

# The U.S. Gulf of Mexico Party Boat Industry: Activity Centers, Species Targeted, and Fisheries Management Opinions

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## Introduction

Throughout the U.S. Gulf of Mexico and elsewhere, party boats provide anglers with a relatively low-cost means of accessing nearshore and offshore fishing. In contrast with charter boats,

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

Fraser et al. (1977) reported that party boats are larger, carry more passengers ( $\leq 150$  anglers), fish for bottom fish, are operated on a schedule, and their captains prefer to operate with as many anglers on board as possible to maximize income. Finally, they vary by the way fees are charged. Party boats charge on a per-head basis (referred to as head boats in some areas) in contrast to charter boats which charge for the rental of the boat with captain and mate. Party boat fees range from \$15 to about \$70 whereas charter boat fees are usually  $\geq$  \$300.

Because of overutilization by various user groups in the U.S. Gulf of Mexico, some fish stocks are stressed and require management attention. During the past 10 years, the Gulf of Mexico Fishery Management Council (GMFMC) has developed fishery management plans (FMP's) in accordance with criteria specified in the Magnuson Fishery Conservation and Management Act (MFCMA) (16 U.S.C. 1801 et seq.). Consequently, operating a party boat today is complicated. Language and communication are increasingly complex and reflect concerns for legal precision and scientific support. In this regard, captains are faced with "acronyms, computer output, statistical calculations and bureaucratic jargon" (Miller and Van Maanen, 1983). Stock assessment results are used by the GMFMC to determine Allowable Biological Catch (ABC) which in turn provides the basis for establishing Total Allowable Catch (TAC). The TAC ultimately impacts party boat operations in terms of minimum size regulation, bag limits, and closures when recre-

ational allocations are met. For example, red snapper, *Lutjanus campechanus*, were unmanaged in the Exclusive Economic Zone (EEZ) until November 1984 when the Reef Fish Fishery Management Plan (FMP) was implemented. Among other requirements, the reef fish FMP established a minimum size limit of 13 inches total length for red snapper with an incidental catch of 5 red snappers  $< 13$  inches in total length per person per trip (50 CFR 641). Party boats were exempted from size and bag limits until May 1987 due to their dependence on red snapper. The incidental catch allowance was eliminated in February 1990 leaving the minimum size requirement in force. The FMP was amended "to reduce fishing mortality on the reef fish stocks so that stocks may be protected and rebuilt, to reduce user conflicts, and to maximize net economic benefits from the reef fishery" (55 FR 2090-2091). In April 1990, a 7-fish bag limit was implemented and was expected to remain in effect through 1991. This scenario of increasingly stringent regulations is occurring with numerous other species targeted by Gulf party boats.

New and proposed regulations<sup>1</sup> have created uncertainty for party boat operators because they do not know if there is a market for a fishing experi-

<sup>1</sup>55 Fr 2078-2094, Amendment number 2 to the Fishery Management Plan for reef fish, 1989, and Draft. Plan amendment 3 of the reef fish Fishery Management Plan (including environmental assessment, regulatory impact review, and regulatory flexibility analysis). 1990. Gulf of Mexico Fishery Management Council, Lincoln Center, Suite 881, 5401 West Kennedy Blvd., Tampa, FL 33609.

ence with reduced bag limits. If, as reported by Carls (1976) and Ditton and Gill (1988), party boat patrons are more highly motivated by catch motivations than other noncatch angler motives, reduced bag limits may lead to drop-outs in existing clientele and a need to attract new and less catch-oriented customers. Since most party boat operations lack a marketing capability (Ditton and Gill, 1988), their main alternatives are to quit business, oppose new management regulations, and when regulations are implemented, target other species. The latter alternative is no longer viable in the Gulf of Mexico as nearly all offshore species are currently regulated.

Whereas new fishery regulations can be expected to have some impact on party boat operators (among others in the fishery), some operators may be impacted more than others. Party boat operators are not likely to be uniformly distributed across the U.S. Gulf of Mexico. Species targeted are likely determined by abundance and angling custom. When catch regulations are implemented, party boat operations that depend on regulated species in areas of abundance are impacted whereas others are not because they target other fish stocks. Also, when migratory stocks are involved, some operators may not have an opportunity to target a particular species prior to closure by virtue of their geographical location.

