The Marine Recreational Fishing Industry

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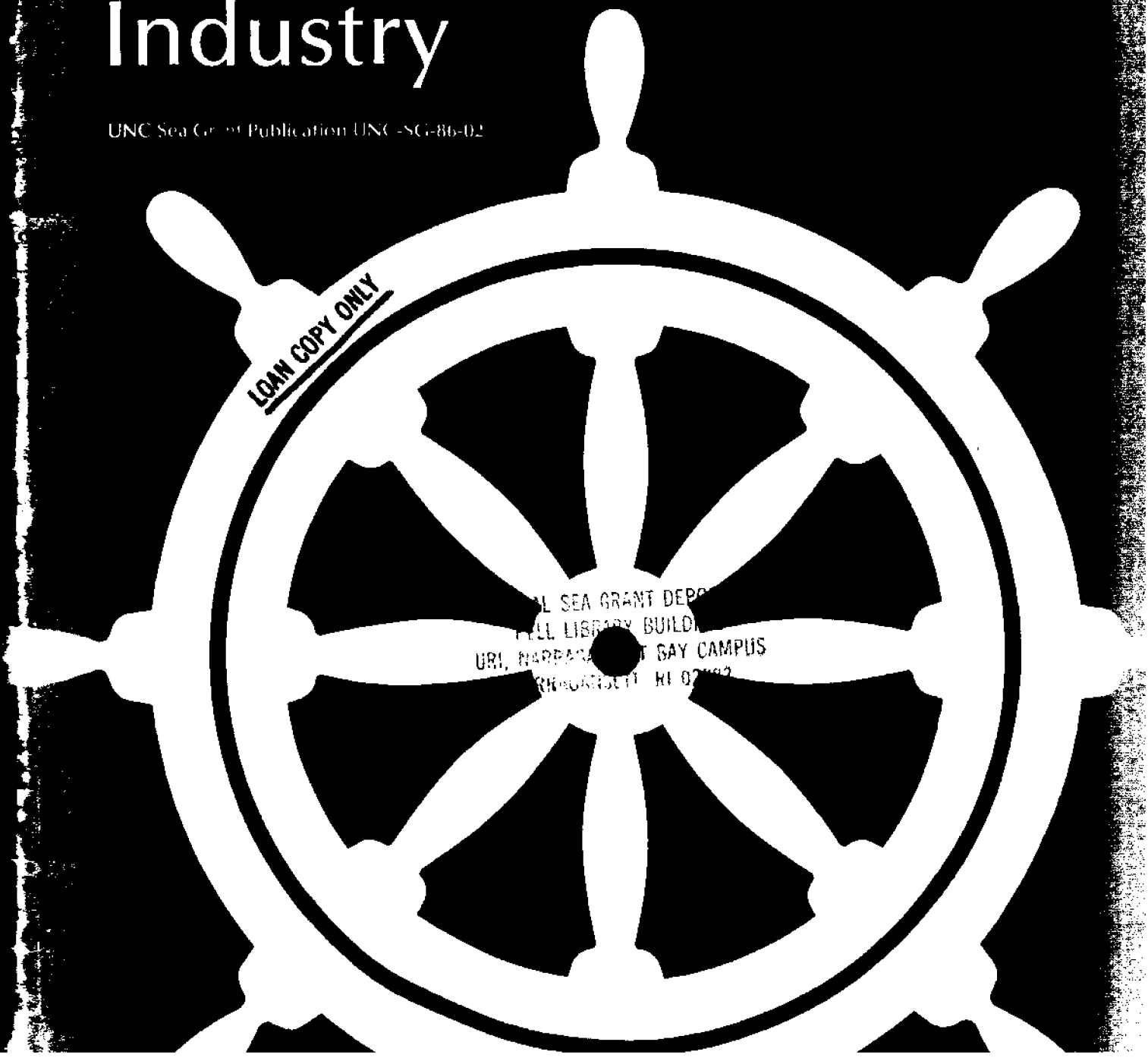

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PREFACE

This document was prepared by staff and consultants of the Sport Fishing Institute for the National Marine Fisheries Service (NMFS), U.S. Department of Commerce under Saltonstall-Kennedy contract number NA82AA-H-00054.

The completion of this research and project report was made possible through the assistance of many. In particular, the Contracting Organization's Technical Representative, Richard H. Wheeler, deserves special mention for his assistance in all areas of this project. In addition, the regional recreational fisheries coordinators of the National Marine Fisheries Service deserve our sincere appreciation: Ronald L. Schmied, Thomas O. Morrissey, Richard B. Thompson, and Jay J.C. Ginter. And special thanks go to Richard T. Christian, Summer Intern at the Sport Fishing Institute, who contributed to Appendix A.

Many individuals with federal and state government agencies and in the private sector aided this effort greatly. As there are too many to name, suffice it to say that we deeply appreciate all comments and insights given by these persons.

While so many people helped us complete this report, we are solely responsible for any errors and/or omissions.

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1.0 INTRODUCTION

1.1 BACKGROUND

The term, "United States fishing industry," is used commonly in federal fishery legislation, regulations and communications. Over the years the term has come to be generally synonymous with the commercial fishing industry. But, the term "United States fishing industry" is a generic one made up of the commercial and recreational fishing sectors, each with its particular needs and with elements of mutual concerns.

Although the marine recreational and commercial fishing sectors have had differences over the years, they have shared physical proximity to the resource. This creates a commensal relationship. Recreational fishing means jobs and business opportunities for all in coastal communities -- including commercial fishermen and their families. Therefore, the promotion of recreational fishing opportunities benefits not only the recreational fisherman but also those who live in coastal communities and depend on outside monies (dollars imported to the community) to provide income.

In 1981, the National Marine Fisheries Service, in cooperation with the commercial fishing sector, instituted a National Seafood Consumer Education and Marketing Program that was dubbed, "Catch America." The major objectives of Catch America were:

- To provide consumers and retailers with information on the many available fresh seafood products.
- To strengthen and develop supply networks linking harvester, processor, distributor and retailer.

By all accounts the continuing endeavor is a success and continues to pay dividends to the domestic commercial fishing sector. A similar campaign may be appropriate for the development of the recreational fishing sector.

Although the recreational fishing sector is more fragmented than the commercial fishing sector, it nevertheless is a major economic force in coastal communities. Purchases made in conjunction with participation in marine recreational fishing (MRF) contribute to economic activity in a variety of sectors. A 1977 report by Centaur Associates Inc. (formerly Centaur Management Consultants), "Economic Activity Associated with Marine Recreational Fishing," established the dimensions and the impact of the recreational sector in the United States. The economic activity associated with the MRF is sizable. The marine recreational fisherman travels to the coast, purchases gas and fishing equipment, eats, drinks, stays overnight in motels and campgrounds, pays charter and party boat fees, and hires fishing guides.

As they make purchases, they impact employment, wages, salaries and other economic measures. Centaur estimated the total sales at the retail level of goods and services associated with marine recreational fishing

activity to be $1,333 million in the 1972. These sales generated an estimated $510 million of value added and $285 million in wages and salaries in business sectors where direct expenditures took place. In 1975 recreational fishermen purchased an estimated $1,840 million worth of goods and services at the retail level. These MRF sector-related sales generated approximately $699 million of value added and $343 million of wages and salaries. These figures should help to dispel the "fishing for fun" or frivolous notions often assigned to recreational fishing. Increased attention is being paid to MRF because of the value and impact of associated economic activity. In terms of economic impact, the industry that supports MRF is highly significant in the U.S. economy. The recreational fishing industry has emerged fully on equal footing with the commercial fishing industry.

Aside from economic impact studies like that conducted by Centaur Associates, Inc., we often focus only on the on-site harvest aspects of the recreational fishery. It is easy to view numbers of fishermen and their catch and effort as though they occur in a vacuum. But MRF is part of a larger, integrated tourism fabric. The MRF industry cannot exist simply with an abundance of fish; there must be a means of access for recreational fishermen and the necessary communities of service and infrastructure to support their activity.

A recreational fisheries development program may be a reality in the future. But before it can be constructed and implemented, it is imperative that the recreational fishing industry be identified with regard to its constituent elements and the relationships which exist between those elements.

1.2 Objectives

To ascertain the data needed for a viable marine recreational fisheries development program, the National Marine Fisheries Service contracted with the Sport Fishing Institute to undertake an analysis of development opportunities in MRF. Funded under the Saltonstall-Kennedy Fisheries Development Grant Program, this project consisted of three phases. Phase I, under subcontract to Centaur Associates, Inc., assessed the economic activity associated with MRF (see Volume I). Phase II was the analysis of development opportunities; the results are contained in this report. Lastly, during Phase III, the Sport Fishing Institute evaluated the potential of promoting recreational fishing opportunities to foreign markets and developed information to be included in promotional materials on sport fishing in the United States. This information was provided directly to the National Marine Fisheries Service for its use in future in-house recreational fisheries development programs.

During the analysis of development opportunities in MRF (Phase II), the Sport Fishing Institute had the following objectives:

- To identify and describe the structure of the MRF sector of the United States fishing industry.
- To identify and document the commonalities and interrelationships between the recreational and commercial fishing sectors.

- To identify the relationships which exist between the MRF sector and the tourism system as a whole.

- To identify constraints to development of marine recreational fishing.

- To propose strategies to overcome impediments to development.

1.3 Methodology

To fulfill the research objectives of this report, several data collection techniques were implemented. First, an extensive literature review was conducted relative to the MRF sector and the tourism industry.

Second, personal contacts were made with the National Marine Fisheries Service's Regional recreational fisheries coordinators in each of the regions of the United States. Information was collected relative to the recreational fishing sector in each region. In addition, the coordinators suggested additional people in the MRF industry within their respective regions who should be contacted.

Third, personal and telephone interviews were conducted with many representatives of the federal government, state governments, private businessmen and private, non-profit, trade and conservation associations.

Simultaneously, an exercise utilizing the Delphi technique was conducted to provide additional information and to provide a check on the data collection methods. The results of the Delphi initiative are found in Appendix C.

2.0 THE MARINE RECREATIONAL FISHING (MRF) INDUSTRY

2.1 Introduction

For statistical purposes, the federal government does not view recreational fishing and its supporting business establishments as an industry or industrial component. This conclusion can be drawn from a review of the Standard Industrial Classification (SIC) Manual issued by the Executive Office of the President, Office of Management and Budget (1972). There are categories for commercial fishing under the division of Agriculture, Forestry and Fishing, which include establishments primarily engaged in the catching of finfish or shellfish. There are no categories for recreational fishing which include establishments that provide support and services for individuals and groups who pursue fish not primarily for economic gain. These establishments are likely included for statistical purposes as a part of the Services division where there are categories for hotels and other lodging places, business services, and amusement and recreation services or under various manufacturing categories. Instead of a coherent view of the MRF industry, components of the industry are scattered throughout various categories and often grouped with unrelated businesses, making it impossible to secure an accurate statistical picture of the MRF industry.

Why is this so? First, the existing structure of the MRF industry is virtually unknown--many of the businesses known to be important fishing components might not consider themselves a part of an MRF industry. The industry, as we know it, is diverse and fragmented, making it difficult to outline any generalized structure. Second, it would be difficult to attribute some MRF-support components and/or establishments to a MRF industry because they might serve other purposes and groups as well. MRF is not their sole or, perhaps, even their primary activity. Lastly, to be recognized as an industry, "each group of establishments must have significance from the standpoint of number of persons employed, volume of business and other economic factors, such as number of establishments, payroll or value added." (Executive Office of the President, Office of Management and Budget, 1972) Although the MRF industry, as we know it, accounts for a significant amount of employment, expenditure and respending (Centaur Management Consultants, Inc., 1977), this apparently cannot overcome the fragmentation and lack of a recognizable coherent structure to enable government recognition as a formal industry.

Regardless of the problems that frustrate industrial definition and classification, the MRF industry, as we know it, is a composite overlay where various business components are linked together for analytic purposes. In an effort to better understand the various elements of this industry, we will describe and evaluate two types of fishing-related expenditures and their timing.

Ellis et al. (1958) categorize expenditures related to MRF as repetitive fishing expenditures and non-repetitive fishing expenditures. Repetitive expenditures are generally encountered on all or most fishing trips in contrast to expenditures on such items as tackle and boats which incur infrequently. Repetitive expenditures include the following: 1) food and drink purchased for the fishing trip, 2) lodging for people staying away from home, 3) bait, 4) terminal tackle used or lost during the trip (lures,

sinkers, swivels, leaders, and hooks), 5) fees including pier charges, parking fees, boat and equipment rentals, boat launching and hoisting charges, charter and party boat charges, and guide services, 6) fuel for boats, and 7) miscellaneous minor equipment purchases. Guide services are differentiated from charter boat services because guides often provide only their expertise, where as charter services usually provide the expertise as well as a large boat and appropriate fishing tackle. Alternately, non-repetitive fishing expenditures generally do not occur on every fishing trip. These expenditures include: 1) tackle (rods, reels, lures, and tackle boxes), 2) outboard motors, 3) boats and boating accessories, 4) associated equipment like ice chests, special clothing and camping equipment and 5) miscellaneous expenditures for literature, fish mounting, fishing club dues and contributions to conservation.

Repetitive expenditures are usually made on the day of the trip or within the preceding few days. Certain repetitive expenditures are likely made at home, some enroute and the majority where the fishing activity takes place. Non-repetitive expenditures are not usually trip specific; one expenditure may result in equipment that is used for several years. These expenditures also probably occur in the fisherman's home community. From this, we can conclude that the MRF industry provides goods and services both at the place where fishing occurs as well as in the fisherman's home community (if these are different). Further, the business sector associated with MRF involves the manufacturing of this fishing-related equipment, wholesale distribution as well as retail sales.

A comprehensive look at the economic activity associated with MRF is provided by Centaur Management Consultants, Inc. (1977) and the Sport Fishing Institute (1983). Table 2-1 provides estimates of retail sales associated with MRF by category for 1975 and 1980. In 1975, this activity generated approximately $699 million of value added and $343 million in wages and salaries in business sectors where MRF-related direct expenditures took place. Through the use of multipliers, these impacts are measured at the manufacturing and trade levels. Additional impacts include an estimated 50,580 person-years of employment and an estimated $52.8 million worth of capital expenditures. In comparison, MRF activity in 1980 resulted in $1.785 billion of value added. An estimated 65,205 person-years of employment, which generated $785.6 million in wages and salaries, were associated with MRF activity. Additionally, $159.8 million of capital expenditures were made. The Sport Fishing Institute (1983) also provides some estimates of the number of business establishments that make up the MRF industry (Table 2-2). Many of these business components are not evident when and where people go fishing but they are nevertheless important in producing, distributing and retailing recreational fishing-related products.

How do all the various components of the marine recreational fishing industry fit together? Figure 2-1 (Ellis et al., 1958) shows some of the various channels of distribution involved in serving the fisherman.

Table 2-1

Retail Sales Associated with Marine Recreational Fishing by Category by Year (in Millions)

	1975[2]	1980[3]
Fishing Tackle	$ 136	185
Boats	208	284
Motors	45	55
Trailers	18	18
Marinas	240	470
Commercial Sportfishing Vessels	122	149
Boat Fuel	86	760
Food	247	742
Lodging	63	185
Travel	233	611
Boat Insurance	56	55
Bait	216	290
Other	170	172
TOTAL	$1,840	$3,976

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[1]These totals do not include the impacts of purchases of accessory equipment for recreational boats. Because of the diverse manufacture and distribution of such equipment, reliable economic impact estimates were not available. However, based on an analysis of composite dealer sales data, sales of such equipment would addfive percent (or about $92 million or less) to the impact estimates presented here.

[2]Source: Centaur Management Consultants, Inc., 1977.

[3]Source: Sport Fishing Institute, 1983.

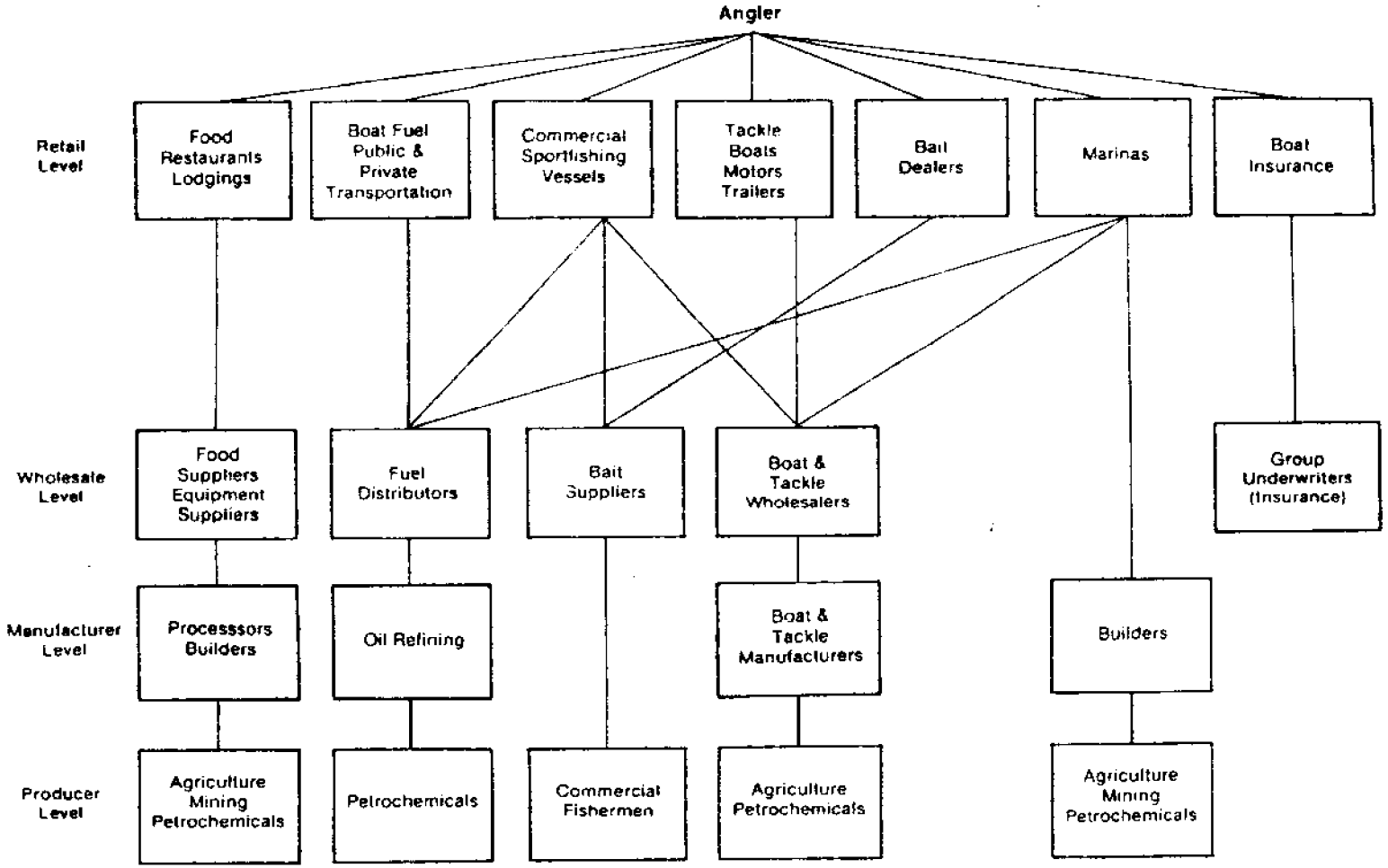
Table 2-2

Number of Establishments in Business Categories Related to Marine Recreational Fishing

Product or Service	Number of Establishments	Category Description
Fishing Tackle Manufacturing	260	Manufacturers of freshwater and saltwater tackle in U.S.
Wholesale Trade	175	Establishments which distribute freshwater and saltwater tackle in U.S.
Retail Trade	6,350+	Retailers selling tackle throughout U.S. not including department stores.
Boats Manufacturing	361	Manufacturers primarily engaged in producing outboard, inboard and inboard/outdrive boats
Retail Trade	6,500	Retail boat dealers throughout the U.S.
Motors	5	Manufacturers of outboard motors Manufacturing in U.S.
Retail Trade	6,500	Retail boat dealers throughout the U.S.
Boat Trailers Manufacturing	100	Manufacturers of trailers throughout the U.S.
Retail Trade	6,500	Retail boat dealers throughout the U.S.
Marinas	2,880	Coastal marinas and boat yards.
Commercial Sport-fishing Vessels	3,952	Saltwater head (party) and charter boats.
Boat Insurance	130	Number of insurance carriers selling insurance for recreational boats.
Bait	3,675	Establishments that sell bait for use in saltwater as a primary activity.

