel by hook and line, nearly all the commercial catch now is taken by runaround gillnet. A recreational fishery also exists for Spanish mackerel and accounts for about 17–40% of all the Gulf stock and 31–51% of the Atlantic stock of Spanish mackerel landed.

King mackerel are fished commercially from Chesapeake Bay southward. Four major production areas exist: North Carolina, Florida east coast (Cape Canaveral to Palm Beach), the Florida Keys, and off Grande Isle, La. The Louisiana fishery began in the early 1980's; the area was believed to harbor older king mackerel females that served as a major spawning population for the Gulf of Mexico stock. Unrestricted fishing mortality was believed to be high on these fish from the late 1970's through the early 1980's, and these stocks

currently comprise about 31% of the commercial quota for the Gulf regulatory group. Landings, which approached 680 metric tons (t) in 1983, were reduced from one-half to two-thirds by Federal quota management from the mid 1980's to the present.

Commercial king mackerel vessels have employed gillnets, troll lines, handlines, purse seines, otter trawls, and pound nets. King mackerel sport fisheries exist off many southeastern states throughout the year. Commercial yields were unregulated until the mid 1980's. Recreational landings are thought to have been reduced by an expanding commercial runaround gillnet fishery in the 1970's and a driftnet fishery operating off southeast Florida in the late 1980's. Purse seines were used also to exploit the Gulf of Mexico king mackerel during the 1980's but are now prohibited as part of the stock recovery plan.

Coastal pelagics are managed under the Coastal Migratory Pelagic Resources Fishery Management Plan and regulations adopted by the South Atlantic and Gulf of Mexico Fishery Management Councils and implemented by the National Marine Fisheries Service. Total allowable catch and commercial and recreational allocations are established by the Councils for two separate groups of migratory king and Spanish mackerel: the Gulf group and the Atlantic group. Acceptable biological catches are defined for separate geographical areas within the Gulf migratory group. Quota management began in the 1985–86 fishing year. Presently, both commercial and charterboat operators must apply for and hold current Federal permits to fish for king mackerel, Spanish mackerel, or other coastal pelagics. Rec-

Unit 7

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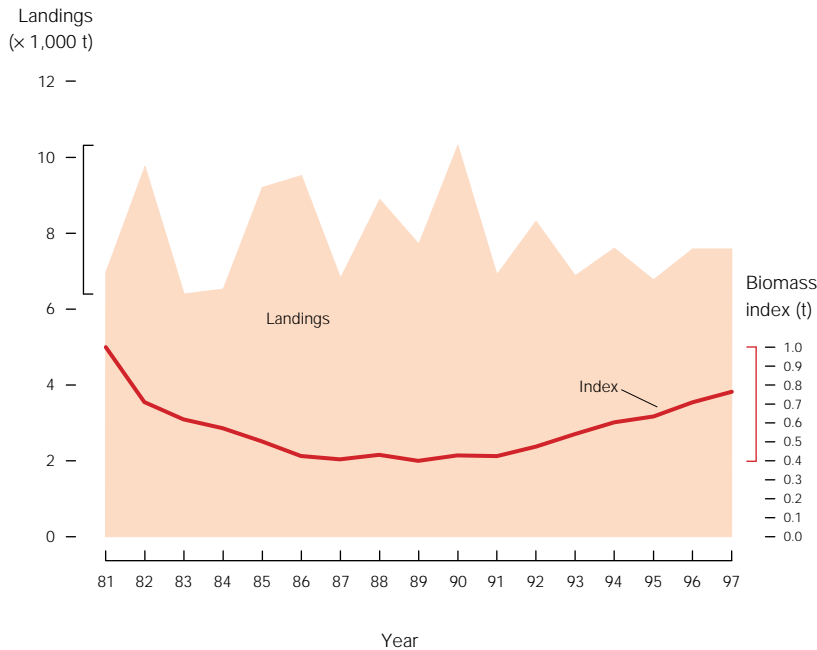


Figure 7-1

Landings and biomass index in metric tons (t) of king mackerel, 1981–97. The biomass index is the estimate in weight (t), and the highest year is given the relative value of 1.0.

recreational catches are regulated by creel and size limits. In addition to quota limits, commercial catches must comply with minimum size restrictions and, off some states as in Florida and North Carolina, daily landing limits and/or trip limits apply. In 1998 the National Marine Fisheries Service invoked a mandatory reporting requirement from commercial king mackerel fishermen through logbook reports for all trips. Currently, only U.S. fishermen are regulated, while Mexican fishermen fish under no regulations. Mexican catches are thought to be large relative to the U.S. fishery.

