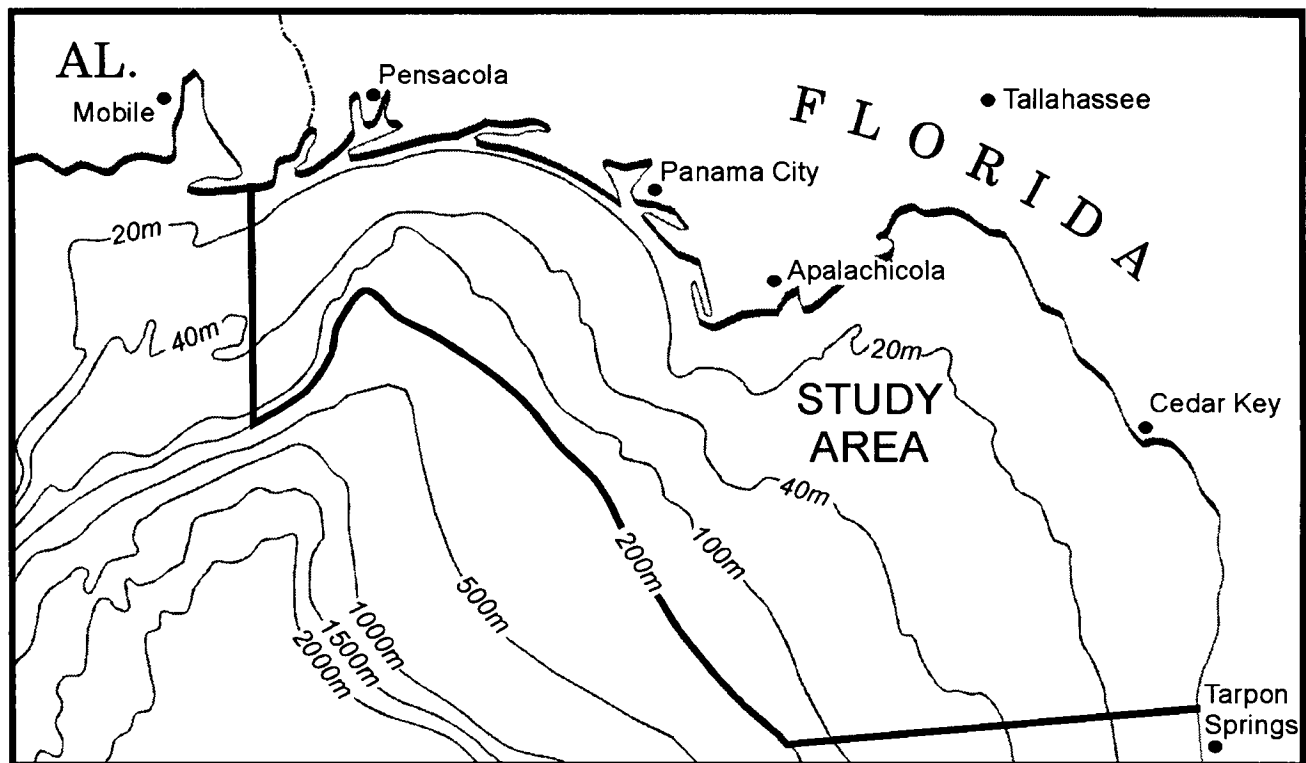


Northeastern Gulf of Mexico Coastal and Marine Ecosystem Program: Data Search and Synthesis, Annotated Bibliography

Appendix F, Part 1: Socioeconomics



Northeastern Gulf of Mexico Coastal and Marine Ecosystem Program: Data Search and Synthesis, Annotated Bibliography

Appendix F, Part 1: Socioeconomics

Compiler

Science Applications International Corporation

September 1996

Prepared under NBS Contract
1445-CT0009-95-002

by
Science Applications International Corporation
Raleigh, North Carolina 27605

Published by

**U.S. Department of the Interior
Minerals Management Service
Gulf of Mexico OCS Region**

**U.S. Department of the Interior
National Biological Service
Eastern Region**

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CITATION

Suggested citation:

Science Applications International Corporation. 1996. Northeastern Gulf of Mexico Coastal and Marine Ecosystem Program: Data search and Synthesis, Annotated Bibliography. Socioeconomics. OCS Study NBS 96-01 and MMS 96-0020. U.S. Dept. of the Interior, National Biological Service, Eastern Region, Kearneysville, WV and U.S. Dept. of the Interior, Minerals Management Service, Gulf of Mexico OCS Region, New Orleans, LA. 55 pp.

ACKNOWLEDGMENT

Thanks are extended to Paul Blankinship whose knowledge of Papyrus was essential to integrating the results of the many different electronic search formats. Those from outside this project who made our job more manageable by locating and sending the requested electronic copies of existing bibliographies include:

- Dr. Worth Nowlin and Maureen Reep, Texas A&M University
- Dr. Allan Clarke, Florida State University
- Steven Wolfe, Dept. of Environmental Regulation, State of Florida
- Carla Langley, MMS
- Michele Tetley, MMS
- Rosalie Shaffer, NOAA/NMFS

All the above are thanked for their efforts. A number of others went to considerable effort in locating and sending printed versions of existing bibliographies. They too are thanked.

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Adams, C.M. and F.J. Lawlor III. 1988. Trends in the Importation of Selected Fresh and Frozen Seafood Products into the Southeastern United States, Draft Report. Department of Food and Resource Economics, University of Florida. Gainesville, FL.

Abstract. This paper describes the general trends in imports for selected seafood products arriving at Southeastern U.S. ports of entry. These trends are discussed in terms of volumes, seasonality, fresh versus frozen, product form, and country of origin. The major ports of entry are identified.

Adams, C.M. and F.J. Prochaska. 1985. Principle Economic Factors Determining U.S. Shrimp Prices at Alternative Market Levels. Draft Rept., Tropical and Subtropical Fisheries Tech. Conf. Proceedings

Abstract. This paper (1) reviews trends in prices, margins, and market shares for 21-25 and 31-40 count (tails per pound) raw, headless shrimp, (2) determines the direction of price flows and the nature of upward and downward price response between ex-vessel, wholesale, and retail market levels, and (3) determines the factors affecting prices for the two size classes at the three market levels.

Adams, F.H. 1994. Tallahassee awaits a high-tech renaissance. Florida Trend. 36(12):101-104.

Abstract. City and regional officials are counting on the national magnet laboratory to create high-paying jobs. Reflecting a nationwide trend of gradual growth, business in the East Panhandle is generally riding a rising tide. But in a few sectors, some players are still struggling, and in small communities that has a stinging effect. Perhaps the county that best epitomizes this region's contrasts is Leon. On one hand, the National High Magnetic Field Laboratory is drawing leading-edge research and industry. On the other, many of the jobs created in Leon in 1993 pay little more than minimum wage. At first glance, it would seem 1993 was kind to the Tallahassee area. After all, according to the Bureau of Economic and Business Research at the University of Florida, Leon County's unemployment rate fell from 4.0% to 3.7%.

Agresti, B.F. 1979. Household composition, the family circle, and economic hardship in a postbellum southern county-Walton County, Florida, 1870-1885. International Journal of Sociology of the Family. 9(2):245-258.

Andrew, C.O., F.J. Prochaska and J. Alvarez. 1975. Florida Shrimp: From the Sea Through the Market. SUSF-SG-75-005. Department of Food and Resource Economics, Florida Agricultural Experiment Station, Florida Sea Grant Program, Marine Advisory Program. 15 pp.

Abstract. Even though shrimp are the most valuable seafood species landed in Florida, landings have not kept pace with growth of the shrimp processing industry. Landings from Florida waters have remained constant over time, but has declined as a share of total shrimp processed due to increased imports and the decline in Florida landings from Campeche and the Caribbean.

Anon. 1971. Escarosa: A preliminary study of coastal zone management problems and opportunities in Escambia and Santa Rosa Counties, Florida. Florida Coastal Coordinating Council. Tallahassee, FL. 29 pp.

Abstract. The Coastal Coordinating Council was charged by the 1970 Florida Legislature to develop a plan for the protection, development and zoning of the coasts of Florida. Escarosa (Escambia and Santa Rosa Counties) was selected as a preliminary project as an overview of the principal problems of coastal zone management. These problems are typical of most populated coastal areas of Florida. The Northwest Florida Regional Coastal Management Plan will be developed for the entire Florida coast.

Anon. 1976. Florida Regional Coastal Zone Environmental Quality Assessment, Region 3, North Coastal Florida. North Central Florida Regional Planning Council. Gainesville, FL. 62 pp.

Abstract. The environmental quality of the Gulf coasts of Dixie and Taylor counties in north central Florida is generally excellent with few problems of regional significance. Major concerns at present are the potential reduction of species diversity and numbers due to forestry harvesting practices and forest drainage. The most significant problem in this region appears to be the effect of the industrial discharge of treated effluent from paper mills. Another major problem in development of the region is due to storm events, which have the capability of raising water levels by 14 feet during the 100 year storm. Such an event would flood the entire coastline up to ten miles inland. The region does have potential problems including: (1) construction and dredge and fill operations in the coastal marsh and estuary systems, (2) utilization of groundwater resources, (3) improvement of public wastewater and disposal systems, (4) oil spill potential, (5) development in flood plains, and (6) damage to seagrass beds from modern shrimp trawling practices. Nevertheless, the problems associated with coastal development in the more densely developed areas of Florida have not yet occurred in these counties.

Anon. 1977. Economic adjustment plan for Okaloosa County, Florida. Economic Development Administration, 14th between E Street and Constitution Avenue, NW, Washington, DC, 20231, Rept. No.: EDA-77-026. West Florida Regional Planning Council. Pensacola, FL. 103 pp.

Abstract. Economic dislocation and adjustment problems created by the plant closure of the Texas Instrument plant formulated a comprehensive economic adjustment plan for the area. The manufacturing strategy proposes two site improvement projects to enhance the growth potential of the industrial parks located at Fort Walton Beach and Crestview. The conversion of a center into a child care facility would serve the needs of the females seeking employment--especially heads of households. The fact that Okaloosa County had no railroad service, the transportation strategy suggests a project to study the feasibility of extending rail service into the area.

Anon. 1992. Coastal Pete seeks offshore drilling permits. PR Newswire.

Abstract. Company today announced that it has filed applications with Florida's Department of Natural Resources (DNR) to drill offshore oil and gas exploration wells off Manasota Key and Naples. Coastal, which has an 800,000-acre petroleum and mineral leasehold along most of Florida's Gulf Coast, said additional permit applications for petroleum prospects in the Apalachicola Embayment, off Franklin County, will be filed later this week. Phillip W. Ware, president of Coastal, said the company already has sought approval to conduct seismic, magnetic anomaly, and gravitational

testing on its leasehold, and that DNR is expected to issue the testing permit shortly. "We would like to obtain a drilling permit as soon as the administrative review process can be completed," said Ware, "so the company can proceed to explore prospects on this very promising offshore acreage." Ware said the three-mile-wide leasehold, 7.4 to 10.4 miles offshore, parallels the coastline from Apalachicola Bay to Naples (425 statute miles), and borders federal offshore acreage to seaward.

Anon. 1993a. A climate for success. Florida Trend. 36(6):NW1-NW6.

Abstract. It's got all of the elements people come to Florida for: beaches, warm weather, great fishing, golf and accommodations to fit even the most leisurely lifestyle. But Northwest Florida has even more. There are advantages for business -- two deepwater ports anchored at both ends; a change of seasons that people in the southern half of the state often envy; and there's the Southern hospitality that has total strangers exchanging pleasantries and the work force producing more. It's an attitude. Many still marvel at the relatively uncelebrated image the northwest part of Florida enjoys. That's why locals often will talk about the area being "discovered" and volunteer stories about people deciding to move to the area after only one visit.

Anon. 1993b. Escambia and Santa Rosa Counties. Florida Trend. 36(6):NW66-NW79.

Abstract. At the tip of Northwest Florida, with the Alabama state line to the north and the Gulf of Mexico to the south, are Escambia and Santa Rosa counties. Pensacola, "Florida's first-place city," is the economic hub. The oldest settlement in the United States, it was founded by a Spanish explorer in 1559. History and location have played a huge role in shaping the development of the area. As the more mature of its counter-parts, Pensacola has traditionally served in a support capacity for other counties in Northwest Florida requiring specialty health care and advanced education. Naval aviation originated there, and military installations continue to influence the economy. Escambia is home to the Naval Air Station, where the famous naval flight demonstration team, "The Blue Angels" is based, and Whiting Field is located in Santa Rosa County. Being a coastal region, Escambia and Santa Rosa counties also are capturing the same interests as other parts of Florida, becoming a haven for tourism. Newcomers often note the differences between this area and the state's southern and central regions. There's a distinct change of season -- though Florida sunshine still wards off most of the chill -- and there's more of an identification with Southern traditions.

Anon. 1993c. A golden retirement opportunity. Florida Trend. 36(6):NW86-NW88.

Abstract. Looking for a place to spend their golden years, more retirees are looking no further than Northwest Florida. And businesses that cater to the older generation are paying attention. "It's a matter of playing to your strengths," says Edward Ranelli, president of azalea Trace, continuing-care retirement community in Pensacola. Pensacola has been ranked as a top retirement location by various national magazines, Ranelli says. And in the 1990 edition of Retirement Places Rated, Pensacola was ranked fourth out of 151 cities, as one of the best retirement locations nationwide. The April 1991 issue of American Demographics called Pensacola one of the nation's "hottest" areas for retirement of military personnel.

Anon. 1993d. Okaloosa and Walton Counties. Florida Trend. 36(6):NW40-NW54.

Abstract. The most-often talked about assets in Okaloosa and Walton counties fall under two categories: Brains and Beauty. Each plays a significant role in the makeup of the economy. The brains, of course, refers to the technology, innovation and skill that reside in this northwest region of the state. And beauty? The area is enough to turn anyone's head -- with its glistening blue-green waters and white sand beaches that resemble snow-drifts. Features found in these two counties parallel much of what is found throughout state. There's the glitz and glamour of places like the Sandestin Resort; a very rural, slow-paced lifestyle in the area surrounding DeFuniak Springs; and pockets of high-tech and manufacturing sprinkled throughout.

Anon. 1994. Sunshine partners adjust equity positions. PR Newswire.

Abstract. Partners in the proposed SunShine Pipeline Project have announced the restructuring of their equity interests in the more than \$600-million natural gas pipeline project after Florida Power Corporation withdrew as an equity partner today. Florida Power will continue as a major customer of the pipeline but has elected not to be an equity partner. Subsidiaries of The Coastal Corporation of Houston (NYSE: CGP) and TransCanada PipeLines Limited of Calgary will now hold equal interests in the project. "Although Florida Power Corporation has withdrawn as an equity partner, Florida Power's management has expressed strong support for bringing a second source of natural gas to Florida and remains an important customer for the project," said E.J. Burgin, SunShine's president. "Florida Power's early commitment as a customer was instrumental in establishing SunShine as a viable project.

Applegate, A.V. 1983. Principal oil fields in Florida and possible future oil and gas fields in the state and offshore. The Interstate Oil Compact Commission Committee Bulletin. 25(2):38-41. Fla. Dep. Nat. Resour., Bur. Geol., Tallahassee, FL. Papers delivered before standing committees of the Interstate Oil Compact Commission, Herschler, E. (chairperson). Interstate Oil Compact Comm., Oklahoma City, OK, Conference date: Dec. 4-7, 1983.

Aschoff, S. 1990. People, people everywhere. (Citrus, Hernando, Levy, Marion, and Sumter Counties, Florida). Florida Trend. 32(13):87-90.

Abstract. Once a quiet retreat, the region is drowning in newcomers and struggling to meet the mandates of growth. The two lanes of U.S. 41 wind past the cluttered store-fronts and aging houses of Inverness to unroll into the neighborhoods of the 1990s: wind-swept fields dotted with golf carts and greens and crisscrossed by the invisible lines demarcating vacant lots awaiting their retiree owners. Citrus County, like much of the North Central region of Florida, is showing the symptoms of its explosive growth. The quaint towns and pastoral farms elbow fast-food joints and real estate sales offices. And on Highway 41, the boom is as inescapable as the cars and trucks inching bumper-to-bumper through Inverness all day long.

Aschoff, S. 1991. Seeing the future in a U.S. pastime; despite hard times, spring baseball and a number of small businesses are providing an economic boost. (1991 Yearbook: North Central Florida; economic forecasting for that region). Florida Trend. 33(12):83-86.

Abstract. In northeast Citrus County, just past the fork in the road where lumbering freight trucks veer east to Ocala or hang a left on U.S. 41, lies a dusty, brush-covered patch of dirt the locals have dubbed their field of dreams." They see an \$8.2 million stadium and spring training complex for major league baseball's Cleveland Indians, a spacious park and a new 150-room hotel. They hear the crack of bat against BALL, the roar of the fans, the jingle of coins in cash registers. They believe, in this county hungry for new industry and rife with retirees, in the promise: "If you build it, they will come." "I can't think of a cleaner, better industry than major league spring baseball. It won't be a cure-all, but it will be an impetus to provide spinoff businesses and jobs," says Alex Griffin, a former Citrus County commissioner, real estate agent and leader of the "Join the Tribe" push.

Bell, F.W. 1989. Application of Wetland Valuation Theory to Florida Fisheries. Florida Sea Grant College Report. 118:95. Department of Economics, Florida State University, Tallahassee, Florida.

Abstract. The focus of this report is an evaluation in economic terms of the value of estuarine wetlands to marine fisheries in Florida. The marginal productivity theory of estuarine wetland valuation is used to determine the value of the marginal products of an acre of saltwater marsh in the production of estuarine dependent species of fish.

Bell, F.W. and V.R. Leeworthy. 1987. Economic demand for marinas and projected impact on wetlands. Land Economics. 63(1):79-91.

Abstract. This article develops a theoretical framework for marina demand and empirically estimates such a logic and OLS model using Florida as a case study. Projections of the pattern of land use for marinas can be studied in the light of current environmental policies. The analysis for Florida indicates that environmental concerns involving marinas and the call for rigid permitting of additional sites may not be based on large wetland requirements and that marina-wetland compatibility studies should be considered.

Bell, F.W., P.E. Sorensen and V.R. Leeworthy. 1982. The Economic Impact and Valuation of Saltwater Recreational Fisheries in Florida. Florida Sea Grant College Report. SGR-47:118.

Abstract. This project quantifies both the market and nonmarket value and economic importance of Florida's saltwater recreational fishery. The objectives are: (1) to produce statistically reliable estimates of the value per recreational day and yearly of Florida's saltwater sport fishing; (2) to provide a demographic and economic profile of instate and out of state sport fishermen; (3) to determine the impact of saltwater sport fishing on the Florida economy; and (4) to identify regions of critical state concern with respect to a decline in productivity of saltwater sport fishing in Florida waters due to overfishing, pollution, etc.

Blomo, V.J. 1983. Economic Criteria Regarding Diversification Through Public and/or Private Sector Financing. pp. 22. In Report V in Assessment of Shrimp Industry Potentials and Conflicts. Vol. II. Shrimp Notes Incorporated, New Orleans, LA.

Abstract. Cyclical swings in the profitability of shrimp harvesting operations has prompted an evaluation of diversifying the scope of fishing

activities. This report first develops economic criteria the vessel owner can use to determine the profitability of any additional investment including the advisability of borrowing additional investment funds. Secondly, with financing for diversification from public and/or private sources being likely, economic criteria will be developed so that funds from these sources are loaned out and committed with minimal risk and with a high degree of accountability to the public for public funds.

Blomo, V.J. and J.E. Easley. 1983. Awareness Program for Shrimp Harvesters as to the Uses of Various By-Catch, The On-Going Development of the Turtle Excluder Device (TED) Information Program. pp. 23. In Report IV in Assessment of Shrimp Industry Potentials and Conflicts. Vol. II. Shrimp Notes Incorporated, New Orleans, LA.

