

Commonwealth of Puerto Rico
Department of Natural and Environmental Resources
Fish and Wildlife Bureau
Marine Resources Division

PUERTO RICO MARINE RECREATIONAL FISHERIES STATISTICS
PROGRAM

Grant F-42.6 Annual Report for the period of January 1, 2006 to December 31, 2006

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Project Title: Puerto Rico Marine Recreational Fisheries Statistics Program

Study Title: Activity and Harvest Patterns in Puerto Rico Marine Recreational Fisheries

Job 1: Multimedia Monitoring and Review

Job Objective: To monitor appropriate literature and news on the activity and harvest patterns of marine recreational fishermen, sport fishing survey techniques and methodologies, and nautical periodicals, as well as biological information and identification of marine sport fish.

This is a constant process, involving visits to libraries, review of technical and popular publications such as nautical periodicals which supply monthly fishing tournament calendars and updates, and specially internet searches which provide valuable information regarding publicized Puerto Rico deep-sea and light tackle charter recreational fishery activities. In addition, monitoring will require on-site verification of pending or last minute fishing tournaments, especially at commercial fishing associations and small-scale marinas, not announced in local periodicals or publications. Such literature may be in the form of pamphlets and brochures.

Procedures/Results: Literature information has been collected periodically, and is currently in progress through multi-resources such as the Internet as well as produced reports from PRDNER generated recreational fishery projects.

The list of books is as follows: Deloach, Ned. Reef Fish Behavior. 1999; Deloach, Ned. Reef Fish Identification. 1999; Dickson, H.. Fishes of the Gulf of Mexico. 2nd Ed. 1998; Grana, F. Catálogo de Nomenclatura de los peces de Puerto Rico y Las Islas Vírgenes. 1993; Hoese and Moore. Fishes of the Gulf of Mexico. 1998; Lavett, S. National Audubon Society Field Guide to Tropical Marine Fishes. 1997. Lieske, El. Coral Reef Fishes. 1996; NOAA, Sea Grant. Guide to Sharks, Tunas and Billfishes of the U.S. Atlantic and Gulf of Mexico. 2003.; Randall, J. Caribbean Reef Fishes. 3rd Ed. 1996.; Robins, Richard. Peterson Field Guide Atlantic Coast Fishes. 1986.

The list of periodicals, magazines and journals are as follows: La Regata, Periódico Náutico de Puerto Rico.; Florida Sportman, The North American Journal of Fisheries Management and Saltwater Sportman.

The list of fisheries-related websites are as follows: <http://www.noaa.gov>, <http://www.nmfs.noaa.gov>, <http://www.floridasportman.com>, <http://www.marlinmag.com>, <http://www.sportfishingmag.com>, <http://www.fishbase.org>, <http://www.billfish.org>, <http://www.seagrants.noaa.gov>, <http://www.caribbeanfmc.com>, <http://www.seagrants.com>.

Internet searches were used to provide information on charter boat activities throughout Puerto Rico. Also, on the Internet, digital fish photographs were downloaded to add to a file with pictures that had been scanned from originals. This file is continually updated and used in fish tests and training for interviewers.

Job 2: Assessment of Marine Recreational Tournament Fishery

Job Objective: To estimate tournament landings and/or releases by kilogram and catch per unit effort of marine recreational anglers. To collect, store and analyze biostatistical and socioeconomic information, on-site effort, landings and/or release data. Tournament surveys will include dolphin, tarpon, snook, billfish and any other finfishes such as snappers, groupers, etc.

Procedures/Results: Project Staff will contact PRSA or other organizations to obtain the annual tournament agenda. Then, project staff will attend each tournament and collect the landings and/or releases data as well as total effort information from records (logbooks) and will also collect biometrical data. These will include information on sex (whenever possible), length, weight and species identification as a minimum.

A fishing tournament calendar for year 2006 was developed by calling marinas and angler associations throughout the Island and by attending the annual assembly of the Puerto Rico Sportfishing Association. DNER personnel contacted tournament organizers to determine the arrival time of fishermen and the weighing period for each tournament. Since 2004, a clause in the permit for marine events was added stating organizers' responsibility to ensure the presence of our personnel and to make available requested information to DNER project personnel.

The following information was requested by interviewing anglers and tournament participants. During the first fishing day, the number of participants and boats in the activity as well as a copy of the rules of the tournament were requested. Anglers were contacted upon their arrival at the weigh station; there they were interviewed regarding fishing for the day. The following information was obtained: **A)** Boat name **B)** Number of people fishing **C)** Time spent fishing **D)** Fishing location **E)** Fish species **F)** Number of tag/releases **G)** Fish condition at release (e.g. Mutilated, healthy, dead etc.) **H)** Sex **I)** Length (mm) **J)** Weight (lbs/kg) of boarded fish. For the purpose of this study, bycatch would be defined as any fish species that were not targeted in the tournament. The same information (i.e. boat name, fish species measurements, etc.) was mostly collected at the piers for bycatch. Whenever possible all boarded fish were measured and weighted for each boat.

All boarded fish were measured to the nearest millimeter (mm) and weighed in pounds during the tournament and further converted to kilograms for data analysis. All measurements were taken measuring in a straight line from fish's mouth to tail (Total Length) or from fish's mouth to the fork of the tail (Fork Length), depending on fish caught.

For billfishes, measurements were taken drawing a straight line on the floor from the lower jaw (LJ) to tail's fork (FL).

Data was entered into a computer for its further analysis using Microsoft© Access 2000. The information was annotated to determine size and weight frequencies by species. These data was used to determine Catch per Unit Effort (CPUE) for takes and fishing activity.

For the purpose of data analysis, a database was created using Microsoft Access 2000. To standardize the data, ORC Macro Intercept Interviewing Manual for the Atlantic and Gulf Coasts ten (10) digit code was applied.

From the data collected, the catch per unit effort was determined using the following formula:

$$\text{Catch per unit effort} = \text{CPUE} = C/F$$

$$\text{Catch} = C = \text{No. of fish}$$

$$\text{Fishing Effort} = F = (\text{No. boats}) * (\text{time-spent fishing})$$

Catch per unit effort is expressed in terms of fish caught/boats in tournament by time-spent fishing. Analysis of catch was done for all species caught including bycatch caught in tournaments.

Recreational fishing tournaments are a year round activity; most tournaments comply with state and federal regulations for maritime events (permits etc.) although some clubs and marinas celebrate annual “pool” tournaments which in most cases lack the appropriate permits.