Most research in the U.S. Gulf of Mexico regarding party boat operations has been insufficient for regional fisheries management purposes, especially assessment of regulatory impacts assessment. Most research has been completed in Texas and Florida and has focused on fleet revenues and economic impacts (Destin Chamber of Commerce<sup>2</sup>; Prochaska and Cato, 1975), business operations (Schmied, 1975; Woods, 1977), or catch (McEachron and Matlock, 1983; McEachron, 1984). None of these studies involved more than one discipline or state. Only one study (Browder et al., 1978) comprehensively addressed party boat opera-

<sup>2</sup>Destin Chamber of Commerce. 1969. The potential of the Destin, Florida fare-carrying fishing fleet. Unpubl. rep., 8 p.

tions. This study identified party boat activity centers on the west coast of Florida and examined social and economic characteristics of operators, target species utilized, and changes in target species by season. This approach was partially replicated by Ditton et al. (1988) and Holland and Milon (1989) to provide coverage for the U.S. Gulf of Mexico. Data presented in this paper were taken from these two studies.

The purpose of this paper was to characterize the party boat fishery in the U.S. Gulf of Mexico and provide a baseline for understanding fishery trends. Further, in light of allocation decisions being made, there is a need to understand variations by state in the size and distribution of the party boat fleet, species targeted, estimated fishing pressure, and operator opinions regarding existing regulations. Also, this paper presents a management-oriented methodology that can be used elsewhere to assess regulatory impacts.

### Methods

Initially, we determined there were 97 party boats in the five states adjacent to the U.S. Gulf of Mexico. Because of the low number of boats, we sought to interview operators of all party boats in Texas, Louisiana, Mississippi, and Alabama ( $n=31$ ) and drew a random sample of 18 of 66 party boats in Florida. The sampling frame was derived from the 1985 and 1986 vessel canvas conducted by the NMFS Southeast Fisheries Center, the list of party boats maintained by the NMFS Southeast Regional Office and Panama City Laboratory, and on-site information provided by NMFS and project personnel. Information was merged to produce a final list of party boats and operators without duplicates. Letters were sent to operators of all boats selected to explain the intent of the survey and encourage participation. The initial population of party boats was later adjusted downward for boats no longer in business.

A 19-page interview schedule was developed to collect information on the operator's background and demographics, boat description, species informa-

tion, operating policy, boat operation, business structure, community ties, and opinions on current regulations. An initial interview schedule was pretested in March 1987 with 8 operators in Texas. Revisions were made as a result of this pretest.

In this paper we focus on data concerning species targeted, percent time devoted to targeting each species, and opinions toward current catch restrictions on select species. First, for each boat sampled, operators were given a listing of 23 species and asked to indicate which ones were targeted during each of the previous 12 months. Second, they were asked "what percent of your time fishing was devoted to targeting each of these species" during each of four 3-month periods. Percent time targeting for each 3-month period was additive to 100 percent. Finally, using a 5-point balanced Likert-type scale, operators were asked whether they supported or opposed current recreational catch restrictions on six species.

Party boat operators in Texas, Louisiana, Mississippi, and Alabama were interviewed by trained field personnel during May-August 1987. Operators in Florida were interviewed during February-July, 1988. Each interview took 30-40 minutes to complete per boat. Operators were contacted prior to travel to schedule interviews during weekday periods. Nevertheless, second and third follow-up trips had to be scheduled with operators missed on initial visits.

Interviews were completed with 17 operators (65 percent) of an adjusted population of 26 party boats in Texas, Louisiana, Mississippi, and Alabama. Boat operators not interviewed were busy running trips or refused to participate. In Florida, interviews were completed with operators of 21 (32 percent) of 66 party boats. For confidentiality purposes, data for boats in Louisiana, Mississippi, and Alabama were aggregated because there were <5 boats per state.