Abstract. The purpose of this report is to discuss alternatives for an awareness program for shrimp fishermen regarding bycatch utilization. Bycatch reduction of undesirable sizes and species is an integral part of the problem, hence is also addressed. The first section below briefly summarizes recent information on bycatch, its utilization and problems surrounding bycatch utilization. The second section discusses possible objectives of an awareness program and types of information that would be required. The third section then addresses strategies that might be pursued in terms of vehicles for conducting an awareness program. The next section discusses possible content and delivery methods for a Turtle Excluder Device (TED) information program. As such, it emphasizes bycatch reduction. The last section then discusses techniques for monitoring the effectiveness of an awareness program. Monitoring will be important to future decisions concerning whether to continue such a program.

Blomo, V.J. and W.L. Griffin. 1978. Costs and Returns Data: Florida-Based Gulf of Mexico Shrimp Trawlers, 1977. Texas A&M University, Department of Agricultural Economics, Texas Agricultural Experiment Station. TAMU-SG-79-604:33.

Abstract. This report summarizes estimates of costs and returns for vessels of different characteristics that anchor in Florida and trawl in the Gulf of Mexico. Data for the calendar year 1977 were collected from vessel owners. Results are presented in self explanatory tables. No attempt is made to draw inferences or discuss implications of trends, or relationships that may be apparent in the data. The file also contains a June, 1978 draft final report to NMFS.

Blomo, V.J., J.P. Nichols, W.L. Griffin and W.E. Grant. 1982. Dynamic modeling of the eastern Gulf of Mexico shrimp fishery. American Journal of Agricultural Economics. 64(3):475-482.

Abstract. The impact of alternative management schemes on the shrimp fishery of the eastern Gulf of Mexico is analyzed and compared to a baseline using simulation techniques (GBFSM). The fishery's biological and economic functions are modeled including intraseasonal shrimp growth rates, differences in demand for shrimp by size, and a heterogeneous fishing fleet. Using consumer and producer surplus techniques, new fishing regulations appear socially optimal compared to the baseline. A rent maximization scheme increases social surplus to its highest level. However, applying such a scheme to one part of the total Gulf of Mexico shrimp fishery is not recommended.

Bohnsack, J.A. and D. Harper. 1987. Automated Landings Assessment for Responsive Management (ALARM) Package for Gulf of Mexico Commercial Reef Fish Landings: March 1987 Summary. National Oceanic and Atmospheric Administration, National Marine Fisheries Center, Miami Laboratory, Reef Resources Team. Miami, FL. 16 pp.

Abstract. A summary of landings of reef fish species for the Gulf of Mexico commercial reef fish fishery.

Bohnsack, J.A., A. Brown and D. Harper. 1987. Automated Landings Assessment for Responsive Management (ALARM) Package for Gulf of Mexico Commercial Reef Fish Landings: 1987 Summary. National Oceanic and Atmospheric Administration, National Marine Fisheries Center, Coastal Resources Division. CRD-86/87-29:17.

Abstract. A summary of the 1986 landings of reef fish species for the Gulf of Mexico commercial reef fish fishery.

Browder, J.A., J.C. Davis and E. Sullivan. 1978. The Paying Passenger Recreational Fisheries of the Florida Gulf Coast and Keys, Draft Rpt. National Marine Fisheries Service. Miami, FL.

Abstract. Four types of paying passenger recreational fisheries operate on the Florida Gulf Coast and in the Florida Keys. An estimated 604 captains were active in the fisheries in 1977. Target species differ with fishery type and region of operation. Declining catches (catch per unit effort) and increased operating costs, particularly for fuel, are major problems of these fisheries according to the captains. In those fisheries where previous information is available the number of operations has increased in the past fifteen years in the Florida Keys, decreased greatly on the west Florida coast and decreased slightly on the northwest Florida coast.

Brown, G.L. 1981. A Survey of Recreational Shrimping in the Bay and Sound Systems of the Gulf Coast for 1980, Final Rpt. Gulf Coast Research Laboratory. HSR-RR-81/2-PON:140. Prepared for Gulf States Marine Fisheries Commission, Gulf Coast Research Laboratory, Ocean Springs, Mississippi.

Abstract. This paper reports the results of a 1980 survey of recreational shrimpers along the bay and sound systems of the Gulf Coast in 1979 and 1980 that was conducted complementarily with the NMFS recreational finfish survey.

Brusher, H.A. and B.J. Palko. Unknown Year. An Analysis of Marine Recreational Catch and Effort Data from a 1983 Charterboat Survey of the Southeastern United States and the U.S. Caribbean. Southeast Fisheries Center, National Marine Fisheries Service, NOAA, Panama City Laboratory. Panama City, FL.

Abstract. A survey of charterboats from coastal areas of the southeastern United States, Gulf of Mexico, and Caribbean was undertaken in 1983. Captains were contracted to provide daily catch and effort data. They reported on 3,479 of 3,503 available boat fishing weeks. A total of 348,976 pelagic and demersal fish were caught in 46,921.5 hours of effort. Species catch and catch per boat hour (CPH) are presented annually, monthly, and geographically. Data are compared with similar results obtained in a 1982 pilot survey. The charterboat survey provided timely CPH data.

Brusher, H.A. and B.J. Palko. 1987. Results from the 1984 and 1985 charterboat surveys in southeastern U.S. Waters and the U.S. Caribbean Sea. Mar. Fish. Rev. 49(2):109-117.

Abstract. In 1984 and 1985, surveys of southeastern U.S. waters, including the Gulf of Mexico and the U.S. Caribbean Sea, were conducted to gather catch and effort records from charterboat captains located along coastal areas. Captains were contracted to supply daily records of fishing activity. During the 2 year period, 10,380 fishing trips, 48,231 hours of fishing effort were expended and 342,258 fishes were caught. Species, catches, and catch per boat fishing hour are presented by year, month, and area. Major species groups caught by trolling included mackerels and tunas, while other than trolling methods caught mostly snappers, groupers, and croakers. Annual response rates for returning log forms for the 1984 and 1985 surveys were 98.8 and 95.7 percent, respectively.

Brusher, H.A., M.L. Williams, L. Trent and B.J. Palko. 1984. Using charterboat catch records for fisheries management. Mar. Fish. Rev. 46(3):48-55.

Abstract. A pilot survey to study the feasibility of using catch records from charterboats for obtaining daily catch and effort data was initiated on 28 March 1982. Nine charterboat captains produced records for 39,410 marine fishes caught in 4,392 trolling hours and in 919.5 hours using other fishing techniques. Captains were contracted to supply daily records of fishing zones, fishing methods, and all species in their respective catches. Response rate (i.e., weekly submission of logs) was 90.4 percent for all boat fishing weeks between 28 March and 31 December 1982. The potential use of this type of recreational data is discussed.

Bruzzese, A. 1992. Ready to pull out of a rut. Florida Trend. 34(12):115-118.

Abstract. While Santa Rosa enjoys a growth spurt, other Panhandle counties will gradually emerge from the downturn. For Jeff Vickers, it's a good problem to have. As airport director of the Panama City-Bay County Regional Airport, Vickers says business is so good that some of the airlines are "overrun" with tourists and business travelers. He expects passenger counts to increase at least 20% this year over 1991. "The North Gulf Coast is growing and doing well, despite what the economy has been like," Vickers says. "The airlines have been pleasantly surprised." Business at the Panama City airport is more of an exception than the rule, but still there is a feeling that the West Panhandle is ready to pull out of a years-long economic rut.

Caillouet, C.W., F.J. Patella and W.B. Jackson. 1979. Relationship between marketing category (count) composition and ex-vessel value of reported annual catches of shrimp in the eastern Gulf of Mexico. Mar. Fish. Rev. 41(5-6):1-7.

Abstract. The relationship between estimated ex-vessel value of reported annual shrimp catches and weight of these catches is used to show the effects of regional differences in count composition of these catches, a function of differences in shrimp laws and harvesting strategy. It seems clear that the strategy of harvesting large proportions of larger shrimp in Texas increases both the weight and ex-vessel value of these catches. Social impacts and economic inputs beyond the ex-vessel level also require consideration in studies of effects of harvesting strategy. The shrimp fisheries of the eastern Gulf of Mexico are analyzed. They are those of Mississippi, Alabama, and west coast of Florida, and includes pink

shrimp, *P. duorarum*, as well as brown and white shrimp. Harvesting strategy refers to the sizes of shrimp harvested, retained, and landed. The relationship between estimated ex-vessel value and weight of reported annual catches of a given species in a given region holds remarkably well over a wide range of fluctuations in reported annual catches. In fisheries, such as shrimp fisheries of the Gulf of Mexico, in which wide fluctuations occur in annual yield in response to fluctuations in recruitment, the best that can be done is to make the best use of whatever recruitment occurs. This lends support to the concept of management of shrimp fisheries by minimum size limits or other approaches which regulate the size of shrimp at first harvest, i.e., closed areas or seasons.

Casteel, P. 1991. Bycatch a matter of opinion. *Texas Shores*. 23(3):1-33. Texas A&M University Sea Grant College Program and Palachios Marine Education Center.

Abstract. A collection of articles concerning bycatch in the Gulf of Mexico shrimp fishery.

Cato, J.C. and H.E. Kumpf. 1990. The Economic Influence of Population Growth, Fisheries, Coastal and Marine Industries, and Tourism Derived from Use of The Gulf of Mexico. *In* Presented at The Environmental and Economic Status of the Gulf of Mexico, December 2-5, 1990. New Orleans, LA.

Abstract. This paper focuses on the economic use of the Gulf of Mexico's resources by pointing out some of the major economic values associated with them.

Cato, J.C. and F.J. Prochaska. 1976. The Gulf of Mexico commercial and recreational red snapper-grouper fishery: an economic analysis of production, marketing, and prices. pp. 95-128. *In* H.R. Bullis Jr. and A.C. Jones, eds. Proceedings: Colloquium on Snapper-Grouper Fishery Resources of the Western Central Atlantic Ocean. Report Number 17. Gulf States Marine Fisheries Commission, New Orleans, LA. (Texas A&M University Sea Grant College and Mississippi-Alabama Sea Grant Consortium.)

Abstract. Owners and captains of both commercial red snapper boats and party boats along the north Florida Gulf coast were interviewed in 1975. Cost and return data were collected and analyzed for 1974. Also documented and analyzed was the economic importance to the region of the commercial and party boat industry. Price analyses are conducted and compared with past research. A description of marketing channels is provided with special emphasis placed on the role of imports. Finally, the need for management programs in the red snapper-grouper industry receives comment.

Cato, J.C. and F.J. Prochaska. 1977. A statistical and budgetary economic analysis of Florida-based Gulf of Mexico red snapper-grouper vessels by size and location, 1974-75. *Mar. Fish. Rev.* 39(11):6-14.

Abstract. This paper combines the analysis of production data for the northern gulf commercial vessels with additional production data collected from the Florida west coast or southeastern gulf red snapper-grouper production area to provide a comparative report on the costs and returns for vessels operation in these two areas. Two methods of analysis were used to analyze the cost and returns data. First, an ordinary least squares regression equation using dummy variables was used to determine

if statistically significant differences exist in costs and revenues between port locations and size of the fishing firm. Second, specific differences in costs and revenues by firm size and port location are analyzed using detailed cost and return budgets for the four classes of vessels.

Cato, J.C., F.J. Prochaska and P.C.H. Pritchard. 1978. An Analysis of the Capture, Marketing and Utilization of Marine Turtles. Purchase Order No. 01-7-042-11283. Environmental Assessment Division, National Marine Fisheries Service. St. Petersburg, FL.

Abstract. The objectives of this report are to 1) determine sources of published and documented data concerning sea turtle harvesting, consumption and prices; 2) analyze trends in production and consumption of sea turtle meats and shells by country from best available statistics; 3) determine from available statistics international trade patterns in sea turtle meats and shells; and 4) through informal consultation in selected areas gather information on turtle harvest and trade not reported in trade statistics because of inadequate or nonexistent record keeping or through deliberate attempts to circumvent protective laws.

Centaur Associates Inc. 1990. Environmental Costs of Fishing Ground Preemption and Gear Loss. pp. 39. In Chapter 6, Draft report prepared for the Mineral Management Service, Department of Interior. Mineral Management Service, Department of Interior,

Abstract. This section addresses non-oil spill impacts on the commercial fishing industry due to loss of access to fishing grounds, and to damage or loss of fishing gear. The placement of OCS structures, such as production platforms and pipelines, in the waters of the Outer Continental Shelf, have been shown to prevent a certain amount of ocean area from being used by fishing industry. This area foreclosure can lead to a potential reduction in catch for the industry, and an associated economic loss. OCS oil and gas activity can also cause loss or damage to fishing gear, due to sea floor structures, debris and other sea floor disruptions. In certain instances, increased vessel traffic associated with offshore oil development can cause damage to fixed fishing gear such as pots or traps.

Christmas, J.Y. and D.J. Etzold. eds. 1977. The Shrimp Fishery of the Gulf of Mexico United States: a Regional Management Plan. (Series, 2.) Gulf Coast Research Laboratory, Technical Report. Ocean Springs, MS. 128 pp.

Abstract. The regional Gulf of Mexico shrimp fishery management plan documents the problems and lists the goals and objectives necessary to manage the shrimp resources of the Gulf of Mexico and provide optimum sustained benefits for the nation. The fishery is described, shrimp producing zones of the region are identified for preservation and improvement, and statistics collection is facilitated. The report promotes research in bio-social-economic model development, development of a regional management plan, and extension education of shrimp fishermen.

Christmas, J.Y., D.J. Etzold, L.B. Simpson and S. Meyers. eds. 1988. The Menhaden Fishery of the Gulf of Mexico United States: A Regional Management Plan. Vol. 18. Gulf States Marine Fisheries Commission. Ocean Springs, MS.

Abstract. The first regional management plan (Christmas and Etzold, 1977) was adopted and implemented by the Gulf State-Federal Fishery Management Board in 1977. Results of ongoing review and evaluation of research and management achievements warranted a revised management plan. The goal of the plan is to develop a gulf menhaden management strategy that will allow an annual maximum harvest that protects the stock from overfishing on a continuing basis.

Clayton, K. and J. Gordon. 1978. Gulf County, Florida, Information for Rural Development : Population, Housing, Economy, Labor Force, Public Sector. Florida Agricultural Market Research Center, Food and Resource Economics Department, Agricultural Experiment Station Report. 17:63.

Conand, C. and M. Byrne. 1993. A review of recent developments in the world sea cucumber fisheries. Mar. Fish. Rev. 55(4):1-13.

Abstract. Sea cucumbers (Holothuridae and Stichopodidae) have been harvested commercially for at least 1,000 years. The world fisheries for sea cucumbers, however, are not well documented and in general are poorly managed. Depending upon the species exploited, there are two processing procedures for the sea cucumber product. Some species are eaten raw, while most commercial species are processed into a dry product called beche-de-mer or trepang. This dry product is exported to a central market such as Hong Kong and then re-exported to the consumers. In this review, recent statistics on the world sea cucumber fisheries, collected from different services, are detailed for each major fishing area. Case studies for each fishing area are also presented. Recent major changes in the Indo-Pacific fishery include the participation of new producer countries, the shift in the species being exploited, and an increase in the Chinese market. The expansion of the largely monospecific temperate North Pacific fisheries is also described. Statistics from Hong Kong, Singapore, Taiwan, and the Food and Agriculture Organization provide valuable information on the producer and importer countries. Particular attention is paid to the reciprocal trade of beche-de-mer between Hong Kong and Singapore. An evaluation of the world sea cucumber landings and beche-de-mer production is presented. Recent developments include an expansion of the Hong Kong market due to increased demand by China, the importance of Indonesia as a major world producer, and an increase in the fisheries of Tropical Pacific nations. This increase is best documented for New Caledonia and Fiji. Ways to improve the access and the reliability of the statistics for the sea cucumber fishery are discussed, as is the potential for management of artisanal fisheries.

Conroy, T.F. 1991. Billion-dollar babies. American Demographics. 13(12):36-42.

Abstract. Nonmetropolitan areas should not be overlooked as significant consumer markets because many of these areas report personal incomes exceeding one billion dollars. Based on data from the Bureau of Economic Analysis, the most affluent nonmetropolitan counties, with total personal incomes beyond the two-billion-dollar mark, include Barnstable County, MA; Litchfield County, CT; San Luis Obispo County, CA; and Ulster County, NY.

Crane, C. 1994. The pieces are in place to start diversifying. Florida Trend. 36(12):107-111.

Abstract. Will West Panhandle boosters be able to bring jobs and diversity to an economy dependent on the military? When the Pentagon delivered three cuts to Escambia County last year, the message quickly became a lesson in economic development -- namely, don't count on me. In decisions that will cost Escambia millions of dollars in wages, the Defense Department:

- * Decommissioned the USS Forrestal, leaving Pensacola Naval Air Station without a training aircraft carrier for the first time in 70 years.
- * Canceled bidding for a 4,000-job defense payroll center after Pensacola spent \$1 million packaging its bid.
- * Targeted the 3,300-employee Pensacola Naval Air Depot for closure by October 1995, as recommended by the 1993 Base Realignment and Closure Commission. "The silver lining to this whole thing is it's changing attitudes," says Bill Huth, a professor of economics at the University of West Florida in Pensacola. "People are realizing we can't depend on the defense vehicles forever as the primary engine of our economy." That philosophy is now permeating much of the region. Not all the military news was bad. The base closure commission will relocate the Naval Air Technical Training Command (NATTC) in 1997 to Pensacola from Millington, Tennessee. Conventional analysis has it that the swap in workload will result in a net gain of 4,700 jobs for the Naval Air Station, making it the state's big winner in the ongoing defense shuffle.

Crane, C. 1995. On the military roller coaster. Florida Trend. 37(12):138-142.

Abstract. While the Pentagon's presence in Northwest Florida remains volatile, most employment growth is coming from the private sector. Just north of Eglin Air Force Base in Okaloosa County, Jack Owen pilots a private enterprise that could be a model for future economic development in defense-dependent Northwest Florida. Capitalizing on the region's ample pool of aviation-trained workers, Owen built Crestview Aerospace, an aircraft-parts fabrication business. From a low point of 12 employees in 1990, Crestview's work force has grown to 170.

Cummings, N.J. and T.W. Chewning. 1986. Recent Catch and Catch per Unit of Effort of the Gulf of Mexico Red Snapper and Grouper Fisheries. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Miami Laboratory, Coastal Resources Division. Miami, FL. 36 pp.

Abstract. This report provides 1) nominal commercial landings by U.S. fishermen of red snapper and groupers (groupers are unclassified as to species in the reporting statistics except for warsaw grouper (*E. nigritus*) and jewfish (*E. itajara*) from the Gulf of Mexico for 1962-1985, 2) estimates of catches of red snapper, red grouper, gag grouper, and black grouper by U.S. recreational fishermen for 1978-1985, and 3) results of a preliminary CPUE analysis of daily fishing logs of recreational charterboats catching red snapper, red grouper, gag grouper, and black grouper.

Cunningham, J.J. 1986. Status of the Developing Fresh Yellowfin Tuna Industry in the Southeast Region, 1980-85, Draft report. National Marine Fisheries Service, Southeast Regional Office. St. Petersburg, FL. 7 pp.

Abstract. An assessment of the yellowfin tuna fishery in the southeastern United States for the 1980-85 time period. Two major factors explaining

the rise in yellowfin tuna production are the increased demand for sashimi and sushi in this country and falling rates of return in alternative opportunities such as swordfish longlining.

Day, F. and C. Jackson. 1991. How to reach military retirees. *American Demographics*. 13(4):40-43.