During 2006, a total of 28 tournaments were visited (Table 1). Tournament season for 2006 began in February and ended in November. Participation in tournaments during 2006 was as follows, 960 registered boats and 3,751 anglers (Table 1). The most targeted species were blue marlin, dolphin, and wahoo. A total of \$493,270.00 was collected in tournament fees on 22 of 27 tournaments (Table 2).

The North Coast had the most tournaments and participation (11 tournaments and 368 boats with 1,383 fishermen. This was followed by the West Coast with 8 tournaments (314 registered boats and 1,256 fishermen). Even though the South Coast had only 6 tournaments it had the highest total weight landed for a tournament (8,619.47 kg) (Table 3).

Total weight recorded for tournaments visited in 2006 was 14,168.27 kg, which is 4,103.10 kg more than in 2005 (10,065.17 kg). Tournament participation for 2006 (3,751) was slightly higher than 2005 (3,618) (Rodriguez-Ferrer 2006).

Most of the surveyed tournaments were part of the activities of the Puerto Rico Sport Fishing Association. This year most of the commercial fishing associations decided not to have their tournaments. Most organizers complained of the new fishing regulations as the cause of changes in the dynamics of tournaments.

Dolphin

Dolphin (*Coryphaena hippurus*) tournament started this year's tournament season, in February. A total of 6 tournaments targeted the species exclusively (Table 2). Participation in dolphin tournaments was as follows: 206 registered boats and approximately 804 fishermen, a slight decrease from 2005 (245 boats and 1009 participants). A total of \$71,650.00 with an average of \$345.83 per boat was collected as a fee at these six tournaments (Table 2).

Most of the marinas and clubs adopted the new fishing regulations for the species applying the 20-fish/boat quota established for dolphin by the Department of Natural and Environmental Resources. Most of the clubs eliminated the prize for most fish landed and for smallest fish. Instead prizes were awarded for most pounds of fish landed increasing the pressure to bring “the big ones” (high -grading). Some clubs applied minimum weight limits for the species.

A total of 11,508.14 kg of dolphin was landed, almost doubling the weight reported as landed during 2005 (6,249.32 kg) (Rodriguez-Ferrer 2006) (Table 4). April was the month with the highest total weight of fish landed (Table 5).

Increase in kilograms of fish landed happened even though quotas were applied to dolphin by most tournament organizers in their activities. CPUE (catch per unit effort) was 0.770 a slightly higher than 2005 (0.757) (Table 6).

Sizes of the fish measured ranges from 330-1,502mm (n=1246, Mean=1010 mm Mode=1097mm, SE=4.84) (Fig. 1 and Table 7). We observed a trend to land bigger fish. Only 5.44% of the fish weighed were immature and 94.5% were mature individuals (This was determined only using size as a measure of the maturity (Perez at al 1992)). Individuals are easy to sex due to an estimate by sexes morphological differences between sexes. Using only these external characteristics, we sexed the individuals weighed in tournaments. Females were the most landed in the tournaments (7,541.85 kg) (Table 8).

Billfish

Since 2003, a Highly Migratory Species (HMS) permit (federal) is required for all recreational anglers. This permit covers Billfish, Tunas, Swordfish and Sharks; some species catch is prohibited and some have minimum size requirements. State government adopted (in the Puerto Rico Fishing Regulation of 2004) compatible measures for highly migratory species. Most clubs emphasize the importance of having valid HMS permits to fishermen at the day of inscriptions and in their rules. Some clubs have decided to increase their minimum size requirements specifically for blue marlin, so that even those that comply with federal laws might not qualify for prizes. Although some anglers and clubs are trying to incorporate “all release” billfish tournaments around the Island, there are still some anglers and clubs that prefer to land fish regardless of billfish species. Out of 13 tournaments, 4 were all release tournaments.

Blue Marlin

Thirteen (13) blue marlin (*Makaira nigricans*) tournaments were held in the Island, two of these were light tackle tournaments. A total of 2,206 anglers and 558 boats participated in blue marlin tournaments (Table 2). Tournament fee for 12 of the 13 tournaments visited were approximately \$401,695.00 with an average of \$719.88 per boat (Table 2).

Blue Marlin tournaments have changed from a catch focused activity to a tag and release focus. This is seen in the decrease of individuals landed. This year only 8 specimens were landed, for a total of 1,646.02 kg (Table 4). May, August and September were the months where anglers landed specimens (Table 9).

For blue marlin, the landed size ranges from 2,565-2,870 mm ($n = 8$, Mean = 2,731.75mm, Mode = 2070, SE = 41.01) (Table 7 and Fig. 2). CPUE at these tournaments was 0.002 (Table 6).

A total of 441 blue marlin were reported tagged and released in tournaments. As mentioned above, tournament organizers are promoting the release practice (Table 10). August and September were the months with the highest number of individuals tagged and released (Table 11), also the months with more blue marlin tournaments.

Other billfishes

Other billfish species targeted at tournaments was the sailfish (*Istiophorus platypterus*). 2006 had two tournaments targeting the species. Both tournaments were held on the north coast with a total of 139 participants and 34 boats (Table 2). Tournament fees for these tournaments were not reported.

The tendency at these tournaments is to tag and release individuals, though on rare occasions a sailfish is landed. This year no specimens were landed. Sixteen individuals were reported as tagged and released (Table 10).

White Marlins (*Tetrapturus albidus*) were also reported at tournaments. Six specimens were tagged and released (Table 10).

Wahoo

Two wahoo (*Acanthocybium solandri*) tournaments were held in 2006, one in Mayaguez and the other in Guayama (Table 1). Participation at these tournaments was as follows; 248 anglers and 62 boats with a collected tournament fee of \$15,300.00 for an average of \$246.77 per angler. Total for the species was 679.71 kg (Table 4). Size ranged from 635-1600 mm ($n=56$, Mean =1149 mm, mode= 914 mm, SE= 28.77) (Table 7 and Fig. 3).

Several species

Three tournaments where several species were targeted were visited in 2006. All species reported were pelagic (ie. dolphin, blue marlin, wahoo etc.) (Table 13). A total of 683.91 kg were weighted.

Bycatch

As mentioned, bycatch would be defined as any fish species that was not targeted in the tournament. A total of 305.5 kg were reported on tournaments. Species included wahoo, tuna and dolphinfish as the bycatch species most often landed (Table 14).

Billfishes were also impacted. This year, only tagged and released individuals were reported. Blue marlin was the species most frequently tagged and released, (4 individuals) (Table 15).