### Results

Over two-thirds of the party boat fleet in the U.S. Gulf of Mexico is located on the west coast of Florida (Fig. 1, Table 1). Major activity centers

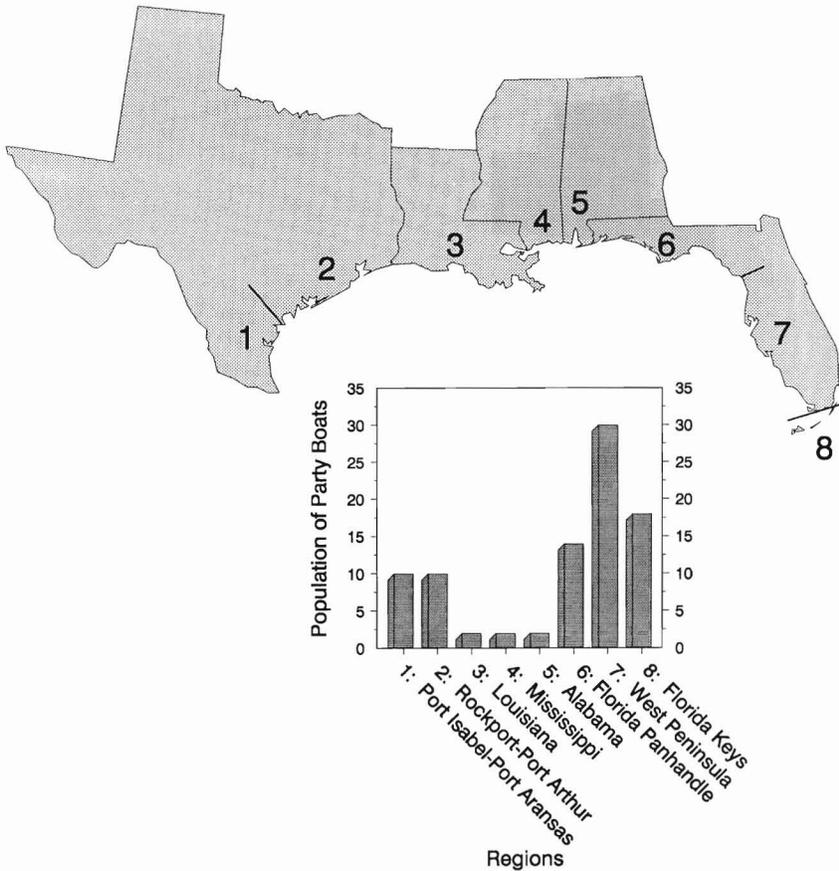


Figure 1.—Regional distribution of party boats in the U.S. Gulf of Mexico.

Table 1.—Distribution of population of party boats in the U.S. Gulf of Mexico by state and area.

State and area	Population	
	No.	Percent
<b>Texas</b>		
1. Port Isabel-Port Aransas	10	
2. Rockport-Port Arthur	10	
Subtotal	20	22.7%
<b>Northern Gulf States</b>		
3. Louisiana	2	2.3
4. Mississippi	2	2.3
5. Alabama	2	2.3
<b>Florida</b>		70.4
6. Panhandle	14	
7. West Peninsula	30	
8. Keys	18	
Subtotal	62	
<b>Grand total</b>	88	100.0

(number of boats) in Florida include the Keys; the Marco Island, Naples, and Ft. Myers area; and the Madeira Beach, Clearwater, and St. Petersburg area. Most of the 20 boats in Texas were located in the Galveston-Freeport area. By extrapolation, we estimated the number of trips and passengers taken offshore in the previous 12 months by the population of party boats in each state or region: Texas—1,858 trips, 34,373 passengers; northern Gulf states—150 trips, 2,775 passengers; Florida—17,329 trips, 320,587 passengers. If we assume 92 percent of party boat passengers went to fish (Carls, 1976), party boats took an estimated 329,116 anglers offshore in the U.S. Gulf of Mexico.

Table 2.—Distribution of number of species targeted by the extrapolated number of party boats in the U.S. Gulf of Mexico during a 1-year period by state or region.

No. of species targeted	Texas		N. Gulf states <sup>1</sup>		Fla.		U.S. Gulf	
	No.	%	No.	%	No.	%	No.	%
1	6	30.0	0	0.0	4	6.5	10	11.4
2	8	40.0	1	16.6	8	12.9	17	19.3
3	2	10.0	1	16.6	4	6.5	7	7.9
4	2	10.0	2	33.3	0	0.0	4	4.5
5	0	0.0	0	0.0	8	12.9	8	9.1
6	0	0.0	2	33.3	8	12.9	10	11.4
7	0	0.0	0	0.0	0	0.0	0	0.0
8	0	0.0	0	0.0	8	12.9	8	9.1
9	0	0.0	0	0.0	0	0.0	0	0.0
10	0	0.0	0	0.0	8	12.9	8	9.1
>10	2	10.0	0	0.0	14	22.5	16	18.2
	20	100.0	6	99.9	62	100.0	88	100.0

<sup>1</sup>Louisiana, Mississippi, Alabama.