Abstract. There are 1.6 million military retirees receiving approximately \$2 billion per month in pre-tax retirement pay. The majority of military retirees live in the South, and one-third of all military retirees live in California, home to 216,000 retirees, Florida, home to 150,000 retirees, and Texas, home to 148,000 retirees. Small cities have attracted military retirees, who have a major impact on their economies. Military retirees have the economic means to relocate to recreation areas and are heavily concentrated in coastal areas in Florida, the East Coast, and in San Antonio and El Paso, TX. Typically, military retirees, 99% of whom are men, are well educated, in good health, are involved in their communities, and are active consumers.

Degner, R.L., C.M. Adams and S.D. Moss. 1989. An Analysis of Potential Regulatory Changes on the Economic Structure of the Eastern Gulf of Mexico Finfish Industry Centered in Florida. Department of Food and Resource Economics, University of Florida. Gainesville, FL.

Abstract. Long term and seasonal production and market trends for mullet and seatrout in Florida are analyzed. Annual boat level earnings profiles for fishermen producing mullet, seatrout, and complementary species are estimated. Economic impacts on fishermen resulting from alternative resource management policies are analyzed on a statewide basis and also for individual counties. For the mullet industry, basic elements of market structure and concentration are examined, and market channels and product flows for mullet in the round, red and white roe, and other mullet products are described.

Ditton, R.B., S.M. Holland and D.A. Gill. 1992. The U.S. Gulf of Mexico party boat industry: activity centers, species targeted, and fisheries management opinions. *Mar. Fish. Rev.* 54(2):15-20.

Abstract. In addition to providing an overview of the party boat fishery in the U.S. Gulf of Mexico, a management oriented methodology is presented that can be used elsewhere to assess regulatory impacts. Party boat operators were interviewed to determine species targeted, percent time committed to targeting each species, and opinions of current catch restrictions. Over two thirds of the fleet was located on the west coast of Florida. Overall, most boats targeted less than 5 species. Four species accounted for 90 percent of the estimated effort by party boats in the U.S. Gulf of Mexico: snapper, grouper, amberjack, and king mackerel. Party boat effort in Texas was devoted primarily to snapper whereas in Florida most effort was devoted to snapper and grouper collectively. Party boat operators were diverse in their opinions of management regulations in force when interviewed. Results revealed why major opposition would be expected from Texas party boat operators for red snapper bag limits and other restrictions proposed by the Gulf of Mexico Fishery Management Council.

Dunn, J.M. 1990. Not in my back yard. (controversial industries in Calhoun, Franklin, Gadsden, Gulf, Jackson, Jefferson, Leon, Liberty, and Wakulla Counties, Florida) (Statistical Yearbook: East Panhandle). Florida Trend. 32(13):107-110.

Abstract. Though jobs are scarce, some residents are turning away controversial employers because of safety fears. Like most of North Florida, the East Panhandle needs jobs. But residents throughout the region are just saying no to certain types of economic development. Consider the moves East Panhandle counties have made in just the past year: * In Liberty and Calhoun counties, residents and local officials turned away Recontek, a California company that wanted to build a hazardous-waste recycling facility employing 180 and paying average wages of \$10 an hour. "There was an uprising against it," says John T. Sanders, one of four Liberty County commissioners who voted against the plant. He says citizens feared health and safety problems from the facility.

Dunn, J.M. 1991. Making government smaller doesn't help. (1991 Yearbook: East Panhandle, Florida; economic forecasting for that region). Florida Trend. 33(12):101-104.

Abstract. Up to now, the East Panhandle has been lucky. As an area heavily dependent upon government spending for its economic health, it has been riding a consistent, though not stellar, tide of growth for the past few years. But with Gov. Lawton Chiles' new plans to scale back state spending and downsize government, the area may be in for a rougher ride than it has seen in years. Job loss, it seems, is a certainty, though the extent at this point is uncertain. But even if actual layoffs are minimal, economists expect the recession to create a further drag on this region's economy. Indeed, over the next two years, economists are predicting that population and employment growth will slow down in Leon County. Fishkind & Associates, the Winter Park econometrics firm, estimates Leon's population will grow by 5,100 people, or 2.6%, in 1991, down from 6,800 residents the previous year. Meanwhile, the county is expected to add 2,800 new jobs compared to 4,900 in 1990. For 1992, Fishkind predicts even slower growth, as the recession and budget cuts continue to affect the area.

Dunning, R.D. and C.M. Adams. 1995. Economic analysis of the potential for eastern oyster (*Crassostrea Virginica* Gmlin, 1791) depuration in coastal northwest Florida. Jour. Shellfish Res. 14(1):113-119.

Abstract. Illness associated with the consumption of raw shellfish is one possible factor that has depressed demand for oysters *Crassostera virginica* in coastal counties of northwest Florida. Controlled purification (depuration) has been identified as one method of improving public confidence in oysters and increasing sales. This economic analysis determines the anticipated costs of depuration processing for 12 design options with operating capacities from 30 to 498 bushels per week. The area of study is Dixie and Levy counties and adjacent water located in northwest Florida. Combined, these two counties have supplied approximately 15% of oyster landings for the state over the past 10 years. Based on the expected volume and cost of shellstock in the area, projected capital and operating costs, and the expected premium for depurated product, depuration is not an economically feasible method of shellfish processing in the area of study.

Dyer, C.L. and M. Moberg. 1992. The 'Moral Economy' of Resistance: Turtle Excluder Devices and Gulf of Mexico Shrimp Fishermen. *Marine Anthropological Studies*.

Abstract. This article examines how shrimp fishermen in two communities on the Gulf of Mexico have responded to federal regulations requiring the use of Turtle Excluder Devices (TEDs) on shrimp trawlers. Coming at a time of contraction in the fishery due to low producer prices and high operating costs, TED regulations have engendered intense opposition in many areas. Resistance to TEDs stems from shrimpers' perception that the regulations are an unjust threat to their livelihoods. Such beliefs are not unlike those underlying other spontaneous resistance movements, such as agrarian uprisings of the poor and dispossessed. Recommendations for alternatives are made that would provide incentives for conservation while lessening the economic hardship of shrimpers and their families.

Dyer, C.L., D.A. Gill and J.S. Picou. 1992. Social disruption and the Valdez oil spill: Alaskan natives in a natural resource community. *Sociological Spectrum*. 12:105-126.

Abstract. This study presents a conceptual model for examining the social impacts of the Valdez oil spill on natural resource dependent communities. Data on social and subsistence disruption experienced by Alaskan natives are analyzed for two time periods: 1989 and 1990. The results reveal substantial uncertainty and disruption, with indications of changing patterns for long term social impacts. The study concludes with recommendations for restoration and recovery suggested from the results of our data analysis and the natural resource community model.

Eales, J. and J.E. Wilen. 1986. An examination of fishing location choice in the pink shrimp fishery. *Marine Resource Economics*. 2(4):331-351.

Abstract. This article analyzes fishing location choices made by pink shrimp (*Pandalus jordani*) fishermen fishing off the coast of northern California. Data were gathered for 17 commercial vessels making 3000 net sets over a season. A simple multiple choice logic model was used to examine whether recent information on success in various regions aids in explaining location choice. Results suggest that fishermen do account for economic factors in a manner consistent with economic theories of choice.

Easley, J.E., Jr. 1992. Selected issues in modeling allocation of fishery harvests. *Marine Resource Economics*. 7(2):41-56.

Abstract. This paper examines selected issues that are likely to be important in improving economists' models of allocation of fishery harvests between commercial and recreational harvesters. Valuation in the commercial sector is emphasized with harvests of a species subject to allocation viewed as an input into production of consumer fishery goods. Substitution possibilities in production of these consumer goods, and data generally available to economists are discussed as motivations for application of the general equilibrium derived demand to valuation in the commercial sector. Conceptual and empirical problems in applying the function are discussed.

Easley, J.E., Jr. and F.J. Prochaska. 1987. Allocating harvests between competing users in fishery management decisions: Appropriate economic measures for valuation. *Mar. Fish. Rev.* 49(3):29-33.

Abstract. This paper discusses decision making by fishery managers and economists' efforts to model fisheries. Arguments and casual evidence are presented to suggest that distributional issues matter to managers. The paper concludes with a practical measure suggested as a means of achieving efficiency goals while simultaneously resolving conflicts between competing harvesting groups.

Easley, J.E., Jr., C. Adams, W.N. Thurman and J. Kincaid. 1993. The Derived Demand for Commercially Harvested Gulf and South Atlantic King Mackerel: Partial and General Equilibrium Models. Project Report to the Gulf of Mexico Fishery Management Council. 42 pp.

Abstract. This study estimates both partial and general equilibrium demand models for the commercial king mackerel fishery using monthly, vessel level data covering the 1977-1991 time period in the Gulf of Mexico and south Atlantic regions. Estimated changes in consumer welfare given hypothetical shifts in commercial king mackerel harvest allocations are provided.

Economics and Statistics Office. 1988. Fishing trends and conditions in the southeast region, 1988. Southeast Fisheries Center, National Marine Fisheries Service. Miami, FL. 45 pp.

Abstract. This report contains information on conditions and developments in the fishing industry in the southeastern U.S. during 1988. The information was provided by Federal and State fishery reporting specialists located in major fishing ports throughout the southeast. The landings and value data in the report are preliminary and subject to change.

Economics and Trade Analysis Division. 1993. Economic considerations for management of Gulf reef fish. National Marine Fisheries Service, Southeast Regional Office. St. Petersburg, FL.

Abstract. A review of the available data for the reef fish fishery in the Gulf of Mexico.

Erdman, R.B., N.J. Blake, F.D. Lockhart, W.J. Lindberg, H.M. Perry and R.S. Waller. 1991. Comparative reproduction of the deep-sea crabs *Chaceon fenneri* and *C. quinquegens* (Brachyura: Geryonidae) from the northeast Gulf of Mexico. *Invertebr. Reprod. Dev.* 19(3):175-184.

Abstract. Northeastern Gulf of Mexico populations of deep-sea golden crabs (*Chaceon fenneri*) and red crabs (*C. quinquegens*) were sampled quarterly from May 1987 through February 1988 to examine the timing of reproductive events. *C. fenneri* was most abundant at sample depths between 311 and 494 m while *C. quinquegens* showed a minimum depth of occurrence of 677 m. Both species exhibited an annual reproductive cycle with a distinct winter brooding period. However, oviposition in *C. quinquegens* began in May, approximately three months earlier than in *C. fenneri*; consequently the single batch of eggs produced were brooded for nine months in *C. quinquegens* and six months in *C. fenneri*. Larvae of both species hatched during February and March of the following year. Differences in the duration of reproductive events may reflect the segregated bathymetric distribution of each species. The incidence of molting females and non-ovigerous females observed during the fall-winter brooding period

suggests that although both species reproduce annually on the population level, individuals may reproduce biennially. This low frequency of reproduction may be a consequence of the reduced food supply characteristic of the continental slope environment.

Farger, M.I. 1990. Evaluation statistical bias in using catch-rate indices from the U.S. Recreational Billfish Fishery for estimating abundance by the use of a simulation model. Ph.D. Dissertation. University of Miami, Miami, FL. 253 pp.

Abstract. Catch-rate data are traditionally used to index abundance in fishery science. An objective of this research was to evaluate the bias in the assumption of linear proportionality between the catch-rate, characterized as the number of fish hooked per 100 hours trolling (HPUE), and the abundance, for the U. S. recreational billfish fishery. To investigate the relationship between HPUE and abundance a mathematical model of the general fishing process was first developed. Then the modular BLLSIM (BiLLfish SIMulation) model was constructed, using the northeastern Gulf of Mexico as the study area. Starting with a fixed initial abundance, both the boat and the fish would move throughout the spatial grid as the fishing day progressed. Spatial data were defined for three possible scenarios that represented the environmental quality (EQ). Fish movement was accomplished by the MOVEFISH algorithm which used the Circular-Normal distribution with the concentration parameter serving as a proxy for the EQ gradient. Hence, fish had a statistically induced preference to continue to move in the direction of higher EQ. The stochastic model dynamics of BLLSIM allowed for the determination of whether a fish and boat were in proximity, then if a fish in that proximity was raised to the bait, and then if a raised fish was hooked. Simulations were repeated at varying levels of abundance, and the functional relationship between HPUE and abundance was derived using nonlinear regression techniques. Results were found to be similar to those of the mathematical model. Relationships were significantly nonlinear and could be conservatively estimated with HPUE being proportional to the square-root of abundance. The bias in the assumption of proportionality was tabulated in terms of estimated percentage decrease in abundance for a given decrease in HPUE. Statistical power was estimated via a Monte Carlo simulation routine, ESTPOWER. This generated the probability of detecting various decreases in abundance at different relative levels of HPUE. Results indicate strong ramifications to this fishery because, for example, at acute low levels of HPUE a 20% decrease in HPUE indicates an approximate 34% decrease in abundance with a probability of being detected of 49%.

Farger, M.I. 1991. A methodology for simulating the U.S. recreational fishery for billfish. pp. 832-840. *In* 1991 Winter Simulation Conference Proceedings Conference Location: Phoenix, AZ, USA. Dec. 8-11, 1991. IEEE, IEEE Service Center, Piscataway, NJ.

Abstract. A simulation model of the process for recreational tournament fishing for billfish is developed, using the northeastern Gulf of Mexico as the study area. The objective is to explore the relationship between catch-rate and abundance. Starting with an initial fish population, both the boat and fish move throughout a spatial grid as the fishing day progresses. The simulation first determines if a fish is within proximity of a boat and, if so, if the fish was subsequently raised to the bait. It

then determines if a raised fish was hooked. Data are tabulated on the number of fish hooked by all boats fishing during a tournament day per 100 hours of effort. The catch rate is classically used for indexing abundance.

Fee, R. 1993. Shrimpers can expect a decline as Louisiana marshland recedes. National Fisherman. 73(11):18-19.

Abstract. Louisiana's coastal wetlands are slowly sinking into the sea and with them may be going the future of the \$400 million a year shrimping industry of the northern Gulf of Mexico.

Feenberg, D. and E.S. Mills. 1980. Measuring the Benefits of Water Pollution Abatement. Academic Press. New York, NY.

Abstract. This book is about measuring the benefits of water pollution abatement, but the techniques also apply to air pollution abatement. It is about the benefit side of the benefit-cost calculus.

Fisher, M.R. and R.B. Ditton. 1992. A Social and Economic Characterization of the U.S. Gulf of Mexico Recreational Shark Fishery, Draft report. Department of Wildlife and Fisheries Sciences, Texas A&M University. College Station, TX.

Abstract. A mail survey of tournament shark anglers and party boat shark anglers was completed to examine their fishing activity, attitudes, trip expenditures, and consumer surplus. A sample of 700 shark anglers was selected from tournaments in the Gulf of Mexico during 1990, and a sample of party boat shark anglers was drawn from Port Aransas, Texas party boat anglers during the summer of 1991. A response rate of 58% (excluding non-deliverables) was obtained from tournament anglers. The sample of party boat shark anglers was too small to provide useful results. Tournament shark anglers reported fishing an average of 58 days per year and targeted sharks and other large marine species. Tournaments occupy a small portion of their fishing effort. If this group of anglers were not able to fish for sharks, one-third indicated no other species would be an acceptable substitute, while others were willing to substitute other large marine species. Shark trip expenditures averaged \$197 per trip with a consumer surplus of \$111 per trip. Based on MRFSS estimates of the number of shark fishing trips, we estimate a total of \$43 million was spent by shark anglers in the Gulf of Mexico with a consumer surplus of \$24 million for a gross value of the shark fishery of \$66 million. MRFSS estimates of the number of sharks landed indicate an equivalent use value of \$183 per shark. Logic model results appear incorrect, no explanation of consumer surplus derivation is given, no underlying economic model is provided.

Fisher, M.R. and R.B. Ditton. 1993. A social and economic characterization of the U.S. Gulf of Mexico recreational shark fishery. Mar. Fish. Rev. 55(3):21-27.

Abstract. A mail survey of tournament shark anglers and party boat shark anglers was completed to examine their fishing activity, attitudes, trip expenditures, and consumer surplus. A sample of 700 shark anglers was selected from tournaments in the Gulf of Mexico during 1990, and a sample of party boat shark anglers was drawn from Port Aransas, Texas party boat anglers during the summer of 1991. A response rate of 58% (excluding non-deliverables) was obtained from tournament anglers. The sample of party

boat shark anglers was too small to provide useful results. Tournament shark anglers reported fishing an average of 58 days per year and targeted sharks and other large marine species. Tournaments occupy a small portion of their fishing effort. If this group of anglers were not able to fish for sharks, one-third indicated no other species would be an acceptable substitute, while others were willing to substitute other large marine species. Shark trip expenditures averaged \$197 per trip with a consumer surplus of \$111 per trip. Based on MRFSS estimates of the number of shark fishing trips, we estimate a total of \$43 million was spent by shark anglers in the Gulf of Mexico with a consumer surplus of \$24 million for a gross value of the shark fishery of \$66 million. MRFSS estimates of the number of sharks landed indicate an equivalent use value of \$183 per shark.

French, C.O. and J.W. Parsons. eds. 1983a. Florida Coastal Ecological Characterization: A Socioeconomic Study Of The Northwestern Region. Vol. II. Data appendix. Part 2. (FWS/OBS-83/15-Vol.2-Pt.2) Report Number: FWS/OBS-83/15-Vol.2-Pt.2. U.S. Fish and Wildlife Service. Slidell, LA. 395 pp.

Abstract. Data are compiled from existing sources on the social and economic characteristics of the Northwestern coastal region of Florida, which is made up of Escambia, Santa Rosa, Okaloosa, Walton, Bay, Gulf, and Franklin Counties. Described are the components and interrelationships among complex processes that include population and demographics characteristics, mineral production, multiple-use conflicts, recreation and tourism, agricultural production, sport and commercial fishing, transportation, industrial and residential development, and environmental issues and regulations. Energetics models of socioeconomic systems are also presented. This volume contains appendices presenting data on public utilities, transportation, recreation and tourism, mineral and oil production, and environmental issues and regulations.

French, C.O. and J.W. Parsons. eds. 1983b. Florida Coastal Ecological Characterization: A Socioeconomic Study Of The Northwestern Region. Vol. I, Text. (FWS/OBS-83/15-Vol.1) U.S. Fish and Wildlife Service, National Coastal Ecosystems Team. Slidell, LA. 326 pp.

Abstract. Data are compiled from existing sources on the social and economic characteristics of the Northwestern coastal region of Florida, which is made up of Escambia, Santa Rosa, Okaloosa, Walton, Bay, Gulf, and Franklin Counties. Described are the components and interrelationships among complex processes that include population and demographics characteristics, mineral production, multiple-use conflicts, recreation and tourism, agricultural production, sport and commercial fishing, transportation, industrial and residential development, and environmental issues and regulations. Energetics models of socioeconomic systems are also presented.

French, C.O. and J.W. Parsons. eds. 1983c. Florida Coastal Ecological Characterization: A Socioeconomic Study Of The Northwestern Region. Vol. II. Data appendix, Part 1. (FWS/OBS-83/15-Vol.2-Pt.1) U.S. Fish and Wildlife Service, National Coastal Ecosystems Team. Slidell, LA. 330 pp.

Abstract. Data are compiled from existing sources on the social and economic characteristics of the Northwestern coastal region of Florida, which is made up of Escambia, Santa Rosa, Okaloosa, Walton, Bay, Gulf, and

Franklin Counties. Described are the components and interrelationships among complex processes that include population and demographics characteristics, mineral production, multiple-use conflicts, recreation and tourism, agricultural production, sport and commercial fishing, transportation, industrial and residential development, and environmental issues and regulations. Energetics models of socioeconomic systems are also presented. This volume contains appendices presenting data on populations, employment, health services, agriculture, fish and game, industrial and residential development, and land use.