SPECIES AND STATUS

Recreational fishermen caught 8,000–17,000 t/year of coastal pelagic species, and commercial fishermen caught 5,000–14,000 t/year during 1981–96. King and Spanish mackerel account for about 95% of all coastal pelagic species harvested (Figures 7-1 and 7-2). In addition to king and Spanish mackerel, Atlantic dolphinfish and cobia contributed significantly to the total recreational yield of coastal pelagics. Some cobia are incidentally caught by commercial mackerel fishermen; however, cobia are for the most part a recreationally caught species. Cero are relatively unimportant and are taken as bycatch in other fisheries. Cero are not known to form large schools and are more

difficult to target individually; in general, they do not contribute significantly to coastal pelagic catches.

As a group, coastal pelagics yield only about 68% of their long-term potential (Table 7-1), and certain species are fished near or over maximum production levels. The Gulf king mackerel stock is considered overfished because of previous overexploitation and has been managed under rigid rebuilding schedules since 1985.

The mackerels have been managed recently according to spawning potential ratio¹ (SPR). The management benchmark selected for determining overfishing is $F_{30\%}$.¹ The 1996–97 Atlantic Spanish mackerel SPR is estimated to be 39% of the maximum potential. Fishing mortality from bycatch in the shrimp fishery is believed to be greater than currently anticipated. Additional information is needed to quantify this source of mortality. Gulf Spanish mackerel were removed from overfished status in 1995 following a period of regulation to rebuild the stock that began in 1987. The 1996–97 estimated SPR is 43% of the maximum potential for Gulf Spanish mackerel. Currently, fishing mortality on Gulf Spanish mackerel is less than $F_{30\%}$ SPR, but additional information is needed on the exact level of bycatch to evaluate the stock status with more certainty.

The Gulf king mackerel stock is believed to have a large long-term potential yield, but the stock is severely depleted. Recent average annual production is at 15% of its maximum level, and major stock reductions were due to excessive harvests from the late 1970's through the early 1980's. Absence of fishing effort controls and sparse data hampered determining stock status and conservation efforts until 1986.

The Atlantic king mackerel stock is near its long-term potential yield. Catches have remained stable since 1981 with annual total allowable catches not reached in most years. Bycatch of Atlantic king mackerel is assumed low. The 1996–97 estimated SPR level is 27% of the maximum level.

¹The spawning potential ratio is the amount of reproductive output for one recruit relative to the amount expected under no fishing (see Appendix 4). $F_{30\%}$ is the fishing mortality rate expected to produce 30% SPR.

The status of cobia and dolphinfish stocks remains uncertain. Atlantic cobia yields have ranged from 351 to 627 t since 1987. Gulf cobia yields are traditionally much larger than those of Atlantic cobia. Fishing mortality is assumed to be low for the Atlantic group, and Gulf cobia are believed to be more heavily exploited. The 1994 SPR calculation for Gulf cobia was about 20%. Management of cobia stocks assumes two separate stocks for assessment. Cobia and dolphinfish mostly are caught by recreational anglers, but data needed to assess their long-term potential are limited. In addition, updated information is needed to investigate the possibility of separating cobia into Gulf and Atlantic stocks. Also, refined estimates of cobia bycatch, natural mortality rate, and increased biostatistical sampling throughout the range of cobia are needed to improve assessment of stock status and accurately estimate long-term potential yields.

ISSUES

Transboundary Stocks and Jurisdiction

Effective management of migratory species will continue to require the coordination of Federal, state, and international regulatory actions. Accurate determination of the status of western Gulf of Mexico resources will require an increase in the information base on Mexican catches, their associated biological data, and cooperation of international scientists involved.