This is the sixth-year of data collection for marine fishing tournaments. The void in this type of fishery information has been fulfilled by this initiative. In only six years, the evolution of

marine recreational fisheries data collection and management is noted. Data collection at the beginning of the project was difficult due to the anglers' reluctance to cooperate with DNER personnel. Data collection, went from voluntary to mandatory, so that anglers now cooperate with the data collection in all fishing tournaments.

Since May 31, 2005, under the fishing regulations (PRDNER, Regulation No. 6768) recreational fishing quotas were established for wahoo and dolphin (5 specimens per species/ per angler, total 20 (by species per boat)). At the beginning of 2006 (dolphin tournament season) anglers were reluctant to accept the changes but, most clubs adopted this new regulation within their rules, as a result, quotas were met and rarely exceeded by anglers. Also, some clubs included in their rules minimum weight requirements as well as the required quotas for landed dolphin and wahoo.

Landings and participation did not show signs of decreasing due to the established quotas; in some cases both increased. Most anglers brought 20 fish per boat at the weigh station. Bigger fish were landed due to the fact that the prize for most pieces was eliminated and in its place prizes were awarded for most pounds of fish landed and biggest fish. It is unknown how many anglers in tournaments went over the quota, since law enforcement officers rarely check boats individually and anglers know of our presence and brought to the weigh station only what is permitted.

Total weight of fish landed increased from 2005. It is clearly noted that fishing tournaments are still an important activity for fisheries and it do not show any signs of decline. There are several areas where fishing tournament management can be improved. On the law enforcement side, a more aggressive intervention is needed especially for the illegal sale of tournament fishes, quotas and size limits. On the scientific side, there is a lack on biological data for several species targeted in these activities. Fishing tournaments are a great source of pelagic specimens that are costly to find through other means. DNER can address this gap by expanding data collection of projects such as this (histology, genetics, etc.).

Table 1. Tournaments held in 2006.

Date	Site	County	Tournament Type	Total Participants	Total Boats	Total Weight (kg)
02/07/06	Club Deportivo del Oeste	Cabo Rojo	Dolphin/Wahoo	108	27	273.76
02/04/06	Cangrejos Yacht Club	Carolina	Dolphin	140	35	808.6
02/11/06	Club Nautico de San Juan	San Juan	Dolphin	80	25	332.91
03/25/06	Club Nautico de Boquerón	Cabo Rojo	Dolphin	132	33	2,059.90
03/04/06	Culebra Anglers Challenge	Culebra	Several species	72	18	129.64
04/01/06	Ponce Yacht and Fishing Club	Ponce	Dolphin	116	29	1,194.87

04/22/06	Asoc. De Pescadores Y Dueños de Bote de La Guancha	Ponce	Dolphin	168	42	3,650.50
04/29/06	Club Nautico de La Parguera	Lajas	Dolphin	168	42	3,197.89
05/06/06	Ponce Yacht and Fishing Club	Ponce	Blue Marlin	124	31	0
05/20/06	Club Nautico de La Parguera	Lajas	Blue Marlin	132	33	234.96
07/15/06	Asoc. Pescadores Palmas Altas	Barceloneta	Several species	46	23	10.41
07/08/06	Arecibo Outboard Club	Arecibo	Blue Marlin	40	10	Tag/released
07/15/06	Asoc. Pesca Deportiva de Dorado	Dorado	Blue Marlin	104	26	Tag and released*
08/05/06	Club Nautico de Arecibo	Arecibo	Blue Marlin	124	31	429.09
08/11/06	Cangrejos Yacht Club	Carolina	Blue Marlin	342	88	649.5
08/19/06	Club Nautico de Vega Baja	Vega Baja	Blue Marlin	124	35	189.14
08/27/06	Club Nautico de San Juan	San Juan	Blue Marlin	244	61	Tag and released*
09/08/06	Marina Puerto del Rey	Fajardo	Several species	128	32	543.86
09/16/06	Club Nautico de Boqueron	Cabo Rojo	Blue Marlin	256	64	Tag and released*
09/24/06	Marina de Boqueron	Cabo Rojo	Blue Marlin	40		Tag and released*
09/29/06	Club Deportivo del Oeste	Cabo Rojo	Blue Marlin	468	117	7.26
10/07/06	Club Nautico de Mayaguez	Mayaguez	Blue Marlin	124	31	Tag and released*
10/14/06	Club Deportivo del Oeste	Cabo Rojo	Blue Marlin	84	21	Tag and released*
11/04/06	Club Nautico de Mayaguez	Mayaguez	Wahoo	44	11	67.47
11/11/06	Cangrejos Yacht Club	Carolina	Sailfish	79	19	47.26
11/11/06	Club Nautico de Arecibo	Arecibo	Sailfish	60	15	Tag and released*
11/19/06	Club Nautico de Guayama	Guayama	Wahoo	204	51	341.25

*only tag and released billfish were reported

Table 2. Fishing tournaments by target species.

Tournament type	Number of Tournaments	Number of participants	Number of boats	Earnings from fees
Bottom fishing	0			
dolphin/wahoo	1	108	27	\$4,050.00
tarpon/snook	1	N/A	N/A	N/A
sailfish	2	139	34	N/A
wahoo	2	248	62	\$15,300.00
several species	2	246	50	\$575.00
dolphin	6	804	206	\$71,650.00
blue marlin	13	2206	558	\$401,695.00
Total	27	3751	937	\$493,270.00

Table 3. Participants by coast.

Zone	Number of Tournaments	Number of participants	Number of boats	Total weight (kg)
North	11	1,383	368	2,466.91
South	6	912	228	8,619.47
East	2	200	50	673.5
West	8	1,256	314	2,408.39
Total	27	3,751	960	14,168.27

Table 4. Total weight by species.

Species	Total weight (kg)
bigeye tuna	10.65
bonito	6.34
rainbow runner	2.26
unidentified tuna	7.27
little tunny	15.4
white marlin	N/W
albacore	20.86
blackfin tuna	21.31
skipjack tuna	100.64
yellowfin tuna	129.7
king mackerel	19.97
great barracuda	N/W
wahoo	679.71
dolphin	11,508.14
sailfish	N/W
blue marlin	1,646.02
Total	14,168.27

N/W = no weight

Table 5. Total weight (kg) by month - dolphin.

Month	Total weight (kg)
January	NT
February	1,245.01
March	2,147.05
April	7,886.84
May	Only measurements
June	NR
July	NR
August	NR
September	199.71
October	Only measurements
November	29.53
December	NT
Total	11,508.14

*NT = No Tournament

*NR = Not Reported

Table 6. Catch per Unit Effort (CPUE) for targeted species.