Gill, D.A., R.B. Ditton and S.M. Holland. 1993. Charter and party boat operators in the U.S. Gulf of Mexico: A social structure perspective. Mar. Fish. Rev. 55(3):16-20.

Abstract. To better address the charter and party boat fishery needs in the U.S. Gulf of Mexico, fishery managers must understand the linkages between the industry and other groups and organizations that affect its success. Gulf state charter and party boat operators were interviewed to ascertain the extent of their social network linkages, membership in community organizations, business community relationships, and linkages to information sources. Approximately one-third to one-half of the charter and party boat operators did not belong to local community organizations that could assist their business through tourism promotion or natural resource protection. Despite their limited integration in the community, the vast majority of operators gave and received referrals from other businesses. Of four major information sources, the National Weather Service and the County Marine Extension agents were rated highest and lowest, respectively, in mean importance to charter and party boat operators. Results suggest that business success can be enhanced by strengthening network ties between operators and local businesses, chambers of commerce, and tourism organizations. For this to occur, individual operators and charter/party boat organizations need to become more effective in representing industry interests. Informational linkages between industry and government agencies also need improvement.

Goodyear, C.P. 1992. Red Snapper in U.S. Waters of the Gulf of Mexico. (Contribution: MIA 91/92-70) Southeast Fisheries Center, Miami Laboratory, Coastal Resources Division. Miami, FL.

Abstract. The biological stock assessment of the red snapper fishery for the Gulf of Mexico is presented in this paper. The conservation measures currently in place are enhancing the condition of the stock. However, without the planned permanent reduction of 50% in the bycatch mortality rate in 1994 or an even higher reduction in 1995, it will not be possible to attain the spawning stock goals of the Plan by the target date of 2007 and to also allow the directed fishery to operate under the current catch limit of 4 million pounds.

Goodyear, C.P. 1993. Red Snapper in U.S. Waters of the Gulf of Mexico, 1992 Assessment Update. (Contribution: MIA 92/93-76) Southeast Fisheries Center, Miami Laboratory, Coastal Resources Division. Miami, FL.

Abstract. This document updates tables and analyses that were presented in the 1992 assessment (Goodyear, 1992). New data are available for the 1993 commercial harvest, the 1992 recreational harvest, and recruitment indices for the 1991 and 1992 year classes. These data permit characterization of the size and age composition of the 1992 commercial

and recreational catches that were not available for the previous assessment. The time series available to estimate catch per unit effort for all sectors of the recreation fishery are also extended through 1992. These data were used to re-estimate historical fishing mortalities for the directed fishery and shrimp bycatch mortality using the methods described in the earlier assessment. The possible implications for several management alternatives were also forecasted based on the current best estimates of fishing mortality and recruitment. The results of the present analyses are presented in figures and tables numbered to correspond to those in the previous work. A new executive summary, tables, and figures are provided.

Goodyear, C.P. 1994a. Biological Reference Points for Red Grouper: Effects of Uncertainty about Growth. (MIA-93/94-60) Southeast Fisheries Center, Miami Laboratory. Miami, FL. 26 pp.

Abstract. The effects of uncertainty about growth of U.S. Gulf of Mexico red grouper (*Epinephelus morio*) on estimates of their population statistics was evaluated by computing the statistics for each of several competing von Bertalanffy growth equations fitted to length at age data from different sources and time periods. Estimates of asymptotic lengths varied from 27.7 inches to 68 inches total length. These equations were used to estimate the age composition of the 1986-1992 combined harvest and to estimate total mortality through means of catch curves constructed for 1986-1989, before the 20 inch minimum size and for 1990-1992 when the minimum size was in place. All of the mortality rate estimates and yield per recruit (YPR) and spawning potential ratio (SPR) evaluations assume equilibrium conditions. The catch curve estimates of mortality that were derived from ages estimated from lengths were biased low. Simulated data were analyzed to develop bias correction equations which were subsequently used in an attempt to remove the bias. Estimated total mortality for fully recruited ages ranged from $Z=0.286$ to $Z=0.548$ for 1986-1989 and from $Z=0.453$ to $Z=1.545$ for 1990-1992 depending on the growth model selected. This equilibrium assumption is known to be violated for the later period, because of the introduction of the 20 inch minimum size, hence the latter estimates are suspect. The consequence of this defect was not evaluated. The results of this study support additional detailed examination of red grouper growth rates. Furthermore, if age structured assessment methods are to be employed with this stock we must begin routine collection of data to develop annual age-length keys to estimate the age composition of the catch of this fishery.

Goodyear, C.P. 1994b. Red Snapper in U.S. Waters of the Gulf of Mexico. (Contribution: MIA 93/94-63) Southeast Fisheries Center, Miami Laboratory, Coastal Resources Division. Miami, FL.

Abstract. The 1994 red snapper stock assessment report concludes that the stock conservation measures currently in place are enhancing the condition of the stock. However, if the 50% reduction in bycatch mortality rate is not achieved in the near future, it will not be possible to attain the spawning stock goals of the plan by the target date of 2009 and to also allow the directed fishery to operate under the current catch limit of 6 million pounds. These estimates are considerably more pessimistic than those presented in 1993, primarily because the 1993 and 1994 catches exceeded TAC.

Goodyear, C.P. and M.J. Schirripa. 1993. The Red Grouper Fishery of the Gulf of Mexico. Southeast Fisheries Center, Miami Laboratory, Coastal Resources Division. Miami, FL. 122 pp.

Abstract. The biological stock assessment for red grouper in the Gulf of Mexico is presented in the paper.

Gordon, J. 1978. Wakulla County, Florida, Information for Rural Development: Population, Housing, Economy, Labor Force, Public Sector. Florida Agricultural Market Research Center, Food and Resource Economics Department, Agricultural Experiment Station Report. 87:62.

Gorte, R.W., E.H. Buck, D.M. Sale and A.C. Grenfell. 1985. Limiting Access for Commercial Fish Harvesting. Prepared at the Request of the House Committee on Merchant Marine and Fisheries. Congressional Research Service, The Library of Congress. Washington, D.C. 71 pp.

Abstract. Commercial fish harvesters are often able to exploit fisheries resources beyond sustainable levels, heightening competition and reducing their incomes. Limited access (restricting who is allowed to harvest fisheries resources) is one approach to addressing such problems. This paper describes the three basic limited access mechanisms (input restrictions: licenses and permits; economic disincentives: taxes and fees; and harvest allocations: harvester quotas and shares) and briefly catalogs existing limited access programs. There are also sections on case law involving limited access in the United States and on access to other natural resources as well as an extensive bibliography on limited access.

Gosselink, J.G., E.P. Odum and R.M. Pope. 1974. The Value of the Tidal Marsh. LSU-SG-74-03. Center for Wetland Resources, Louisiana State University. Baton Rouge, LA. 30 pp.

Abstract. Natural tidal marshes are evaluated in monetary terms. By-product production (fisheries, etc.) on a per-acre basis yields a value of only about \$100 per year, even when the whole value of the fishery is imputed to the marsh. More intensive uses, such as oyster aquaculture, which preserve many of the natural functions of the marsh-estuarine ecosystem, have a potential up to \$1000 per acre per year. The potential for waste assimilation is much higher, about \$2500 per acre per year for tertiary treatment. Summation of the noncompeting uses approaches an ecological life-support value of about \$4000 per acre per year, based on the gross primary productivity (in energy terms) of the natural marsh, using a conversion ratio from energy to dollars based on the ratio of Gross National Product to National Energy Consumption. When these annual social values of \$2500-4000 are income capitalized at 5% interest the estimated total social values are \$50,000-\$80,000 per acre. Some estuaries, such as the Potomac or the Hudson, are now performing waste assimilation work of even greater value but such estuaries are overloaded to the point of degradation. Analysis based on the total value of the life support role of a natural tidal marsh-estuary suggests that a strategy of optimization in Land use planning should replace, or supplement, reliance on the pricing system which is inadequate for preservation of natural systems that increase in value with the intensity of adjacent development.

Green, T.G. 1984. Compensating and Equivalent Variation of the Florida Saltwater Tourist Fishery. Ph.D. Dissertation. Florida State University, Department of Economics, Tallahassee, FL.

Abstract. The study establishes the value in recreational use of Florida's saltwater tourist fishery, using exact Hicksian compensating and equivalent variation methods. The Hicksian approach removes the approximating error of Marshall's consumer surplus measures. The theoretical model underlying the angling experience emphasizes the multipurpose nature of the tourist trip. It is based upon a Gibbs type approach in which variable on-site cost proxies market price and travel cost enters the budget constraint. On-site cost and angling success rate are explicitly incorporated into a system of behavioral relations. Some restrictive assumptions found in similar studies are relaxed with composite goods utility. Empirical estimates for aggregated and subgroup angling categories are made with multiple equation models of identified linear and nonlinear specifications. There is some evidence that shore anglers might be more and less sensitive to changes in on-site cost and success rate, respectively. Single equation models are also used, but exhibit downward coefficient bias. Results corroborate the findings of previous studies that the market and nonmarket values of Florida's marine recreational fishery are very large relative to state product and/or commercial sector activity. Inelastic short run price and success rate elasticity is confirmed. Hicksian methods are not shown to be significantly more accurate than most Marshallian ones, except in the case of the direct aggregate user opinion method. Sensitivity analysis offers policy implications supporting a marine tourist fishing license and stock rebuilding schemes, such as bag limits for depleted species. The unrecoverable deadweight burden to society caused by a \$10 annual tourist fishing license is less than one percent of the \$31 million in direct, adjusted license revenues estimated to be forthcoming annually.

Green, T.G. 1989. The Economic Value and Policy Implications of Recreational Red Drum Success Rate in the Gulf of Mexico. MARFIN Grant No. NA87WC-H-06146. National Marine Fisheries Service.

Abstract. The author undertakes an assessment of the MRFSS data base using red drum as a target species in a recreational fishing trip. A red drum angler profile is provided and success elasticity is estimated and used in the estimation of welfare benefits of red drum reallocation management measures. A suggested policy to move the fishery closer to optimal yield is a reallocation of red drum stocks to recreational anglers. One weakness of the study is the lack of a comparable commercial harvest sector to base model conclusions concerning reallocation.

Green, T.G. 1994. Allocation between commercial and recreational sectors in stressed marine fisheries. *Society and Natural Resources*. 7:39-56.

Abstract. This paper provides an overview of the economic approach to open access, optimum fishery allocation between commercial and recreational users. The goal is to familiarize noneconomists with efficiency concepts, such as net benefit, that pertain to optimum allocation. A theoretical model of the policy trade off between economic efficiency and social equity is also developed. Net benefit is distinguished from economic

impact that cannot guarantee optimum allocation. Finally, empirical methods are applied to the red drum fishery in the Gulf of Mexico. Results support policies that reallocate wild red drum from the commercial to the recreational fishery.

Greene, G., C.B. Moss and E. Thunberg. 1994b. Estimation of Recreational Anglers' Value of Reef-Fish in the Gulf of Mexico, Draft MARFIN report. Department of Food and Resource Economics, University of Florida. Gainesville, FL.

Abstract. Several public policy issues in the Gulf of Mexico region involve the value of the reef fish recreational fishery. This study estimates the economic impact of this fishery using a travel cost procedure. Demand for recreational reef fishing is estimated as a function of travel costs and other costs paid, and of success of catch. The results indicate that the fishery generates \$566.8 million within the state of Florida annually. Further a 20% reduction in the average catch reduced these total expenditures by \$32.1 million.

Greene, G., C.B. Moss and E.M. Thunberg. 1994c. Estimation of Recreational Anglers' Value of Reef-Fish in the Gulf of Mexico, Final MARFIN Rpt. Contract No. NA37FF0054. Department of Food and Resource Economics, University of Florida. Gainesville, FL.

Abstract. Several public policy issues in the Gulf of Mexico region involve the value of the reef fish recreational fishery. This study estimates the economic impact of this fishery using a travel cost procedure. Demand for recreational reef fishing is estimated as a function of travel costs and other costs paid, and of success of catch. The results indicate that a 20% reduction in the average catch reduced expenditures by \$32.1 million. The fishery is estimated to generate \$385.6 million in total expenditures within the state of Florida annually.

Greer, J. 1995. The Big Business Takeover of U.S. Fisheries: Privatizing the Oceans Through Individual Transferable Quotas (ITQs). Greenpeace. Washington, D.C.

Abstract. A unique report biased against the adoption of ITQs in U.S. fisheries that selectively cites material from the literature and takes quotas from authors out of context. Evidence from the literature that does not support their position is ignored. Confusion also exists about the basic concepts underlying different proposed rights based management regulations such as individual quotas and individual transferable quotas.

Griffin, W.L. 1994. Shrimp Fishing Cost and Returns in Texas. Department of Agricultural Economics, Texas A&M University. College Station, TX.

Abstract. Trends in costs and returns for vessels greater than 60 feet operating off the Texas coast.

Griffin, W.L. and B.R. Beattie. 1978. Economic impact of Mexico's 200-mile offshore fishing zone on the United States Gulf of Mexico shrimp fishery. Land Economics. 54(1):27-38.

Abstract. A simple static equilibrium model of the Gulf of Mexico shrimp fishery is developed using cost data collected for 1974 and 1975 to determine the impact of the 200-mile limit imposed by Mexico on shrimp

fishermen operating out of Texas and Florida. Given the present shrimp price and cost of production situation, the adjustment to the Mexican 200 mile limit will not result in negative rents for the U.S. Gulf shrimp fleet.

Griffin, W.L. and C. Oliver. 1991. Evaluation of the Economic Impacts of Turtle Excluder Devices (TEDs) on the Shrimp Production Sector in the Gulf of Mexico, Draft report. Texas A&M University, Agricultural Economics Department. MARFIN Project No. NA-87-WC-H-06139

Abstract. By accounting for the dynamics of the shrimp population, a more accurate representation of the gains and losses from the implementation of TED regulations was provided. Percent loss by region varied with the fishing pressure of each region; the higher the fishing pressure the less the overall loss to each region. Across all regions, an estimate by the NMFS of a 10% loss in shrimp retention due to the use of TEDs translated only to an overall 5.3% loss in landings in the entire Gulf region. In economic terms, this renders a \$16.2m loss of rent to vessels and crew in the shrimp fishing industry in the Gulf of Mexico. Regional compliance ranged from 61 to 91% based on Coast Guard estimates, therefore, overall loss in rent was reduced to \$12.8m. However, the loss in rent to vessel owners and crew who complied with the TED regulation was \$15.7m, while the gain in rent to non-complying owners and crew was \$2.9m. The overall loss to the Gulf of Mexico shrimp industry, based on the 1990 individual tow losses of 0.7%, was a decline in rent of \$4.5m most of which was due to the purchase of the TEDs. These short run results indicate that nominal days fished in the long run must decrease for the industry to move to a new equilibrium. This is true across all vessel classes and regions, since they all incurred negative rents. Estimating the net present value for this adjustment process, over time, is reserved for future analysis. Two problems with the analysis are the short run time scale employed and the use of a homogeneous fleet assumption. Limiting the analysis to the impacts next year does not allow the fleet size to adjust to increased costs and reduced revenues caused by adoption of the TEDs in their harvesting operations. A stock effect from reduced fleet size should cause the catch per unit effort to increase and total catch to remain the same. The analysis uses the assumption of a homogeneous fleet where total revenue equals total cost even though three separate vessel size classes are employed in the analysis.

Grigalunas, T.A., J.J. Opaluch, D. French and M. Reed. 1987. Measuring Damages to Marine Natural Resources from Pollution Incidents under CERCLA: Applications of an Integrated Ocean Systems/Economic Model, Staff Paper Series. Department of Resources, University of Rhode Island. Kingston, RI.

Abstract. Several pieces of federal environmental regulation establish strict liability for damages from spills of oil and hazardous substances. This paper discusses the Natural Resource Damage Assessment Model for Coastal and Marine Environments that is to be used for assessing damages from spills of oil or hazardous substances in coastal and marine environments under CERCLA and the Clean Water Act as amended. The approach employs an integrated ocean systems/economic model to simulate the physical fates and biological effects of a spill and to measure the resulting economic damages. To illustrate application of the model, selected results are presented for hypothetical spills of a number of substances in a variety

of environments. The results show that the damage function depends on the physical and chemical properties of the substance spilled, the season, and the environment in which the spill occurs.

Grigalunas, T.A., J.J. Opaluch, D. French and M. Reed. 1988. Measuring damages to marine natural resources from pollution incidents under CERCLA: Applications of an integrated ocean systems/economic model. *Marine Resource Economics*. 5:1-21.

Abstract. Several pieces of federal environmental regulation establish strict liability for damages from spills of oil and hazardous substances. This paper discusses the Natural Resource Damage Assessment Model for Coastal and Marine Environments that is to be used for assessing damages from spills of oil or hazardous substances in coastal and marine environments under CERCLA and the Clear Water Act as amended. The approach employs an integrated ocean systems/economic model to simulate the physical fates and biological effects of a spill and to measure the resulting economic damages. To illustrate application of the model, selected results are presented for hypothetical spills of a number of substances in a variety of environments. The results show that the damage function depends on the physical and chemical properties of the substance spilled, the season, and the environment in which the spill occurs.

Hagy, J.R. 1990. Catching a glimpse of the future. (Florida's economic future). *Florida Trend*. 32(13):11-15.

Abstract. What will Florida's economic mix look like in the year 2000? These five emerging industries give us a clue. Old-timers like to say that Florida's economy is like a sturdy wooden stool, resting on four stout legs: agriculture, construction, tourism and retirees. While those remain important economic props, an exciting array of emerging industries is reshaping our state -- and our economy. By the turn of the century, tens of thousands of Floridians will be working in businesses that today are just beginning to emerge. Here's a look at five that are among the most important. Lasers propel Orlando into the next century. They can blast gall stones to bits, play compact discs and unclog arteries, and one day soon they may replace the dentist's drill, project images onto high-definition television screens and weld human tissue with only a trace of a scar.

Hagy, J.R. 1993. Economic development takes practical approach. *Florida Trend*. 35(12):113-115.

Abstract. Cool the high-tech hype. Economic development officials are embracing a more realistic way of easing the region's dependence on the military and tourism -- trade. For years, economic development officials in the West Panhandle have sung the same old song: We're trying to diversify from our dependence on tourism and the military by recruiting "clean, high-tech" manufacturing. Who isn't? Yeah, a few such companies have settled in the shadows of the region's ubiquitous military bases. But the truth is the "Redneck Riviera" hasn't exactly become the "Technopolis Coast" some have hoped for. "We would like to have high-tech, but I'm not optimistic we can get much. We can't compete with the Research Triangle or the east coast of Florida," says C.C. Elebash, a finance professor at

the University of West Florida in Pensacola. "We're not near enough to technological areas and population centers." But now officials are turning their attention to a development that holds more promise and potential: the North American Free Trade Agreement.

Harris, W. 1995. Northern composure. Florida Trend. 37(12):132-136.

Abstract. While the state government's work force in Tallahassee grows slowly, industrial employment is expanding in the northern tier of the Apalachee region. State government still fuels much of the economy of Leon County, home of the state capital. But the private sector is providing Tallahassee and other employment centers with more spark. Led by growing industrial companies, private employers are fattening payrolls in the Apalachee region's most heavily populated counties: Leon, Jackson and Gadsden, all located along Florida's northern border with Georgia. Meanwhile, the other six counties in the region have fewer job opportunities; several face serious problems in their fishing and forest products industries. In Leon County, home to nearly 60% of the Apalachee region's population, employment in manufacturing, construction and professional services rose by 2,400 jobs last year - more than double the number of new jobs in retailing, which generally pay less. Among other developments, defense-electronics manufacturers General Dynamics and TallaCom Industries created 75 jobs each.