Source: Sport Fishing Institute, 1983.

Figure 2-1. Various Businesses Involved in Serving the Angler



Source: After Ellis et. al, 1958.

2.2 Findings

A. There is more to fishing than fish.

The marine recreational fishing industry is comprised of many components. Obviously, this industry is based on one attraction: the fishery resource.

However, in order for a community to have a viable MRF industry, attention must be given to the entire "system," rather than just the attraction. In particular, a community must address the needs of the fishermen they wish to attract and the MRF industry itself, which will provide the facilities and services to meet the needs and desires of the fishermen.

It is a common perception that a good fishery resource will attract fishermen. This is not necessarily so. In Niagara County, New York, the county government, recognizing the systemness of the industry, formed a Fisheries Development Board (Niagara County, 1982). This came as a result of the state fish and wildlife agency's (the New York Department of Environmental Conservation) commitment to stock over one million salmonids (trout and salmon) per year in the Niagara County area of Lake Ontario. The county realized that with the increased availability of fish will come an increase in fishermen to the area. These additional anglers require facilities and services while in Niagara County. In particular, access points such as boat launching facilities, piers and even the banks of the lake and area streams will receive increased use.

In order for the people of Niagara County to capitalize on the increased number of fishermen to their area, they had to provide the anglers with needed facilities and services. Campgrounds, motels and hotels, restaurants, bait and tackle shops, fishing guide services, and marina facilities are all examples of the various businesses which can benefit from an increase in anglers.

The Niagara County Fisheries Development Board approached fisheries development in a rational and pragmatic manner. After realizing that increased fish stocks would bring additional fishermen, the Board set out to analyze the market potential. This analysis consisted of an examination of the potential number of anglers who might fish in Niagara County, activities common to anglers in similar communities, a socio-economic profile of the potential anglers including distance traveled to reach the Niagara County area, and a review of the expenditures anglers make while visiting a fishing/tourism community.

After addressing the anglers themselves, the Fisheries Development Board inventoried the existing fishing-related facilities. Included in their inventory was the enumeration and location of boat launching ramps, campgrounds, marinas (including slip spaces and mooring areas), charter boats, and emergency and rescue services.

The next step was to perform a needs analysis. Here, the Board projected the needs of the future anglers. After examining the services and facilities which exist, recommendations were made about the type and quantity of facilities and services which must be provided in order to meet the

demand of the future anglers. The Board's analysis indicated that the following facilities and services must be increased to support the fishermen expected to visit Niagara County once the stocking program begins: boat launching facilities, piers and access points, parking facilities, marine services (including marinas and charter boats), marine safety and rescue services, lodging (including campgrounds), restaurants, bait and tackle shops, fish cleaning facilities, and information and educational services. Also, the analysis briefly addressed the potential impact of contaminants in Lake Ontario fish on fishing activity.

Using the information collected in this first phase, Niagara County will produce and implement a Fisheries Development Plan. The county has recognized the systemness of the MRF industry and addressed it accordingly. Simple analysis of supply and demand is the first step. After that, an assessment of development needs is necessary. Finally, implementation of a plan to correct the difficiencies is required.

Similarly, but on a smaller scale, the systemness notion can be demonstrated in today's marina complexes. Seldom are marinas built which only offer traditional services such as slip and mooring space, boat storage and repair services. The trend is to build a complex or multi-faceted operation which provides a broader range of facilities and services to the public.

The Redondo Beach Marina near Los Angeles, Calif., is a good example. This full-service marina incorporates a variety of facilities and services including slip space, boat launching ramps, boat hoists, several restaurants and bars, a fishing pier, a bait and tackle shop and a sportfishing barge operation. The latter is a large barge moored approximately 1 1/2 miles offshore. The marina runs a hourly boat shuttle to and from the barge. A basic admission fee provides customers with free bait on the barge and access to the restrooms and galley facilities.

With a wide range of services, the Redondo Beach Marina attracts a larger and more diverse clientele than a small, limited-service marina. Such a facility is much more attractive to the fishing public because most of their needs and desires can be satisfied in one physical location. In close proximity to the Redondo Beach Marina are motels and hotels which further add to the attractiveness of the facility.

B. Without proper investment, a fishery will not be fully utilized.

Following the previous thesis that there is more to fishing than just fish, it should be noted that unless the appropriate support infrastructure is available to the fishermen, an area will receive limited use. A strong fishery resource does not guarantee a viable MRF/tourism industry. In addition, the presence of capital investment in the construction of MRF facilities will demonstrate to decision-makers the need for effective management of the fishery resource.

The state of Louisiana has a diversity of recreationally important marine fish species. The large number of oil and gas platforms in the state's territorial sea and the adjacent fishery conservation zone serve, in effect, as artificial reefs. Desirable game fish are attracted in abundance, to these structures.

Unfortunately, access is limited and there is little land-based support infrastructure to support a viable recreational fishery. There are natural resasons for this, namely, the difficulty of developing in a marsh environment. Consequently, basic facilities such as boat launch ramps exist in small numbers. Access for non-boat owners is also limited as relatively few offshore charter and party boats operate in Louisiana. This is beginning to change as inshore fishery charter services emerge.

It is difficult to determine why there is such a lack of infrastructure in Louisiana. Should it be the role of the public sector or the private sector to create incentives to overcome this problem? Probably, a combination of the two. Regardless of which sector takes the lead, in order to increase the MRF opportunities in Louisiana, a MRF/tourism industry infrastructure needs to be developed.

The responsible resource and tourism agencies in Louisiana are not addressing the systemness of the MRF industry. Therefore, Louisiana is not receiving the potential benefits. Of course, it is possible that the residents do not desire additional fishing opportunities or an influx of tourists to their state. But, if they desire to improve their MRF/tourism industry and receive the resultant economic benefits, they should follow the example of Niagara County, N.Y., and develop a plan or plans for an orderly, phased-in fishery development program.

C. MRF development is not exclusively in the domain of the private or public sector: Coordination of both sectors is required.

Clearly, the responsibility for MRF development does not lie with only one sector, but with the private and public sectors to varying degrees. Although certain development activities lend themselves exclusively to one sector, generally both sectors play a role.

Neither sector can provide all that is needed to optimize MRF development; thus, there must be a well-coordinated public/private partnership of effort and resources. To accomplish this, each sector needs to be carefully evaluated in terms of its strengths and weaknesses and an action plan formulated for MRF development. Some matters are best accomplished through existing fisheries management and tourism development agencies; others are best left to private sector interests which have access to public and private information and can participate effectively in MRF development efforts.

As an example of public/private cooperation, there is the use of a federal loan guarantee program to assist in the financing of two sportfishing barges in southern California. Construction financing for two stationary (anchored) fishing platforms or barges was provided by the Fishing Vessel Obligation Guarantee Program (FVOG). The innovative use of this program, which is administered by the National Marine Fisheries Service (NMFS) came about through the efforts of the NMFS's Southwest Regional Office near Los Angeles. Historically, the FVOG program has supported the construction of commercial fishing vessels and commercial passenger sportfishing vessels (charter and party/head boats). Fortunately, NMFS considered the barges as suitable candidates for the FVOG program.

The barges, Isle of Redondo and the Annie B, are located in the Santa Monica Bay and Long Beach Harbor, respectively. The Isle of Redondo is a platform 120 feet by 60 feet on catamaran hulls. It is 240 gross tons and has over six feet of draft. Moored over the edge of Redondo Canyon, the barge has a water depth on the inshore side of about 50 feet and an offshore depth of over 200 feet. In addition, a sunken vessel is located nearby which serves as an artificial reef.

The Annie B is moored behind a breakwater which forms the seaward edge of the Port of Long Beach. It is 99 gross tons and measures 150 feet by 44 feet on deck. Moored in water about 40 feet deep, the Annie B rises only about three feet above the surface.

The Annie B can be maintained in place all year while the Isle of Redondo must be removed for two or three months each year for maintenance and to avoid rough weather. Pacific mackerel are commonly caught at both barges. Rockfish (sebastes) and coastal pelagics such as bonito and sharks are caught around the Isle of Redondo.

An outstanding example of public/private sector cooperation in MRF development is provided by the Northern Ireland Tourist Board in their decision to subsidize their nation's "sea angling" enterprises (Northern Ireland Tourist Board, 1972). Their goal was to exploit "sea angling" as a tourist attraction and to compete for European markets that previously took advantage of fishing packages in Norway, Iceland and Portugal. A fisheries reconnaissance revealed that there were sufficient quantities and varieties of fish in Northern Ireland's coastal waters to attract European fishermen on a "packaged holiday basis." However, the Tourist Board found that there were no modern and well-equipped boats available to provide access to coastal waters. Further, their studies concluded that there was no prospect of interesting private investment in the full time operation of charter boats given the high cost of initial investment. Accordingly, the Northern Ireland Tourist Board recommended a grant-in-aid program to provide private investors with reasonably attractive returns and at the same time to help to develop a small but nonetheless valuable new tourist attraction. Policies established by the Board speak to the nature of the grants available, criteria for boats and equipment, and other related financial matters. The policies of the Northern Ireland Tourist Board recognize that the attendant secondary spending benefits more than justify financial assistance to the charter operators and that by raising the rate of return on capital invested, they help to stimulate private investment. Irish tourist authorities recognize that the poor financial returns to operators must be overcome if economic impact (local and national) potentials are to be realized.

Many individuals interested in getting into a MRF/tourism business often find it difficult to obtain the needed capital to purchase items necessary for the operation. In particular, purchases of charter/party boats and sportfishing barges require large amounts of capital.

Apparently, it is difficult for lending institutions, such as banks and other private financial institutions, to realistically assess the risks involved in loaning monies to MRF/tourism businesses. This is due in part to the relative lack of information available on this industry segment. Few

studies have examined the profit generating ability of service-oriented businesses such as charter and party boat operations. (Those which have include Prochaska and Cato, 1975; Ditton et al., 1978; Woods and Ditton, 1979; Manooch et al., 1981; and Thursland et al., 1982). Without an established history of information on a certain type of business operation, a lending institution is reluctant to provide loan monies.

Private institutions which grant a MRF loan usually require that the length of debt service or the time period in which the loan must be repaid be relatively short. Unfortunately, it may take many years for a MRF/tourism operation to become profitable. A business venture of this type often relies on word-of-mouth advertising to a great extent; slowly building up its clientele over a period of years. High interest, short-term loans can significantly impact a business' cash flow and often result in default on the loan.

Alternately, the National Marine Fisheries Service has a series of loan guarantee programs and capital construction funds which provide more favorable terms for individuals and their businesses. Often lower interest rates can be obtained with a longer debt service. Combined, these create an environment in which businessmen can show a profit sooner; thus, a business' chance for success is greatly enhanced.

D. The goal of the private sector is to make a profit.

Basically, the motive of private sector involvement in MRF development is profit. Of course, there are not-for-profit organizations but their involvement in development issues is generally limited to information dissemination and advising. This role is similar to that of the public sector and will be discussed in the following section.

The actual or perceived probability of profit or some other benefit is the inducement for the private sector to enter into MRF development or any other venture. As described by Ditton et al. (1977), benefits which are divisible -- that is, those which can be divided among individuals -- can be selfishly enjoyed or consumed. Alternately, indivisible benefits are those which are collective in nature and cannot be easily divided up. Therefore, indivisible benefits are shared by all. If the benefits resulting from an action can be divisible, then it is probable that the private sector would become involved.

The construction and operation of boat launching ramps serve as a useful example. If it is possible for an entity to purchase or lease the land upon which the ramp is to be built, construct the ramp, and then charge a fee for the use of the ramp, then it is probable that a private sector business would be willing to enter into such an operation. The benefits, i.e. profits resulting from the user fees (over and above normal maintenance costs), could be received directly by the owner and/or operator of the ramp. Obviously, a private sector business would enter into the project only if a favorable return on the initial investment is projected.

On the other hand, the public sector would perform the same function of constructing and operating a boat launching ramp if the general public could benefit. This is not to say that a fee would not be charged for the use of

the ramp, but the monies collected would go toward the maintenance and operation of the ramp. Profit is not the incentive for the public sector's involvement but rather the benefits, i.e. access to the water, which are provided to the general public. These benefits are not easily divided between individuals. Anyone with the desire (and possibly the required fee) could use the ramp and thereby benefit.

Historically, the public sector, has provided many of the services and facilities required by marine recreational fishermen. Today, austere budgets require limited monies to be spent in areas of "higher priority." This has resulted in an opportunity for the private sector to enter into new areas where it can provide the desired services and facilities for the public while at the same time operate viable, money-making businesses.

Not only are areas open to the private sector which have been traditionally within the realm of the public sector, but many new and innovative areas of MRF/tourism development are available as well. Examples of development opportunities include the construction of fishing piers in conjunction with artificial reefs; the operation of sportfishing barges, bait barges, and charter and party/head boats which pursue nontraditional species; combination fishing/sightseeing trips, and the use of party/head boats for whale-watching cruises.

Naturally, the private sector cannot or will not become involved in all aspects of MRF development. It is not realistic to expect the private sector to pursue a development activity unless a direct benefit will result to the private entity or individual.

E. The public sector plays an important role in MRF development.

Everyone has an opinion about the extent to which the public sector should be involved in any issue or activity, including MRF development. Some welcome the assistance and involvement of governmental agencies at all levels, while others would prefer to see all governmental "interference" removed.

With regard to MRF development, the primary role of federal and state governments, should be fisheries management. Included here is the responsibility of habitat protection and enhancement. Without a viable fishery resource, the MRF industry cannot exist. Professional fisheries management is necessary to ensure the long-term health of the fisheries and the habitat upon which they depend.

Second, the public sector at all levels should be involved in the collection, packaging and dissemination of information about how, when and where to pursue recreational species. It is apparent that the general public must be informed of the recreational fishing opportunities available to them and receive directions about how to capitalize on these opportunities. In addition, instruction is needed on the proper care and handling of harvested fish.

Information dissemination should be accomplished through all available media types, particularly in the format of understandable, printed literature. Educational programs directed both to students and the general public

would be beneficial. Hands-on experiences and demonstrations have proved most effective in educating people on how to fish and to prepare their catch for consumption.

Information dissemination can educate the public on the non-traditional or underutilized species available for recreational pursuit. Give specific information on how and where to catch these species. Educational and informational programs can aid in reducing fishing pressure on traditional fisheries while increasing pressure on species which are less exploited.

Perhaps the public sector should only collect the necessary information. This information could then be sold to the private sector which, in turn, would package and disseminate it to the general public. Some states have developed excellent MRF brochures and have financed fishery management programs with the profits.

Third, the public sector should continue to be involved in MRF development with financial assistance programs. In particular, the National Marine Fisheries Service adminsters loan and loan subsidy programs and capital construction funds which assist industry components such as charter and party boat operations. The MRF/tourism industry needs government assistance of this type because commercial (private) lending institutions are reluctant to lend to "unknown" credit risks. And when they do, the terms are often economically infeasible. But, most of NMFS's financial incentive participation has been in the commercial fishing industry.

Last, monies should be available from the government to support research in MRF development. Presently, NMFS administers the Saltonstall-Kennedy Fisheries Development Grant Program which provides monies for commercial and recreational fisheries development. Until recently, all monies from this program were directed toward the commercial sector. However, as evidenced by this report, it is now possible for the private sector to secure monies under this program.

Section 423 of the Surface Transportation Act of 1982 (U.S. Congress, 1982) amended the Saltonstall-Kennedy Act (U.S. Congress, 1980). Beginning in FY 1984, 100 percent of the monies -- primarily import duties levied on frozen fish products -- collected under this program are authorized for development projects. In the past, 30 percent of the collected revenue has been available each year. It must be noted, however, that the monies must go through the Congressional appropriations process each year. Therefore, it is possible that the full 100 percent might not be made available for the S-K program, particularly if the Commerce Department continues to operate on a Continuing Resolution.

The amended S-K language provides that 60 percent of the monies appropriated will be in the form of direct-assistance grants to industry and researchers. The remaining 40 percent will be used by NMFS to carry out its fishery development activities. In FY 1982, approximately $24 million dollars was collected under the authority of the S-K program. If collections remain at the FY 1982 level, $24 million would be spent on fishery development programs beginning in FY 1984.

At the federal level, the National Marine Fisheries Service is the primary governmental agency involved with MRF development. The task force which drafted the NMFS policy statement on MRF stated that it believed that "NMFS will be required to play three principal roles in dealing with MRF -- that of a doer, a partner or a catalyst -- depending on whether NMFS, under its authorities and mandates, has primary responsibility, shared responsibility or an undefined responsibility" (National Marine Fisheries Service, 1981). The NMFS has responsibilities for data acquisition in pursuit of its management responsibilities. Individuals within the agency are involved in collecting data and information that can be used in support of MRF development activities. Also, they work as partners with representatives of other political subdivisions and with businesses where there is a rationale for federal involvement. More often, since state, local and private sector jurisdictions are involved, there is the need for the catalytic role where a key individual works with others to help them develop or enhance elements of the MRF/tourism system.

As long as MRF development is pursued on a biological, single agency or public sector basis, it is probably doomed to failure. MRF development activities require an integration of knowledge within and outside of government. MRF development requires an understanding of fishery resources, fishermen, the MRF industry (as well as the larger tourism industry) and the political system that surrounds the development of common property fishery resources.

F. Organization is the important first step to accomplishing goals.

As described in the introduction, the MRF/tourism industry is a highly diverse industry comprised of many varied, yet interrelated businesses. It is important that these components of the MRF/tourism industry system organize as a unit and recognize the relationships between them. Also, each component within the system, such as the charter boat fleet, should organize and work within itself to strengthen its respective business sector.

The first step toward this goal is recognizing that the system exists. The industry must realize how each business component relates to the others and how the system must be complete in order to achieve recognition as an industry. Such recognition is a first step to receiving the type of financial assistance enjoyed by other industries that depend on the fishery resource, i.e., the commercial fishing industry.

The impetus to group the various industry components together should initiate within currently organized groups such as the Chamber of Commerce. Organizations such as this generally represent the majority of the businesses in an area and thus, can readily communicate with and initiate communication between its members. Each of the components must work together to their mutual benefit to offer a complete package to the potential recreational fisherman/tourist/customer.

In addition, it is imperative that individual businesses be organized within each MRF industry component. For example, charter boat operators should join together and establish a central booking office which would allow potential customers to contact a single office to make reservations on any charter boat. The booking office could operate with a toll-free tele-

phone number for the state and possibly nationwide.