There is diversity within the region in number of species targeted. Whereas 80 percent of the boats targeted  $\leq 3$  species in Texas, this was the case for only 33 percent and 26 percent of the boats in the northern Gulf states area and Florida, respectively (Table 2). Gulfwide, most party boats targeted  $\leq 5$  species.

Snapper, *Lutjanus* sp.; grouper, *Epinephelus* sp. and *Mycteroperca*, sp.; and amberjack, *Seriola dumerili* (in decreasing order of selection) were targeted by  $\geq 35$  party boats (Table 3). Most boats in Texas targeted snapper. Boats in Florida targeted snapper and grouper. In the northern Gulf states, most boats

Table 3.—Number of party boats operating from Texas and the northern Gulf states (1986-87) and Florida (1987-88) and in the U.S. Gulf of Mexico by species targeted.

Species	Number of party boats			
	Texas	N. Gulf states	Florida	U.S. Gulf
Amberjack	2	1	37	40
Barracuda	0	1	21	22
Blackfin tuna	2	1	12	15
Blue marlin	3	1	8	12
Bluefin tuna	2	1	4	7
Bluefish	0	4	4	8
Bonito	2	2	29	33
Cobia	0	1	25	26
Dolphin	3	1	29	33
Flounder	0	1	17	18
Grouper	3	2	58	63
King mackerel	8	3	17	28
Ladyfish	0	1	8	9
Red drum	0	5	8	13
Sailfish	3	1	12	16
Shark	2	2	25	29
Snapper	17	1	58	76
Spanish mackerel	2	5	17	24
Spotted sea trout	0	4	8	12
Swordfish	2	1	8	11
Wahoo	0	1	8	9
White marlin	3	1	8	12
Yellowfin tuna	2	1	8	11

targeted red drum *Scianops ocellatus* and spotted sea trout, *Cynoscion nebulosus*.

Aggregated means for each species (Table 4) provide estimates of the extent of time operators targeted a species. Because of averaging, the figures provided for each species may not be representative of any particular boat. In Texas, highest mean percent targeting time was devoted to snapper, whereas in Florida it was devoted to a combination of snapper and grouper. Another indication of targeting diversity is number of species that receive  $\geq 2\%$  of mean percent targeting time per state or region. The northern Gulf states had 8 species that met this criteria, Florida 5, and Texas 3.

An estimate of effort units by the population of party boats revealed that the Florida fleet accounted for 74% overall (Table 5). Species with highest overall effort were, in descending order: Snapper, grouper, amberjack, and king mackerel, *Scomberomorus cavalla*. These four species accounted for 90% of the estimated effort. Party boat effort units in Texas were devoted primarily (95%) to snapper whereas in Florida the vast majority was devoted to snapper and grouper, collectively. In the northern Gulf states, effort focused

**Table 4.—Estimated mean percent time targeting selected species by sample of party boat by state or region.**

Species	Texas (n=12)		N. Gulf states (n=5)		Florida (n=15)	
	$\bar{X}$	S.E.	$\bar{X}$	S.E.	$\bar{X}$	S.E.
Amberjack	0.9	0	0.8	0.8	7.6	2.6
Barracuda	0.0	0	0.8	0.8	0.9	0.5
Blackfin tuna	0.0	0	0.8	0.8	0.7	0.5
Blue marlin	0.0	0	0.8	0.8	0.3	0.3
Bluefin tuna	0.0	0	0.8	0.8	0.1	0.1
Bluefish	0.0	0	4.2	1.9	0.1	0.1
Bonito	0.0	0	2.7	1.8	1.2	0.7
Cobia	0.0	0	0.8	0.8	2.0	0.5
Dolphin	0.0	0	0.8	0.8	1.6	0.6
Flounder	0.0	0	0.8	0.8	3.5	1.9
Grouper	4.0	4	2.7	1.8	28.8	7.2
King mackerel	6.0	42	13.3	9.5	0.9	0.7
Ladyfish	0.0	0	0.8	0.8	1.7	1.1
Red drum	0.0	0	14.6	9.2	1.7	1.1
Sailfish	0.0	0	0.8	0.8	0.6	0.4
Shark	0.0	0	2.6	1.8	1.4	0.6
Snapper	71.0	11	0.8	0.8	38.4	8.5
Spanish mackerel	0.0	0	6.6	2.1	2.6	1.3
Spotted sea trout	0.0	0	12.3	8.5	1.6	1.1
Swordfish	0.0	0	0.8	0.8	0.4	0.3
Wahoo	0.0	0	0.8	0.8	0.3	0.2
White marlin	0.0	0	0.8	0.8	0.5	0.4
Yellowfin tuna	0.0	0	0.8	0.8	0.5	0.4