Hecker, S. and E.A. Kennedy. 1988. Preliminary Studies for the Development of Artificial Reef Siting Plans in the Northeastern Gulf of Mexico. Mississippi-Alabama Sea Grant Consortium. MASGP-85-024:15. Presented at the Artificial Reef Conference, Held at the University of North Carolina at Wilmington on September 30, 1985.

Abstract. In response to a request for proposals by the National Marine Fisheries Service in early 1983, the Mississippi-Alabama Sea Grant Consortium in cooperation with Continental Shelf Associates, Inc. submitted a proposal to 'Develop Siting Plans for the Establishment of Artificial Reefs in the Gulf of Mexico'. The objective of the proposal was to develop a workable plan that would benefit both recreational and commercial fisheries. The plan was to investigate the biological, operational, sociological, economic, and legal aspects of using obsolete oil and gas platforms as fishing reefs. This appeared to be a logical approach since about half of the almost 3500 currently active platforms in the Gulf are expected to become obsolete by the turn of the century. Under current regulations, platforms which are taken out of service must be removed by the owner.

Holiman, S.G. 1994a. A Discussion of the Economic Implications of Regulatory Change in the Gulf of Mexico Recreational Reef Fish Fishery. National Marine Fisheries Service, Southeast Regional Office. St. Petersburg, FL. 15 pp.

Abstract. This document presents a discussion of the current management, catch performance, management options, and the economic implications of regulatory change for the recreational reef fishery of the U.S. Gulf of Mexico with emphasis on red snapper, red grouper, and gag.

Holiman, S.G. 1994b. Management History and Recreational Catch and Effort for Gulf of Mexico Red Snapper, Red Grouper, and Gag, 1992-93. National Marine Fisheries Service, Southeast Regional Office. St. Petersburg, FL. 13 pp.

Abstract. This document presents a management history and summary statistics for the recreational reef fishery of the U.S. Gulf of Mexico. The discussion focuses on red snapper, red grouper, and gag.

Holiman, S.G. 1994c. Status of the Recreational Fisheries of the South Atlantic and Gulf of Mexico, Draft report. National Marine Fisheries Service, Southeast Regional Office. St. Petersburg, FL.

Abstract. A review of the status of landings and management measures in place for the recreational fisheries of the southeastern region of the United States.

Holland, S.M. and J.W. Milon. 1989. The Structure and Economics of the Charter and Party Boat Fishing Fleet of the Gulf Coast of Florida, Final MARFIN Report. Contract No. NA87WC-H-06141. Department of Recreation, Parks, and Tourism and Department of Food and Resource Economics, University of Florida. Gainesville, FL. 278 pp.

Abstract. A study of the Florida west coast charter and party boat fishing fleet with a comparison to an earlier study.

Holland, S.M., R.B. Ditton and D.A. Gill. 1992. The U.S. Gulf of Mexico charter boat industry: activity centers, species targeted, and fisheries management opinions. Mar. Fish. Rev. 54(2):21-27.

Abstract. The charter boat industry in U.S. Gulf of Mexico provides access to offshore fishing opportunities for approximately 570,000 passengers per year on 971 boats. A 25 percent random sample of charter boat operators was interviewed during 1987-1988 to determine species targeted, percent time committed to targeting each species and reactions to existing catch restrictions. Three-fourths of the charter boat fleet was in Florida, 13 percent in Texas, 5 percent in Louisiana, 4 percent in Alabama, and 2 percent in Mississippi. Responses were diverse regarding species focus within the region. Species of dominant importance included groupers, snapper, king mackerel, spotted seatrout, and red drum. Catch restrictions were generally supported with higher levels of opposition to restricted high effort fish and/or one fish or closed fishery limits.

Humes, L. 1995. Government's helping hand. (Suwannee region, Florida). Florida Trend. 37(12):126-131.

Abstract. In a rural area with the lowest population increase in the state, prison construction remains the most consistent growth industry. Change comes slowly to the rural counties of Florida's Suwannee region. Most leaders would love to see their communities diversify and broaden their tax bases. But amid Tallahassee's threats to reduce state spending, the 11-county region will, for the near future, continue to depend on government jobs to provide economic stability throughout the area - more specifically, jobs growing out of Florida's commitment to put criminals in jail. Take Taylor County, for example. Although officials would gladly welcome more tourists and business to the area, Florida's Department of Corrections (DOC) remains one of the primary employers. A new prison scheduled to open near Perry in July will create 300 new jobs. Don Lincoln, chairman of the Taylor County Development Authority (TCDA), says

they are hopeful DOC will build an annex on adjoining property the state already owns and has cleared for such a project. The prison annex, he says, would double the number of new hires expected this spring. In Hamilton County, a prison annex due to open this summer will create more than 250 new jobs. And nearby Columbia County, which already has a prison employing more than 300 people, hopes to attract a proposed, privately operated youthful-offender facility.

Keithly, W.R., K.J. Roberts and J.M. Ward. 1991a. Effects of Shrimp Aquaculture on the U.S. Market: An Econometric Analysis, Draft Rpt. Louisiana State University. Baton Rouge, LA.

Abstract. Rapid expansion in the production of farm-raised shrimp during the 1980's concerns the domestic shrimp industry and is the basis for recent attempts at limiting imports. A simultaneous equation model including the U.S. and Japan shrimp import markets and U.S. dockside demand was used to quantify the impacts of shrimp aquaculture on U.S. imports and domestic warm water dockside shrimp prices. Results suggest that current, i.e., 1988-1989, U.S. shrimp import levels would be about 175 million pounds below observed levels in the absence of shrimp aquaculture and that the U.S. import price would be about 70% higher. The domestic dockside warm water shrimp price would also be significantly higher. Quotas and tariffs were also shown to positively influence domestic dockside prices. It was suggested, however, that any rise in domestic warm water shrimp prices, brought about by a reduction in imports would encourage additional effort in the domestic shrimp fleet and a dissipation of initial gains in profit.

Keithly, W.R., K.J. Roberts and J.M. Ward. 1991b. Farm-Raised Shrimp Production and Its Impact on the U.S. Market, Draft Rpt. Louisiana State University. Baton Rouge, LA.

Abstract. A simultaneous model including the U.S. and Japan shrimp import markets and U.S. dockside demand was used to quantify the impacts of highly successful shrimp farming activities in the 1980's on U.S. imports and domestic warm water dockside shrimp prices. Results of the modeling effort suggest that current, i.e., 1988-1989, U.S. shrimp import levels would be in the neighborhood of 200 million pounds below observed levels in the absence of farm raised shrimp production on the world market and that the import price would be about 80% higher. The domestic dockside warm water shrimp price would also be significantly higher. Any rise in domestic warm water shrimp prices, brought about by a reduction in imports of the farm based product, was shown to encourage additional effort in the domestic shrimp fleet and a concurrent decline in industry profit.

Keithly, W.R., K.J. Roberts and H. Eyster-Kearney. 1993b. The Southeastern Seafood Processing Industry: An Economic Assessment for Private and Public Management Decision Making, Final Rpt. Contract No. NA90AA-H-SK-53. National Marine Fisheries Service, Coastal Fisheries Institute, Center for Coastal, Energy, and Environmental Resources, Louisiana State University. Baton Rouge, LA.

Abstract. This report provides the results of an economic analysis of the southeastern seafood processing sector and uses this analysis for the purpose of examining historical and potential processor level impacts related to harvesting constraints; either natural or man induced.

King, D.M. 1989. Economic Trends Affecting Commercial Billfish Fisheries. *In* R.H. Stroud, ed. Planning The Future of Billfish. National Coalition for Marine Conservation, Savannah, GA.

Abstract. A discussion of the fundamental market factors that affect billfish demand, supply, and prices and how these factors have changed in recent years to create increased fishing pressure on billfish stocks.

King, D.M. 1991. Costing out restoration. Restoration and Management Notes. 9(1):15-21.

Abstract. The transition of restoration from a science, craft, and labor of love to a business raises questions about ecological values and economic costs. An environmental economist summarizes some problems and offers a framework for evaluating the costs and expected results of restoration projects.

Klima, E.F., G.R. Gitschlag and M.L. Renaud. 1988. Impacts of the explosive removal of offshore petroleum platforms on sea turtles and dolphins. Mar. Fish. Rev. 50(3):33-42.

Abstract. Comparisons of turtle strandings during periods characterized by high and low numbers of offshore explosions, March-April 1985-88, suggest a positive relationship between the frequency of explosions and the stranding of turtles. Although dolphins may be impacted by explosions, the relationship between the stranding of dolphins and offshore explosions was not as conspicuous.

Klima, E.F., J.M. Nance, E.X. Martinez and T. Leary. 1990. Workshop on Definition of Shrimp Recruitment Overfishing. NOAA Tech. Memo. NMFS-SEFC-264:21.

Abstract. This report summarizes the findings of a two day workshop undertaken to (1) draft scientific definitions of overfishing for each of the shrimp species in the management unit of the Fishery Management Plan and (2) to recommend action that might be taken if overfishing occurred in any of these stocks.

Koenig, J. 1986. The west Panhandle is catching up. (outpaces rest of state in jobs and population growth). Florida Trend. 28:129-133.

Abstract. Jerry Melvin, the premier promoter of Florida's Panhandle, likes to tell the story about the woman who called a few years ago asking if she could catch a ferry over to Fort Walton Beach. Her question left him momentarily confused. Then, Melvin, who until February was head of the Fort Walton Beach Chamber of Commerce, realized she was looking at one of those Florida maps that cuts the Panhandle off around Franklin County and positions the rest out in the Gulf of Mexico, to the west of Naples. The West Panhandle always has been apart, in many ways, from the rest of Florida. While the economies of Central and South Florida accelerated to Mach speed over the past two decades, the Panhandle trailed along at a more languid place.

Lamb, S.T., L. Zhito, C. Stooksbury, W. Duzak, J. Gerner and K. Cassedy. 1989. AB spotlights Florida. Amusement Business. 101(8):15-28.

Abstract. Major markets vying for entertainment biz entertainment of all kinds is booming in the state of Florida, and residents seem to only want more. A look at seven major markets in the state revealed that no matter what the attraction, there's probably a market for it in Florida. Furthermore,

areas such as Miami, Orlando, Tampa/St. Petersburg, Jacksonville, Gainesville, Tallahassee and Pensacola have city development plans to attract the entertainment industry. AB's research discovered that the state's northern cities seem to be growing less rapidly than those in other regions. However, the entire state is flourishing, with Orlando and Miami leading in revenues generated. The competition between cities is fierce, especially in attracting a major league sports team. Many officials predict there will be several major teams moving into the state within the next five years, and probably much sooner. Ron Safford, director of the Dept. of Commerce's Office of Sports Promotion, predicts that "no later than 1995, Jacksonville will have an NFL team, and Miami/Ft. Lauderdale and the Tampa area will each have a professional baseball team, just for starters."

Leeworthy, V.R. 1990. An Economic Allocation of Fishery Stocks Between Recreational and Commercial Fishermen: The Case of King Mackerel. Ph.D. Dissertation. Florida State University, Department of Economics, Tallahassee, FL.

Abstract. The economic value and the economic impact were estimated for Florida's east and west coast recreational and commercial king mackerel fisheries using 1986 data. In 1986, king mackerel fisheries in Florida were economically more important to both the nation and to the state of Florida's economy than the commercial king mackerel fisheries in Florida. These conclusions held even assuming large errors in estimation. Separate reviews are included that contest the authors conclusions of theoretical and empirical grounds.

Livingston, R.J. 1985. Organization of fishes in coastal seagrass system: The response to stress. pp. 367-382. *In* A. Yanez-Arancibia, ed. *Ecologia de comunidades de peces en estuarios y lagunas costeros. Hacia una integracion de ecosistemas. Fish community ecology in estuaries and coastal lagoons. Towards an ecosystem integration.* Dep. Biol. Sci., Florida State Univ., Tallahassee, FL.

Abstract. Shallow coastal portions of the northeast Gulf of Mexico are physically unstable in time, with seasonal and annual changes of variables such as temperature, salinity, and nutrient distribution. A 9 year comparison of the biological structure of 2 Gulf estuaries, one polluted and one in the natural state, was carried out to determine the relationship of fish distribution relative to known trophic states and habitat characteristics. Partial recovery of the fish assemblages following water quality restoration reinforced the hypothesis that the primary difference in the biological structure of the 2 estuaries was due to the release of pulp mill effluents. The food web structure of the affected estuary was changed because of species-specific responses to habitat alteration. With time and water quality improvement, there was a shift in the patterns of abundance of dominant species toward those in the unaffected estuary, and such incomplete recovery followed that of benthic macrophyte associations in affected areas.

Livingston, R.J. 1984. Trophic response of fishes to habitat variability in coastal seagrass systems. *Ecology*. 65(4):1258-1275.

Abstract. Shallow coastal areas of the northeast Gulf of Mexico are physically unstable in terms of short-term, seasonal, and year-to-year changes in temperature, salinity, nutrient concentration, and other water quality

features. A 9-yr comparison was made of two estuaries, one polluted and one in the natural state, to determine the response of fish assemblages to habitat alteration. During the study period, extreme natural habitat changes due to storm water runoff and low winter temperatures were superimposed over water quality changes (increased color, turbidity, nutrients; reduced dissolved oxygen) associated with release of pulp mill effluents. Various grassbed fishes followed regular seasonal, age-specific feeding patterns, which did not change substantially in terms of qualitative foods composition in the unpolluted estuary over a 7-yr period of observation. Such feeding behavior helped to explain temporally conservative cycles of relative abundance despite extreme (natural) habitat change. Anthropogenous habitat alterations, though seemingly slight, were associated with reductions in benthic macrophyte distribution, enhanced phytoplankton productivity, and changes in the relative dominance and numerical abundance of associated fish assemblages. Grassbed species were replaced by plankton-feeding fishes, and disruption of feeding habits of various species benthic food organisms altered their feeding habits during the years of pollution in the affected estuary. Subsequent water quality improvement over time was associated with shifts in the age-specific dietary patterns of various species toward those observed in the unaffected estuary, although such recovery varied from species to species according to habitat utilization and trophic needs. From these results, it is clear that a relatively complex coastal seagrass system exposed to periodic, extreme natural disturbance is relatively resilient to such changes in terms of relative dominance and food web structure. However, apparently slight water quality changes due to pollution, which are outside the evolutionary experience of the biotic components, can cause serious disruptions of the basic habitat structure, energy flow, and community composition of the grassbed assemblages at various levels of biological organization.

Longman, P. 1991. Biggest change here: Alachua's attitude. Florida Trend. 33(12):95-98.

Abstract. Some day, Florida's Big Bend region, also known by its promoters as the Suwannee Valley Region, is bound to take off. Crossed by Interstate 10 and Interstate 75 and also served by excellent rail connections, it is perhaps the only area in Florida where inadequate infrastructure is not a barrier to economic growth. More important in the long run, the region sits on top of virtually unlimited fresh water supplies. The Big Bend may lack wide beaches, but it has the University of Florida in Gainesville, which is likely to be a much more valuable economic asset than waterfront condos in the future. But for now, life goes on pretty much as always. In Alachua County, which surrounds Gainesville, population growth has been stable since 1986; last year it grew 2%. Employment growth was slower. Non-agricultural jobs in the greater metropolitan area increased by 1.3%, compared to a 3% increase statewide during the same period. Construction, meanwhile, lost 300 jobs, as housing starts dropped from 1,540 in 1989 to 1,376 last year. With state government the dominant employer, job growth is likely to be small or negative this year, and for as long as the state's budget remains under pressure.

Longman, P. 1992. It gets worse. (Florida's budget deficit). Florida Trend. 35(5):31-38.

Abstract. While Florida's political leaders bickered over 'fair share' tax plans, they ignored the real problem. Florida is facing a runaway \$84 billion deficit. On a crisp, sunny afternoon in January 1977, Gov. Reubin Askew, using an upside-down paint can for a step, climbed through an opening on the roof of Florida's new \$41.4 million Capitol. Propping a lanky leg on the parapet of the nearly completed building and resting his elbow on the twin red bulbs of an aircraft warning beacon, Askew posed symbolically on the highest height of the tallest, most lavish statehouse in the land, as a photographer clicked away for posterity.

Longman, P. 1995. Markets hot (and not). Florida Trend. 37(12):26-32.

Abstract. The Florida economy is still providing a cornucopia of new jobs, but most are low-wage, and there are signs of a slowdown. During the early months of 1995, the Florida economy rolled along, emboldening Florida business. Indeed, a poll commissioned by the Florida Chamber of Commerce found that three out of five Florida executives expected both increased sales and profits this year. Does that mean it's time for a harvest dance? While most executives may be tapping their toes, the smartest are keeping their feet firmly planted under the desk. Because though 1995 will probably not bring a recession, it will surely bring a slowing economy, both in Florida and the nation as a whole.

Loomis, J.B. and D.M. Larson. 1994. Total economic values of increasing gray whale populations: Results from a contingent valuation survey of visitors and households. Marine Resource Economics. 9(3):275-286.

Abstract. The consistency of an individual's willingness to pay (WTP) responses for increases in the quantity of an environmental public good (whale populations) is tested along three lines. First, we test whether WTP for 50% and 100% increases in whale populations are statistically different from zero. Second, we ask whether the incremental WTP from a 50% increase to a 100% increase is statistically significant. Finally, we test whether there is diminishing marginal valuation of the second 50% increment in gray whale populations. The paired t-tests on open ended WTP responses supported all three sets of hypotheses. Both visitors and households provided WTP responses that were statistically different from zero and increased (but in a diminishing fashion) for the second increment in WTP. In this survey both visitors and households provided estimates of total economic value (including nonuse or existence values) for large changes in wildlife/fishery resources that were consistent with consumer theory.

Lynne, G.D., P. Conroy and F.J. Prochaska. 1981. economic valuation of marsh areas for marine production processes. Journal of Environmental Economics and Management. 8:175-186.

Abstract. The relationship of natural marsh-estuarine systems to the economic productivity of marine systems is not well understood, at least in any quantitative sense. An approach is developed for relating blue crab economic productivity on Florida's Gulf Coast to marsh availability in the area. Previous efforts have not always applied economic concepts appropriately in attempts at such quantification. The marginal value

productivity of marsh is shown to vary with alternative levels of marsh and effort in the fishery. The interaction and subsequent interdependence is shown to be statistically significant. Data availability on marginal response to marsh changes poses a severe obstacle to further progress.

MacKenzie, C.L., Jr. 1989. A guide for enhancing estuarine molluscan shellfisheries. *Mar. Fish. Rev.* 51(3):1-47.

Abstract. Part 1: Enhancing Estuarine Molluscan Shellfisheries Introduction In the eastern United States as well as in many countries where most shellfish originate in public beds, shellfishermen, local communities, distributors, and consumers have been dependent on wild stocks for shellfish supplies. Abundance of shellfish is usually much lower than the carrying capacity of the beds and can fluctuate widely among seasons. Thus shellfisheries are built upon a relatively weak foundation: Uncertain supplies, abundance of which is governed by several natural factors. In the eastern United States, the most important estuarine shellfishes are the American oyster, *Crassostrea virginica*; hard clam, *mercenaria*; soft clam, *Mya arenaria*; and bay scallop, *Argopecten irradians*. Beds of the hard clam, soft clam, and bay scallop remain uncultivated. Consequently, production has usually not been high enough to make shellfisheries very prosperous, and the market demand for shellfish cannot be met when supplies are scarce. Whenever supplies are limited, employment for fishermen and packing plant workers is low, supplies are small and prices are high in the marketplace. Somewhat of an exception is the oyster fishery, where oyster abundance has been increased and partially stabilized through shell plantings in several states, such as Maryland, and through predator control in Long Island Sound. Many acres of productive shellfish beds along the eastern United States have been closed because they have become polluted or degraded by filling or dredging of navigation channels. As a result, fishermen have often lost considerable fishing areas, which in turn has led to a considerable loss of employment and wealth. In the future, communities or states should be able to compensate their shellfisheries for these losses by supporting programs to increase shellfish abundance on the remaining beds by improving habitat quality. This would ensure that the shellfisheries would remain intact, stable, and without substantial losses.