Admittedly, it will be difficult in some communities to overcome the distrust many businessmen have for each other. In the case of charter operators, they need to be convinced that they are not competing against each other but rather that their area or port is in competition with other ports. Additionally, operators have to overcome their biases toward a single booking office operation. In particular, a system or operating procedure should be established which would give all charter operations equal opportunity to secure customers who make reservations through the central booking office.

In some coastal regions charter operators have begun to organize for many reasons. Noteworthy among these are the Sportfishing Association of California located in southern California and the Charter boat Association of the Americas in Miami, Fla. Some of the benefits of their strength in number include the above mentioned central booking service, group rates on insurance, a unified political voice which is heard by appropriate fishery management agencies, and the economic savings which can result from group advertising and promotional events.

Once organized, either at the component level or at the industry/system level, the businesses can work together for the benefit of all involved. An example is the sponsorship of short-duration events such as fishing tournaments which are held either before or after the traditional tourism season in an area. Such events extends the tourism season by bringing tourists into the area at a time when little or no tourist activity usually occurs. The additional economic impact of such events can be significant.

Fishing tournaments represent an important facet of the recreational fishing industry. Economic impacts of a variety of sportfishing tournaments have been studied. For instance, total expenditures of the 1971 Narragansett (R.I.) Tuna Tournament participants were estimated to be $211,283 (Farrell 1972). Similarly, Daniel (1974) found the 1,210 anglers participating in the 1973 Biloxi Rodeo (tournament) in Mississippi spent, on the average, approximately $75.87 each over 2.3 fishing days. During the same year, Gulfport was host to the Mississippi Deep Sea Fishing Rodeo, where a typical fisherman's expenditures were estimated to be $157.60 for 3.4 fishing days. The combined direct economic impact of these two rodeos on the Mississippi coast was estimated to be $915,841.

More recently, a study by Smith and Moore (1980) found that approximately 1,844 participants in the Third Annual Arthur Smith King Mackerel Tournament (1979) held in Little River, S.C., spent an estimated $650,000 to fish in the competition. In addition, an estimated $229,000 was spent in the Little River area by individuals and family members who accompanied the tournament anglers. Combined, total expenditures for the two-day event totaled nearly $880,000.

During another king mackerel tournament, the First Annual Greater Jacksonville Natural Light Kingfish Tournament, there were approximately $428,000 in direct expenditures (Milon et al., 1982). Of this, an estimated $384,000 was spent in the Jacksonville, Fla., area. Multipliers generated by the U.S. Water Resources Council and a University of Florida study were applied to estimate the total economic impact of the tournament. Estimates

of $765,407 and $700,203 resulted, respectively.

Falk et al. (1981) found that the 1981 Milford (Del.) World Championship Weakfish Tournament generated $110,000 in direct expenditures by the participating anglers. Held on three non-consecutive days, this tournament resulted in an economic impact of nearly $172,000 to Delaware.

3.0 RELATIONSHIPS BETWEEN THE RECREATIONAL AND COMMERCIAL FISHING SECTORS

3.1 Introduction

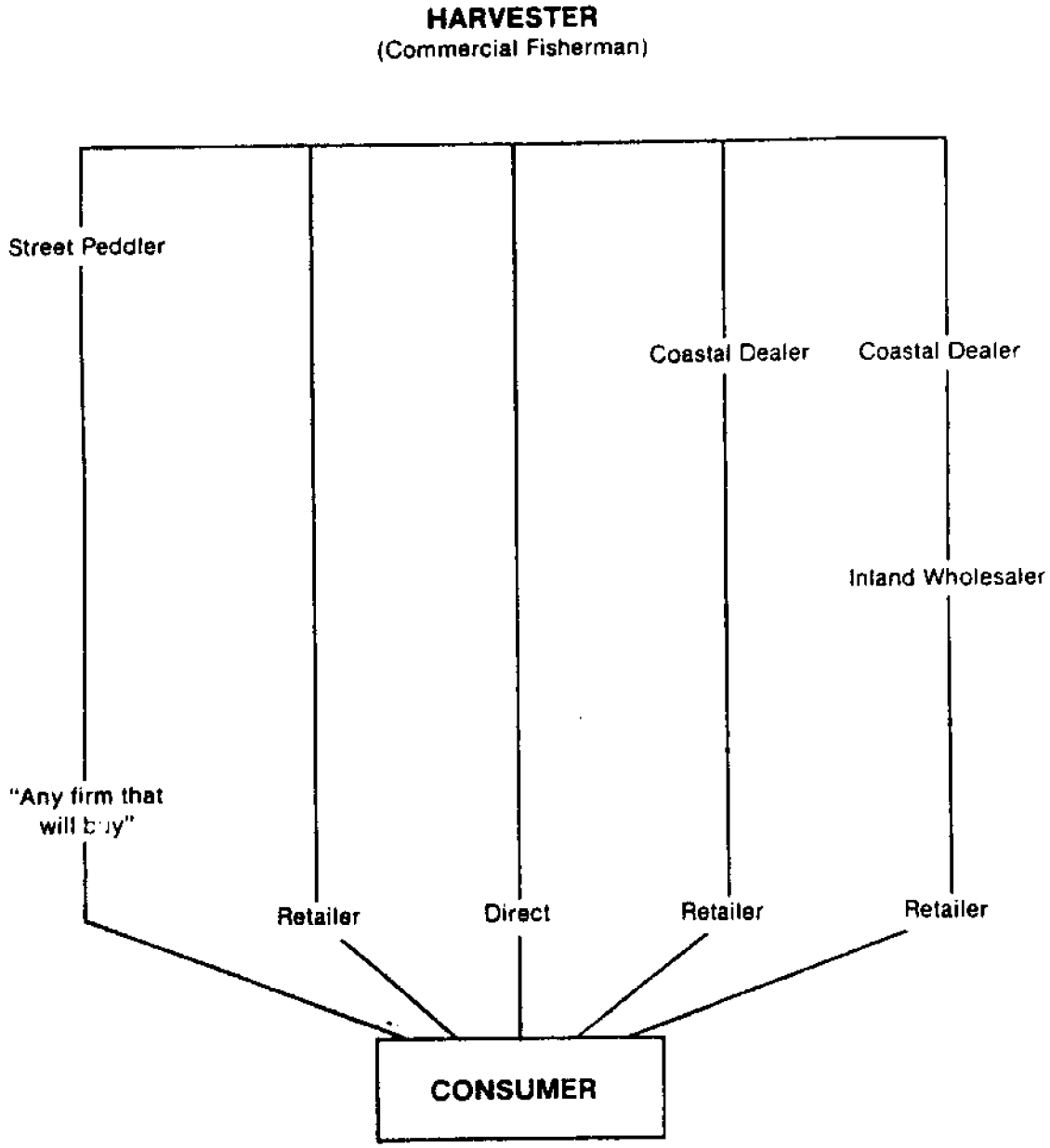
By definition, commercial and recreational fishermen are different in their orientations and use of fishery resources. Commercial fishermen generally harvest for pay or for purposes of sale, barter or exchange. The principal objectives of recreational fishermen include pleasure, enjoyment and relaxation. Sometimes, barter or money may be derived from the recreational catch, but income and livelihood are not be the primary objectives. Although some recreational fishermen legitimately sell their catch, this is an illegal practice in some coastal states. Differences in the disposition of the catch are shown in Figures 3-1 and 3-2. The assemblage of business components that support recreational and commercial fishermen also vary widely (Figures 3-3 and 3-4).

To date, much has been written about the differences and the competition between these two groups. They are generally regarded as mutually exclusive user groups. Although some fish stocks are sought almost exclusively by recreational fishermen, (i.e., billfish) or commercial fishermen, (i.e., menhaden) these two groups of fishermen sometimes desire the same fish. This often leads to problems, particularly with nearshore fish stocks. Efforts to resolve these conflicts often involve agency rulemaking relative to gear restrictions or harvest limitations or legislative action, (i.e., the ban on the commercial harvest of red drum and speckled trout in Texas). The differences and/or conflicts between commercial and recreational fishing interests are well-known; the commonalities and overlap have received little, if any, attention.

Recreational and commercial fishermen have much in common. They are both interested in sustaining viable populations of fish. Fish are a common property resource until captured by a recreational or commercial fisherman. Although some fish are more likely to be captured by one group, the two groups share many fish stocks. The concern for the stocks must precede matters of resource allocation (who gets what?). Both groups should be concerned about the extent of lost habitat and with mitigating further impacts.

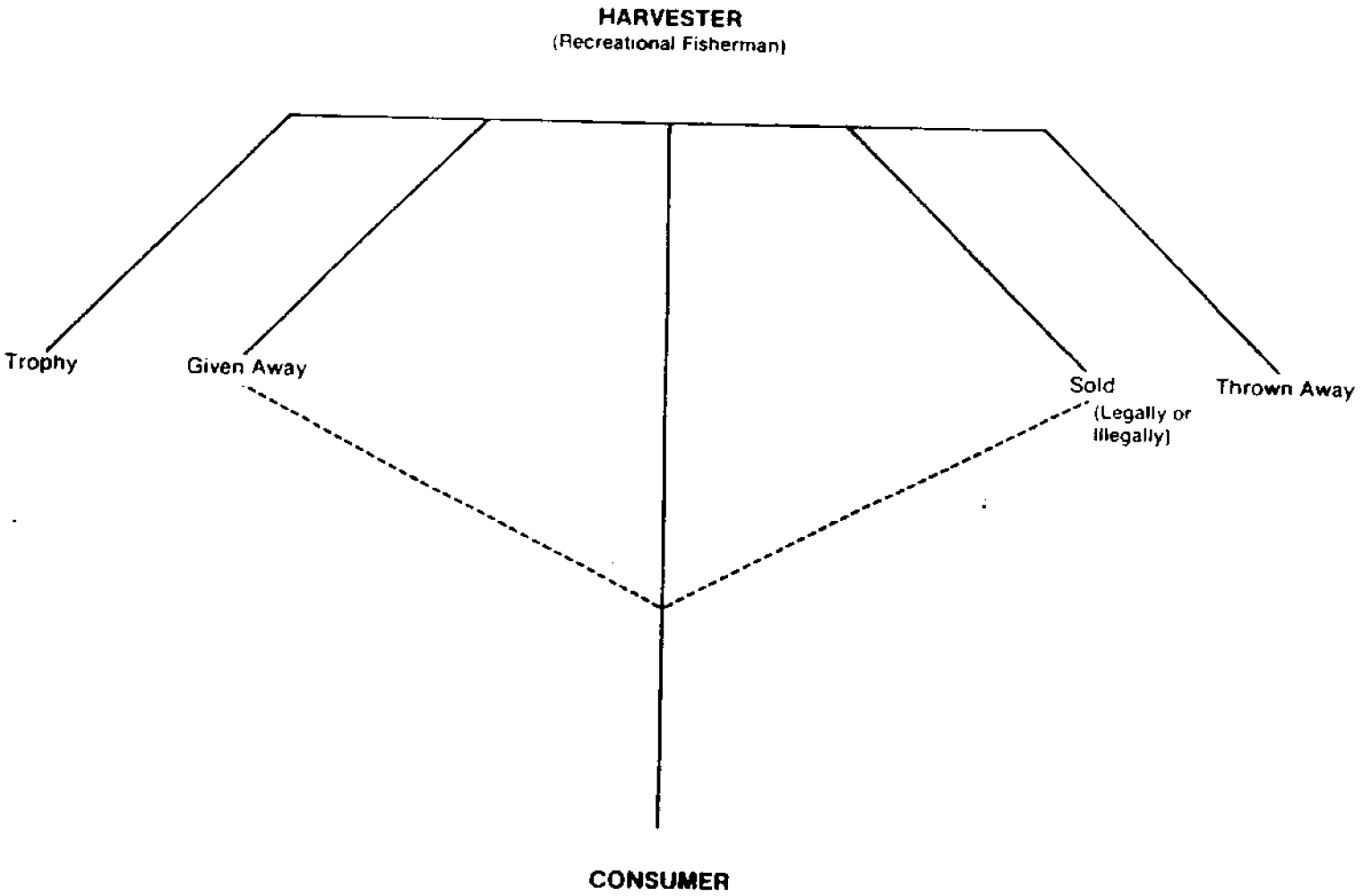
The recreational and commercial fishing sectors are inter-dependent. Services like ice, repairs, equipment sales, and dockside facilities support both the commercial and recreational fishing sectors. Both groups of fishermen are concerned with matters of access to the water as well as with harbor development. Many recreational fishermen hire a charter boat or use a party boat when they go fishing. Although the commercial charter or party boat operator provides a means of access for many sport fishermen, the operator often serves as a commercial first-handler of the fish the client does not want. Some charter boat operators have an agreement with the recreational fishermen that they keep a limited quantity of the catch; the remainder reverting to the charter captain which he sells for profit. Without such arrangements, charter and party boat rates might be increased.

Figure 3-1. Disposition of the Commercial Harvest



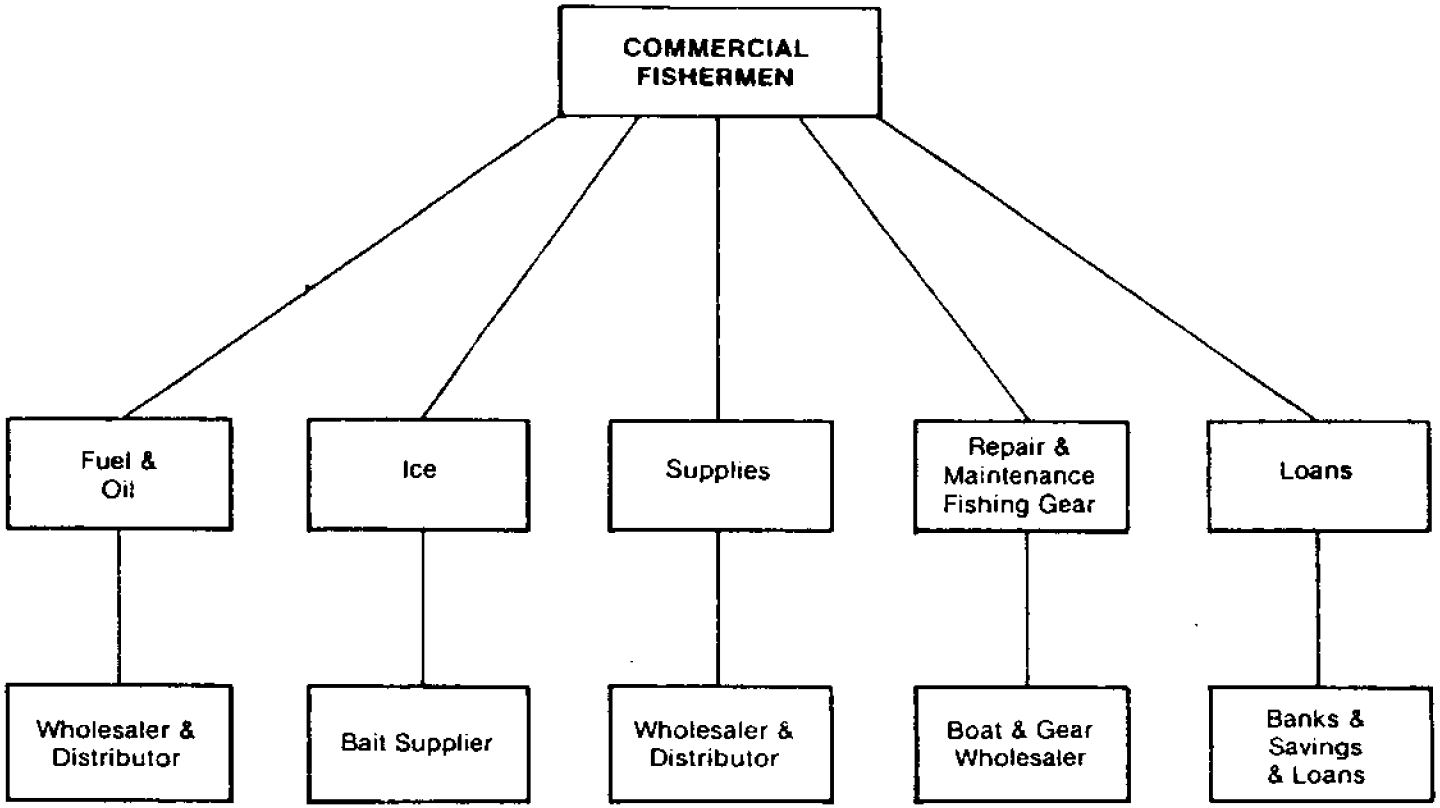
Source: Gillespie and Gregory, 1971.

Figure 3-2. Disposition of the Recreational Catch



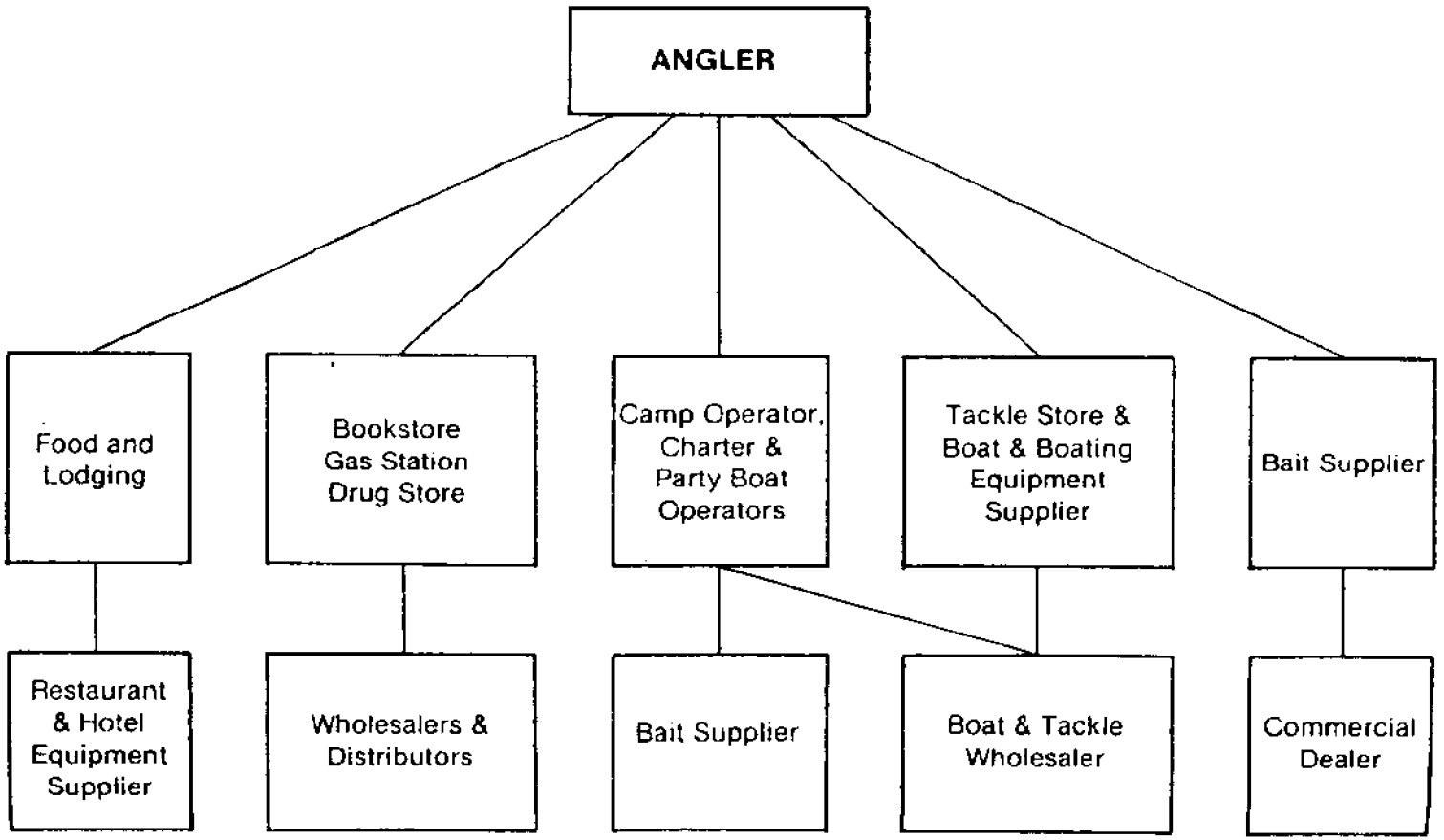
Source: Ditton and Albers, 1983.