**Table 5.—Estimated effort units for species targeted by party boats by state or region.**

Species	Texas		N. Gulf states		Florida		U.S. Gulf	
	No.	%	No.	%	No.	%	No.	%
Amberjack	0 <sup>1</sup>	0.0	2	0.5	281	6.2	283	4.6
Barracuda	0	0.0	2	0.5	19	0.4	21	0.3
Blackfin tuna	0	0.0	2	0.5	8	0.2	10	0.2
Blue marlin	0	0.0	2	0.5	2	0.0	4	0.1
Bluefin tuna	0	0.0	2	0.5	<1	0.0	2	0.0
Bluefish	0	0.0	30	8.3	<1	0.0	30	0.5
Bonito	0	0.0	14	3.9	35	0.7	49	0.8
Cobia	0	0.0	2	0.5	50	1.1	52	0.8
Dolphin	0	0.0	2	0.5	46	1.0	48	0.8
Flounder	0	0.0	2	0.5	59	1.3	61	1.0
Grouper	12	0.9	14	3.9	1,670	36.7	1,696	27.4
King mackerel	48	3.8	64	17.6	15	0.3	127	2.1
Ladyfish	0	0.0	2	0.5	14	0.3	16	0.3
Red drum	0	0.0	63	17.4	14	0.3	77	1.2
Sailfish	0	0.0	2	0.5	7	0.2	9	0.1
Shark	0	0.0	14	3.9	35	0.8	49	0.8
Snapper	1,207	95.2	2	0.5	2,227	48.9	3,436	55.6
Spanish mackerel	0	0.0	36	9.9	44	1.0	80	1.3
Spotted sea trout	0	0.0	98	27.0	13	0.3	111	1.8
Swordfish	0	0.0	2	0.5	3	0.1	5	0.1
Wahoo	0	0.0	2	0.5	2	0.0	4	0.1
White marlin	0	0.0	2	0.5	4	0.1	6	0.1
Yellowfin tuna	0	0.0	2	0.5	4	0.1	6	0.1
Total	1,267	99.9	363	99.4	4,553	100.0	6,182	100.0

<sup>1</sup>Effort units were calculated by multiplying the population of party boats in each state (Table 1) by the mean percent time targeted for each species by the sample of party boat operators in each state (Table 4).

on red drum and spotted sea trout; there was little effort for snapper.

Party boat operators were diverse in their views of management regulations in force. Whereas most party boat operators supported current (1987-88) regulations for red drum in the EEZ (18-inch minimum and 32-inch maximum) and king mackerel (3-fish bag limit (EEZ)), most were neutral or opposed to current red snapper regulations (13-inch minimum with incidental catch of 5 undersized fish, no bag limit (EEZ)) (Table 6). Highest levels of percent support ( $\geq 65\%$ ) among party boat operators were in Texas for red drum, spotted sea trout, and king mackerel and in

Florida for king mackerel and red drum. Conversely,  $\geq 60\%$  of sampled party boat operators in Texas opposed red snapper regulations while  $\geq 60\%$  in the northern Gulf opposed red drum regulations. Species with levels of neutral response  $\geq 30\%$  included Spanish mackerel, *S. maculatus*; red snapper; and cobia, *Rachycentron canadum*, in the northern Gulf states and red snapper in Florida. While a majority of party boat operators in Florida supported existing regulations for each of the six species, most operators in the northern Gulf states opposed existing regulations for four of the six selected species. With the exception of red snapper, most Texas party

**Table 6.—Percent of sample of party boat operators supporting or opposing catch restrictions for selected species in the U.S. Gulf of Mexico by state or region.**

Species	Texas (n=12)		N. Gulf states (n=5)		Florida (n=20)		U.S. Gulf (n=37)	
	%S <sup>1</sup>	%O <sup>2</sup>	%S	%O	%S	%O	%S	%O
Bluefin tuna	NA <sup>3</sup>		NA		50	10		
Cobia	58 <sup>4</sup>	16	20	40	57	14	51	19
King mackerel	67	25	40	40	65	6	62	16
Red drum	75	25	40	60	65	20	65	27
Red snapper	17	67	20	40	52	14	35	35
Spanish mackerel	58	17	20	40	62	29	51	27
Spotted sea trout	67	17	60	40	NA			

<sup>1</sup>%S = Percent of operators supporting restrictions.