Mager, A., Jr. 1988. National Marine Fisheries Service habitat conservation efforts in the coastal southeastern United States for 1987. *Mar. Fish. Rev.* 50(3):43-50.

Abstract. Data quantifying the cumulative acreage of coastal habitat affected by Corps of Engineers (COE) programs that regulate development in wetlands of the southeastern United States are provided for 1987. The National Marine Fisheries Service (NMFS), Southeast Region, made recommendations on 4,713 water development proposals submitted by or to the COE. Of these, 1,054 proposed to alter 21,756 acres of fishery habitat through 3,506 acres of dredging, 2,899 acres of filling, 1,303 acres of draining, and 14,048 acres of impounding. The NMFS did not object to alteration of 8,135 acres and recommended the conservation of 13,621 acres. To offset habitat losses, 7,139 acres of mitigation were recommended by NMFS or proposed by applicants and/or the COE. Of the wetland alterations accepted by NMFS, nearly 5,000 acres involved impounding for marsh management in Louisiana. A follow up survey of 266

permits issued by the COE during 1987 revealed that only 46 percent of NMFS recommendations were accepted by the COE. On a permit by permit basis, 25 percent of NMFS recommendations were partially accepted, 21 percent were completely rejected, and 8 percent were withdrawn.

Mager, A., Jr. 1990. National Marine Fisheries Service habitat conservation efforts in the southeastern United States for 1988. Mar. Fish. Rev. 52(1):7-13.

Abstract. Data quantifying the area of habitat affected by Federal programs that regulate development in coastal zones of the southeastern United States are provided for 1988. The National Marine Fisheries Service made recommendations on 3,935 proposals requiring federal permits or licenses to alter wetlands. A survey of 977 of these activities revealed that 359,876 acres of wetlands that support fishery resources under NMFS purview were proposed for some type of alternation or manipulation. Almost 95 percent of this acreage was for impounding and or manipulation of water levels in Louisiana marshes. The National Marine Fisheries Service did not object to alternation of 173,284 acres and recommended the conservation of 186,592 acres. To offset habitat losses, 1,827 acres of mitigation were recommended by the NMFS or proposed by applicants and/or the Corps of engineers (COE). From 1981 to 1988 the NMFS has provided in-depth analyses on 8,385 projects proposing the alteration of at least 656,377 acres of wetlands.

Mager, A., Jr. and G.W. Thayer. 1986. National Marine Fisheries Service habitat conservation efforts in the southeast region of the United States from 1981 through 1985. Mar. Fish. Rev. 48(3):1-8.

Abstract. The National Marine Fisheries Service (NMFS) is quantifying the cumulative acreage of habitat involved in the Corps of Engineers' (COE) programs relating to water development in the Southeast Region of the United States. From January 1981 through December 1985 the NMFS commented on 23,292 proposals to alter wetlands that had been submitted to the COE. Of these, detailed habitat information was obtained on 5,385 projects involving the potential alteration of 184,187 acres of wetlands. Dredging was proposed for over 80,227 acres and 45,893 for filling, 5,846 for draining, and 52,222 for impounding. NMFS did not object to the alteration of 48,500 acres and recommended the conservation of 135,687 acres. The proposed habitat losses were potentially offset by the 110,406 acres recommended for mitigation. The degree to which our recommendations were incorporated into permits by the COE also was documented. NMFS recommendations were accepted overall 50 percent of the time, partially accepted 24 percent of the time, and rejected 26 percent of the time. Applicant compliance with permit conditions averaged 80 percent. NMFS recommendations on permit applications are made by the Southeast Regional Office and its area offices, but are dependent on up-to-date research information provided by research laboratories of the Southeast Fisheries Center. The close link between these facilities in NMFS fisheries habitat conservation efforts is described.

Maguire, Jean-J., B. Neis and P.R. Sinclair. 1994. What Are We Managing Anyway?: The Need for an Interdisciplinary Approach to Managing Fisheries Ecosystems. pp. 14. In Theme Session on Improving the Link Between Fisheries Science and Management. Biological, Social, and Economic Considerations, International Council for the Exploration of the Sea,

82nd Statutory Meeting, St. John's, Newfoundland, Canada, September. (C.M 1994/T:48) International Council for the Exploration of the Sea.

Abstract. This paper proposes an interdisciplinary approach to fisheries management and fisheries science as a solution to the problems currently facing fisheries managers.

Mathis, K., J.C. Cato, R.L. Degner, P.D. Landrum and F.J. Prochaska. 1978a. Commercial fishing activity and facility needs in Florida: Citrus County. Florida Agricultural Market Research Center, Food and Resource Economics Department, Agricultural Experiment Station Report. 78-2:30.

Mathis, K., J.C. Cato, R.L. Degner, P.D. Landrum and F.J. Prochaska. 1978b. Commercial fishing activity and facility needs in Florida: Dixie, Levy and Taylor Counties. Florida Agricultural Market Research Center, Food and Resource Economics Department, Agricultural Experiment Station Report. 78-4:27.

Mathis, K., J.C. Cato, R.L. Degner, P.D. Landrum and F.J. Prochaska. 1978c. Commercial fishing activity and facility needs in Florida: Okaloosa and Santa Rosa Counties. Florida Agricultural Market Research Center, Food and Resource Economics Department, Agricultural Experiment Station Report. 78-5:32.

Mays, B.J. 1991. Northwest region stresses group business as key to growth; in Tallahassee, sports market accounts for 65% of all room nights. Travel Weekly. 50(85):F19.

Abstract. Tourist offices here and along the Panhandle all want more group traffic. In Tallahassee, there is a direct mail campaign urging groups to visit Florida's great northwest on a "circle tour" of Florida and providing itinerary suggestions. In addition, the area has been focusing on the sports market, which is projected to account for 65% of overall room nights generated by the Tallahassee Area Convention and Visitors Bureau in 1991. The projected annual economic impact of the sports market is about \$22.8 million. According to Chris Thompson, executive director of the CVB, promotional efforts have been pretty much dedicated to group travel.

Mays, B.J. 1993. Region to sponsor travel agent seminars in Louisiana, Texas. (Northwest Florida) (Florida supplement). Travel Weekly. 52(84):F27.

Abstract. The Northwest Florida Tourism Council will promote the area to travel agents who are attending seminars in Texas and Louisiana. The promotion will include using the slogan 'Discover the Other - Northwest Florida.' Areas expecting to participate in the promotion include Panama City Beach, Tallahassee, Pensacola and the Beaches of South Walton.

Milon, J.W. 1988. A nested demand shares model of artificial marine habitat choice by sport anglers. Marine Resource Economics. 5(3):191-214.

Abstract. There is a growing public interest in the development of artificial habitats to enhance and diversify coastal marine resources for recreational and commercial uses. In this paper, a hierarchical discrete choice model of recreational demand for artificial habitat is presented using a nested multinomial logic analysis of artificial and natural habitat site choice by sport anglers. The model can be used to evaluate the effects of site characteristics and socioeconomic attributes of

individual sport anglers on the share allocation of marine fishing trips and to estimate the economic benefits of new artificial habitat. An empirical application using survey data from sport anglers in southeast Florida is reported. The model parameters are used to estimate the expected use benefits and distributional implications of alternative new artificial habitat sites. Extensions and limitations of the model for artificial habitat planning are considered.

Milon, J.W. 1989a. Estimating recreational angler participation and economic impact in the Gulf of Mexico mackerel fishery. Marfin Contract No. NA86WC-H-06116

Abstract. This study uses the Marine Recreational Fisheries Statistics Survey to estimate travel cost demand models for recreationally caught king mackerel in the Gulf of Mexico and to evaluate the economic impact of possible alternative catch regulations such as changes in catch rates or bag limits.

Milon, J.W. 1989b. Specification of the recreational catch rate for evaluating regulations in the Gulf Of Mexico mackerel fishery, Staff Paper No. 370. Food and Resource Economics Department, Institute of Food and Agricultural Sciences, University of Florida. Gainesville, FL.

Abstract. Regulation of marine recreational fishing has been achieved through bag restrictions that influence the composition of kept and released catch. Prior economic research on marine recreational fishing has focused on total daily catch with no recognition of the composition. In this paper a formal model of recreational demand for the composition of species catch is presented. Empirical analysis using data on king mackerel anglers from the 1986 Marine Recreational Fishing Statistics Survey for the Gulf of Mexico shows that distinct kept and released effects can be identified. Welfare measures developed from the empirical results reveal a sizable difference in effects of changes in recreational catch when alternative catch rate measures are used. Policy evaluations that do not account for catch composition in recreational demand models may provide incorrect estimates of the economic effects of catch regulations.

Milon, J.W. 1990. Assessment of methods to model recreational effort, participation, and demand for benefits valuation. Draft Report. *In* Evaluation and Demonstration of Valuation Methodologies Applicable to Sport and Commercial Fisheries. Kearney/Centuar, Alexandria, VA.

Abstract. Evaluate and assess the quality of travel cost valuation models for recreationally caught king mackerel in the Gulf of Mexico reported in 1988 using data from the Marine Recreational Fishing Statistics Survey (MRFSS). Determine whether the valuation estimates were useful to fishery managers responsible for allocation of king mackerel stocks. Assess the potential for improved valuation models of marine recreations demand based on recent advances in the theoretical literature and possible enhancements to the MRFSS. Develop a travel cost modeling approach to improve the precision and usefulness to valuation estimates for marine fishing.

Milon, J.W. 1991. Measuring the economic value of anglers' kept and release catches. *North American Journal of Fisheries Management*. 11:185-189.

Abstract. Economic measures of the value of recreational catch typically have been based on the aggregate number of fish caught per unit effort. Fishery management councils, however, regulate recreational catch through bag limits and size restrictions that influence the composition of kept and released fish in the catch, not just the number of fish caught. Statistical tests for pooled site travel cost demand models for anglers of king mackerel (*Scomberomorus cavalia*) in the Gulf of Mexico region showed that indicators of kept and released catches outperformed an aggregate indicator. Accounting for the composition of catch had a significant effect on economic measures of the gains and losses from catch regulations and suggested that aggregate indicators may give misleading estimates of the change in economic value due to regulations. Economic studies of the value of recreational catch in other fisheries should give more consideration to the effects of regulations on the composition of kept and released catches and to the social factors that influence the keep or release decision. To test the results of this methodological approach, a data set should be created based on a theoretical model of recreational fisherman behavior when exploiting a common property resource. Impose management regulations such as size and bag limits for a fishing trip. Estimate the model and compare the estimated parameters to the known or true parameters for management implications (consumer surplus). Modify the model with a catch and keep constraint, if known and estimated parameters differ and compare to the Milon elasticity results that seem counter intuitive on page 187.

Milon, J.W. 1993. A study of recreational demand for Gulf of Mexico group king mackerel using 1990 and 1991 MRFSS data. (FL 32611-0240; Final Report for the Gulf of Mexico Fishery Management Council, Tampa, FL) Food and Resource Economics Department, University of Florida. Gainesville, FL.

Abstract. Using 1990 and 1991 MRFSS data, this study estimated pooled site travel cost demand models for anglers targeting king mackerel within the range of the Gulf group king mackerel stock. Econometric results from the models indicated that there was no statistical support for a positive relationship between king mackerel catch rates and demand. Alternative specifications of a pooled site travel cost demand model yielded inconsistent and mostly statistically insignificant results for the catch rate variables. Other variables in the models performed as expected and were consistent with prior pooled site demand model results. Because king mackerel catch rates were not statistically significant determinants of recreational demand, it was not possible to compute net economic values (consumers' surplus) from the pooled site demand models. The econometric results raise serious concerns about the usefulness of travel cost demand models to estimate net economic values for recreational catch given the existing structure of the MRFSS. The intercept survey does not provide sufficient information to estimate changes in anglers' probability of targeting different species. More complete data and further research will be needed to provide fishery managers with reliable, defensible measures of the net economic value of king mackerel to recreational anglers.

Milon, J.W., E. Thunberg, C.M. Adams and C.T.J. Lin. 1994. Recreational anglers' valuation of near-shore marine fisheries in Florida. University of Florida, Florida Sea Grant College Program Technical Paper. 73 Report

prepared for the Florida Marine Fisheries Commission under Contract No. C-705 from the Florida Department of Natural Resources by the Food and Resource Economics Department, University of Florida, Gainesville, FL.

Abstract. This report describes and summarizes the results from a state wide survey of Florida resident saltwater anglers. The survey was designed to provide estimates of the economic value anglers place on marginal changes in management of selected near shore marine species using the contingent valuation method.

Miracle, B. 1992. Florida at a glance. Florida Trend. 35(8):S20-S21. Newcomer's Guide to Florida Business: 1993.

Abstract. More than a decade ago, state government created 11 regional planning councils throughout the state in an attempt to improve planning and growth management. The state's 67 counties are grouped in regions whose geographies and economic futures have much in common.

Miracle, B. 1993. Small things are a big deal. (Economic development in north Florida). Florida Trend. 35(12):103-105. Special Issue: Economic Yearbook.

Abstract. The sale of the P&G cellulose plant and efforts to promote tourism are creating some positive momentum in a region where the overall trends indicate a shallow, fragile economy. By virtue of its setting and population (rural and sparse), economic ups and downs in the Big Bend don't register much on Florida's economic Richter scale. But within this 11-county area in North Florida, small things are often big deals. Take tourism. Recognizing the area's undeveloped and largely pristine setting as an asset to be tapped, the North Central Florida Regional Planning Council recently completed a study of how to expand tourism throughout the region. And as part of a three-year plan, the council's Tourism Advisory Committee will begin production of a regional tourism marketing brochure.

Mitchell-Tapping, H.J. 1988. Petrology of partially dolomitized reservoir: Blackjack Creek field, Santa Rosa County, Florida. The American Association of Petroleum Geologists Bulletin. 72(9):1117. Conference Title: Gulf Coast Association of the Geological Society and Gulf Coast Section of SEPM meeting, New Orleans, LA, 19 Oct. 1988.

Abstract. In January 1972, Blackjack Creek field was discovered by Exxon drilling the 13-3 St. Regis well in Santa Rosa County in the Florida Panhandle. This well flowed 1379 BOPD on a 13/64 in choke from perforations in the Jurassic upper Smackover. The field lies at the eastern end of the Pickens-Pollard-Foshee fault system and is on trend with other major Smackover oil producing fields. At Blackjack Creek field, the Smackover is about 420 ft (128 m) thick, with the pay zone occurring at 15,700 ft (4785 m). The pay-zone thickness varies throughout the field, but its maximum thickness occurs at the crest of the structure, measuring about 90 ft (27 m) thick. The field was put under waterflood and was estimated in 1977 to reach economic reservoir depletion by the end of 1986. However, by the end of 1987, the field was still producing oil and gas. This petrological study examined various cores and electric logs to determine why the oil production of the field

continues beyond the estimated recoverable reserves. Other than economic values, the preserved porosity and permeability, effects of leaching, localized fractures and brecciation, and partial dolomitization are considered to be principal contributing factors to continued production.

Moss, C.B., G. Greene and E. Thunberg. 1994. Estimation of recreational anglers' value of reef-fish in the Gulf of Mexico, Draft Rpt. Department of Food and Resource Economics, University of Florida. Gainesville, FL.

Abstract. Several public policy issues in the Gulf of Mexico region involve the value of the reef fish recreational fishery. This study estimates the economic impact of this fishery using a travel cost procedure. The results indicate that the fishery generates \$460 million within the state of Florida.

Muller, R.G. and M.D. Murphy. 1994. Report on inshore finfish trends. Report prepared for the Florida Marine Fisheries Commission. Department of Environmental Protection, Florida Marine Research Institute. St. Petersburg, FL. 16 pp.

Abstract. This report summarizes landings, effort, and catch per unit effort trends for red drum, spotted seatrout, mullet, and an additional 20 finfish species.

Munro, G.R. 1989. Coastal states and distant-water fishing nation relations: An economist's perspective. *Mar. Fish. Rev.* 51(1):3-10.

Abstract. This paper presents an analytical framework to be used by economists in studying the relationship of coastal states with distant water fishing nations (DWFN) seeking access to the coastal state's 200 mile extended fisheries jurisdiction zone.

Nakamura, E.L., H.A. Brusher and J.K. Lacey. 1987. Catch-per-unit-effort of snappers, groupers, and red drum by southeastern charterboats in 1986, Draft Rpt. National Marine Fisheries Service, Southeast Fisheries Center, Panama City Laboratory. Panama City, FL.

Abstract. Under the authority of an amendment to the Fishery Management Plan for Coastal Migratory Pelagics resources, that among other requirements declared mandatory reporting, a survey of charterboats in the southeast was conducted. Only the reporting of catches of coastal pelagics was mandatory. However, six noncoastal pelagic fishes were added to the list of fishes in the charterboat logbooks. The six were red snapper, (*Lutjanus campechanus*), vermilion snapper (*Rhomboplites aurorubens*), yellowtail snapper (*Ocyurus chrysurus*), gag (*Mycteroperca microlepis*), black sea bass (*Centropristis striata*), and red drum (*Sciaenops ocellatus*). This report summarizes the catch and effort for these six as reported by responding charterboat captains in 1986.

Nance, J.M. 1991a. Gulf of Mexico white shrimp analysis. Gulf of Mexico Fishery Management Council. 9 pp.

Abstract. This report was prepared to respond to questions about the catch of Gulf of Mexico white shrimp in the state managed territorial sea and the federal managed exclusive economic zone.

Nance, J.M. 1991b. Shrimp recruitment overfishing analysis. Gulf of Mexico Fishery Management Council. 5 pp.

Abstract. Recruitment and parent stock estimates are proposed as measures of overfishing in the shrimp fishery.

Nance, J.M. 1992a. Analysis of white shrimp closure in the Gulf of Mexico. Report to the Gulf of Mexico Fishery Management Council, Galveston Laboratory. Southeast Fisheries Science Center, National Marine Fisheries Service, National Oceanic and Atmospheric Administration, U.S. Department of Commerce. Miami, FL. 28 pp.

Abstract. The GMFMC requested that NMFS investigate the feasibility of improving economic returns from the white shrimp fishery through cooperative management measures with Gulf coast states. The General Bioeconomic Fisheries Simulation Model (GBFSM) developed at Texas A&M University (Grant et al. 1981) was used to simulate various white shrimp closures in the Gulf of Mexico. This report contains the results of this analysis.

Nance, J.M. 1992b. Estimation of effort for the Gulf of Mexico shrimp fishery. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Technical Memo. NMFS-SEFSC-300:12.

Abstract. Description of the shrimp fishing effort trends in the Gulf of Mexico and how they are estimated.

Nance, J.M. 1993. Gulf of Mexico shrimp fishery recruitment overfishing definition workshop 2. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Technical Memo. NMFS-SEFSC-323:12.

Abstract. This report summarizes the findings of a two day workshop required by the Gulf of Mexico Fishery Management Council to review the current definitions of overfishing; recommend changes, if needed, to the current definitions of overfishing; and recommend action that might be taken if overfishing levels are surpassed in any of these stocks for three of the four shrimp species named in the fishery management plan.

National Marine Fisheries Service. 1992a. Status of fishery resources off the southeastern United States for 1991. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Technical Memo. NMFS-SEFSC-306:75.

Abstract. A review of stock assessment techniques and fishery trends for important commercial and recreational fisheries in the southeastern region.

National Marine Fisheries Service. 1992b. stock assessment and fishery evaluation for reef fish in the U.S. Gulf of Mexico. Southeast Regional Office. St. Petersburg, FL. 35 pp.

Abstract. Reef fish SAFE report.