Figure 3-3. Various Business Components Involved in Serving Commercial Fishermen



Source: Prochaska and Morris, 1978.

Figure 3-4. Various Business Components Involved in Serving Anglers



Source: Ellis et. al., 1958.

As shown in Figure 3-4, recreational fishermen also depend on the availability of bait. The bait supplier is usually a commercial dealer or wholesaler. It is possible that without commercial fishermen, i.e., bait shrimp boat operators, bait for recreational fishermen could become scarce. Only those fishermen who could catch their own would have bait. Also, without recreational fishermen purchasing bait, commercial fishermen could lose an important part of their income.

Until now, recreational fisheries planning and development initiatives have not considered the commercial sector to any great extent, and vice versa. The symbiotic relationships between the two fishing sectors need to be recognized if development efforts are to be effective.

3.2 Findings

A. Many commonalities exist between the recreational and commercial fishing sectors.

Rather than dwelling on the differences or conflicts between the recreational and commercial fishing sectors, we will examine the commmonalities and interrelationships between the two. Recently, Lee Weddig, executive vice president of the National Fisheries Institute (a trade association representing the commercial fishing sector), spoke before the Marine Recreational Fisheries Symposium (1983). Weddig addressed many of the problems facing both sectors. A discussion of some of those problems follows:

1. **Damage to the resource by overfishing.** Both industry sectors depend upon a healthy and perpetual fishery resource. The two must cooperate to ensure the proper management of our nation's fishery resources. Together, these sectors can approach the relevent federal and state fishery management agencies and the regional fishery management councils and demand the development and proper implementation of fishery management practices. Secondarily, all interested parties can work together with management authorities to obtain equitable allocations of the finite fishery resources based upon biological, economic and social data.

2. **Damage to or destruction of habitat.** Closely related to the first problem, habitat loss or impairment can signficantly impact the associated fishery reosurces. In particular, loss of wetlands must be addressed since many marine species are dependent upon this habitat during all or part of their life cycles. Habitat destruction results from many factors including development of facilities such as marinas, buildings, and industrial complexes, and point and non-point pollution discharges. Together, the recreational and commercial sectors could work within the governmental system to implement habitat protection policies.

3. **Increasing the availability of fishery resources.** Since both sectors rely upon a viable fishery resource, it would benefit them to work in cooperation to bring about effective fishery propagation practices. These include, fish hatchery operations and habitat enhancement efforts, including habitat protection and creation.

Creation of habitat could be the restoration of wetlands or the deployment of artificial reefs. Additional habitat will aide in increasing fishery populations or at least help maintain the status quo.

4. **Equitable enforcement of management regulations and practices.** Assuming that both sectors had input into the formulation of fishery management practices/regulations, then it would behoove each to follow-up and demand that the regulations and practices be enforced and that all harvesters, recreational and commercial, be treated equally. All must conform and obey the rules and regulations which are put in place to manage the fishery resources.

5. **Education of the public on the proper handling and preparation of fishery products.** Unfortunately, many fish products are wasted or are not handled and prepared properly after purchase or harvest. This is particularly true with recreational species. An education program on the proper care and preparation of fish products would benefit the two fisheries sectors and the general public.

6. **Safety.** Together, the commercial and recreational fishing interests comprise a large percentage of the boating activity on our nation's waters. Both groups should cooperate to encourage and assist in boater safety programs for the public search and rescue operations of the U.S. Coast Guard and its auxillary, and adequate weather services.

7. **Funding for fishery management agencies.** The proper management of our fishery resources should be the concern of both fisheries sectors. Therefore, commercial and recreational interests should join forces to fight for strong budgets within the federal and state fishery management agencies in order to support research projects, data collection and implementation of fishery management techniques.

8. **The commercial fishing sector can and does impact the recreational fishing sector.**

To an extent, the recreational fishing sector depends on, the commercial fishing sector, and vice versa. Nowhere is this relationship better exemplified than in the bait industry.

On the whole, marine recreational fishermen tend to use natural bait, both live and dead, more often than artificial baits and lures. Anglers can secure natural bait either through direct purchase or by catching it themselves. Purchases usually occur at piers, bait and tackle shops, and in convenience and food stores. Personal bait collection generally involves the harvest of small fish or shrimp with a cast net, dip net or trap.

Few studies have examined the natural bait industry and thus, only general information is available relative to the industry and its activity. In 1980, the South Carolina Sea Grant Consortium sponsored a workshop on the marine natural bait industry. There, Abbas and Spitzbergen (1982) briefly described the North Carolina industry:

> The industry is characterized by many small retailers. In virtually all cases, bait sales are one among several enterprises within the firm. General stores dominate the natural bait outlets while fish markets, bait and tackle shops, and fishing piers each comprise less than half the outlets. Marinas, sport stores, gas stations, and other outlets are least important as outlets for marine bait.
>
> ...Various outlet areas were surveyed according to the number of years bait had been retailed, types of bait sold, revenue from bait, and associated factors. Piers have operated the longest (19.2 years), bait and tackle shops and sports stores have the highest average revenue per customer at $5.27 and $6.69, respectively, and bait and tackle shops spend the most for advertising. However, bait and tackle stores also had the highest bait revenue...retail sales of marine bait [in North Carolina] in 1978 were estimated to be $6,639,900.

This description addresses only the retail sales component of the natural bait industry. But, a major part of this industry is the actual harvest of the bait by commercial fishermen. In southern California, MRF is heavily dependant upon the anchovy, not only as an angler's bait but also as an attraction luring migratory game fish to the region. In particular, charter and party boat operations use anchovies as chum to draw the game fish close to their boats. Without a stable and healthy supply of anchovies, the charter and party boat operations would find it difficult to produce the results their customers desire, which is, of course, to catch fish. This, in turn, would negatively affect the profit of these businesses (Nettleton, 1983).

A reduction fishery (commercial harvest) for anchovies also exists in southern California waters. This catch is not for human consumption but is used in such products as animal feed, fertilizer, paints and lubricants. In addition, there is a large reduction fishery in Mexico's waters. Combined, the U.S. and Mexican harvests are at, or near, the maximum sustained yield for the fishery (Nettleton, 1983).

Commercial fishermen harvest the anchovy for two industrial sectors: recreational fishermen and products for direct and indirect human use. Presently, various interest groups are actively working with NMFS to develop an improved fishery management plan (FMP) to manage and equitably allocate the finite anchovy resource. As some commercial fishermen serve both sectors, they support a fair allocation between both customer groups. Recreational fishing interests are fighting for a significant decrease in the reduction fishery in order to provide a significant number of anchovies as recreational bait. Further, and of equal importance, these interests argue that the anchovy is an important link in the ocean food web, attracting and supporting many species of game fish and marine mammals.

While this may be viewed as the typical conflict between recreational and commercial fishing interests, it is more important for our purpose to focus on the effect of the commercial harvest on recreational fishing activity and the effect of the combined harvest on the resource itself.

Clearly, recreational fishermen depend upon a healthy supply of anchovies, both live and dead, for bait in their pursuit of game fish. When this bait supply is reduced or removed, many businesses suffer. Commercial harvesters of anchovies used as live bait by anglers annnually capture and sell approximately 7,000 tons of anchovies at an average price of $400 per ton. Totaled, the anchovy recreational bait industry has sales of approximately $2.8 million. In 1982 the commercial harvest of anchovies was 50,000 tons, sold at $40 per ton for a total of $2 million (Nettleton, 1983).

Overharvest of the anchovy resource could bring about a significant shortfall in terms of bait supply to meet the demand of recreational fishermen. Additionally, with a reduced population, commercial harvests would be less. Only continuing, sound management of the fishery resource will ensure a viable fishery from which both sectors can benefit. It is imperative that both interests work together to implement fisheries management practices. Then they can assist the appropriate management agency in setting up an equitable allocation system.

C. Planning and implementation should include the interests of both the recreational and commercial fishing sectors.

Though often in conflict, the recreational and commercial fishing sectors have the opportunity to work together on many issues. Resource managers, federal and state fishery management agencies, and the private sector must realize the commonalities of these two interests and incorporate each group's desires and needs.

The planning process, whether for the development of a fishery management plan or in the initial design phases of a harbor waterfront development, should incorporate both interest groups. Specifically, both sectors should be given the opportunity to express their opinions, desires and needs. As a result, future conflict may be avoided or at least reduced. In turn, both sectors could benefit from any actions taken.

For example, waterfront revitalization is very popular in America's major coastal urban centers. Any new development should strive to benefit both the recreational and commercial fishing sector interests. Recreational fishermen probably would desire marinas for private boats and charter and party boats, piers for public access, and boat launching ramps. At the same time, the commercial sector would want access to the water through marinas suited to service their vessels. All of these can be developed within the confines of a harbor or waterfront area. It simply requires planning and coordination. In reality, the shore-based infrastructures for both sectors are extremely compatible. In many areas of the country, for example, the opportunity to see a commercial fishing fleet docked is a major attraction to tourists and other recreational users of the marine environment. It is then feasible to develop services and facilities for the tourist population close to the commercial fishing area including seafood markets and restaurants, retail shops and stores, parks and fishing piers.

Everyone involved in the planning process must realize the commonalities which exist between the two fishing sectors. Only then can a viable, workable plan be developed which will address the interests of all.

Possibly, it would be best to begin this cooperative effort on projects which are easily identifiable as benefits to both groups. In particular, habitat issues such as artificial reef development should be examined. Not only does the creation of new habitat benefit both sectors from the perspective of increased fishery productivity, but artificial reefs can also serve as a means of conflict resolution. The strategic placement of artificial reefs can provide separate and distinct areas in which recreational and commercial fishermen can fish.

An interesting example of one of the many relationships which exist between the recreational and commercial fishing sectors can be found in San Diego, Calif. Here, a unique service is provided by a custom canning operation. Recreational tuna fishermen returning from a day (or even longer) trip on a party/head boat can avoid cleaning and packing their catch. Instead, the custom canner allows anglers to trade their whole, uncleaned tuna for canned tuna. A small fee is charged, but the angler "profits" by having a convenient way to keep and transport his catch without the problems associated with cleaning the catch or disposing of unwanted fish. Many tourist anglers are not equipped to conveniently transport their catch home, particularly if it is filleted and packed in ice. Canned tuna either can be transported by the angler or shipped home. The custom canning operation benefits by making use of existing cannery facilities and by making a profit for its service to anglers. In the end, both sectors benefit (Lengel, 1978).

Another interesting relationship, similar to the custom canning example, involves the selling of fish caught by anglers on party and charter boats. Depending upon the state, charter and party boat captains often serve as a first handler of food fishes caught during their operations. When the client has more fish than desired, it is common for a captain to buy, accept as a gift or as a negotiated part of the charter, the excess fish and later sell it at a profit to a local fish market or restaurant.

This relationship is not as simple as it seems though. Some states prohibit the sale of fish by recreational fishermen. Others allow it if the appropriate commercial fishing license is purchased. In those states which prohibit the sale of recreational catch, it is possible, though illegal, for the charter or party boat captain to purchase his customer's catch and then sell it to a seafood market or processor, assuming the captain has the necessary commercial fishing license. Quite often, charter captains will be both commercial fishermen and charter operators on a part-time basis.

An argument in favor of allowing the sale of recreationally caught fish by a charter/party boat captain is that of providing an additional source of income to the charter/party boat operation which should assist in keeping the price down for the charter or party boat customers. Alternatively, the legal (or illegal) sale of recreationally caught fish could be viewed as the introduction of additional fish products into the commercial market. Improper handling may also result in an inferior product being introduced into the market which reflects negatively on the retail seafood markets and restaurants.

Though an opportunity may exist which would seemingly benefit both sectors, it is possible that, in the long run, one sector would be affected

adversely. Therefore, it is imperative that both sectors be involved in the planning process in order to incorporate the ideas of individuals knowledgeable about their respective businesses.

Implementation may be even more important, than the planning phase. Throughout the development process, the recreational and commercial fishing sectors must be involved. Decisions and management plans which benefit both sectors should be given priority over those which aid only one sector and add to the growing rift between the recreational and commercial fishing interests.

D. Organization and cooperation between the recreational and commercial fishing sectors is essential.

When possible, recreational and commercial fishing interests should work together for the benefit of both groups. Once the commonalities between the two are recognized, mechanisms for cooperation and coordination need to be developed. Together, these two sectors can accomplish a great deal to the benefit of both.

An example of the two sectors working together occurred recently in the northeastern United States with the proposed development of oil and gas on Georges Bank, off the coast of Massachusetts. Recreational and commercial fishing interests in cooperation with tourism interests managed to twice delay the Georges Bank oil and gas lease sale (OCS Sale No. 42) by court action until assurances could be made by the petroleum industry which would result in the safe and relatively harmless development of Georges Bank. The fishery resource which supports considerable recreational, commercial and tourism activity was the central issue. Specifically, Georges Bank is an area of spawning grounds for many important recreational and commercial species -- particularly, cod and haddock. Together, these interest groups could effectively confront and work with the petroleum industry.

4.0 THE ROLE OF FISHING ON TOURISM

4.1 Introduction

Since World War II, the expanding role of leisure has produced a significant increase in travel and tourism activity at the national and international level. Because more economic benefits may accrue from tourism than from many other capital intensive industries, tourism is emerging as a major element of economic development at the local, regional, state, and national levels.

Travel and tourism, if viewed as a single retail industry, was the second largest retail industry in 1981, in terms of business receipts, after food stores. U.S. and foreign travelers spent $191 billion in the United States during 1981, an eleven percent increase over 1980. Further, travel spending in America directly generated 4.6 million in jobs in 1981, paying $40 billion in wages and salaries and producing $18 billion in federal, state and local tax revenue (U.S. Travel Data Center 1982: 6-13).

To understand what these figures represent, it is necessary to define some terms. The tourism industry is composed of those businesses that provide services for tourists. Unlike many other industries [but like the MRF industry], the tourism industry delivers a highly diverse product through the efforts of other recognized industries, i.e., transportation, food and lodging, and entertainment. Each of these industries has clientele other than tourists (and the contribution of tourists cannot be parcelled out). As a consequence, tourism is somewhat of a synthetic industry. Many of its component businesses do not recognize their dependence on tourism since visitors are indistinguishable from other customers.

Using the definition advanced by the U.S. National Tourism Resources Review Commission (1973), travel refers to trips of 50 one-way miles or more for any purpose except commuting to and from work. Although the term "tourism" often is used loosely to refer to travel for pleasure only, this is not supported by a relevant data base. There is general agreement that tourism is a synonym for travel away from home and thus points to the dichotomy between tourism-type travel and local traffic and activity. Therefore, marine recreational fishermen contribute travel and tourism expenditures to the degree that they travel at least 50 miles from home for the sole purpose of fishing. Unfortunately, it is not known what proportion of the travel expenditures reported by the U.S. Travel Data Center can be attributed to outdoor recreation in general, or MRF in particular. Nationally, MRF has important ties to and is a part of the travel and tourism industry. Locally, the role that MRF plays in the economy and the extent of expenditure by local residents, in relation to tourists, can be determined through survey research (Falk et al., 1981 and Ditton et al., 1980).

When travelers are away from home, they impact a variety of different of business. They purchase gasoline, food, lodging, recreational goods and services, entertainment, public transportation and other incidental goods and services. The U.S. Travel Data Center has developed "a spectrum of types of U.S. businesses based on their dependence on traveler expenditures for business receipts" (more than one-third of their total sales receipts). These include intercity bus, rail and air passage carriers; eating and

drinking places; hotels, motels and motor hotels; campgrounds and transient trailer parks; car rental firms; and amusement and recreation services (U.S. Travel Data Center 1982: 2).

Up to now, we have discussed the variety of businesses that compose the travel and tourism industry. Gunn (1979) and Blank et al. (1978) have provided conceptual views of the tourism system in terms of its functional components to demonstrate the interdependencies of the various components and to suggest the need for organizational and policy mechanisms to ensure that the system functions smoothly (Figures 4-1 and 4-2). The proposed tourism system provides a useful means for overcoming the fragmented approach to tourism which tends to overemphasize the mutual exclusivity of individual business components. As Gunn (1979) points out, without attractiveness to lure travelers, the hotels, airlines and advertising would not be needed. Alternately, there are situations where fishing is excellent but private investment is precarious because necessary support facilities are lacking in the community or because access to tourists is largely undeveloped. It appears that the functioning of MRF development is limited by that essential element of the tourism system or combination of elements to the least favorable extent (after Odum, 1959).

What are the appropriate public and private sector roles in tourism? In the United States, tourism is primarily an economic activity in the private sector. This sector is responsible for initiating and developing the visitor industry and related facilities. State goverment has a much broader role; it seeks to protect the economic health and quality of tourism in order to achieve a visitor industry that continues to show steady growth. Interstate and out-of-country travel regulations are primary responsibilities of the federal government. In response to the National Tourism Policy Act (U.S. Congress, 1981), the federal government is attempting to improve coordination of the many federal programs and policies affecting tourism and assuming a more active role in visitor promotion to the United States. The federal government is interested in getting more foreign travelers to visit the United States and to impact our economy. Sport fishing is one of many suitable attractions.

Unfortunately, it is impossible to determine how many international air travelers went fishing when they visited the United States. The U.S. Travel and Tourism Administration conducts a survey of foreign visitors to collect standard socio-economic information and to prove their visitation to national parks but there is no way to know which activities they participated in or what their vacation/recreation motivations were.

In 1981, 23 million foreign visitors came to the United States and spent approximately $12.2 billion. In addition to supporting 320 thousand jobs, more than $1.1 billion was generated for federal, state and local governments in tax revenue (U.S. Travel Data Center, 1982: 28-29). In 1980, for the first time, there was a surplus in our international travel accounts as foreign visitors spent more here than U.S. visitors spent in other countries. The top seven countries of origin for foreign visitors to the U.S. (in descending order) were Canada, Mexico, United Kingdom, Japan, West Germany, Venezuela and France. Visitors from Canada made up nearly half of our foreign visitors.

In addition to foreign visitors, Americans traveled extensively in their own country. The U.S. Travel Data Center estimated Americans made 1.1 billion person-trips to U.S. destinations 100 miles or more away from home in 1981. This includes all kinds of travel away from home, not just recreational travel. The southern region was the most popular regional destination with approximately one quarter of all U.S. trips. However, in terms of the regional economic impact of travel and tourism, the far West outpaced the South in terms of U.S. and foreign visitor spending in 1980 (U.S. Travel Data Center, 1982: 37-40). It would be useful to link domestic tourism and travel expenditures and impacts with those related to MRF (Centaur Management Consultants, Inc., 1977). This is not possible, however, since U.S. travel and tourism data cannot be attributed specifically to fishing and because economic impact findings presented by Centaur do not differentiate between expenditures of tourists and local residents. To date, MRF interests have been interested only in the extent of total expenditure. In the future, it may be important to understand the extent of fishing activity and related expenditure for both groups so that further ties can be made with the travel and tourism industry.