Species	CPUE
blue marlin	0.002
Blue marlin (tagged and released)	0.099
dolphin	0.77
wahoo	0.058
dolphin/wahoo	0.222
several species	0.294

Table 7. Length and weight ranges of boarded fish.

Fish species	Common name	Length range (mm)	N	Weight range(kg)	N
<i>M.nigricans</i>	blue marlin	2565-2870	8	146.96-263.53	8
<i>C. hippurus</i>	dolphin	330-1502	1245	0.45-32.2	1331
<i>A. solandri</i>	wahoo	635-1600	56	0.45-29.09	61
<i>T.albacares</i>	yellowfin tuna	609-1219	11	3.63-26.76	11
<i>T. atlanticus</i>	blackfin tuna	424-584	5	1.58-4.08	7
<i>S. sarda</i>	atlantic bonito	NR	NR	2.72-3.62	2
<i>S. barracuda</i>	great barracuda	NR	NR	NR	NR
<i>E. alleteratus</i>	little tunny	495-990	4	1.81-11.33	3
<i>S. cavalla</i>	king mackerel	965-1066	2	1.81-9.09	4
<i>K. pelamis</i>	skipjack tuna	457-774	14	1.81-9.07	14
<i>T. obesus</i>	bigeye tuna	304-711	3	3.85-6.8	2
Thunnus spp.	tuna genus	NR	NR	7.27	1
<i>E. bipinnulatus</i>	rainbow runner	NR	NR	2.26	1

Table 8. Total weight by sex – dolphin.

Sex	Total number	Length range (mm)	N	Total Weight (kg)	N
Unknown	186	412-1258	68	920.19	133
Immature	35	330-914	32	87.47	33
Males	283	546-1502	272	2967.24	277
Females	907	822-1360	873	7541.85	888

Table 9. Total weight (kg) by month - Blue Marlin.

Month	Total weight (kg)
January	NT
February	0
March	0
April	0
May	234.96
June	0
July	0
August	1,264.10
September	146.96
October	0

Table 10. Tagged and released reported in tournaments.

Species	Tagged/released	Released	Lost
Blue Marlin	441	6	79
White Marlin	6	3	0
Sailfish	16	8	0

Table 11. Blue marlin tagged and released, released and lost by month.

Month	Tagged/released	Released	Lost
January	NT	NT	NT
February	0	1	3
March	1	2	0
April	4	2	1
May	25	0	0
June	0	0	0
July	4	0	0
August	141	0	74
September	240	0	0
October	20	0	0
November	6	1	1
December	NT	NT	NT

Table 12. Total weight (kg) by month - Wahoo.

Month	Total weight (kg)
January	0
February	116.07
March	13.94
April	91.12
May	NR
June	0
July	0
August	NR
September	38.52
October	0
November	403.28
December	0

Table 13. Weight of specimens landed on fishing tournaments – several species

Species	Total Weight (kg)
rainbow runner	2.26
king mackerel	4.07
little tunny	4.07
atlantic bonito	6.34
blackfin tuna	10.19
bigeye tuna	10.65
wahoo	38.07
yellowfin tuna	66.67
skipjack	100.64
blue marlin	146.96
dolphin	293.99
Total	683.91

Table 14. Bycatch species on fishing tournaments.

Species	Fish reported	Fish weighed	Weight (kg)
great barracuda	11	0	0
king mackerel	3	2	15.9
tuna family	1	1	7.27
albacore	2	2	20.86
little tunny	1	0	0
blackfin tuna	3	3	11.2
yellowfin tuna	7	5	73.47
dolphin	25	6	42.23
wahoo	39	19	134.12
Total	92	38	305.05

Table 15. Bycatch billfish species on fishing tournaments.

Species	Fish Reported	Tagged and Released	Released	Lost
White Marlin	2	0	2	0
Blue Marlin	12	4	4	4
Sailfish	2	1	1	0

Size Frequency Distribution : dolphin

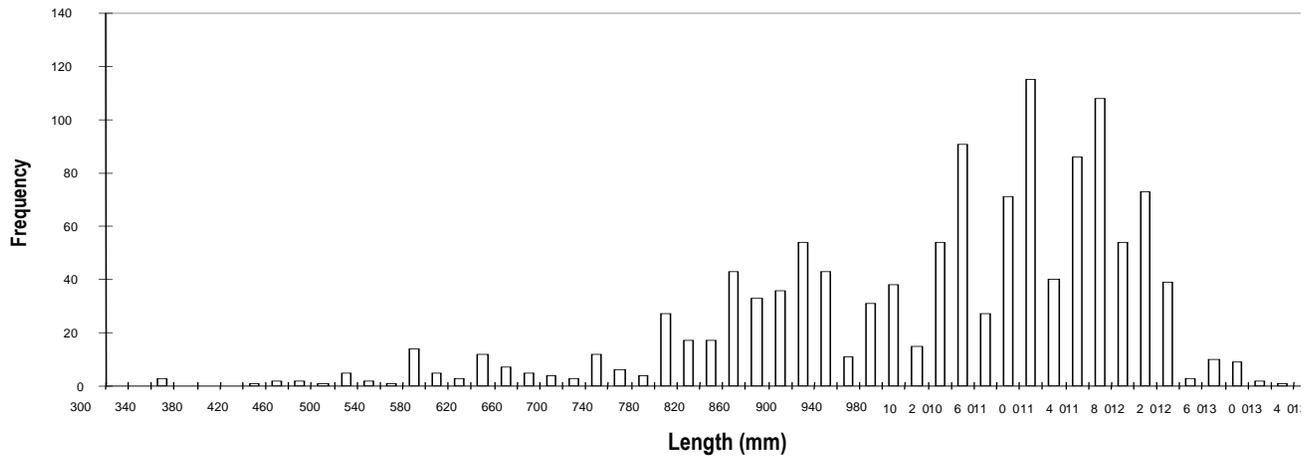


Figure 1. Size Frequency Distribution – dolphin. Size frequency distribution of dolphin during tournaments 2006. Species were measured in millimeters from mouth to tail fork (FL).