<sup>2</sup>%O = Percent of operators opposing restrictions.

<sup>3</sup>NA = Not asked.

<sup>4</sup>Residual percents include captains who were neutral.

boat operators supported regulations for the remaining five species.

### Discussion

Results revealed why major opposition would be expected from Texas party boat operators for red snapper bag limits (e.g., 7 or 2 fish) or other restrictions proposed by the GMFMC. First, most operators in Texas indicated they were dependent on one or two species in contrast with the situation elsewhere in the Gulf. Second, the mean percent time targeting snapper in Texas was twice that of operators in Florida. Third, whereas party boat operators in Florida generate nearly twice as many snapper effort units, the vast majority of effort units in Texas is devoted to snapper. Finally, Texas operators expressed the most opposition to red snapper regulations (minimum size length of 13 inches) in force in 1987-88 or to any species regulation for that matter.

Our results provide a unique regional view of targeting behavior and estimated effort in the party boat fishery to complement party boat catch and biomass estimates by state (Goodyear and Phares, 1990). Also, our overview provides a more complete understanding of regulatory impacts on small business as required by the Regulatory Flexibility Act of 1980 (5 U.S.C. 601 et seq.). The purpose of this legislation was to promote a process whereby agencies are required "to solicit the ideas and comments of small businesses . . . to examine the impact of proposed and existing rules on such entities and to review the continued need for existing rules. Regulatory Impact Reviews (RIR's) for various amendments to the Reef Fish Fishery Management Plan (GMFMC) aggregate party boats in the U.S. Gulf of Mexico and consequently understate impacts on operators who chiefly target snapper and overstate impacts on those who don't. At a minimum, an RIR should identify 1) activity centers of party boats most dependent on a particular species, 2) where targeting time and estimated effort are the greatest (or where operators are likely to be more impacted by new regulations), 3) where

current effort is concentrated on a limited number of species including the regulated species, and 4) where substitutable species are available for increased targeting. By understanding the assemblage of fish currently targeted by party boat operators in each state, it is possible to predict the likelihood that other species will become more heavily targeted in response to increased regulation of the primary target species and better assess potential economic impacts. Finally, the overview provided should give managers a better idea of where to expect opposition to new rules and a means by which a negotiated settlement can be achieved.

Because fisheries management decisions are made in the political arena as prescribed by the MFCMA, managers have a better chance of protecting and/or rebuilding fish stocks if they recognize social impacts on constituents like party boat operators. First, managers must develop more of an appreciation for the "politician" fishery management style as described by Miller and Gale (1986). Second, they need to understand that a policy, no matter how scientifically sound, will probably be rejected if not in accord with fundamental views held by the public (Vanderpool<sup>3</sup>). Third, managers require a more extensive understanding of the organization, attitudes and opinions of those likely to be impacted by rule making than is currently the case. This understanding can be obtained by more extensive use of personal interviews to assess human dimensions of the party boat fishery, for example, to the same extent we do measurement of catch numbers, biomass, and length frequencies. Finally, human dimensions information needs to be used in a pro-active manner to anticipate, avoid, and mitigate unacceptable social impacts.

Arguably, NMFS has a stake in the viability of the party boat fishery for social and political purposes. The party boat industry needs to survive from a

social equity perspective, namely, anglers wishing to fish offshore should have the means to do so regardless of economic or class distinctions. Without party boats, many anglers without boats would be precluded or constrained from offshore fishing. If this occurs, the idea that only wealthy individuals fish offshore is perpetuated and broad-based public support for NMFS and its budget can be undermined.