Studies by the U.S. Travel Data Center show that travel and tourism generates more jobs than any other private industry in 12 states and is among the top three private employers in 35 states (U.S. Travel Data Center, 1982: 40). In no state does travel rank lower than ninth among the 69 private sector industries studied. Besides jobs there are other concerns in tourism development such as promotion, physical development and community relations. For example, the Hawaii State Tourism Plan (1982) contains policies concerned with 1) tourism marketing and promotion, 2) industry awareness of the social, economic and physical needs and aspirations of local people, 3) quality improvement of visitor destination areas, 4) public and private sector cooperation in tourism development, 5) planned tourism development sensitive to neighboring communities, 6) steady employment, 7) job training and education for upward mobility in the visitor industry, and 8) informing residents. Following on these points, no discussion of travel and tourism would be complete without a review and understanding of the benefits and costs of tourism development (Stough and Feldman, 1982) (Table 4-1).

Finally, the need to guide tourism development should be clear. MRF is a significant attraction in the coastal travel and tourism system. Although we are unable to quantify this significance, (i.e., how much of a state's travel and tourism revenues are derived from marine recreational fisheries), we know that it is an important part of coastal travel and tourism. Instead of devoting time to understanding the extent of tourism expenditure that can be attributed to recreational fishing, it is more important that we recognize that two major industries (tourism and marine recreational fisheries) are involved in an interdependent fashion and that we use an understanding of the tourism system to make sure that all components work smoothly to produce economic benefits.

4.2 Findings

A. It all starts with the potential for good fishing.

Almost all communities feel that they have attractions upon which to build a tourism industry. Unfortunately, this is not so. Every community does not have a significant attraction. But, man-made attractions can be brought to any community.

When examining the MRF/tourism potential of a community, one of the most important concerns is, of course, the fish. Without fish, an area is not going to attract fishermen. Thus, it is imperative that a community ascertain whether or not a viable recreational fishery resource exists and is accessible. If not, there is no point in developing the rest of the tourism infrastructure such as hotels and restaurants -- unless, other natural or man-made attractions exist in the area. In this case, the development of a tourism industry would center around developing attractions rather than a fishery.

When business leaders or government leaders begin to examine the tourism potential of their community, they often neglect the desires of the local residents. In some areas, community residents may welcome tourists with open arms; in other communities they would rather not have strangers in town. For a tourism industry to be strong, whether based upon fishing or some other attraction, it is imperative that the tourists have satisfying experiences. Unfriendly residents can quickly turn a good vacation trip into an undesireable experience. And if a tourist or his family does not have an enjoyable experience, it is almost certain that they will not return. With the family goes their potential expenditures in the community. In addition, tourism and vacation areas rely heavily on word-of-mouth advertising. Word of a bad experience travels quickly.

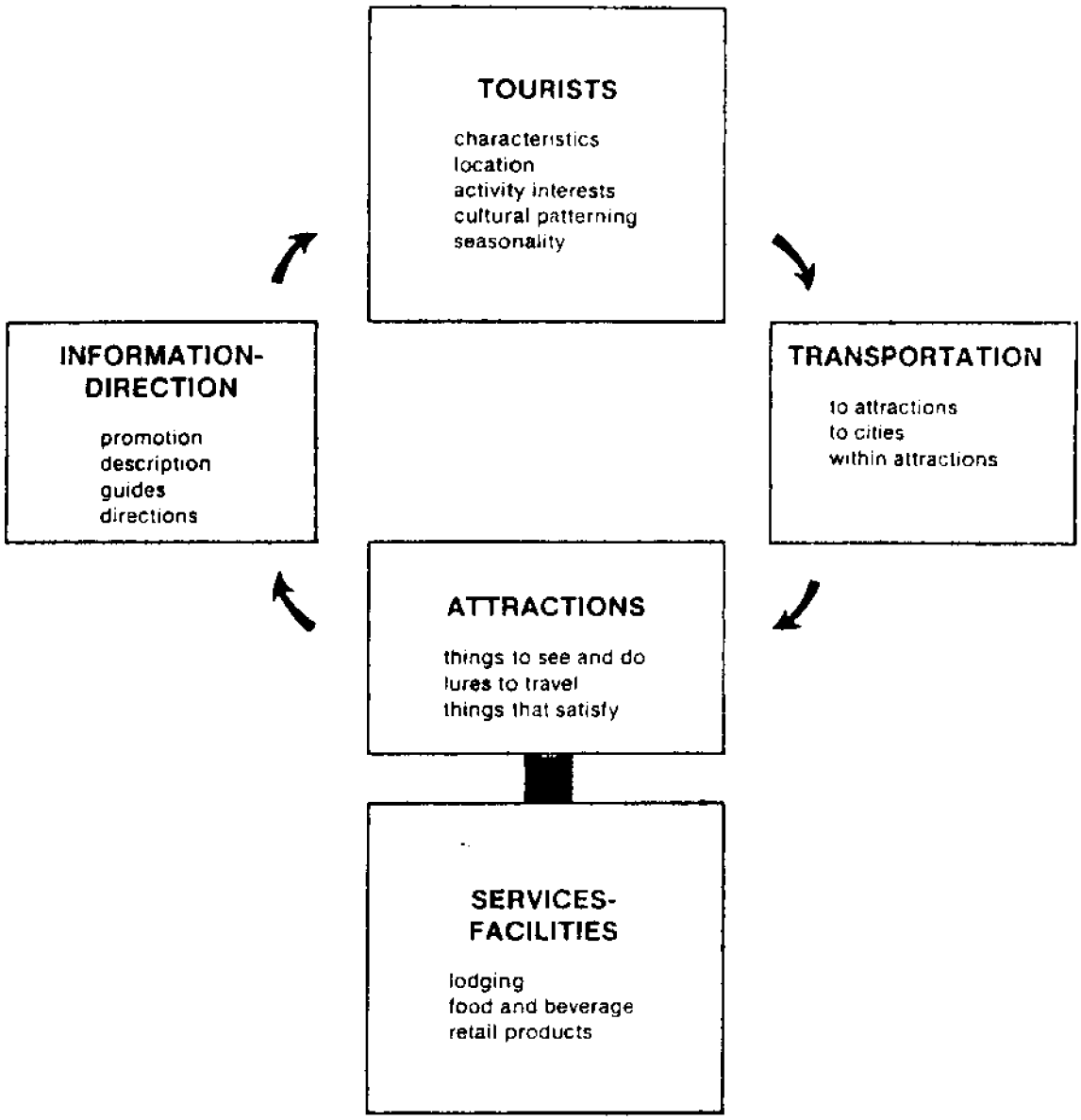
B. Fishery resources must be available and accessible.

Before a coastal community decides whether or not to develop a tourism industry based upon recreational fishing, a determination must be made as to which fish species, if any, are available to recreational fishermen.

MRF development requires a careful determination of the area's target fisheries that will produce a sustained yield of fishing opportunities and continuing support for the MRF industry, and infrastructure that might develop. The status of the area's fisheries stocks must be carefully evaluated. Which species have potential for development? (See Appendix A). Are adequate recreational species available for an expanded MRF industry? If so, how renewable is the resource? How much fishing pressure will the resource support?

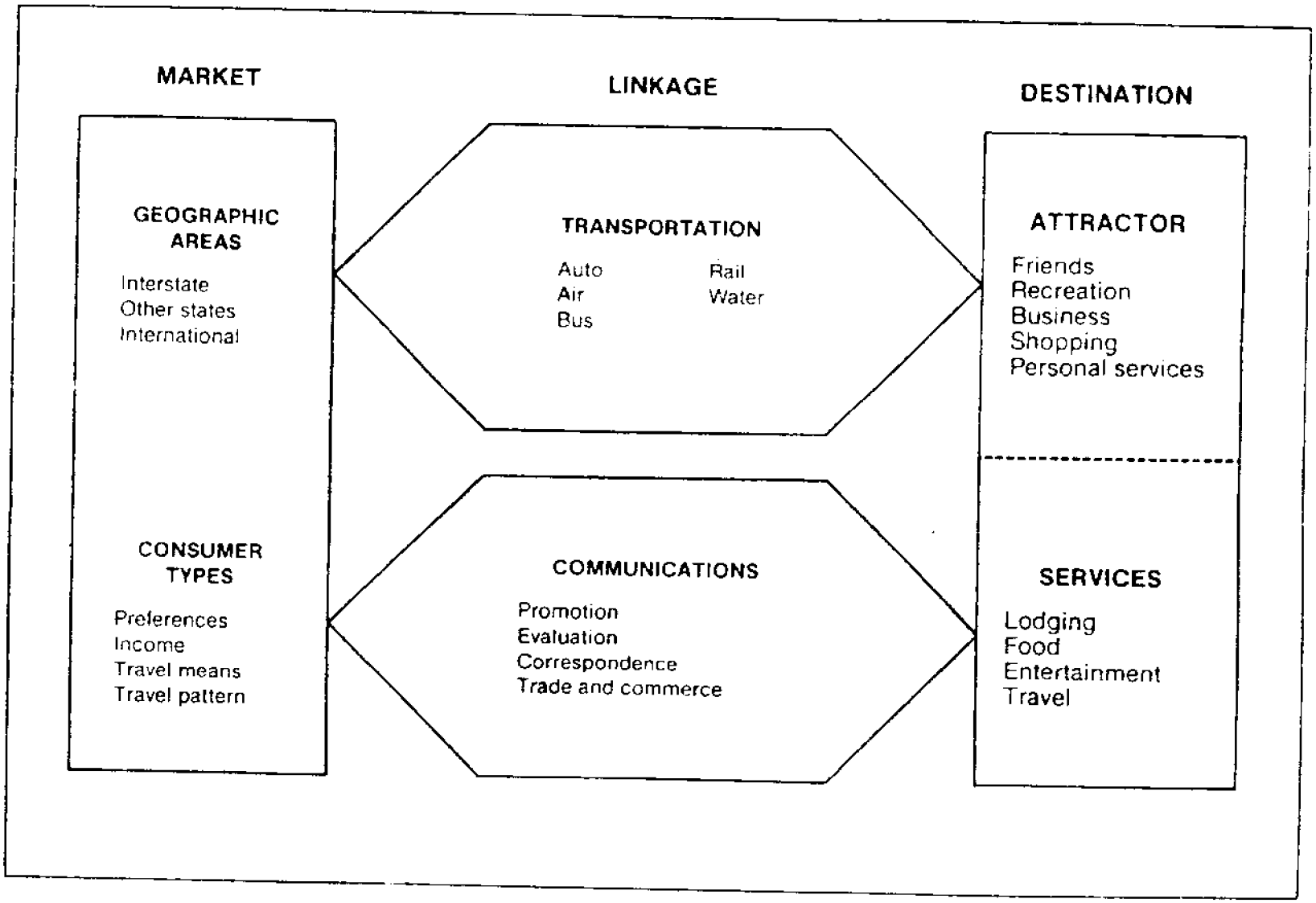
Use of the fishery resource by other user groups must be examined also. In particular, which resources are harvested by commercial fishermen? If the resource is utilized by both sectors of the fishing industry, are existing and developing fishery management programs providing for equitable allocations of the resource to the two user groups?

Figure 4-1. The Tourism Functional System



Source: Clare A. Gunn, Tourism Planning, 1979, p. 36, by permission of the author.

Figure 4-2. Overall Tourism System



Source: Blank et. al. 1978.

Table 4-1

Major Tourism Impacts at the Local and Regional Levels

	Benefits		Costs
1.	Source of Employment	1.	Most jobs are low paying
2.	Souce of Income	2.	Much of the return on tourism investment may be leaked out of local economy
3.	Source of tax revenue	3.	Seasonal-may frequently be a high risk industry
4.	May diversify economic base	4.	Competition for services between local and outsiders especially where seasonally is a factor
5.	Expands amenity availability	5.	Increased land values for local residents may stress locals especially those fixed incomes
6.	May make area more visible	6.	Tourists may disproportionately service demands due to water, air and noise pollution
		7.	Encroachment on private property
		8.	Erosion of host community culture
		9.	Ecological demands, e.g., lowering availability of water in coastal areas due to draw down on ground water

Source: Stough, R.R. and M. Feldman, 1982.

If the fishery resource is available to anglers, then the accessibility of these stocks must be identified. Where is the resource? Does it exist in the state's territorial sea, the fishery conservation zone or in international waters? The distance anglers must travel over water to pursue certain species will affect the type of MRF/tourism development a community can expect. Nearshore species can support fisheries from piers and small boats, both private and rentals. The pursuit of fishery stocks further offshore requires more specialized boats and equipment. These fisheries can also support a viable charter and party boat industry. Equally important is the notion of when the resource is available. Are the recreationally targeted species available only seasonally or can they accommodate additional pressure year-round?

Naturally, the available resources must be species which are desired by recreational fishermen. If not, educational and informational programs may be necessary to change the biases or preferences of the anglers. Information on how, when and where to catch the non-traditional species is often all that is necessary to create initial demand and interest.

The long range viability of the resource must be considered. What will be the effect of increased MRF activity on fish stocks and fishery management programs? Management programs must be implemented which will ensure the long-term health of the fishery stocks and provide for the equitable allocation of the stocks between various user groups.

C. Two of the major ingredients of MRF/tourism development are people and support facilites and services.

As mentioned in the introduction, Gunn has proposed a model of the tourism system, comprised of five components. Each of these components are related to the others and each is necessary to have a viable tourism industry.

With regards to the MRF/tourism industry, it is simply not enough to have an available fishery resource. In order to attract fishermen, i.e. tourists, the desires and needs of the angler must be met. In particular, an infrastructure must be in place (or developed) which provides facilities and services such as lodging, food services, charter and party boat services, bait and tackle shops, gas and oil, etc. Without the support infrastructure, a community's MRF/tourism industry will be essentially non-existent.

As mentioned earlier, the state of Louisiana is a good example of this situation. Offshore there is a strong fishery for many recreationally important species. In particular, excellent fishing opportunities abound around the 3,000 plus oil and gas platforms in the state's territorial sea and the adjacent fishery conservation zone. However, the land-based infrastructure to support a MRF/tourism industry remains underdeveloped.

As the cost of offshore fishing has increased, development of inshore (bayous and marshes) fishing opportunities have taken place. In 1973 Stu Sheer opened the Sportsman's Paradise Charter Service in Cocodrie, La. Sheer's idea was directed at the average person who could no longer afford the investment in equipment, maintenance and time, involved with fishing on

a regular basis. He provided those people with an opportunity to pay $40 to $60 for a full day of speckled trout and redfish fishing. Today, Sheer runs six to seven boats, books 600 trips per year and is considered to be a successful inshore charter fishermen. His idea has caught on and created a whole new industry. In a recent article in the New Orleans Times-Picayune/The States-Item, outdoor writer Bob Marshall lists 12 such inshore charter operations that provide access for redfish-speckled trout fishermen in the New Orleans region. Although these charter sources are a move in the right direction in overcoming access problems for some, the land-based infrastructure to support the MRF/tourism industry remains underdeveloped. A few efforts to provide direct access from the New Orleans metropolitan area have been developed. These involve fishing packages that include a seaplane flight from the New Orleans area to the Chandeleur Islands for a full day of fishing or an overnight stay on a houseboat. With the upcoming World Exposition in New Orleans in 1984, fishing packages which include access by air may be the only practical way visiting fishermen can be induced to the Lousiana coast. Because of the extensive wetlands, coastal access by air is one way that the lack of MRF support facilities and services can be overcome. This "solution," however, will price a lot of fishermen out of their favorite activity.

In Louisiana there is a great potential for a large and economically beneficial MRF/tourism industry. At present, almost all recreational fishing is done by private boat by state residents who often make only one-day trips. The fine fishing opportunities serve as an attraction to anglers from all over the country and even the world; however, without the desired services and facilities, few anglers/visitors will come to the area. As a result, Louisiana will continue to lose a significant amount of economic benefit.

Similarly, the town of Wachapreague, Va., is known for its excellent fishing. Located on Virginia's Eastern Shore, this fishing area is close to major population centers including Ocean City, Md., and Washington, D.C. However, little infrastructure has been developed to service the needs of the recreational fishermen. On the other hand, Ocean City, just north of Wachapreague, has developed a sizeable MRF/tourism infrastructure providing just about any service or facility a fisherman or other tourist could desire.

It appears that Ocean City's success may be due to its closer proximity to major population centers including Washington, D.C., Wilmington, Del., and Philadelphia. As Gunn has pointed out, people or tourists are an important component of the tourism system. Thus, not only must an area have the fishery resource and suitable support infrastructure, but also there must be an adequate supply of anglers/tourists to support a viable industry. Most of these people will be close by but fishermen can be attracted from other communities, states and nations.

D. Coordination must exist between a state's natural resources department and its tourism agency.

Within a state, there are often three agencies involved, in varying degrees, with MRF and tourism development. All states have an agency which manages the fishery resource. Several states also have agencies which are

involved in fisheries development activities such as the creation of artificial reefs or the construction of boat launching ramps. In other states, both the management and development responsibilities fall under the jurisdiction of the fishery management agency. In addition, all states have a tourism agency. Such an agency has the sole objective of promoting the state's tourist attractions. Often, tourism agencies will be a branch or entity within the state's department of economic development. Clearly, state tourism agencies exist to induce visitors into the state and to spend money during their visit.

Traditionally, the tourism agency has not communicated with the fishery agency and vice versa. These agencies will typically be two different and distinct bureaucratic entities lacking the formal structure and procedures to regularly interact and coordinate with each other. More than once, this lack of communication has resulted in a significant negative impact on a fishery resource. For example, a tourism agency promoted a recreational fishery which was already stressed or over-exploited. The result was increased pressure on the resource which severly threatened its existence. Anglers induced to fish the area were unsuccessful for the most part and thus, returned home dissatisfied. A dissatisfied visitor can negatively impact a state's image as a favorable tourism destination.

The above example is easily avoided if communication exists between the appropriate agencies and the private sector. The fishery management agency should have a relatively good idea of the health of various fish stocks in an area. In additon, managers can provide information about the seasonality of the fisheries, which harvesting locations are best, and which harvesting methods tend to be the most successful. Fishery development agencies, if separate from the management agency, can provide information relative to the location and services provided by public and private marinas, the location and capacity of boat launching ramps, and often information on the charter and party boat industry of the state.

It should then be incumbent upon the tourism agency to synthesize the available information and direct its promotional activities accordingly. In particular, a tourism agency can assist the fishery management agency (not to mention the fishery resources) in directing angling effort, both domestic and tourist, away from any over-pressured species and toward underutilized or often overlooked species.

Communication with the private sector should be a regular activity of these agencies as well. A periodic survey of the tourism infrastructure of facilities and services available to the fisherman/visitor are necessary in order to ensure that once an angler has been attracted to visit an area, his desires and needs will be fulfilled. A canvas of the area's charter and party boats will generally provide a good perspective as to which species have potential for development. However, it is imperative that the fishery management agency evaluate these recommendatons on the basis of known stock sizes and the general health of the fishery populations.

Acting in unison, these agencies, with the cooperation of the private sector, can aid in the development of a MRF/tourism industry and ensure its health for many years. A good example of this type of beneficial cooperation can be found in the state of Florida. Coordination and cooperation

among the Florida Department of Natural Resources, the Florida Sea Grant College Program, the National Marine Fisheries Service, local governments and various private interests such as sport fishing clubs has resulted in an active artificial reef development program.