Size Frequency Distribution – blue marlin

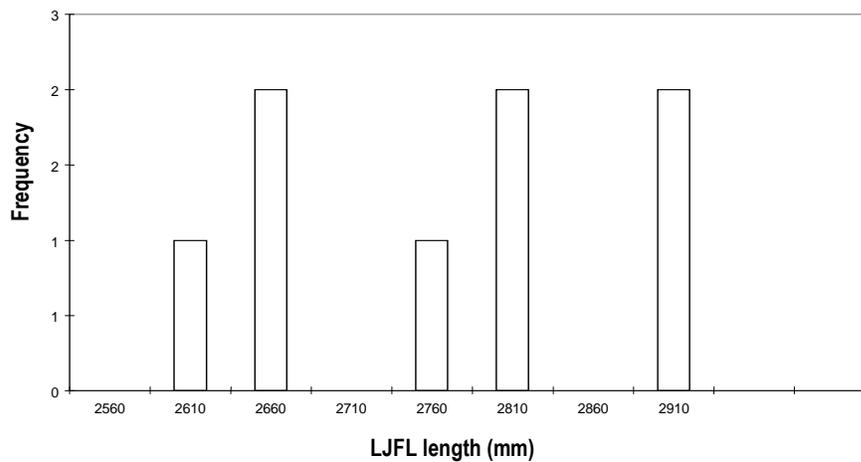


Figure 2. Size Frequency Distribution – blue marlin. Size frequency distribution of blue marlin during tournaments in 2006. Species were measured in millimeters from lower jaw to fork length.

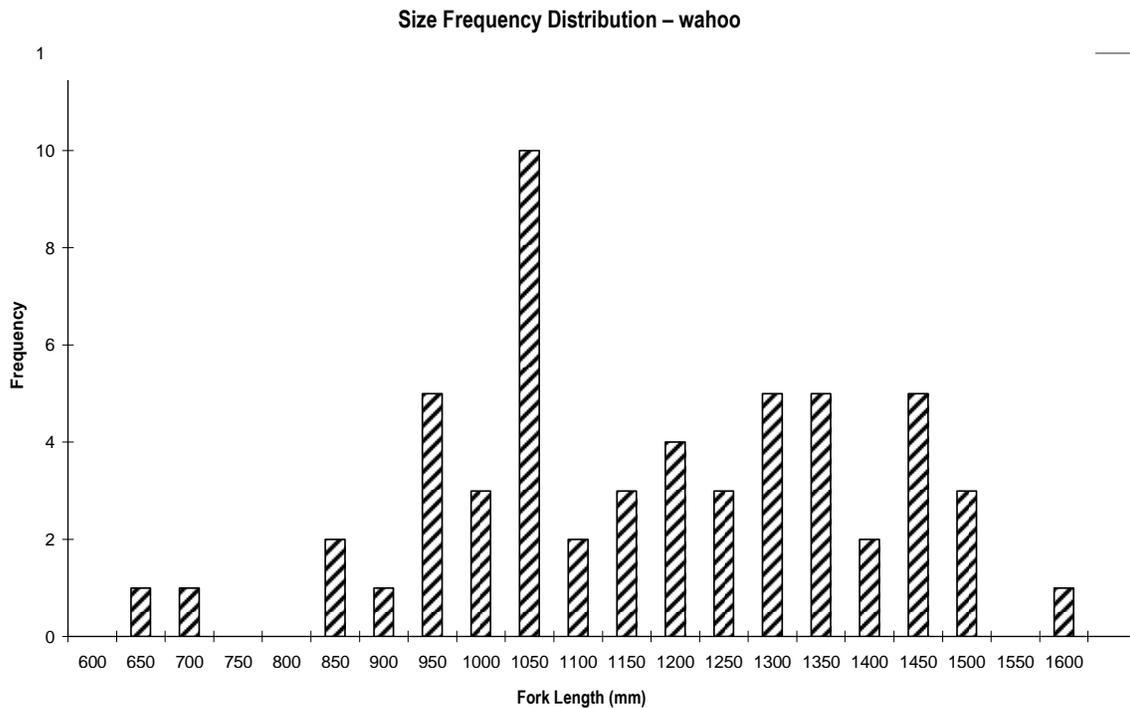


Figure 3. Size Frequency Distribution – dolphin. Size frequency distribution of wahoo during tournaments 2006. Species were measured in millimeters from mouth to tail fork (FL).

Job 3: Assessment of Marine Recreational Fisheries

Procedures/Results: The job is divided in three activities by fishing modality: activity 1, assessment of shoreline marine recreational fisheries; activity 2, assessment of charter boat marine recreational fisheries; and activity 3, assessment of private/rental boat marine recreational fisheries.

MRFSS uses a historical productivity data (average of interviews per assignment) and the fishing pressure (number of anglers) in each fishing site to estimate the number of assignments needed to achieve the interview quotas in each wave/mode combination. MRFSS randomly generate the required number of assignments for monthly and bi-monthly (wave) point-access intercepts in the three modes, shoreline (SH), private boat (PR) and charter boat (CH). A shore, private boat or charter boat interviewing “assignment” consists of a target mode, a fishing site with activity in target mode, and the date on which the site is to be visited.

Quota system was closely followed bi-monthly, Wave 1 (Jan/Feb), Wave 2 (Mar/Apr), Wave 3 (May/Jun), Wave 4 (Jul/Aug), Wave 5 (Sep/Oct) and Wave 6 (Nov/Dec). The total bi-monthly quota was 406 intercepts, distributed as follows: 126 SH, 87 CH and 193 PR. With

regards of minimizing the percent of errors in data obtained, all quotas are expected to be completed during all waves, although 90% is accepted. In terms of completed assignments, a 85% is expected to be completed, 70% is accepted.

Coverage of Puerto Rico, Culebra and Vieques islands was continued, Mona Island was discontinued during 2006 period due to the lack of personnel. The master site register was updated on a monthly basis to reflect any changes in the pressure of a site (number of anglers typically found at time of peak fishing activity). Recreational fishing data (including catch, species identification, fish weight and length, effort, location, fishing gear) and basic socioeconomic data (party size, place of residence, target species, etc.) were collected in a standardized time frame using an interview form at the selected intercept sites. Catch and fishing effort estimates were generated from wave (bi-monthly) reports and MRFSS estimate tables.

All catch data is collected through the intercept survey, fishing effort (number of fishing trips), is estimated from the telephone survey made by MRFSS. MRFSS effort and catch estimates formulas are given in Appendix 1.

Participation level (number of people) in Puerto Rico’s recreational fishery resources, regardless of mode, overwhelmingly were Puerto Rico residents or “coastal” as opposed to non-residents or “out of state” participants.