There are implications for future research and extension efforts. First, before we can predict party boat fishery impacts (i.e., catch, effort, profitability, etc.) associated with alternative management actions, we need to understand how anglers will respond. Research needs to focus on angler catch rate elasticities and whether, in light of new regulations, they will continue to fish for red snapper, for example, or substitute other species. We need to know the extent to which anglers will reduce or quit fishing for a particular species and/or substitute alternative species. Second, we would hope Sea Grant marine extension programs, which have heretofore played a minor role in providing information and technical assistance to this sector in the Gulf of Mexico (Ditton et al., 1988; Holland and Milon, 1989), can help party boat operators cope with the uncertainties they face as a result of Federal rule making. In particular, operators need assistance in developing new products (i.e., fishing experiences that target alternate species in demand or promote noncatch aspects) and new clientele for their services.

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<sup>3</sup>Vanderpool, J. K. 1987. Social assessment of fisheries resources: Policy and institutional framework in the Great Lakes. Unpubl. pap. pres. at the 117th American Fisheries Society Annual Meeting, Winston-Salem, N. C., 25 p.

interviewers, and project support staff, and, most importantly, the party boat operators who answered our questions. This paper could not have been written without the information they provided voluntarily.

### Literature Cited

- Browder, J. A., J. C. Davis, and C. B. Austin. 1978. Study of the structure and economics of the recreational paying-passenger fisheries of the Florida Gulf Coast and Keys, from Pensacola to Key West. U.S. Dep. Commer. NOAA, Natl. Mar. Fish. Serv., NMFS Contr. 03-7-042-35142, 120 p.
- Carls, E. G. 1976. Long Island boat fishermen. State Univ. N.Y. and Cornell Univ., Ithaca, Sea Grant Rep., 34 p.
- Ditton, R. B., and D. A. Gill. 1988. Developing strategies to enhance charter and head boat fishing operations in Texas, Louisiana, Mississippi and Alabama. U. S. Dep. Commer., NOAA, Natl. Mar. Fish. Serv., Final Rep. NMFS Contr. NA86WC-H-06107, 331 p.
- , J. R. Stoll, and D. A. Gill. 1988. The social structure and economics of the charter and party boat fishing fleets in Alabama, Mississippi, Louisiana and Texas. U.S. Dep. Commer., NOAA, Natl. Mar. Fish. Serv., Final Rep. NMFS Contr. 5617000, 323 p.
- Fraser, M. B., J. A. Henderson, and J. F. McManus. 1977. Survey of commercial sportsfishing boats in the coastal United States. Oreg. State Univ. Sea Grant Coll. Program, Sea Grant Rep. ORESU-T-77-009, 12 p.
- Goodyear, C. P., and P. Phares. 1990. Status of red snapper stocks of the Gulf of Mexico report for 1990. U. S. Dep. Commer., NOAA, Natl. Mar. Fish. Serv., Southeast Fish. Sci. Cent. Rep. CRD89/90-05, 72 p.
- Holland, S. M., and J. W. Milon. 1989. The structure and economics of the charter and party boat fishery fleet of the Gulf Coast of Florida. U.S. Dep. Commer, NOAA, Natl. Mar. Fish. Serv. Final Rep. NMFS Contr. NA87WC-H-06141, 278 p.
- McEachron, L. W. 1984. Harvest estimates for Texas charter boats (1978-1982). Tex. Parks Wildl. Dep., Tech. Ser. Rep. 29, 90 p.
- and G. C. Matlock. 1983. An estimate of harvest by the Texas charter boat fishery. Mar. Fish. Rev. 45(1):11-17.
- Miller, M. L., and R. P. Gale. 1986. Professional styles of Federal forest and marine fisheries resource managers. N. Am. J. Fish. Manage. 6(2):141-148.
- and J. Van Maanen. 1983. The emerging organization of fisheries in the United States. Coast. Zone Manag. J. 10:369-386.
- Prochaska, F. J., and J. D. Cato. 1975. Northwest Florida Gulf Coast red snapper-grouper party boat operators—an economic analysis, 1974. Fl. Sea Grant Program, Sea Grant Rep. SUSF-SG-75-007, 9 p.
- Schmied, R. L. 1975. An exploratory analysis of the Texas charter and party boat fishing industry. Tex. A&M Univ., Coll. Sta. Master prof. pap. (unpubl.).
- Woods, S. A. 1977. A business analysis of the party boat industry on the Texas gulf coast. Tex. A & M Univ., Coll. Sta. Masters thesis (unpubl.).