E. Fishermen spend money and power the tourism system.

As Gunn pointed out, "...without people who possess the interest and ability to travel for pleasure and to spend money doing it, by definition, there is no tourism." Luckily, quite a few fishermen exist. In fact, the 1980 National Survey of Hunting, Fishing, and Wildlife - Associated Recreation indicates that 12.3 million people participated in marine recreational fishing during 1980. And these anglers spent an estimated $2.4 billion while pursuing their sport. Obviously, all fishermen are not tourists. However, the 1980 survey does estimate that approximately 3.9 million saltwater fishermen fished in states other than those in which they reside.

The survey indicates that, on the average, a saltwater angler fished about 12 days and spent approximately $200 in 1980. Simple division renders a daily expenditure figure of about $16. The largest portion (38 percent) of the fisherman's expenses were incurred for food and lodging: about $61.28 and $15.26, respectively. Transportation expenses amounted to a total of $50.45 per fisherman with the majority ($44.60) being spent for private transportation. Total sales of fishing equipment used primarily in saltwater amounted to approximately $509 million in total sales, which breaks down to about $42.07 per angler. Additionally, monies were spent by saltwater fishermen for privilege and guide fees, licenses and permits, and auxiliary equipment.

These direct expenditures are then respent in the community, increasing the area's basic income. Expenditures made within the community by nonresidents can result in a substantial increase in the economic base of a region (Daniel, 1974). This money spent by visitors can be considered new money to the community and thus, an economic impact results.

The respending, or multiplier effect, not only affects the amount of money a community may realize, but it also is directly tied to employment and salaries and wages. Using data on the Lake Michigan fishery, the Niagara County Fisheries Development Study (1982) found that the sport fishery supports one job for every $27,450 spent by fishermen. Thus, the study projected that if $2.6 million results to the county from increased recreational fishing activity each year, then over 90 jobs may be attributed to the sport fishery.

Clearly, recreational fisheries can positively impact a community's finances. However, it should be noted that costs are involved as well. Thus, when a community desires to enhance its MRF/tourism industry, it must examine the potential costs as well as the benefits.

5.0 CONSTRAINTS TO DEVELOPMENT AND STRATEGIES TO OVERCOME THOSE CONSTRAINTS

5.1 The System.

The major constraint to development of the MRF industry is the industry's lack of a system perspective and recognition of constituent business components.

To overcome this impediment, it is necessary for organizations such as local chambers of commerce to inform the businesses in their area of how the overall system works and to demonstrate the role of each business component within the system. To do so, a service organization like the chamber of commerce needs to have the relevant support data and information to demonstrate this point. Information should be collected and disseminated which presents the overall status of the tourism industry. Included here would be estimates of the number of fishermen/tourists who presently visit the area, the expenditures they make, the activities they pursue, and the positive and negative impacts, that the visitors have on the business community.

In addition to the role of an information disseminator, a chamber of commerce, or like organization, should act as a coordinator, bringing together the various components of the system and encouraging these separate entities to work together in support of local and regional development goals.

5.2 The Tourism Functional System.

Throughout this report, we have addressed MRF development with regard to the tourism system. The tourism functional system as proposed by Gunn (1979) was discussed in Section 4.0. It seems appropriate that this chapter on constraints to development and strategies that can be used to overcome those constraints should follow the framework of Gunn's model. Specifically, each of the five component parts of the model will be dealt with: tourists, information-direction, attractions, services and facilities, and transportation.

A. Tourists.

Constraint: Inadequate understanding of marine recreational fishermen/tourists.

Much information exists on marine recreational fishermen and tourists. Unfortunately, most of it is scattered throughout the public and private sector. Before development activities begin, it is imperative to know as much as possible about fishermen/tourists. With this "marketing" information in hand, it will be possible to plan which facilities and services are needed and desired by the target population: fishermen/tourists.

Strategies:

1. Utilize all available information to produce "market studies" on the various segments of the angling population. Do not assume that

all anglers are the same or that an "average" marine recreational fisherman exists.

By focusing upon a certain segment of the fishing population, the support industry can better meet the specific needs and desires of that segment rather than trying to create an experience which can be enjoyed by all. For example, charter boat operations could identify the major businesses in an area. And then they could offer special package deals to the prospective business customers.

Information contained in studies such as the U.S. Fish and Wildlife Service's 1980 Survey of Hunting, Fishing and Wildlife-Associated Recreation and the National Marine Fisheries Service's MRF statistics series should be further analyzed by the appropriate governmental agencies, both federal and state, to support MRF development issues and opportunities. In particular, data relative to anglers' socio-economic characteristics and recreational harvest should be examined.

2. Federal and state fishery agencies should collect relevant socio-economic and harvest data on MRF. Descriptive information on the who, what, when, where and how of fishing (domestic and tourist) can be particlarly useful to developmental planning efforts. For example, data may indicate that professional and business persons are attracted to a certain area. If so, efforts could then be directed to target descriptive tourism and fishing-related materials to professional groups, associations and publications. In addition, data on the socio-economic and harvest aspects of MRF are important considerations to lending institutions when they assess the potential risks of loaning capital to MRF businesses. Viable data is needed to facilitate financial lending in order to develop the necessary support infrastructure.

3. Develop a stronger data base on international visitors to the United States. There needs to be a greater emphasis on data collection relative to the activities and expenditures of foreign visitors during their stay in the United States, whether it be for business or pleasure.

   Data collection of this type is best handled through in-flight surveys on trans-oceanic airline flights such as the survey that the U.S. Travel and Tourism Administration (U.S. Department of Commerce) presently administers. Data is already collected on the visitors activities in our national parks. Why not expand the survey in order to obtain information regarding the recreational fishing activities and desires of the international visitor?

Constraint: Anglers have definite biases as to which fish species are desirable.

Strategies:

1. Educate anglers about other species available to them. This can be done through promotional materials such as booklets and fliers.

Tournaments, particularly the year-long events sponsored by individual states, can promote underutilized species by encouraging anglers to fish for the smaller fish species with light tackle. Thus, even though the fish may not be as large as traditional game species, the challenge of catching a fish will still be present.

2. Provide fishing guides and maps which tell anglers when, where and how to fish for these less pressured species.

B. Information - Direction.

Constraint: Lack of adequate information on MRF opportunities available to the fishing public.

Overall, one of the greatest constraints to MRF development is the simple lack of adequate information on available recreational fishing opportunities including how, when and where to fish. The information is in existence, although fragmented, but there have been few attempts to assemble and integrate this data to produce useable information guides.

Strategies:

1. Assemble all available information relative to where to fish, how to fish, services and facilities for anglers, recreational activities available to non-fishing family members, etc.

2. Package information with specific users in mind. Design packages which address the needs of the avid fishermen as well as the family which intends to fish once or twice during their vacation. Information packages should be provided directly to the fishermen and contain information on the services and facilities which are available to them.

3. Recognize the size and complexity of the tourism system and overcome it through packaging of information. Information should be packaged and disseminated to specific market segments of the angling population. Information packages should include information relative not only to the fishing opportunities but also on the other components of the system such as hotels, restaurants, fishing guides, charter boat services and campgrounds.

4. Most of the needed information has been collected and is available. Much has been collected by federal and state government agencies. Beyond data collection and publishing reports and brochures, more attention needs to be directed to how the information is disseminated. The public sector could distribute some information, particularly on how and when to fish. The Sea Grant Marine Advisory Services in the coastal states are well suited for this role. Other information such as where to fish, where to stay overnight, and where to eat and drink is best disseminated by the private sector. Many of the services and facilities available to anglers need to be better advertised, possibly focusing upon a certain segment of the angler population.

5. More well conceived and focused information guides need to be developed and distributed. Included here are how to fish guides, how to handle one's catch guides, cookbooks, and guides and maps which delineate major access points, services and facilities available to recreational fishermen.

C. Attractions.

Constraint: In areas where the fishery resource is depleted, fishing is poor.

Some fisheries along our nation's coast have declined over the years because of many factors including, but not limited to, overharvesting, pollution and the loss of habitat. On the east coast, populations of striped bass are severely reduced. In Texas, the red drum resource is at a low level.

Without the fishery resource, an area will not be attractive to fishermen. Thus, areas which once had the resource must act quickly to bring back the fish populations to an acceptable level.

Strategies:

1. Undertake habitat enhancement and improvement programs. In particular, artificial reefs can create and improve spawning substrate, increase fish production and increase species diversity.

   In some areas, innovative techniques of wetlands replenishment and creation may be applicable.

2. Introduce fish species which are not endemic to an area. Commonly known as "exotic" species, certain fish can quickly adapt to an area and its environment. Quick growth of the population usually results which provides many recreational fishing opportunities.

3. Examine the feasibility of using hatchery operations to improve or maintain recreational fishery populations. Assistance may be given to game species or other species upon which desirable game fish feed.

4. Manage game species and those with potential for recreational development to minimize the problem of fishery reduction or depletion. The pressure placed on fishery stocks by recreational and commercial fishing sectors must be regulated through accepted fishery management practices to ensure long-term viable fishery populations.

5. Management philosophies and practices must be cognizant of development opportunities. Previously, development was seen as little more than "promotion" of particular species. Managers need to develop an appreciation for how development problems and opportunities fit into the existing managerial framework.

6. Fishery management agencies must use their data bases to work with and guide private sector initiatives. Rather than reacting to development activities of the private sector, management should be involved from the beginning in all MRF development initiatives.

D. Services and Facilities.

Constraint: An inadequate or complete lack of facilities and services in some areas.

In some areas where there is a good fishery resource upon which to base a MRF/tourism industry, there is an inadequate supply of the facilities and services which anglers/tourists desire and need. In other locations these facilities and services are nonexistent. Without the proper support infrastructure, a viable MRF industry cannot exist.

Strategies:

1. Make businessmen and potential entrepreneurs aware of the financial assistance programs available to them. Many governmental agencies have loan and loan subsidy programs which can be used to start or expand businesses involved in the MRF industry. Of particular interest are the programs administered by the National Marine Fisheries Service: Fishing Vessel Obligation Guarantee Program, Capital Construction Fund, Shoreside Facility Program, and the Saltonstall-Kennedy Fishery Development Grant Program.

2. Diversify facilities and services. For example, a marina complex could include a marina, restaurant, bar, retail shops and a fishing pier. All of the businesses need not be owned by one individual or entity, but the close association (physical location) will be an attraction to anglers/tourists.

   The idea of having everything in one locale overcomes the problem of the functional tourism system. Here, the system is complete, providing most, if not all, the desires and needs of anglers.

Constraint: Inadequate information exists relative to the financial credibility of the MRF industry which makes it difficult for entrepreneurs to secure financial support.

There is a definite need to provide lending institutions with a good understanding of the MRF/tourism industry. Specifically, banks and other lenders have little data available to them upon which to base their decisions about whether or not to provide credit to MRF/tourism-related businesses. Generally, loans extended to these businesses are for short duration and have high interest rates. If the proper information could be collected which would demonstrate the financial status (or potential status) of these businesses, it is probable that lending institutions would provide more favorable loans.

Strategies:

1. Assemble all available financial information on the many varied businesses of the MRF industry. Some studies have been done on marinas, charter and party boats, and to a lesser extent, on fishing piers. Put this information into a format that is understandable and useable for lending institutions. For example, see Callaghan et al. (1979), which examines the marina industry and its financial structure and performance in Rhode Island.

2. Collect information relative to the financial character of MRF businesses. Information should be provided on the businesses' activities, capital expenditures, wages and salaries, returns on investment, expenses, etc. Examples of such include Ditton and Strang (1976), Ditton et al. (1978), Fernald et al. (1975), Goodwin and Stokes (1980), and Milon and Riddle (1982).

Constraint: The permitting process for the construction of various facilities.

To construct many of the facilities utilized by the MRF industry, such as marinas, fishing piers and artificial reefs, a permit or series of permits are required by federal and state agencies. To the novice businessman or developer, the process of applying for a permit can be a major obstacle to overcome, resulting in costs of both time and money, to the individual.

Strategies:

1. It is necessary for any developer or businessman to gain an in-depth understanding of the permitting process. Only then can he make it work for him. An understanding of the process itself is imperative, including knowledge of the many requirements of the permitting agency, the time schedule involved, and any costs which might be incurred. Also, a permit applicant must be familiar with the bureaucracy with which he must deal to obtain the desired permit.

   Anyone applying for a permit must get beyond the technical aspects and deal with the political realities of the process. For example, experience has shown the wisdom of meeting with interest groups and agencies in an effort to overcome difficulties before they become problems. If the process is not understood, a permit applicant may experience frustration, time delays and many costs.

Constraint: Institutional constraints such as laws and regulations.

In many states there are laws which regulate development in the coastal zone. Particularly, many states have claimed that beaches and certain wetland areas are public property. Therefore, it is difficult, if not impossible, to build certain facilities or provide various services in these areas.

Strategies:

1. It is imperative that anyone desiring to provide a service or facility be aware of all local, state, and federal laws which may impact his business. In many cases, a law may prohibit certain MRF development, i.e., the construction of marinas or fishing piers. In this situation, the businessman should be informed about how the prohibition is in the best interest of the public. If possible, the long-term effect, such as protection of a natural resource, should be made known to the businessman. And if possible, present the argument that this long-term effect will benefit his marine recreation business, assuming he is allowed to develop it elsewhere.

E. Transportation

Constraint: As a result of governmental deregulation of the transportation sector, some areas may not be serviced by airlines.

Recent deregulation of the airline industry by the Civil Aeronautics Board has resulted in the reduction or elimination of air travel to certain areas, particularly those with a low customer demand.

Strategies:

1. Create package deals which encompass all aspects of the tourism system. An operation could provide air travel to and from a resort area, hotel accommodations, food, and any other facility or service desired by the customer/angler. Rather than just recognizing that the system exists, go out and create a separate, albeit, small system which includes transportation.

2. Marine recreational fishing businesses could advertise with access in mind; that is, inform potential customers of the major highways and other roads and of any bus or ferry services available. Possibly, package deals could be arranged with the major bus companies.

Contraint: Lack of on-site (or local) access to certain fisheries.

Access is not only how a fisherman gets to the coastal region, but also how he gets to go fishing. Construction of access facilities such as piers or charter and party boats has been discussed in other sections with regard to financing and facility construction. They should also be examined in the context of providing a service to the angler.

Strategies:

1. Utilize the financial programs mentioned previously to assist in the construction or addition of certain private access facilities such as marinas, boat launching ramps, fishing piers, charter and party boats, and sport fishing barges.

2. In some areas of the country, access facilities such as marinas and fishing piers are provided by the state. Elsewhere, local government or the private sector provide them. For the private sector to do so, there must be potential profit to be made. States which cannot finance their own programs should encourage and assist the private industry in providing these much needed facilities. On state-owned lands, long-term, low-cost leases would be a good incentive for the private sector to develop needed MRF facilities.

3. Information must be disseminated as to which access points or services are available and where. An excellent example is the California Coastal Access Guide (California Coastal Commission, 1981) which not only lists and maps services and facilities like marinas, fishing piers and charter boats, but also provides major city bus routes and other mass transportation systems which will assist the public to travel to the coastal areas.

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APPENDIX A

ALTERNATE SPECIES OF MARINE FISH WITH RECREATIONAL FISHING POTENTIAL

Reliable data on commercial fishing have long been available and constitute an essential of any Fisheries Management Plan (FMP) regarding the harvest of particular species of marine fish. Data on individual species caught by marine recreational fishermen, however, have not been collected on a systematic or continuing basis at the national level. A systematic collection of survey data regarding saltwater fishing activities began in 1955 resulting in the publication of the first National Survey of Hunting and Fishing. Conducted every five years from 1955 to 1980, these surveys show a steady increase in the number of saltwater anglers from 4.6 million in 1955 to 12.3 million in 1980. Although these surveys reveal much about the expenditures, days fished, and distance traveled (among other characteristics) of saltwater anglers, the 1975 and 1980 surveys were the only ones to indicate specific species of marine fish targeted by the anglers. The species mentioned are primarily anadromous. In addition, two historic surveys are of value when examining MRF: The 1960 and 1970 Salt-Water Angling Surveys by Clark (n.d.) and Deuel (1973).

The increase in number of fishermen results in an increase in pressures placed on the traditionally fished stocks as well as an increase in potential conflicts between user groups. There is a need to look at alternate species with recreational potential to alleviate these pressures.

A recent study (May 1983) conducted by KCA Research, Inc. for the National Marine Fisheries Service, collected survey data on the socio-economic aspects of MRF. The study elaborates on the complex social and economic phenomenon inherent to MRF with the fish stocks as the vital central element. The reasons of "for the sport" and "to catch fish" were the most dominant in indicating avidity levels in the MRF activity. Also indicated in the survey was a large number of anglers who had no particular species in mind. This may be a function more of the number of different game-fish species available than of the anglers's preference. However, 60.5 percent of the anglers from the Atlantic, 44.7 percent from the Gulf, and 59.6 percent from the Pacific specified target species. People fishing for sport and to catch fish were more likely to specify a target species and fished more frequently than those who did not specify target species on all three coasts.

The anglers' commitment to a particular species was evaluated by means of a question about the fishermen's likelihood to fish for an alternate species if he were unable to fish for the target species. The results show a vast majority were very likely to fish for an alternate species.

The following tables were developed from survey data collected for several previous studies as well as from information obtained through personal contacts with fisheries professionals by Sport Fishing Institute staff. Table A-1 presents suggested non-traditional species with recreational potential by region in which they occur. The states within each region are as follows:

Northeast (NE) - Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Maryland, District of Columbia, and Virginia

Southeast (SE) - North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, and Texas

Southwest (SW) - California

Northwest (NW) - Washington and Oregon

Table A-2 lists traditional target species for the separate regions, following the same format as Table A-1. Several species appearing in Table A-1 as suggested alternate species also appear in Table A-2 as target species. These are marked with an asterisk (*) in Table A-1 and include: barracudas, sea basses, bluefish, black drum, mackerels and tunas, rockfish, scup and porgies, and snappers. The implication is that although these species may presently receive some attention as sport fish, they may have the potential for further development. It should be noted that Sharks and Rays, and Skates to a lesser degree, are generally considered as having good recreational potential on all coasts.

The numbers appearing within the matrices of Tables A-1 and A-2 correspond to the sources from which particular species were suggested for a given region. A complete citation for each numbered source is presented in Table A-3. The majority of individuals contacted (Table A-3: sources 6-14) see the need for greater information dissemination among anglers, particularly with regard to how, when and where to fish for the alternative species. The consensus among these sources is that information is needed not only on the recreational opportunities which exist but also on the proper handling and preparation of one's catch. Dissemination of information should be accomplished through the distribution of informational literature and the development and implementation of educational programs.

Table A-1.