Assignments (Table 16), regardless of modality, were not completed as expected in all waves only waves 1 and 2 were accepted (86.8% and 87.9% respectively). Waves 3 through 5 reported the highest number of assignments uncompleted (23.9% ,31.2% and 34.6% respectively). The average of completed assignments by wave was 102.00 (55.02%).

Table 16. Total Assignments. Assignments completed, needed and remaining by wave to reach quota. There were a high number of uncompleted assignments during all waves.

Wave	Total Completed Assignments			Completed %
	Assignments			
	Needed	Completed	Remaining	
1	144	125	19	86.8
2	140	123	17	87.9
3	230	55	134	23.9
4	285	89	196	31.2
5	309	107	202	34.6
6	172	113	59	65.7
Total	1280	612	612	47.8
Ave.	213.33	102.00	104.50	55.02

A high number of total valid intercepts (number of interviews obtained), regardless of modality, was obtained during waves 1 and 2 (Figure 4), which then started decreasing from waves 3 through 5, although a slight increase was evident during wave 6. The established quota of 406 intercepts by wave was not completed in any wave.

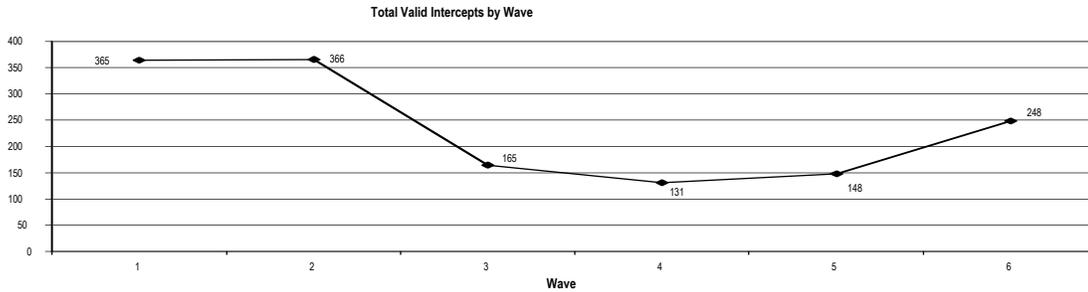


Figure 4. Total Valid Intercepts by Wave. Interviews obtained decreased from wave 3 through 5, an increase was evident in Wave 6.

The need for full time interviewers can explain the excess of remaining assignments and the decrease in valid intercepts during waves 3 through 5. Waves 1 and 2 counted with 6 interviewers (4 from ORC Macro, 2 from DNER), the number of interviewers was reduced to 3 in waves 3 through 5 (2 from ORC Macro, 1 from DNER). Wave 6 had 4 interviewers in November (2 from ORC Macro, 2 from DNER) and 8 in December (6 from ORC Macro and 2 from DNER).

Estimated total participation by wave, regardless of residence (Figure 5), decreased during wave 4 and 5. Residents (Figure 6) had a high participation level during waves 2 and 3, while its lowest peak was during waves 4 and 5. On the other hand, non-residents had its highest peaks during waves 1 and 6, while its lowest peaks were during waves 4 and 5.

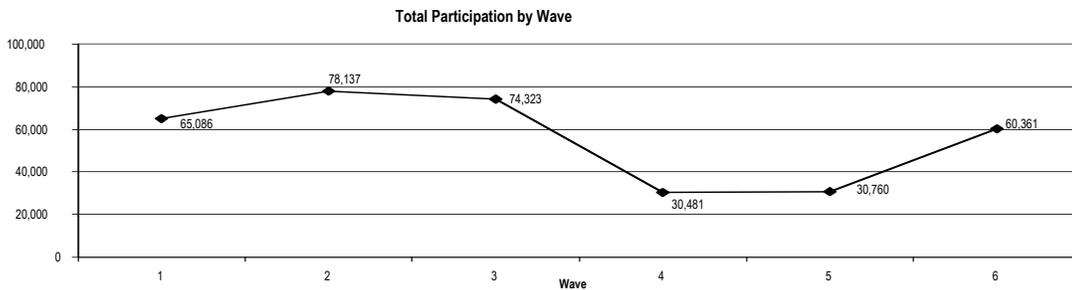


Figure 5. Total Participation by Wave FY 2006. Total participation, regardless residence, presented its lowest peaks in waves 4-5.

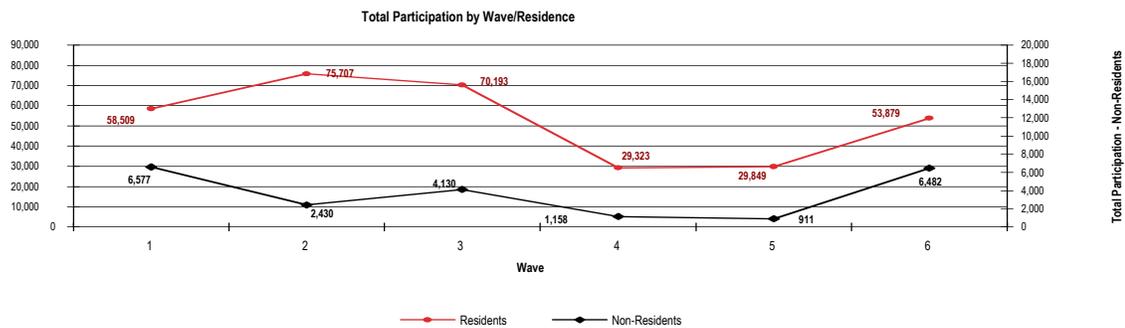


Figure 6. Total Participation by Wave/Residence. Resident type total participation was higher during waves 2-3, while non-resident type was higher during waves 1 and 6.

The largest components of Puerto Rico marine recreational anglers are residents, with 93.61% of participation (192,539 participants), while non-residents represented a 6.39% (20,466 participants) of total participation (213,005 participants) in 2006.

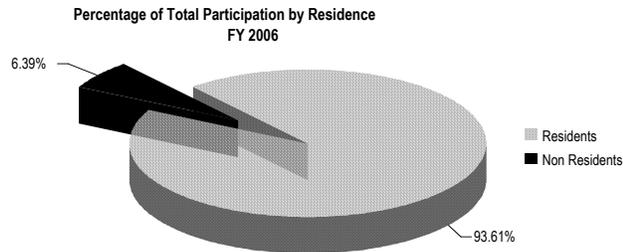


Figure 7. Percentage of Participation by Residence FY 2006. Residents anglers had a higher participation in marine recreational fishing than non-residents.