Landings
(x 1,000 t)

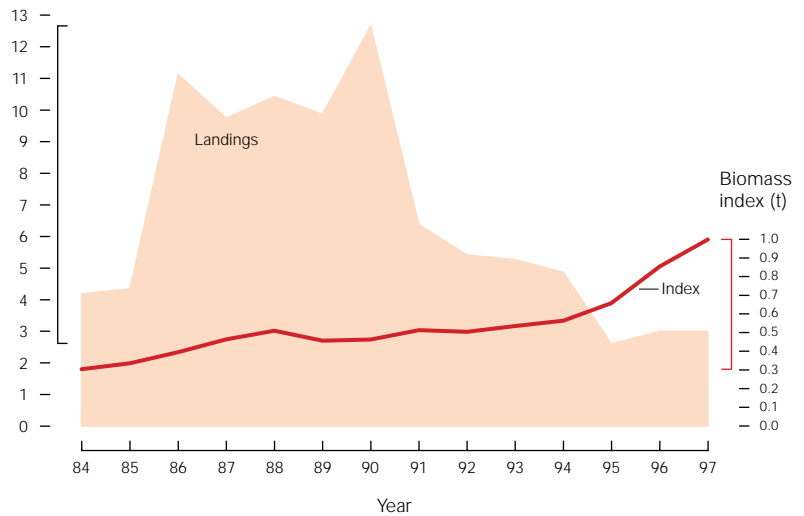


Figure 7-2

Landings and biomass index in metric tons (t) of Spanish mackerel, 1984–97. The biomass index is the estimate in weight (t), and the highest year is given the relative value of 1.0.

Allocation

The division of total allowable catches between recreational and commercial users remains an important issue. Future allocation decisions require improvements in the precision and accuracy of user-specific harvest levels and in the understanding of the spatial segregation of the resource.

Species and area	Recent average yield (RAY)	Current potential yield (CPY)	Long-term potential yield (LTPY)	Fishery utilization level	Stock level relative to LTPY
Dolphinfish	4,642	Unknown	Unknown	Unknown	Unknown
King mackerel, Gulf of Mexico	3,307	2,024	9,750	Over	Below
King mackerel, Atlantic	2,823	5,581	3,632	Under	Near
Spanish mackerel, Gulf of Mexico	1,427	3,956	3,702	Full	Near
Spanish mackerel, Atlantic	2,065	2,946	3,702	Full	Near
Cobia	1,168	Unknown	998	Unknown	Unknown
Cero	22	Unknown	Unknown	Unknown	Unknown
Total	15,454	20,339	26,448		

Table 7-1

Productivity in metric tons and status of coastal migratory fishes in the U.S. Atlantic Ocean and Gulf of Mexico.

¹RAY is for 1994–96 average.

FOR FURTHER READING

- Legault, C. M., N. Cummings, and P. Phares. 1998. Stock assessment analyses on Atlantic migratory group king mackerel, Gulf of Mexico migratory group king mackerel, Atlantic migratory group Spanish mackerel, and Gulf of Mexico migratory group Spanish mackerel. Mackerel Stock Assessment Panel—98/09. National Marine Fisheries Service, Southeast Fisheries Science Center MIA-97/98-15, Miami, Florida, 90 p.
- Anonymous. 1998. 1998 Report of the mackerel stock assessment Panel. Unpublished report prepared by the Mackerel Stock Assessment Panel at the panel meeting held March 23–26, 1998. Gulf of Mexico Fishery Management Council and South Atlantic Fishery Management Council, 23 p.
- Thompson, N. B. 1998. Characterization of the dolphin fish (*Corphinaenidae*, Pisces) fishery of the U.S. western North Atlantic Ocean. Mackerel Stock Assessment Panel—98/03. National Marine Fisheries Service, Southeast Fisheries Science Center MIA-97/98-15, Miami, Florida, 21 p.
- Thompson, N. B. 1995. An assessment of cobia in southeast U.S. waters. Mackerel Stock Assessment Panel—95/02. National Marine Fisheries Service, Southeast Fisheries Science Center MIA-94/95-31, Miami, Florida, 13 p.