National Marine Fisheries Service. 1993. Gulf of Mexico shrimp fishery recruitment overfishing definition workshop 2. Report to the Gulf of Mexico Fishery Management Council, Shrimp Stock Assessment Panel, Galveston Laboratory. Southeast Fisheries Science Center, National Marine Fisheries Service, National Oceanic and Atmospheric Administration, Department of Commerce. Miami, FL. 12 pp.

Abstract. This report summarizes the findings of a two day workshop and provides recommendations from the working group on the current definitions of overfishing for the brown, white, pink, and royal red shrimp stocks, changes to current definitions of overfishing, and action that might be taken if overfishing levels are surpassed in any of these stocks.

Nichols, J.P. and L. Johnston. 1979. The influence of alternative pricing methods on ex-vessel shrimp prices. Texas A&M University, The Texas Agricultural Experiment Station, Departmental Information Report. DIR 79-1, SP-7:12.

Abstract. The relationship between ex-vessel pricing methods and interport price differentials for shrimp was examined. Ex-vessel prices were found to be significantly higher in ports using a pack-out method of establishing the value of landed shrimp. The size of differential varied by season and with price level.

O'Connor, D.M. 1972. Legal aspects of coastal zone management in Escambia and Santa Rosa Counties, Florida. Coastal Coordinating Council, Florida Department of Natural Resources. 77 pp.

Abstract. While any effective coastal zone management program must provide statewide and nationwide uniformity, the substantial jurisdictional powers of county and local governments must be taken into account. The integration of these local governments into the coastal zone management program can provide better management than could be achieved by the state and federal authorities acting alone. Present activities of local governments in coastal zone management in Escambia and Santa Rosa Counties, Florida were examined. Local laws and judicial decisions relevant to county governments, municipal governments, a port authority and the Santa Rosa Island authority, are examined in relationship to coastal zone management. State laws and federal laws are also discussed in this context. There appear to be a number of opportunities for cooperation between state, county and local bodies which should be explored and developed in order to make Florida coastal zone management fully effective.

Opaluch, J.J. and T.A. Grigalunas. 1989. OCS-related oil spill impacts on natural resources: An economic risk analysis. pp. 22. In 1989 Oil Spill Conference, San Antonio, Texas, February 13-15.

Abstract. Risk analyses of oil spills are important in the development of OCS leasing policy as well as other marine policies relating to oil. This paper explores the use of the Natural Resource Damage Assessment Model for Coastal and Marine Resources (NRDAM/CME) to provide risk analysis of oil spills related to OCS oil development. For the categories of natural resources included in the NRDAM/CME, the expected value of damages from large oil spills appears quite small relative to the value of oil developed. Expected damages range from \$300 thousand to \$19.7 million per billion barrels of oil developed. Ongoing research by the authors will refine these estimates by including (1) additional categories of damages, that will increase the damage estimates, and (2) oil spill cleanup and the effect of OCS production on reducing imports, that will reduce the estimated net costs of OCS development.

Pascale, C.A. 1974. Water resources of Walton County, Florida. (Report of Investigations No. 76) Florida Dept. of Natural Resources, Florida Bureau of Geology. Tallahassee, FL. 65 pp.

Abstract. Walton County is an area of about 1,140 sq mi in northwestern Florida. Total water use in 1970 averaged about 13.2 mgd of which 12.7 mgd was from the Floridan Aquifer. Water used for irrigation averaged 10 mgd and exceeded all other uses. The Floridan Aquifer underlies all of Walton County and is the primary source of water supply. It is an important hydrogeologic unit because of its capacity to store water and to maintain streamflow. The transmissivity of the Floridan Aquifer is highly variable and ranges from 4,000 gpd/ft along the Gulf coast to 180,000 gpd/ft in southeastern Walton County. Dissolved solids of water from wells range from 70 to 3,500 mg/litre; chlorides vary to a maximum of about 2,000 mg/litre. Groundwater pumpage for irrigation in 1970 in southeastern Walton County caused water levels there to decline more than 80 feet. Total discharge of streams originating in Walton County averages about 1.0 bgd; minimum discharge during dry spells is about 300 mgd. Although most streams yield copious amounts of good quality water, none are used for water supply.

Platt, J.L. 1989. Estimating the economic impacts of hypothetical grouper bag limits in the Destin/Panama City, Florida charterboat fishery. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Technical Memo. NMFS-SEFC-227:72.

Abstract. A study of the potential impacts of grouper fishery regulation on this industry in Destin and Panama City, utilizing a database derived from a survey of charterboat customers. This study measures the short run economic impacts of hypothetical reef fish bag limits upon the charterboat industry in the Panama City and Destin Ports of northwestern Florida using a 1985 survey of charterboat anglers conducted by Arndorfer and Bockstael (1986) using a travel cost demand model. Estimates of both recreational demand (annual number of trips) and recreational value (annual consumer surplus) are developed.

Platt, J.L. 1991a. The marine recreational fishery statistics survey, a comparative analysis of effort and participation estimates in the southeastern U.S.; 1979-1988. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Technical Memo. NMFS-SEFC-269:41.

Abstract. Although the Marine Recreational Fishery Statistics Survey measures catch, effort, and participation, the focus of this report is on effort and participation estimation. While estimates of effort and participation are used in many disciplines, they are critical for aggregation purposes in the field of recreational economics. Recreational economic models often focus upon the average angler or trip. To calculate total economic impacts from these models for a state or subregion, the impacts from the average angler or trip must be expanded by the appropriate estimate of subregional anglers or trips. State or subregional estimates of anglers or trips are therefore a necessary component of the overall equation. The economic impacts for the average angler or trip are often relatively small when compared to the aggregated estimates of effort or participation, therefore trip and angler estimates often drive the total impact estimate. As a result, it is very important to obtain accurate estimates of trips and anglers.

Platt, J.L. 1991b. Recreational databases in the southeast: Applicable to economic modeling. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Technical Memo. NMFS-SEFC-282:61.

Abstract. A list of saltwater fisheries related recreational economic data bases for the southeastern region of the U.S. is presented. The data bases are divided into groups reflecting the categories corresponding to (1) estimation of angler recreational values and (2) analysis of the profitability of marketed components of the marine recreational fishing sector; e.g. charter and party/head boat industries.

Platt, J.L. 1991c. Utilizing the marine recreational fishery statistics survey for recreational economic modeling: Problems and suggestions. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Technical Memo. NMFS-SEFC-276:51.

Abstract. This paper reviews the data collected by the National Marine Fisheries Service Marine Recreational Fishery Statistics Survey in terms of its applicability to recreational economic modeling and suggests modifications to the survey to specifically address recreational economic needs.

Poffenberger, J.R. 1982. Economic status of the offshore shrimp fishery in the Gulf of Mexico. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Technical Memo. NMFS-SEFC-99:18.

Abstract. The purpose of this report is to present some basic indicators of the offshore shrimp fishery in the Gulf of Mexico on prices, production, and vessel costs and revenue that may provide some insight into the economic status of the fleet during 1991. A secondary purpose of the report is to present a general prognosis for the economic viability of the fishery during 1982.

Pristas, P.J. and A.M. Avrigian. 1991. Big game fishing in northern Gulf of Mexico during 1989. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Technical Memo. NOAA-TM-NMFS-SEFC-273:26.

Abstract. The US National Marine Fisheries Service (NMFS), while conducting exploratory longline fishing off the Louisiana coast in the northern Gulf of Mexico, caught marlins (blue marlin, *Makaira nigricans*; white marlin, *Tetrapturus albidus*) and sailfish (*Istiophorus platypterus*) in abundances not previously anticipated. The discovery generated an interest in big game fishing in the north-central Gulf. The recreational billfishing survey was initiated to collect data for estimations of species abundance and distribution and to provide information about the biology and habitat preferences of these fishes. On-site survey methods were conducted to collect pertinent billfishing data at major ports and big game fishing events throughout the northern Gulf. In the report, data are generally listed for the three primary regions: northwestern, north-central, and northeastern Gulf of Mexico.

Prochaska, F.J. and C.M. Adams. 1984. Analysis of U.S. shrimp prices at ex-vessel, wholesale, and retail market levels, Draft Rpt. Department of Food and Resource Economics, University of Florida. Gainesville, FL.

Abstract. Previously no research has been conducted to determine price relationships between market levels. Thus, differential market impacts of various price determinants and restrictive policy measures such as

tariffs and quotas could not be analyzed at various market levels and for other market dimensions, such as markets defined by product size classes. The goal of the research reported in this paper was to provide information on which differential impacts can be estimated. The format of the present paper is to (1) review trends in prices, margins, and market shares for 21-25 and 31-40 count raw, headless shrimp, (2) determine direction of price flows and existence of asymmetric price response between ex-vessel, wholesale, and retail market levels, and (3) determine factors affecting prices for the two size classes at the three market levels.

Prochaska, F.J. and J.C. Cato. 1975a. Cost and returns for northern Gulf of Mexico commercial red snapper - grouper vessels by vessel size, 1974. University of Florida, Florida Sea Grant College Program, Florida Agricultural Experiment Station, Department of Food and Resource Economics, Marine Advisory Bulletin. SUSF-SG-75-006:8.

Abstract. Cost and returns data provide a basis to which individual fishing firms can compare their own operations to determine any needed change in their business management or fishing practices. This data set is collected from interviews with boat owners and captains representing ten commercial vessels operating from Florida ports. The budget analysis reported is the average for two vessel size groups: 42-47 feet in length (small) and 57-69 feet in length (large).

Prochaska, F.J. and J.C. Cato. 1975b. Northwest Florida Gulf Coast red snapper-grouper party boat operations, An economic analysis, 1974. University of Florida, Florida Sea Grant College Program, Florida Agricultural Experiment Station, Department of Food and Resource Economics, Marine Advisory Bulletin. SUSF-SG-75-007:9.

Abstract. The purposes of this Bulletin are to present estimates of (1) the average number of fishermen per boat on a yearly basis, (2) expenditures by fishermen (or revenues to boat owners), and (3) costs of operating party boats. The analysis is based on data collected through personal interviews with the owners of seven boats. Boats included in the survey ranged from 65 to 85 feet and have a carrying capacity ranging up to over 50 fishermen per boat. These boats are also often referred to as "Day Boats," "Head Boats," or "Drift Boats." The data do not include smaller charter boats which usually carry 6 to 10 fishermen and are chartered by individuals or on a small group basis. The boats included in the study have their home ports along the north Florida Gulf Coast.

Prochaska, F.S. and W.R. Keithly. 1986. Production costs and revenues in the Florida oyster industry. University of Florida, Florida Sea Grant College Program. SGR-87.

Raizin, M. 1989. Available data from the 1986 king mackerel economic costs and returns survey. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Technical Memo. NMFS-SEFC-228:11.

Abstract. Cost and revenue data for vessels operating in the 1986 king mackerel fishery was assembled in response to a request from the Gulf of Mexico Fishery Management Council. The data set is described and summarized profiles are presented.

Raizin, M. and L. Regier. 1986. Impact of U.S. wholesale demand for canned sardines on market accessibility of potential Gulf of Mexico products. Mar. Fish. Rev. 48(1):32-36.

Abstract. Significant resources of small fish that are potentially marketable in the form of canned sardines are available from Gulf of Mexico waters. To determine the potential for entry into the established U.S. canned sardine market, three product groups that comprise the market are analyzed at the wholesale level to determine their demand characteristics. Results indicate that opportunities for entry exist, especially for products that are similar to imports in terms of package and quality.

Raulerson, R., J. Ward and J. Platt. 1990. Stock assessment and fishery evaluation report for the coastal migratory pelagics fishery, Draft Rpt. Southeast Regional Office and the Southeast Fisheries Center, National Marine Fisheries Service. St. Petersburg, FL.

Abstract. A review of the best available data for the Coastal Migratory Pelagic Fishery Management Plan.

Resource Economics Consultants. 1994. Estimation of Gulf of Mexico shrimp fishing costs and returns, Final Rpt. Prepared for U.S. Department of Commerce, NOAA, National Marine Fisheries Service, St. Petersburg, FL. Resource Economics Consultants, 108 Mile Drive, College; May; Station. College Station, TX.

Abstract. The overall objective of the project was to estimate Gulf of Mexico shrimp fishing craft costs and returns for use in assessing the impacts of fishery management regulations. The final contract report is attached to Ward, J.M. (1994) "Economic Analysis of Finfish Bycatch in the Gulf of Mexico Shrimp Fishery."

Reyer, A.J., D.W. Field, J.E. Cassells, C.E. Alexander and C.L. Holland. 1988. The distribution and areal extent of coastal wetlands in estuaries of the Gulf of Mexico. National Oceanic and Atmospheric Administration. Rockville, MD. 19 pp.

Abstract. This paper is a preliminary report describing the areal extent and distribution of coastal wetlands in the six states, 157 counties, 23 estuarine drainage areas (EDA) of the U.S. portion of the Gulf of Mexico. The wetlands data are based entirely on an evaluation of National Wetland Inventory (NWI) maps produced by the U.S. Fish and Wildlife Service. Currently, data have been completed for the wetlands of the New England region and an atlas has been published entitled, National Estuarine Inventory Data Atlas; Vol. 3: Coastal Wetlands of the New England Region.

Roberts, K.J., M.E. Thompson and P.W. Pawlyk. Unknown Year. Structure changes in U.S. shrimp markets, Draft Rpt. Center for Wetland Resources, Louisiana State University. Baton Rouge, LA.

Abstract. This paper presents the results of a seven equation monthly model of the domestic shrimp market. More emphasis was placed on sources of supply than evident in previous simultaneous models.

Roberts, K.J., M.E. Thompson, W.D. Chauvin and V.J. Blomo. 1983a. Assessment of user conflicts between various harvester groups and with other fishing industries. pp. 90. In Report III, Assessment of Shrimp Industry Potentials and Conflicts. Shrimp Notes Incorporated, New Orleans, LA.

Abstract. This report addresses the conflicts between inshore and offshore shrimp fishermen and between shrimp fishermen and fishermen who use other gear types on shrimp fishing grounds, for example stone crab pots.

Roberts, K.J., M.E. Thompson, F.J. Prochaska and W.D. Chauvin. 1983b. Potential actions of tariff and quota legislation. pp. 143. In Report V, Assessment of Shrimp Industry Potentials and Conflicts. Shrimp Notes Incorporated, New Orleans, LA.

Abstract. The impact of shrimp imports on ex-vessel prices is discussed using the results of five different econometric studies. The paper reviews domestic production of all shrimp species from U.S. waters. It presents trends in shrimp imports by product type from 1970 to 1981 including marketing channels and retailing activities, and impacts on employment and capital invested in the harvesting sector of the shrimp fishery.

Roberts, K.J., W.R. Keithly and C.M. Adams. 1992. The impact of imports, including farm-raised shrimp, in the southeast shrimp processing sector. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Technical Memo. NMFS-SEFC-305

Abstract. Processing activities of southeastern shrimp processors increased in recent years. This activity was linked to an increase in shrimp imports. An initial source of the new supply was Ecuador. Farming of shrimp in pond systems there rapidly increased United States purchases to a record 101 million pounds by 1987. Shrimp from China and Taiwan added another 80 million pounds to US supplies by 1987. Imports primarily from shrimp farming nations were thereby recognized by some processors as a new source of raw material. Twelve of the surveyed processors in the southeast began use of imported shrimp after 1984. New sources of supply introduced an element of stability to the southeastern industry for those processors using the shrimp. Stability in terms of entry and exit among the region's establishments utilizing imports was found to be higher than non-users. Hence, as more establishments adopt the use of imports, especially farm-raised imports, in their processing activities, total industry stability in the southeast may be expected to rise. The analysis indicated a possible decline in industry concentration in 1987. This decline to the extent that it might be related to increasing raw material availability and hence, less ability among the larger firms to exhibit some control over input usage, suggests that an additional decline in concentration might be forthcoming as aquaculture supplies expand. Exporting countries with farmed shrimp supplies could at some point lessen these influences on southeastern processors if they increase their value added processing.

Rosenthal, D.H., M.B. Rose and L.J. Slaski. 1988. Economic value of the oil and gas resources on the outer continental shelf. Marine Resource Economics. 5(3):171-189.

Abstract. A theoretical framework for estimating the economic value of the federal government's offshore oil and gas resources is developed. This framework is then applied to geological and economic data generated by the Minerals Management Service in support of their five-year leasing plan. With an 8 percent real discount rate and a 1 percent real price growth rate, the remaining economic rent as of 1987 on the reserves plus the undiscovered offshore oil and gas resources is estimated at \$118.6 billion (1987 dollars). The present value of the government's receipts

from cash bonus and royalty payments on these deposits is estimated at \$37.2 billion. Over 80 percent of the remaining economic rent is derived from developed reserve deposits located in the Gulf of Mexico. The private sector has previously paid cash bonuses for the leases located on those deposits and financed the installation of the development platforms. Because of this, the government will collect only a small portion, approximately 22 percent, of the rent remaining on those reserves.

Salvesen, D. 1995. Banking on wetlands: there's big money in restoring degraded wetlands and building new ones. *Planning*. 61(2):11-15.

Abstract. Wetlands banking was conceived to expedite provisions of the 1972 Clean Water Act in a way that benefits developers and the environment. Instead of developing or restoring portions of several building sites, developers create one vast wetland, for which they receive credits based on the environmental value of the property. Since Dec. 1992 The Wetland Development Team and others have been selling these credits on the open market.

Schmied, R.L. and E.E. Burgess. 1987. Marine recreational fisheries in the southeastern United States: An overview. *Mar. Fish. Rev.* 49(2):2-7.

Abstract. Marine recreational fishing in the southeastern United States is an outdoor recreational activity of increasing popularity, economic significance, and consequence to the region's fishery resources. In 1985, over 11 million anglers made 44 million fishing trips in the south Atlantic and gulf and caught 222 million fish. Thirty-five percent were landed weighing over 131 million pounds, representing 40 percent of total edible finfish landings in the region. In 1985, the region accounted for 40 percent of all U.S. saltwater anglers, 62 percent of all trips, and 50 percent of the total number of recreationally caught fish. Direct expenditures by south Atlantic and Gulf anglers in 1985 were estimated to be nearly \$3.4 billion. These expenditures are estimated to have generated an additional \$1.5 billion in value added and supported over 42,000 person-years of employment in marine recreational fisheries related support and service industries. Additional detailed discussion of the nature and extent of marine recreational fishing in the south Atlantic, Gulf of Mexico, Puerto Rico, and U.S. Virgin Islands is presented.

Selz, M. 1986. The big bend cuts its ties to the past; (northern Florida is on prowl for industry). *Florida Trend*. 28:113-117.

Abstract. Both Daniels Lumber and Idaho Timber of Florida are members of the Big Bend's normally fraternal forest-products industry. They share the same stretch of Highway 100 southeast of Lake city and use the nearby Southern Georgia & Florida railroad to haul their wood. Nowadays, though, the companies are split into two camps. Says a Daniels employee of the folks at Idaho, "We don't like those people." What Daniels Lumber really doesn't like is the western spruce stacked in piles at Idaho Timber's sawmill in Columbia County. It comes from Canada, and it is depressing the market for Daniel's Florida trees. The value of the Canadian dollar, unlike the Japanese yen or German mark, continues to decline against U.S. currency. The result is a flood of inexpensive imported forest products that have swamped lumber companies throughout the Big Bend. "Fifty-eight percent of the lumber consumed in Florida comes from Canada," says

Carroll Lamb, executive vice president of the Florida Forestry Association. Many members of Florida's forest industry, says Leon Irbin of the state's Forestry Management Bureau, "are hanging on by the skin of their teeth."

Shabman, L.A. and S.S. Batie. 1987. Mitigating damages from coastal wetlands development: Policy, economics and financing. *Marine Resource Economics*. 4:227-248.