Suggested Alternate Species of Marine Fish With Recreational Potential Listed By Region and Source of Suggestion

Common name	Scientific name	Region and Source[1] NE	SE	NW	SW
Barracudas*	Sphyraena spp.	2	2		
Basses, Sea*	Centropristis spp.	2	2		
Bluefish*	Pomatomus saltatrix	6	2,7		
Catfishes, Sea	Arius spp.		2		
Catfish, Gafftopsail	Bagre spp.		2,3		
Cod	Gadus spp.			8	
Croaker	Micropogonias spp.		2,7		
Cunner	Tautogolabrus spp.	2,3			
Dogfish	Squalus spp.	6			
Drum, Black*	Pogonias cromis	3	2,3		
Flounder	Pleuronectiformes	7	7	9,12	9,12
Goosefish	Lophius spp.	3			
Greenling*	Hexagramidae			8	
Grunts	Pomadasyidae		2		
Hake	Merluccius spp.			12	12
Halibut	Paralichthys spp.			9	9
Herring	Clupiedae	2	2		
Jacks	Carangidae		2		
Lingcod*	Ophiodon elongatus			14	
Mackerels and Tuna*	Scomber spp. and Scomberomorus spp.	2,7	2,3,7		
Mullet	Mugil spp.	7	7		
Perch, Sand	Diplectrum spp.	6	2		
Perch, Silver	Bairdiella spp.	6	2		
Pigfish	Orthopristis spp.	7	2,7		
Pollack	Gadidae	3		8,14	
Rockfish*	Sebastes spp.			3,9,8,14	3,9
Sanddab	Sardinops spp.			9,11	9,11
Salmon, Coho	Oncorhynchus spp.	6			
Scup/Porgies*	Stenotomus spp.	2			
Searobins	Triglidae	2,3	3		
Shad, American	Alosa sapidissima	6			
Sheepshead	Archosargus spp.		2		
Snappers*	Lutjanidae		2		
Sole, Butter	Isopsetta isolepis			11	11
Sole, English	Parophrys vetulus			9	
Sole, Petrale	Eopsetta jordani			11	11
Spadefish	Chaetodipterus spp.		2,5		
Tilefish	Lopholatilus spp.	3	3		
Toadfish	Opsanus spp.				
Tomcod	Microgadus spp.				
Triggerfish	Balistes spp. and Canthidermis spp.		3		

*Species which are presently considered target species but may have potential for further development.

[1]Numbers correspond to sources listed in Table A-3.

Table A-2.

Target Species By Region and Source.

Common name	Scientific name	Region and Source[1] NE	SE	NW	SW
Barracuda	Sphyraena spp.				8
Bass, Sea	Centropristis spp.	4		1	1
Bass, Striped	Morone saxatilis	3,4,1			
Bluefish	Pomatomus saltatrix	3,4,1	1		
Bonito	Sarda spp.	4			8
Cod	Gadus spp.	4		1	1
Drum,Black	Pogonias cromis	4			
Drum, Red	Sciaenops ocellata	4,1	3,1		
Flounder, Summer	Paralichthys spp.	3,4			
Flounder, Windowpane	Scophthalmus spp.	4			
Flounder, Winter	Pseudopleuronectes spp.	3,4,1			
Greenlings	Hexagramidae			8	
Hake, Siver	Merluccius bilinearis	4			
Hake, Squirrel	Urophycis chuss	4			
Herring	Clupeidae			1	1
Kingfish, Northern	Menticirrhus saxatilis	4			
Ling cod	Ophiodon elongatus			3,8	3
Mackerel	Scombridae				8
Mackerel, Atlantic	Scomber spp.	4,1			
Mackerel, King	Scomberomorus spp.	1	1		
Marlin, Striped	Tetrapturus audax				13
Pollock, Walleye	Theragra chalcogramma			1,8	1
Puffer, Northern	Sphoeroides maculatus	4			
Rockfish	Sebastes spp.			1,8	1
Salmon	Oncorhynchus spp.			1,8,3,14	1,3
Scup/Porgies	Sparidae	3,4,1			
Seaperch	Embiotocidae	4		3	3
Seatrout, Spotted	Cynoscian nebulosus	4	3,1		
Snapper	Lutjanidae		1		
Snapper, Red	Lutjanus campechanus	1	1		
Smelts	Osmeridae			1	1
Shark, Mako	Isurus oxyrinchus				13
Shark, Thesher	Alopias vulpinus				13
Swordfish	Xiphias gladius				13
Tuna, Bluefin	Thunnus thynnus	4			
Tunny, Little	Euthynnus alletteratus	4			
Tuna, Skipjack	Euthynnus pelamis	4			

[1]Numbers correspond to sources listed in Table A-3.

Table A-3.

Sources Suggesting Traditional and Alternate Species.

Number	Source
1.	KCA Rearch, Inc. "Socioeconomic Aspects of Marine Recreational Fishing." Prepared for NOAA/NMFS, contract no. 80-ABC-00152. May, 1983.
2.	NMFS. "Marine Recreational Fishery Statistics Survey, Atlantic and Gulf Coasts, 1979." Current Fishery Statistics, no. 8063. December, 1980.
3.	KCA Research, Inc. "Development of Strategies to Increase Utilization of Non-Preferred Species of Fish by Recreational Fishermen Based on Analysis of Expenditures, Willingness to Pay, and Trip Satisfaction," A proposal submitted to NMFS. April 1, 1983.
4.	Bruce L. Freeman, Administrator, Division of Marine Resources, Florida Department of Natural Resources. From testimony presented to the Subcommittee on Fisheries and Wildlife Conservation and the Environment, at Hearing on a National Artificial Reef Program. September 11, 1981.
5.	South Carolina Wildlife and Marine Resources Department, Marine Resources Division. "Evaluation and Development of Atlantic Spadefish (Chaetodipterus faber) as a Recreational Fishery off the South Carolina Coast." A proposal submited to NMFS. March 3, 1983.
6.	Thomas D. Morrisey, NMFS Regional Recreational Fisheries Coordinator, Northeast region, Gloucester, Massachusetts. Personal interview. November, 1982.
7.	Ronald L. Schmied, NMFS Regional Recreational Fisheries Coordinator, Southeast region, St. Petersburg, Florida. Personal interview. December, 1982.
8.	Jay J. C. Ginter, NMFS Regional Recreatonal Fisheries Coordinator, Southwest region, Terminal Island, California. Personal interview. November, 1982.
9.	Christopher M. Dewees, Marine Fisheries Specialist. Sea Grant Marine Advisory Program, University of California, Davis. Personal interview. February, 1983.
10.	Al Petrovich, Chief, Marine Resources, California Department of Fish and Game, Sacramento. Personal interview with representatives of Al Petrovich. February, 1983.

Table A-3.

Sources Suggesting Traditional and Alternate Species (Continued).

11. Russell G. Porter, West Coast Coordinator, Recreational Fisheries Survey, Pacific Marine Fisheries Commission, Portland, Oregon. Personal interview. February, 1983

12. Dr. Robert L. Stokes, Associate Professor, Institute for Marine Studies, University of Washington, Seattle. Personal interview. February, 1983.

13. James L. Squire, Fisheries Biologist, NMFS Regional Center, La Jolla, California. Personal interview. November, 1982.

14. Richard B. Thompson, NMFS Regional Recreational Fisheries Coordinator, Northwest region, Seattle, Washington. Personal interview. November, 1982.

15. Jeffrey C. Johnson and David C. Griffith. Perceptions and Preferences for Marine Life: A Study of Recreational Fishermen in the Southeast. UNC Sea Grant Publication, UNC-56-85-01. July, 1985.

APPENDIX B

ANNOTATED BIBLIOGRAPHY

The Marine Recreational Fishing Industry and Fisheries Development

Atlantic States Marine Fisheries Commission et al. 1977. Eastland fisheries survey--a report to the Congress, May.

In addition to fisheries management concerns, this report contains a number of recommendations relative to utilization and development which pertain to both commercial and recreational fisheries. These included port and harbor development, commercial passenger fishing vessels, and marine weather forecasting. Specifically, the report recognized that marine recreational fisheries contribute substantially to the nation's food supply, provides opportunity for millions of Americans to enjoy outdoor recreation opportunities and "support an important industry which generates an estimated $2.7 billion in primary economic benefits annually." The report also encouraged improved access through long-term, low-interest loans to assist in establishing needed facilities like launch ramps, marinas and fish handling stations (where recreational fishermen can process their catch, to include cleaning, waste disposal and icing facilities). Apparently in response to Senator Eastland's 1973 resolution to develop a comprehensive fisheries policy, representatives from the U.S. Fishing Industry were brought together to produce a list of recommendations for federal action relevant to commercial and recreational fisheries.

Blank, U., L. Simonson and D. Larsen. 1978. So your community wants tourism? - guidelines for developing income from tourism in your community. Extension Folder 379-1978. Agric. Ext. Ser., Univ. of Minnesota, St. Paul, 11 p.

This publication provides all the basics community leaders need to understand tourism. The overall tourism system is diagrammed and explained with examples and supporting data. The publication is written in a Minnesota context but the ideas and suggestions put forward can be exported elsewhere. The pros and cons of tourism are presented in a way that community leaders can take advantage of the positive factors and reduce the nagative effects. A series of suggestions for building tourism into a major industry are presented by the authors. These include a series of questions for ascertaining the present extent of tourism, available resources for tourism and the nature of the local tourism market.

Centaur Management Consultants, Inc. 1977. Economic activity associated with marine recreational fishing. Report prepared for the National Marine Fisheries Service, Washington, D.C. 206 p.

This report estimates the economic contribution that MRF makes to the national economy. Impact measures included value added, wages and salaries, employment, annual capital investment and numbers of firms involved. The following business sectors impacting directly on MRF were studied: fishing tackle, boats, outboard motors, boat trailers, commercial sportfishing vessels, marinas/boat yards, bait, food, lodging, travel, boat fuel, boat insurance and an "other" category consisting of special fishing clothing, magazines and boat launching fees. Total sales at the retail level of goods and services associated with MRF were estimated at $1,333 million in 1972. These sales generated an estimated $510 million of value added and $285 million in wages and salaries in business sectors where direct spending associated with MRF took place. In 1975 consumers purchased an estimated $1,840 million worth of goods and services at the retail level. The five

leading categories of retail expenditure associated with MRF were food, marinas, travel, bait and boats, respectively.

Ditton, R. B. 1978. Marine recreational fisheries (MRF): implications for development in the Caribbean. Proceedings of the 31st Gulf and Caribbean Fisheries Institute (J. Higman, Ed.), University of Miami, 91-104.

This paper begins by addressing the significance of MRF in terms of the size of the fishing constituency, their harvest, and their economic impact. Next, MRF is viewed as a part of a broader tourism fabric where there is a need to consider service communities and access linkages along with fishery resources. An effort to understand the extent to which U.S. residents travel to Mexico and other Latin American countries to fish should prove useful to gaining an understanding of foreign visitors who come to the U.S. to fish. MRF development efforts can be enhanced by government action, by private investment and by the combined interaction of both sectors. Within government, efforts need to be made to coordinate activities between tourism and fisheries agencies. Finally, implications are drawn for private MRF development in the Caribbean.

Ditton, R. B. 1983. Information and data needs for marine recreational fisheries development in the Caribbean in Proceedings of the 35th Gulf and Carribbean Fisheries Institute (J. Higman, Ed.), University of Miami, 20 p.

This paper defines MRF development, discusses development objectives and enumerates data and information needs for achieving these objectives in a systematic fashion in the Caribbean. In addition to an integrated knowledge of technical information, a case was made for a catalyst or "middleman" to stimulate MRF development activities. Four components of technical information and understanding were discussed: information about fishery resources, marine recreational fisheries and tourism infrastructure support, fishing participation by residents and tourists and the public policy of framework within which marine recreational fisheries development takes place.

Falk, J. M., A. R. Graefe and W. P. DuBose, IV. 1981. 1981 Milford World championship weakfish tournament: a socio-economic analysis. DEL-SG-24-1981. Delaware Sea Grant College Program, Newark, 41 p.

This study identified the extent of economic impact resulting from an annual saltwater fishing tournament. The 440 fishermen who participated in the tournament made total direct purchases of $110,000. A majority of participants were not Delaware residents. Of the 69,000 they spent to participate in the tournament, approximately $48,000 (70 percent) was spent in the Milford, Del., area. The transportation (fuel) sector of the local exonomy received the largest share of non-resident spending, following by restaurants, lodging and snack foods and beverages. Using a multiplier, the $8,000 spent locally by non-residents resulted in an economic impact of nearly $172,000 to the state. Finally, four factors that contributed to this economic impact were considered along with their implications for increasing the success of future tournaments. These four factors were: the number of fishermen participating, where they came from, how many non-participants (family and friends) accompany them and how long they stay in the

community. Implications for the rest of the tourism system are made.

Fawcett, J. A., A. T. Manus and J. C. Sorensen. 1980. Recreational access to the coastal zone. Univ. of Southern California Sea Grant Program and Univ. of California Sea Grant College Program, 155 p.

This volume contains a series of papers presented at a March 1979 conference on recreational access to the coastal zone. Various public policy issues and problems associated with the provision of recreational access to the coast including the need for access, alternative means for providing access and the costs of doing so. Coastal recreation access was viewed broadly as "a system consisting of at least five interacting processes: shoreline access (getting from the road to the shoreline), longshore access (distribution along the coast), visual access (the view of the ocean and coastline), inter-regional access (movement between inland areas and the coastal zone), and intra-coastal access (transportation and parking within the coastal zone)". The authors point out that there is no single formula for developing and implementing a recreation access program. "The approach utilized to provide for access opportunities will depend in large part upon a jurisdiction's sophistication in dealing with user demand in the planning area." Marine recreational fisheries were not dealt with directly in this volume but then neither were any other coastal recreation activities dealt with.

Gunn, C. A. 1979. Tourism planning. Crane Russack, New York, 371 p.

This text examines some of the principal characteristics of tourism development, identifies the need for planning and offers a model to guide planning efforts. The book begins by examining the positive and negative impacts of tourism with an eye to providing support for planned tourism growth. Next, tourism is reviewed in a functional and systems context. Instead of focusing on particular types of business, Gunn deals with five major inter-dependent categories: people, attractions, transportation, services-facilities, and information-direction. Each of these "building blocks" are addressed directly with supporting examples. To deal with fisheries and fishing, for example, as an attraction, the remainder of the tourism system must be reckoned with. When all the elements of the tourism system are not functioning smoothly and in concert, there is a need for planning. Gunn provides insight into two types of tourism planning: continuous planning and regional strategic planning.

Niagara County, New York. 1982. Niagara County fisheries development study. Dept. of Econ. Development and Planning, Lockport, 78 p.

This report dscribes the impact of the Lake Ontario and Lower Niagara River salmonid sport fishery in Niagara County. It describes the needs and problems of the fishery and relates it to the county economy. In this report, they used an estimate that the sport fishery supports one job for every $27,450 spent. Based on an approximate $2.6 million fishery per year, it was estimated that over 90 jobs may currently be attributed to the sport fishing industry in Niagara County. This report is important in demonstrating an approach and data needs for assessing public and private facility and resource needs relative to fisheries development. Major report headings include (IV) Economic and Market Analyses of Sportfishing in Niagara County,

(V) Inventory of Existing Fishing-Related Facilities, (VI) Needs Analysis and (VII) New Development Potential. The approach used here to gather information in support of a fisheries development plan can be generalized to other locations.

The proposed plan will define goals, action steps, costs, priorities and strategies for implementing necessary improvements.

Smith, F. J. 1975. The fisherman's business guide. International Marine Publishing Company, Camden, Maine, 172 p.

Though this book is primarily oriented to commercial fishermen, any fishermen who is motivated to learn and succeed can make use of the material presented. The primary objective of the book is to help the reader to become a good business manager. The first seven chapters of the book utilize economic concepts to help the reader understand fishery resource management, the decision-making process, business objectives and planning, costs and returns, maximizing profit and coping with risk and uncertainity. Chapter nine provides the means for analyzing the fishing business, a process that is generalizable to recreational fishing businesses.

U.S. Department of the Interior, Fish and Wildlife Service and U.S. Department of Commerce, Bureau of the Census. 1982. 1980 national survey of fishing, hunting, and wildlife--associated recreation. U.S. Govt. Printing Office, Washington, D.C., 156 p.

This is the sixth in a series of surveys of fishing and hunting conducted by the Fish and Wildlife Service at 5-year intervals since 1955. Primarily a data book on sportsmen, there is a broad range of information provided about fishermen and hunters and their activity. In 1980, 12.3 million anglers spent 147.0 million days and $2.4 billion pursuing their sport, an average of 12 days and $200 per angler. Overall, 42.1 million anglers (fresh and saltwater) spent 857.6 million days and $17.3 billion. Saltwater fishing expenditures amounted to $16 per fishing day. Expenditures for food and lodging made up a large part of total saltwater fishing expenditures (38 percent) with transportation (25 percent) and equipment (21 percent). The remaining 16 percent covered fees, other equipment, and licenses.

U.S. National Marine Fisheries Service. 1980. Marine recreational fishery statistics survey, Atlantic and Gulf coasts, 1979. Current Fishery Statistics Number 8063, Washington, D.C., 139 p.

The 1979 Marine Recreational Fishery Statistics Survey is the first of a series of data books based on survey research to obtain estimates of participation, catch and effort by recreational fishermen. Estimates are made on a regional and statewide basis allowing for a detailed examination of differences in MRF. In particular information is provided on mean cost per fishing trip and mean one-way distance traveled. This information is useful for better understanding MRF markets on a regional basis.

U.S. National Marine Fisheries Service, Southeast Regional Office and southeast Fisheries Center. 1982. Program development plan for marine recreational fisheries in the southeast region. Tampa, Fl., 43 p.

Marine recreational fisheries as used in this program development plan involves four elements: the resource, the fishermen, the MRF support industries and government agencies or private organizations. Background facts and figure for each of these four elements are presented to enhance our understanding of MRF. This program development plan outlines constraints and strategies for making the marine recreational fishing systems function more smoothly.

United States Travel Data Center. 1982. The 1981-82 economic review of travel in America. Washington, D.C., 63 p.

This data book on the travel industry seeks to portray "the history, prospects, opportunities and challenges of travel activity. The current industry trends are discussed in the perspective of the last decade. International travel patterns and trends are presented along with a discussion of regional trends in tourism. Travel price inflation as well as the role of energy availability and price are discussed as they impact on tourism. This is an essential source of facts and figures for understanding the U.S. travel and tourism industry.

Van Doren, C. S. 1983. The future of tourism. Leisure Today, April.

A good overview of U.S. tourism today. Definitions of travel and tourism help the reader to understand the extent of data available and what it means. Ten variables or elements that have shaped current feelings and actions concerning tourism: 1) population characteristics and trends; 2) personal or social philosophy; 3) time for recreation; 4) income; 5) recreational activities and equipment; 6) political actions; 7) public and private organization for leisure; 8) advances in technology and communication; 9) mobility, and 10) facilities and services. Van Doren points out that some of these variables have had more effect on tourism than others and may influence our leisure travel to a significant degree in the future.

Woods, S. A. and R. B. Ditton. 1979. Texas charter fishing--bay and Gulf. TAMU-SG-80-504. Texas A&M Univ. Sea Grant College Program, 4 p.

This report presents financial data to provide an overview of costs and revenues involved in charter fishing (bay and Gulf). In addition to providing fishermen with a useful methodology to assess the feasibility of a proposed venture, it also presents a good overview of the ties to other services and providers, such as dockage, repairs, insurance, advertising, fuel, bait, ice, and tackle. The data presented in the profit and loss statements apply to a representative boat and a particular type of charter service. Adjustments can be made to the data depending on the circumstances.

APPENDIX C

DELPHI TECHNIQUE ON MARINE RECREATIONAL FISHERIES (MRF) DEVELOPMENT

The Delphi technique is a structural approach for maximizing idea generation, clarification and preference-making, while minimizing non-directed conversation. It was developed by the Rand Corporation to help reduce the expense and effort of having decentralized group members meet face-to-face. As such, the Delphi technique is particularly useful when it is necessary to involve experts but it is impossible or infeasible to have them come together physically (Delbecq et al., 1975).