In terms of estimated Average Angler-Days, or average fishing days by wave (Table 17), SH spent more days fishing than PR and CH, with an average of 8.17 angler days by wave, with higher points in waves 1 and 2. CH had an average of 0.46 fishing days by wave, with higher points in Wave 6. On the other hand, PR had an average of 4.96 angler days by wave, with higher points in waves 1, 2 and 6.

Table 17. Average Angler-Days by Wave. Shoreline anglers spent more days fishing than private boat anglers and charter boat anglers.

Average Angler-Days by Wave/Mode			
Wave	SH	CH	PR
1	9.11	0.10	5.11
2	9.92	0.41	5.82
3	8.04	0.26	4.34
4	8.42	0.36	4.36
5	5.90	0.38	4.61
6	7.61	1.23	5.52
Wave Ave.	8.17	0.46	4.96

In terms of estimated Average Angler-Hours, or average fishing hours by day (Table 18), PR anglers spent more time fishing than CH and SH, with an average of 4.78 hours by wave, having its lowest peaks during Wave 4. SH anglers had an average angler-hour of 2.69 by wave, with its lowest peak on Wave 4. CH had an average angler-hour of 4.35 by wave, with its lowest peak during wave 3.

When anglers fish from their private boats, they spent more time in the activity. However, shoreline anglers fish more frequently.

A total of 955,123 estimated fishing trips were reported in 2006 (Table 19), regardless of modality, with an average of 159,187 trips by wave. Estimated total fishing effort by modality: SH mode reported the highest fishing effort 507,026; followed by PR mode, 431,274 and CH mode 16,823.

Table 18. Average Angler-Hours by Wave. Private boat anglers spent more hours fishing than shoreline anglers and charter boat anglers.

Average Angler-Hours By Wave/Mode			
Wave	SH	CH	PR
1	3.20	4.08	5.32
2	3.26	4.47	4.60
3	2.60	3.70	4.27
4	2.26	4.71	3.50
5	2.33	5.34	5.92
6	2.46	3.81	5.09
Wave Ave.	2.69	4.35	4.78

In terms of estimated fishing effort by wave (Figure 8), Wave 3 reported the highest effort in 2006 (Figure 8). The lowest peak was reported in Wave 5.

Table 19. Total Effort By Modality/Wave. SH anglers had higher fishing effort than CH and PR.

Total Effort by Wave/Modality				
Wave	SH	CH	PR	Total
1	112,268	7,608	51,267	171,143
2	110,055	0	127,058	237,113
3	114,372	752	163,334	278,458
4	39,282	1,720	23,027	64,029
5	42,155	0	19,931	62,086
6	88,894	6,744	46,656	142,294
Total	507,026	16,823	431,274	955,123
Ave.	84,504	2,804	71,879	159,187

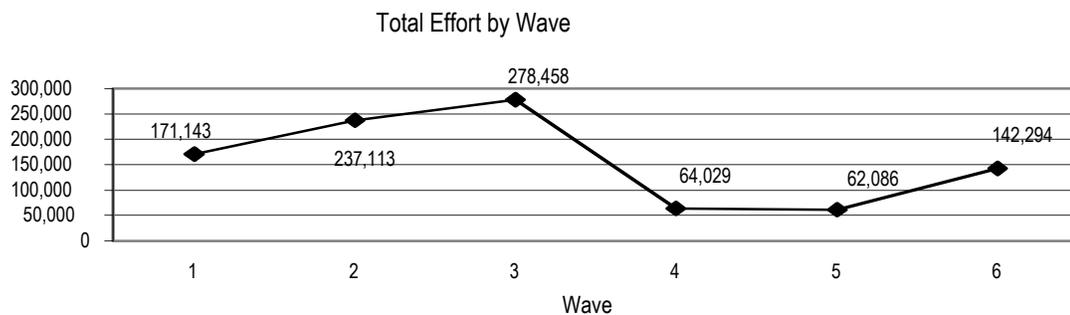


Figure 8. Total Effort by Wave FY 2006. Wave 2 reported the highest effort in 2006 period.

Percent of estimated fishing effort (angler fishing trips) by modality/wave (Figure 9), showed that SH and PR made more fishing trips by wave than CH. Shoreline anglers made more fishing trips during waves 1 through 3, charter boat anglers made more fishing trips during waves 1 and 6; private boat anglers made more fishing trips during waves 2 and 3.

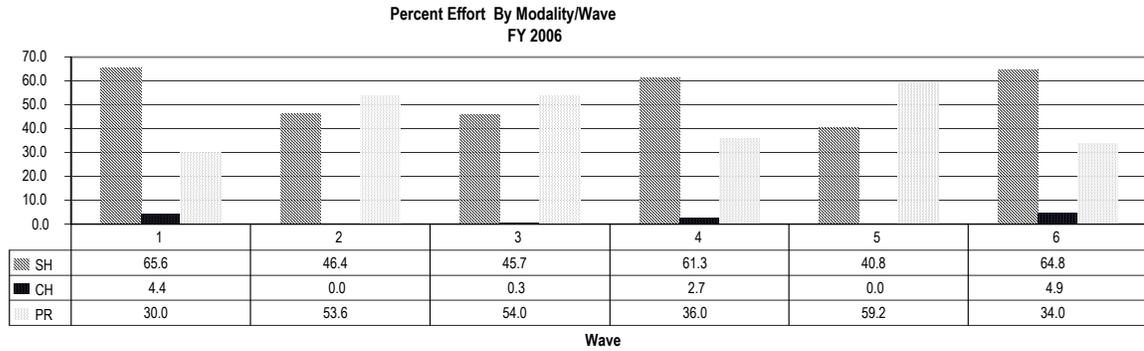


Figure 9. Percent Effort By Modality/Wave FY 2006. Percent of fishing trips made by wave/modality for year 2006.

Shoreline anglers made more fishing effort than PR anglers and CH anglers. Percent of estimated fishing effort by modality was 52.9% SH, 46.1% PR and 1.3% CH (Figure 10).