Abstract. Public programs to reduce the rate of coastal wetlands losses are based upon an ambiguous policy framework. Also, scientific uncertainty about the services of wetlands make credible economic valuation difficult, thus reducing the utility of benefit cost analysis within the wetlands regulation process. Reform of national wetlands programs can result in enhanced maintenance of wetlands stocks and accommodation of development pressures. The policy reforms proposed in this paper will result in achievement of these objectives in an economically efficient manner.

Slack, L.J. 1972. Quality of surface water of Escambia and Santa Rosa Counties, Florida, 1968-72. U.S. Geol. Surv. Open-File Rep. 72015:24.

Abstract. Collecting and publishing data on the chemical and physical quality of surface waters in Escambia and Santa Rosa Counties, Florida, is part of a statewide cooperative program that over the years has been sponsored by the U.S. Geological Survey, the Florida Bureau of Geology, the Florida Department of Transportation, the City of Pensacola, and Escambia County. The quality-of-water data for the nine sites sampled are presented. In addition to the tables of chemical analyses, the significance and occurrence of the constituents of water are presented.

Socioeconomic Panel. 1993. Report of the socioeconomic panel meeting on reef fish. *In* Briefing Book Addition. Gulf of Mexico Fishery Management Council, Tampa, FL.

Abstract. The social and economic implications of the 1993 Stock Assessments for reef fish are discussed and recommendations made for their management.

Socioeconomic Panel. 1994a. Report of the socioeconomic panel meeting on reef fish, Draft Rpt. Gulf of Mexico Fishery Management Council. Tampa, FL.

Abstract. The socioeconomic panel recommendations for the management of the reef fish fishery are presented in the paper based on a review of the stock assessment panel recommendations and the available economic and sociological data and analysis.

Socioeconomic Panel. 1994b. Report of the socioeconomic panel meeting on reef fish, Final Rpt. Gulf of Mexico Fishery Management Council. Tampa, FL.

Abstract. The socioeconomic panel recommendations for the management of the reef fish fishery are presented in the paper based on a review of the stock assessment panel recommendations and the available economic and sociological data and analysis.

Sport Fishing Institute. 1988a. The economic impact of sport fishing in the state of Florida. Sport Fishing Institute. Washington, D.C. 30 pp.

Abstract. The economic impact of sport fishing in Florida.

Sport Fishing Institute. 1988b. Future participation in marine recreational fishing. pp. 103. *In* Economic Activity Associated with Marine Recreational Fishing in 1985. Vol. III. Sport Fishing Institute, Washington, D.C.

Abstract. This volume of the report on the economic activity associated with marine recreational fishing in 1985 provides forecasts of marine recreational fishing participation to the year 2025. These forecasts are intended to serve as useful guides for future industry development and fisheries management by providing guidelines as to the levels of future demand for marine recreational fishing. However, like all forecasts, the estimates should be treated with caution. In particular, the more distant in the future, the greater the variability in the estimate, or the less confidence one can have in the number.

Sport Fishing Institute. 1988c. National and regional estimates. pp. 103. *In* Economic Activity Associated with Marine Recreational Fishing in 1985. Vol. I. Sport Fishing Institute, Washington, D.C.

Abstract. The purpose of this report was to undertake a complete economic analysis of the marine recreational fishing industry and marine recreational fishing. Volume I describes the national economic activity of the marine recreational fishing industry in the United States in 1985. In addition, the impacts are presented for each region under the jurisdiction of the regional fishery management councils. The multiplier effects of the marine recreational fishing industry are included. Changes in the industry from 1972 to 1985 are described and analyzed.

Sport Fishing Institute. 1988d. State-level and species level estimates. pp. 122. *In* Economic Activity Associated with Marine Recreational Fishing in 1985. Vol. II. Sport Fishing Institute, Washington, D.C.

Abstract. This volume presents disaggregations of the economic activity associated with marine recreational fishing to the coastal states and to individual species of fish. These disaggregations were derived from the breakdowns of the national impacts to the jurisdictions of the regional fishery management councils as presented in Volume I, Section 5.0.

Terrebonne, R.P. 1973. The economic losses from water pollution in the Pensacola area. *The Florida Naturalist*. 165(7):21-26.

Abstract. The expansion of firms, such as the ones along the Escambia River that produce paper, chemical products, and electricity, have contributed much to the welfare of local residents and the economy of Florida. However, Florida represents an economy in which the economic costs of not preserving water quality are very severe. The Pensacola area provides an important example in which rising levels of domestic and industrial pollution have resulted in dramatic losses to those sectors of the local economy that depend on water quality.

Thomas, J.S., G.D. Johnson, C.M. Formichella and C. Riordan. 1993. Perceived social and economic effects of current management policies on red snapper fishermen operating in the Gulf of Mexico: A Report to the Gulf of Mexico Fishery Management Council, Draft Rpt. College of Arts & Sciences, University of South Alabama. Mobile, AL.

Abstract. This report presents findings from a study of red snapper fishermen in the Gulf of Mexico who own and operate their own boats and have received 2,000 pound trip endorsements. Focus group interviews with

fishermen volunteers were held in Alabama, Florida, and Louisiana during March and April, 1993. A telephone survey of endorsed owner operators was conducted from May to July, 1993. Interviews were completed with 79 percent of the population (n=75).

Thunberg, E., C. Adams, D. Brannan and T. Taylor. 1991. commercial fishing revenue losses under harvest restrictions: The case of the Florida red drum. University of Florida, Institute of Food and Agricultural Sciences, Food and Resource Economics Department, Staff Paper Series. SP 91-4
Abstract. The red drum (*Sciaenops ocellatus*) was effectively removed from Florida's nearshore commercial fishery in January, 1989. Fishing revenue losses may be mitigated through redirection of effort from the restricted species to other unrestricted species. A revenue function is specified for two time periods over which two different harvest regulations for red drum were effective. The empirical results indicate that fishermen were able to compensate for lost revenue due to the harvest restrictions although the ability to do so differed by gear and regional considerations.

Thunberg, E., C. Adams, D. Brannan and T. Taylor. 1993. Commercial fishing revenue losses under harvest restrictions: The case of the Florida red drum. *Society and Natural Resources*. 6:181-194.
Abstract. The red drum (*Sciaenops ocellatus*) was effectively removed from Florida's nearshore commercial fishery in January, 1989. Fishing revenue losses may be mitigated through redirection of effort from the restricted species to other unrestricted species. A revenue function is specified for two time periods over which two different harvest regulations for red drum were effective. The empirical results indicate that fishermen were able to compensate for lost revenue due to the harvest restrictions although the ability to do so differed by gear and regional considerations.

Thurman, W.N. and J.E. Easley Jr. 1990. Economic models for fishery resource allocations: valuing changes in commercial harvests, Draft Rpt. Department of Economics and Business, North Carolina State University. Raleigh, NC.
Abstract. This paper reviews a conceptual model for estimating consumer and producer surplus in markets other than the harvesting sector and presents some preliminary empirical results for the Gulf red drum fishery. The conceptual model and empirical results are based on the idea of general equilibrium welfare measurement.

Thurman, W.N. and J.E. Easley Jr. 1992. Valuing changes in commercial fishery harvests: A general equilibrium derived demand analysis. *Jour. of Environ. Econ. and Manage.* 22(3):226-240.
Abstract. This paper presents a conceptual model for estimating surpluses from these related markets and present empirical estimates for the Gulf of Mexico red drum fishery. The conceptual model and empirical results employ general equilibrium derived demand functions. The general equilibrium derived demand for an input conceptually accounts (in a single market) for surpluses in related markets and economizes on data requirements in estimation.

Vondruska, J. 1993. Economic assessment for coastal pelagic fish, Draft Rpt. In Socio-economic Panel Meeting, April 13-14, Gulf of Mexico Fishery Management Council, Tampa FL. National Marine Fisheries Service, Southeast Regional Office, St. Petersburg, FL.

Abstract. Economic assessment of the coastal migratory pelagic stocks in the Gulf of Mexico and south Atlantic.

Vondruska, J. 1994. Southeast shrimp fishery market conditions, 1993, Preliminary Draft Rpt. National Marine Fisheries Service, Southeast Regional Office. St. Petersburg, FL. 9 pp.

Abstract. Prices, market supplies, and aquaculture trends facing the shrimp wholesale market and harvesting industry for 1993.

Walsh, C. 1994. Shipping companies lead Florida effort to block oil pipeline. Oil Daily. 44(165):1-3.

Abstract. The Florida Alliance, a coalition of shippers, is funding efforts by the environmental group Friends of Lloyd to block Colonial Pipeline's planned extension near Tallahassee, the state's first interstate oil products pipeline. Colonial says opposition to the pipeline is groundless because the line will not be expanded beyond Jefferson County. The state will rule on the project in September 1994.

Ward, J.M. 1989. Modeling fleet size in the Gulf of Mexico shrimp fishery, 1966-1979. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Technical Memo. NMFS-SEFC-229.

Abstract. The Gulf of Mexico shrimp fishing fleet is modeled extending the approach developed by Prochaska and Cato (1981) by including economic and biological variables. Changes in fleet size are found to be responsive to economic and biological conditions in the fishery. The model indicates that the fleet size is approximately three times that necessary to efficiently harvest the resource. While the model is handicapped by insufficient degrees of freedom, results suggest that alternative modeling approaches could be used to develop a model that successfully predicts changes in fleet size.

Ward, J.M. 1990. Reduction in shrimp bycatch: Effort/stock responses based on the elasticity of demand. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Technical Memo. NMFS-SEFC-274.

Abstract. The economic implications of adopting a bycatch reduction device in a fishery that discards a fish species that is the focus of a directed commercial fishery when demand is relative elastic and inelastic are discussed. The stock of the bycatch species collapses when the bycatch reduction device increases the supply of fish in the directed fishery when demand is relatively elastic. This outcome is dependent on the assumptions of the model that link fishing effort levels in the two directed commercial fisheries.

Ward, J.M. 1992. Conservation and economic benefits of limiting access in marine fisheries. In Center for Marine Conservation and World Wildlife Fund Workshop Managing Marine Fisheries By Limiting Access, Annapolis, Maryland, September 20-22. World Wildlife Fund,

Abstract. Often when economics is discussed, it is in terms of gross national product, personal disposable income, number of jobs, and unemployment

rates. While these are important outcomes of an economic analysis, they are not in and of themselves economics. Economics is the study of how scarce resources are allocated amongst unlimited wants. The scarce resources are the capital stocks, the stocks of fish, and labor. The unlimited wants include those of commercial and recreational fishermen as well as final consumers of fish products. Allocation concerns the best use of all resources (capital, labor, and fish) in the production of fishery products so that the return to society is maximized. Economics provides the methodology by which the optimal levels of the various inputs in the production process, such as labor, can be determined. For example, increasing the level of employment in a fishery eventually leads to a decline in the productivity of labor and in the size of the fish stock. More importantly, the excessive use of labor in the fishery deprives the marketplace of not only fish but the productive use of that labor in another industry; leading to a reduced total level of production. Therefore, more jobs in a fishery are not necessarily better for the nation since diverting labor to other industries could result in more products being produced at lower cost. Markets are considered to be economically efficient when they produce the highest level of output at the lowest possible cost. Efficient markets are defined by clearly defined, transferable, and enforceable property rights. Markets tend to be inefficient where these property rights are not clearly defined such as in open access fisheries. By applying the economic modeling framework to the fishery problem in cases where property rights are nonexistent, management regulations can be evaluated to determine if they improve or exacerbate market efficiency.

Ward, J.M. and J.G. Sutinen. 1992. Modeling vessel mobility: The Gulf of Mexico shrimp fleet. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, National Marine Laboratory Technical Report. F/AKC3

Abstract. Given the heterogeneous nature of the fishing fleet and the complex behavior of vessels, the traditional marginalist supply models are not well suited for modeling vessel mobility. A discrete choice model is utilized in this analysis to predict the probability that a vessel will enter, exit, or remain in the Gulf of Mexico shrimp fishery based on a myopic profit maximization criteria. The multinomial logic model indicates that stock variability does not influence fisherman behavior in the Gulf of Mexico shrimp fishery. The crowding externality, represented by the size of the fishing fleet, exhibits a strong negative impact on the probability of entry by fishing vessels independent of changes in abundance, ex-vessel prices, or harvesting costs. Lastly, the Gulf of Mexico shrimp fishery is not the autonomous system of fishing vessels as was initially believed.

Waters, J. and J. Platt. 1990. Economic analyses of alternative management options for the red snapper fishery in the Gulf of Mexico. Gulf of Mexico Fishery Management Council by National Marine Fisheries Service, Southeast Regional Office. St. Petersburg, FL.

Abstract. Biological investigations have determined that the red snapper (*Lutianus campechanus*) resource in the Gulf of Mexico has been significantly overfished and that regulations implemented in 1990 and earlier years will not restore the red snapper population to desired levels (Goodyear and Phares, 1990). This report describes economic

implications of management alternatives to govern the directed commercial and recreational reef fish fisheries and to reduce the incidental catch and discard of juvenile red snappers and other species by the shrimp trawl fishery. Economic effects of various management alternatives on the commercial and recreational red snapper fisheries were based on projections of future landings made with a simulation model developed by Goodyear (1989). Economic effects of management alternatives on the commercial shrimp fishery were based on the results of a simulation model described by Griffin et al. (1990). This report was reviewed by a panel of economists that met at council headquarters on June 5-6, 1990, whose recommendations were subsequently ignored by the authors.

Waters, J.R. 1993. economic analyses of minimum size limits for selected reef fishes along the U.S. south Atlantic coast. South Atlantic Fisheries Management Council. 22 pp.

Abstract. This paper investigates the economic effects of alternative minimum size limits for white grunt, gray triggerfish, mutton snapper, and greater amberjack. A bioeconomic simulation model was used to predict changes in commercial and recreational landings over time. The economic concept of net present value was used as the criterion for evaluation of the tradeoffs between short-term losses and long term gains in commercial revenues. The utility that fishermen receive from recreational fishing could not be evaluated due to a lack of data.

Waters, J.R. 1994a. Economic implications of potential changes in management for the reef fisheries in the U.S. Gulf of Mexico. National Marine Fisheries Service, Southeast Regional Office, Beaufort Laboratory. Beaufort, NC.

Abstract. This report describes the economic implications of potential changes in management that were recommended by the Reef Fish Stock Assessment Panel for the reef fisheries in the Gulf of Mexico.

Waters, J.R. 1994b. Recent trends in the commercial reef fisheries in the U.S. Gulf of Mexico. National Marine Fisheries Service, Southeast Regional Office, Beaufort Laboratory. Beaufort, NC.

Abstract. Trends in landings and value for the northern, western, and eastern Gulf of Mexico reef fish fishery are presented along with a management history. A descriptive analysis of the impacts of management regulations is presented for each managed area.

Wilber, D.H. 1994. The influence of Apalachicola River flows on blue crab, *Callinectes sapidus*, in north Florida. Fisheries Bulletin. 92(1):180-188.

Abstract. Regression and time series analyses were used to investigate the relation between Apalachicola river flows and blue crab, *Callinectes sapidus*, harvests in and around Apalachicola Bay, Florida. Apalachicola River flows in one year were positively correlated with Franklin County blue crab landings during the next year ($r^2=0.32$, $P<0.001$, 1952-90), and the strength of the correlation increased when only more recent years were examined ($r^2=0.49$, $P = 0.001$, 1973-90). In this area, blue crabs mature to a harvestable size by one year of age. Apalachicola River flows were also correlated with neighboring Wakulla County blue crab landings with a one-year time lag ($r^2=0.52$, $P=0.001$, $n=17$), but were not associated with blue crab landings for the remaining west coast of Florida. The mean monthly flow from September to May, termed the grow out

period, was the parameter most highly correlated with the following year's blue crab landings. Of five north Florida rivers examined, the Apalachicola River was most highly correlated with Franklin and Wakulla County blue crab landings. Results of this study further document the influence of Apalachicola River flows on estuarine productivity. The positive relation between flows and blue crab harvests a year later suggests that low flow conditions in the estuary during the grow out period negatively affect juveniles. Although the underlying causes of the correlations are not known, the effect of inflows on estuarine salinity is one of several possible mechanisms that warrants further investigations.

Willson, E. 1986. North central Florida is brimming with growth. Florida Trend. 28:97-101.

Abstract. From Kenneth Colen's view at On Top Of The World, Marion County's Greenest pastures are not dappled with horses. They are sprouting with the region's bumper crop: retirees. Sales at the \$2.6 billion retirement community outside of Ocala offer a good example of Marion County's thriving economy. In 1985, sales increased 32% from 1984, says Colen, president of On Top Of The World. That kind of Growth is typical in Marion, the economic hub of North Central Florida. So rapid is the county's growth that a new resident arrives every 39 minutes or so. In Ocala, Marion's county seat, population has exploded 30% in the 1980s, following a 77% increase during the 1970s. Many of the newcomers are retirees attracted from more congested parts of Florida to the area's rolling horse farms and gentle woodlands. "They're basically doing pretty well over there in Ocala," says John Godfrey, Barnett Bank's chief economist.

Wittwer-Crane, C. 1990. The beginning of a long climb. (Bay, Escambia, Holmes, Okaloosa, Santa Rosa, Walton, and Washington Counties, Florida) (Statistical Yearbook: West Panhandle). Florida Trend. 32(13):113116.

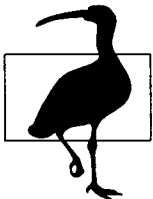
Abstract. The economic woes here seem to have bottomed out. But the recovery won't come quickly. If the 1980s was Florida's decade of boom, it was also the West Panhandle's decade of boom-turned-bust. For the past several years, while much of the rest of the state registered robust growth, this area has languished, reeling from its overexpansiveness earlier in the decade, slack tourism (a result of problems in the oil patch states) and lack of political harmony on development goals. Last year was little different. Although there were a few signs that the region may have hit the bottom of its economic doldrums and is on the way up, any economic progress in 1990 will be the start of a long, slow climb.

Yon, J.W., R.W. Hoenstine and S.M. Spencer. 1980. Mineral resources of Citrus County, Florida. Florida Geological Survey. Map Series. Map 115. Scale 1:126,720.



The Department of the Interior Mission

As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historical places; and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The Department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.



The National Biological Service Mission

As a bureau of the Department of the Interior (DOI), the National Biological Service's (NBS) primary mission is to provide the scientific understanding and technologies needed to support sound management and conservation of our Nation's biological resources. Independence from regulatory and management decision making greatly lessens the chance that scientific results will be viewed as less than objective science or subservient to the needs of policy makers. NBS provides credible, objective, and unbiased information needed by resources managers in the Department of the Interior in a form that allows them to assess, predict, and manage the biological consequences of various policies and management practices. Although the primary focus of the biological research is to meet DOI needs, the activities undertaken with natural resource research funding will also serve the science needs of a wide range of partners, including State governments, other Federal agencies, and private landowners.



The Minerals Management Service Mission

As a bureau of the Department of the Interior, the Minerals Management Service's (MMS) primary responsibilities are to manage the mineral resources located on the Nation's Outer Continental Shelf (OCS), collect revenue from the Federal OCS and onshore Federal and Indian lands, and distribute those revenues.

Moreover, in working to meet its responsibilities, the **Offshore Minerals Management Program** administers the OCS competitive leasing program and oversees the safe and environmentally sound exploration and production of our Nation's offshore natural gas, oil and other mineral resources. The **MMS Royalty Management Program** meets its responsibilities by ensuring the efficient, timely and accurate collection and disbursement of revenue from mineral leasing and production due to Indian tribes and allottees, States and the U.S. Treasury.

The MMS strives to fulfill its responsibilities through the general guiding principles of: (1) being responsive to the public's concerns and interests by maintaining a dialogue with all potentially affected parties and (2) carrying out its programs with an emphasis on working to enhance the quality of life for all Americans by lending MMS assistance and expertise to economic development and environmental protection.