The Delphi technique also allows anonymity of the participants. This is important as it helps to eliminate bias. In addition, the technique provides controlled feedback to the participants. This technique is an iterative process; therefore, after each iteration, an assessment of the group's opinion is made known to the participants. The experts then have the opportunity to revise their opinion in light of the general concensus (Zuboy, 1980).

In order to generate additional information while at the same time provide a check on the data collected during fieldwork, the Sport Fishing Institute initiated a Delphi study relative to MRF development. Specifically, a panel of experts was asked to identify and quantify the major issues or concerns which must be addressed in order to facilitate future MRF development.

An initial group of 17 individuals nationwide agreed to participate. Each was perceived to have a good overall understanding of the MRF/tourism industry and its related development needs. Ultimately, only 12 persons participated. Their names and affiliations are presented in Exhibit VI.

This particular exercise consisted of four rounds of questions. Each question and the participants' responses are as follows.

Questions and Responses:

DELPHI QUESTION #1: Each participant was asked to identify the most important issues or concerns which must be addressed when approaching MRF development. A background paper which addressed MRF development in the Caribbean was provided for guidance purposes.

Participants were directed to provide both issues or concerns and general follow-up questions that corresponded to the issues raised. An example was provided:

ISSUE/CONCERN	FOLLOW-UP QUESTIONS
inadequate access	- what kinds of additional facilities might be needed? - what legal concerns might be encountered? - what are some innovative methods or types of facilities?

Responses:

Each of the issues/concerns which the participants raised were grouped into 12 categories with accompanying follow-up questions. The responses for this question and question #2 are combined in Exhibit I.

DELPHI QUESTION #2: Each participant was requested to evaluate each of the 12 issues/concerns which were generated from the first question as being very important, less important or uncertain. In addition, each respondent was allowed to add any additional issues/concerns and related follow-up questions as he desired.

Responses:

Exhibit I lists the issues/concerns and related follow-up questions which resulted from questions #1 and #2. The evaluation of each issue/concern by the participants is found in Exhibit II.

DELPHI QUESTION #3: Each participant was requested to indicate which 5 of the 12 issues/concerns he considered to be the most important when determining whether or not MRF are developed.

Responses:

Exhibit III lists the issues/concerns in order of importance as indicated by the participants.

DELPHI QUESTION #4A: A list of the eight most important issues was presented to each participant. Each issue was important to MRF development. Each participant was requested to indicate which sector, public or private, should bear the major responsibility for each issue.

Responses:

Exhibit IV lists the eight issues presented to the participants and the responses as to whether or not the public or private sector should bear the major reponsibility with regard to MRF development.

DELPHI QUESTION #4B: Each participant was placed in the hypothetical situation of having to make a presentation on MRF development at the national level. Each was then asked to cite the five pieces of literature (books, articles, reports, etc.) which would be the most important in developing their presentation.

Responses:

Exhibit V lists the combined responses of the participants to question #4B.

Exhibit VI lists the participants of this Delphi exercise.

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EXHIBIT I

SPORT FISHING INSTITUTE
DELPHI TECHNIQUE
MRF DEVELOPMENT

DELPHI QUESTION #1:

If you had to advise on matters of marine recreational fisheries development (such as described in the enclosed background paper), what are the most important issues or concerns you would want to see addressed?

ISSUE/CONCERN

1. Availability of Fishery Resources

GENERAL FOLLOW-UP QUESTIONS

a. Are adequate recreational species available for an expanded MRF? If so, which species? How does size of target species effect availability?

b. Are the available target species accessible? If so, when and how?

c. Are the target species available only seasonally or can they accommodate additional pressure year-round?

d. Can non-target species in the domestic market be targeted in the tourist market?

e. How "renewable" is the resource (i.e., how much fishing pressure will the resource support)?

f. What will be the effect of increased MRF on fish stocks and fishery management programs?

g. Are the available fishery stocks local, regional or migratory?

h. To what extent is the resource presently harvested by MRF and commercial sectors?

i. Are hatcheries for marine fisheries feasible?

ISSUE/CONCERN

2. Collection and Dissemination of User Information

GENERAL FOLLOW-UP QUESTIONS

a. Is information on the full scope of supplies and services offered by the MRF industry known?

b. Is specific information on the availability of MR fishing and fishing access readily available to target fishermen?

c. Are adequate maps or guides available on how and where to fish once an angler reaches the general fishing area?

d. How do you identify the marine recreational fisherman?

e. What information needs will the fishermen have (before and after arrival)? Which should be given priority consideration? What type of information is to be conveyed and what is its purpose?

f. How can adequate information be economically distributed to large populations?

g. Is there a directed and coordinated effort by appropriate private concerns and public agencies to target information on MRF opportunities to potential customers (anglers)?

h. Are channels of communication established to disseminate MRF information to users? How does the MRF communicate back to various governmental agencies his needs and wants?

i. What should be the respective roles of government and the private sector in generating and providing needed information?

j. How can the public be reached? Newspapers, magazines, newsletters, etc.? How can the news media be more effective? How to fish for certain species, laws, where facilities are located, where the fisherman's tax money is being spent, etc. May each require a different means of communication to be most effective?

k. How can the importance of recreational fisheries, in terms of recreation and economics, be expressed to the general public and legislators?

l. How can the public be involved? - "how to" films and articles, public fish tagging programs, master angler awards program, etc.

m. Can targeted fishermen be informed of MRF developments to the benefit of local communities?

n. To what extent is inadequate user information a limiting factor to MRF growth?

o. Can information programs educate the public on fisheries ecology and management?

p. What methods can be used to improve communication between MRF and government interests?

ISSUE/CONCERN

3. Data Needs

GENERAL FOLLOW-UP QUESTIONS

a. What data is currently available? Where is this data located? What form is it in? Can it be consolidated?

b. What type of information and levels of reliability are needed to effectively manage and develop recreational fisheries? Is scientific and technical data available on which to base management decisions?

c. Are all resource assessments (MRF and commercially related) integrated into a single data base?

d. What is the most cost-effective method(s) for obtaining necessary data? Who should pay for it?

e. What should be the role of the private sector and various levels of government in data collection?

f. Do we know critical aspects of population biology, age, growth, mortality, Y/R, etc.?

g. How can elected officials come to realize the values of, and needs for, high quality fishery resources if they lack the appreciation of the economic and social benefits of sportfishing?

h. How important is marine recreation to the general population? How can this be measured? Number of participants, amount of money spent, etc.?

i. What types of surveys should be conducted - state, regional, national - general population or fishing by fishery surveys?

j. Will data collected be compatable and comparable over time? Who will collect the data and monitor the outputs?

k. How is the MRF experience to be determined and measured?

l. Is information available regarding facilities and services - location, capacity and vacancy rate of marinas? Availability, number, capacity and location of charterboats, headboats and party boats? Supply and demand for access? Locating access points? Accomodation needs of anglers? etc.

m. Have potential customers been identified?

n. How are resources utilized by MR fishermen - food, trophies, discarded, etc.?

ISSUE/CONCERN

4. Management Considerations

GENERAL FOLLOW-UP QUESTIONS

a. Are current management and conservation efforts effectively providing for continued sustainable yield needed to ensure stability and growth of recreational fisheries?

b. Are there current management plans (for targeted species) that regulate recreational catches? Are these plans favorable to recreational interest?

c. Where is the resource - territorial sea? fishery conservation zone? international waters? Is the resource unique to a locale, region or transboundary (international), highly migratory?

d. Should management plans be developed for all species?

e. How can management of migratory marine stocks be improved to maintain the stocks and to provide for equal access by various users?

f. How can a more holistic approach to management be utilized? Need to get away from narrow view of each species role, both targeted and untargeted.

g. Is the goal of good fisheries management the same for commercial and recreational fisheries interests? If not, how do they differ?

h. Are existing and developing fishery management programs providing for equitable allocations of fishery resources to recreational fishermen? Are MRF and commercial regulations compatible and consistent? What should be the basis for allocation? How should allocations be acheived (e.g., harvest regulations, habitat or stock enhancement, etc.)?

i. How can conflicts between user groups (commercial and recreational fishermen) be resolved or reduced - regulations on gear, space, time or species?

j. Can zonal management be successfully applied to rebuilt stocks or to alleviate recreational-commercial fishing conflicts?

k. To what extent do or will user conflicts impede stability and growth of MRF?

l. Are baitfish (anchovies, etc.) more valuable as forage or as fishmeal?

m. Are recreational catches being fully utilized by anglers? If fish are left behind by tourists, will there be an adequate mechanism to handle the fish to assure utilization? What is the demand for fish in the local community? Can charter/party boat captains legally sell fish to handlers?

n. How can waste of fish be stopped? Can fish be given to charity? To gleaners groups? (sale not permitted in western U.S.).

o. What improvements in handling and preparing catch for the table will enhance the food value and usage?

p. Can catch and release ethics be developed? Would promotion of a personal conservation ethic among anglers help in the management/conservation of target species?

q. To what extent can under/unutilized sport species be developed to reduce the pressure on traditional target species and to accomodate growing demands for sport fishing opportunities?

r. Is MRF compatible with coastal and shelf development as planned for the locale?

s. What is governments' policy toward MRF/commercial aspects in its industrial development? Where does tourism/recreation rank?

t. How can outdoor recreation, tourism and fisheries management programs be better coordinated to improve MRF opportunities?

ISSUE/CONCERN

5. Habitat/Artificial Reefs/Pollution

GENERAL FOLLOW-UP QUESTIONS

a. To what extent are important recreational species estuarine dependent?

b. To what extent is habitat loss/impairment a limiting factor to continued harvest or increased harvest of specific species by sportsmen?

c. What types of habitat are critical to target species, both presently and potentially?

d. Is critical habitat threatened by other coastal zone development or upland land use patterns?

e. Are competing uses of shoreline compatible with MRF (present and proposed)?

f. Can critical habitat for target species be recovered or enhanced (aquaculture, stocking)?

g. What role should/could artificial habitats play in habitat enhancment? Are artificial reefs appropriate for enhancing MRF opportunities?

h. Who/what is responsible for expansion/enhancment of habitat (i.e., artificial reefs)? Funding? Lead agency?

i. Are artificial reefs suitable for solving conflicts between users of sea bottom (trawlers, oil firms, etc.)? Are they stable over long time periods?

j. What is the effect of aggregation and higher CPUE (catch per unit effort) on fish populations?

k. Can land-based solid waste problems be used to create artificial reef materials?

l. Are artificial reefs economically cost effective? Locally or on a state or federal level?

m. Will water quality contine to improve?

n. Fish contaminents - Are toxic levels in fish harmful? Are sources controlled? Are people aware of potential risks of consumption?

o. Are recreational fishing interests playing an effective role in habitat protection efforts? If not, why not?

p. Can recreational fishing be used to expose the public to habitat protection issues and to enlist their support in such efforts?

q. What is the legal and policy posture of government toward habitat maintenance/quality? Is it adequate to assure long term compatibility with MRF?

r. Should additional habitat protection measures be adopted?

s. In the area (species group) proposed for development, is the air, water, and resource quality adequate for providing an aesthetically rewarding experience - for the type of MRF being promoted? i.e., trolling in shipping lanes not too pleasing; weed line = trash rack, etc.

ISSUE/CONCERN

6. MRF Constituency

GENERAL FOLLOW-UP QUESTIONS

a. How can the characteristics of the constituency be determined? - composition, desires, satisfaction criteria, etc.?

b. What types of anglers will be attracted to a resource? How experienced will they be? In what types of groups will they arrive? (e.g., family units, peer groups, fishing clubs, etc.)

c. What is the distribution of the type of fishing sought? - Restricted, local, coast-wide, or multinational?

d. Identify existing trends in MRF and commercial fisheries at local, regional and/or species range levels.

e. What public and private agencies or organizations are involved in MRF development? Is it a coordinated effort?

f. Would MRF interests be best served by regional or one national MRF development foundation(s)?

g. Are existing MRF organizations effective in representing their points of view? If not, why not?

h. What options exist to better organize MRF interests?

i. Would a saltwater fishing license be a useful organization tool?

ISSUE/CONCERN

7. Funding

GENERAL FOLLOW-UP QUESTIONS

a. Will adequate funds be available to manage fishery resources? Will there be a continuing source of funding?

b. What level of funding is needed?

c. Where should the money come from? User fees? State or federal general revenue? Saltwater license? support industry? Local economy?

d. How will reduced budgets affect collection of necessary data? Who will allocate funding, set priorities, etc.?

e. Who will pay the cost of dredging, etc., in these times of declining Federal dollars?

f. Will recreational development projects be funded similarly to S/K funding for commercial fisheries?

ISSUE/CONCERN

8. Angler Satisfaction/Quality Experience

GENERAL FOLLOW-UP QUESTIONS

a. What is the chief output(s) of MRF - catching fish, engagement in the activity, or some other type of experience(s)?

b. Should there be minimally acceptable standards to insure a quality MRF/tourism experience?

c. What will the different types of fishermen be looking for in the angling experience?

d. Was the fisherman satisfied with his MRF experience? Did he catch fish? How important was catching fish? What were his unpleasant experiences? How can they be corrected in the future?

e. Is MRF development to be technologically suited to anglers or will they "go native"? - radar, radio, safety considerations, etc.

f. How does crowding affect fishing satisfaction?

g. How do space limitations affect user group conflicts?

ISSUE/CONCERN

9. Promotion

GENERAL FOLLOW-UP QUESTIONS

a. Will sponsorship of sportfishing tournaments enhance MRF opportunties?

b. Is it possible, through promotion, to get the public to accept substitutes (underutilized species) for traditionally used species?

c. Will this type of effort reduce pressure on dwindling stocks of prime fisheries?

d. Will MRF/tourism promote "glamorous" fish species such as tunas, billfish, and salmon and other traditional and non-traditional game fish?

e. What is to be promoted -- various fish, fishing in general, fishing facilities, conservation, etc.?

f. What will be the nature of advertising? In which medium? Targeted at which people? In what way?

g. Who should do the promoting -- private industry, state or federal government, local recreation and tourism departments, etc.?

h. When is enough, enough? Is there an adequate population with skills or education to provide the support services, guides, etc.?

ISSUE/CONCERN

10. Infrastructure

GENERAL FOLLOW-UP QUESTIONS

a. What are the existing support facilities and services available to anglers? (restaurants, lodging, bait/tackle shops, launch ramps, marinas, charter/-party boats, etc.) Has an inventory of existing support facilities been made available?

b. Are these facilities and services appropriate and properly sited?

c. Are adequate transportation and transportation services available to meet the needs of anglers?

d. What types of facilities, equipment and services are required on-site for different angler types?

e. What are the future infrastructure needs? Projections for 5 years? 10 years? 25 years? Is there a "top-end" to planned expansion?

f. What should be the allocation between commercial and recreational facilities in limited harbor areas?

g. If a service such as the charter/party boat industry is to be the direct service provider, are the capital and marketing capabilities available to promote international tourism?

h. If current infrasturcture is not adequate for MRF/tourism development, what will be the environmental, social, and economic costs of development?

i. What is the governments' (local, state, federal) role in providing support facilities?

ISSUE/CONCERN

11. Access

GENERAL FOLLOW-UP QUESTIONS

a. Are there sufficient shorebased fishing stations to accomodate additional MR demand (beaches, piers, bridges, banks, jetties, seawalls)?

b. To what extent do non-fisheries developments (bridges, highways, parks, etc. make construction provisions for MRF access?

c. Are new public funding sources available for access programs?

d. Are government regulations restrictive to increased coastal recreation access?

e. Examine private property rights vs. public use.

f. How can potential conflicts between providing access and the destruction of delicate habitats be solved?

ISSUE/CONCERN

12. MRF/Tourism Development

GENERAL FOLLOW-UP QUESTIONS

a. What is the current extent of international, national, state and local MRF/tourism?

b. At what level is the U.S. willing to support MRF/tourism?

c. What are the various roles that need to be filled for MRF/tourism to occur? Which public/private sector agency could best fill each role? What are the appropriate roles? Who will provide the leadership? Is there sufficient inter- and intra-sector cooperation to permit an orderly, unified development effort? What is the commitment level within agencies in each sector, in terms of fiscal and personnel support, to MRF/tourism development? Are these support levels adequate?

d. Is MRF compatible or possible with other tourism attractions?

e. What will be the resultant social, environmental, economic and resource impacts of increased MRF/tourism? What will be the economic benefits and costs of development? At what level - local, state, national - will the economic benefits exceed costs?

f. Will the benefits outweight the costs to attract private investment and development efforts? Who will be the direct beneficiaries of MRF/tourism? Will the benefits offset the environmental, social and economic costs?

g. Is the local community committed to a coordinated MRF development effort?

h. Is there currently a large enough population of MRF tourists to develop an understanding of the basic markets being tapped to develop future marketing plans?

i. Is it possible to "package" recreational fishing opportunities together with other local tourist attractions or services? Will other tourist facilities and opportunities be required (e.g., sightseeing, tours, other nonfishing excursions)? What component of MRF is sought in tourism package: small number of high spenders or large number of econoclass or mixture? Will the cost of MRF/tourism pay off in terms of number of fishermen gained?

j. How will increased demand impact traditional fisheries? How will managers respond to the increased demand? How will management goals be modified? What is the long-term (100 years) outlook for demand? What parts of the country can expect the greatest increase in fishermen demand and why?

k. How will human settlement along coasts impact the environment?

l. How will the economic climate affect fishing?

EXHIBIT II

RESPONSES TO DELPHI QUESTION #2

DELPHI QUESTION #2:
Please evaluate each of the listed issues/concerns.

	ISSUE/CONCERN	EVALUATION VI	LI	UN
1.	Availability of Fishery Resources	11	1	0
2.	Collection and Dissemination of User Information	7	5	0
3.	Data Needs	11	1	0
4.	Management Considerations	11	0	1
5.	Habitat/Artificial Reefs/Pollution	10	2	0
6.	MRF Constituency	4	8	0
7.	Funding	9	3	0
8.	Angler Satisfaction/Quality Experience	6	6	0
9.	Promotion	2	7	3
10.	Infrastructure	5	7	0
11.	Access	8	4	0
12.	MRF/Tourism Development	4	7	1

VI = Very Important

LI = Less Important

UN = Uncertain

EXHIBIT III

RESPONSES TO DELPHI QUESTION #3

DELPHI QUESTION #3:

Please check the five (5) issues/concerns you consider most important in determining whether or not marine recreational fisheries are developed.

Response	Issue/Concern
11	Availability of Fishery Resource
9	Funding
8	Habitat/Artificial Reefs/Pollution
7	Collection and Dissemination of User Information
7	Data Needs
4	Management Considerations
4	Angler Satisfaction/Quality Experience
4	Access
3	Infrastructure
2	MRF Constituency
1	Promotion
0	MRF/Tourism Development

EXHIBIT IV

RESPONSES TO DELPHI QUESTION #4A

DELPHI QUESTION #4A:

Which sector should bear the major responsibility for the following issues?

	ISSUE	SECTOR PRIVATE	SECTOR PUBLIC
1.	Management of Fishery Resources	0	12
2.	Collection and Dissemination of Fishing Information to Users	5	7
3.	MRF Data Collection	0	12
4.	Habitat Protection	0	12
5.	Artificial Reef Development	5	7
6.	MRF Promotion	9	3
7.	Tourism Infrastructure Development	11	1
8.	Access Development	6	6

EXHIBIT V

RESPONSES TO DELPHI QUESTION #4B

DELPHI QUESTION #4B:

If you were asked to make a presentation on MRF development at the national level, what are the five (5) pieces of literature (books, articles, reports, etc) that would be most important in developing your presentation?

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EXHIBIT VI

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