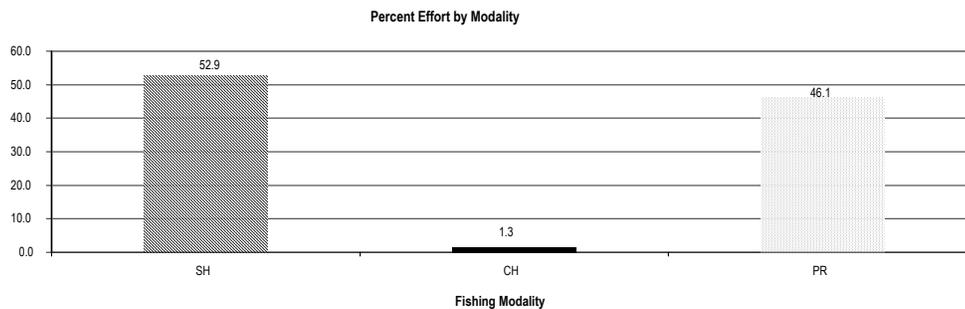


Figure 10. Percent Effort by Modality FY 2006. SH anglers had higher fishing effort than PR and CH.

Waves 4 and 5 reported very bad weather episodes in August and September, which could contribute to the decrease in effort in these waves. The National Weather Service reported in August 12 days of small craft advisories, gusty winds, steep and high waves, dangerous lightning, heavy rains and water spouts. September had 15 days of small craft advisories, high waves, heavy rains and dangerous lighting. This can explain the low completed assignments, valid intercepts, participation and fishing effort in waves 4 and 5.

Year 2006 reported an estimated total catch of 818,278 individuals, with an average of 136,379 individuals caught by wave (Table 20). Estimated total catch by wave (Figure 11), regardless of fishing mode, showed its highest peaks during waves 1 and 6, Wave 4 represented the lowest peak, with a total of 29,317 individuals caught. Estimated total catch started decreasing from Wave 2 through 4, then started increasing from Wave 5 through 6.

In terms of percent of total catch by modality (Figure 12), PR and SH presented the highest percent of total catch in 2006, while CH had the lowest percent of total catch.

Table 20. Total Catch by Wave. Year 2006 reported a total catch of 656,472 individuals boarded and 168,192 individuals released. This represents a total of 946,855 kg of fish boarded and an annual CPUE of 0.763

Total Catch by Wave				
Wave	Total Catch	Total Released	Total Weight (kg)	CPUE
1	166,275	31,300	235,555	0.970
2	127,345	21,856	228,298	0.537
3	277,332	16,662	147,606	0.996
4	29,318	2,358	7,018	0.458
5	96,949	54,019	50,814	1.562
6	148,878	41,997	277,564	1.046
Total	846,097	168,192	946,855	0.944
Ave. by Wave	141,016	28,032	157,809	0.928

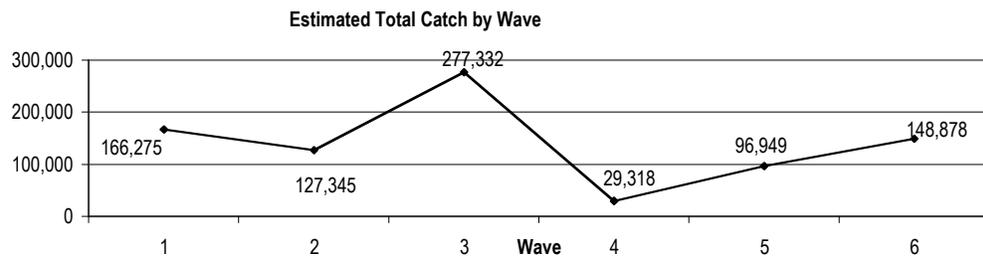


Figure 11. Total Catch By Wave. Estimated total catch reported its highest peaks during waves 1 and 6, while its lowest one was reported in Wave 4.

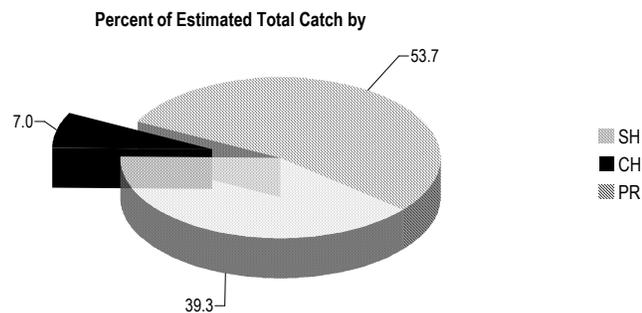


Figure 12. Percent of Total Catch by Modality. SH and PR modes had the highest percent of total catch by modality in 2006.

In terms of percent of total catch by modality/wave in 2006 (Figure 13.), CH reported the lowest percents of total catch in all waves, reporting 0% in waves 2 and 6. SH surpassed PR in waves 1, 3 and 5, while PR surpassed SH in waves 2, 4 and 6.

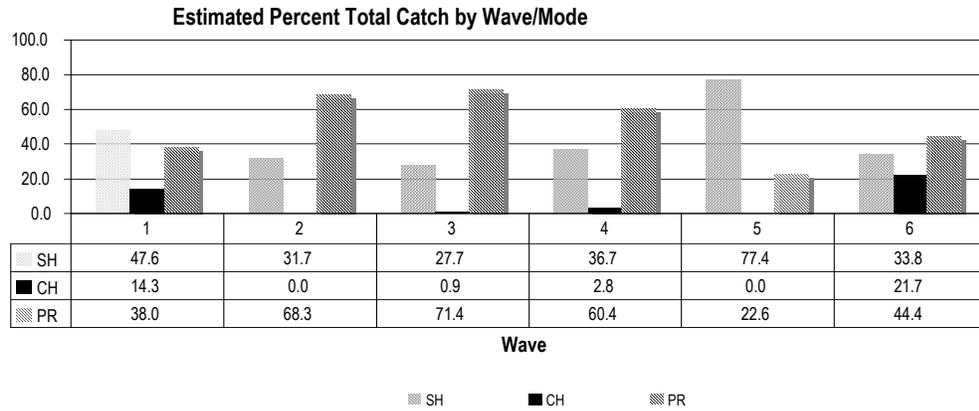


Figure 13. Percent of Total Catch by Modality/Wave FY 2006. CH represented the lowest percents of total catch by wave in all waves, reporting 0% for waves 2 and 5.

A total of 946,855 kg of fish were boarded, with an average of 157,089 kg by wave (Table 20).

Estimated total catch per unit effort, or CPUE, was 0.732 for year 2006 (Table 20), with an average of 0.817 by wave. CPUE (Figure 14), presented that anglers in 2006 had more catch by fishing trips in Wave 5 (1.6), while in waves 1, 3 and 6 had 1 catch per fishing trip. Waves 2 and 4 reported that anglers had 0.5 catch by fishing trip.

Estimated total CPUE by modality (Figure 15) shows that CH had more fishing trips with catch than PR. PR had more catch by fishing trip than SH.

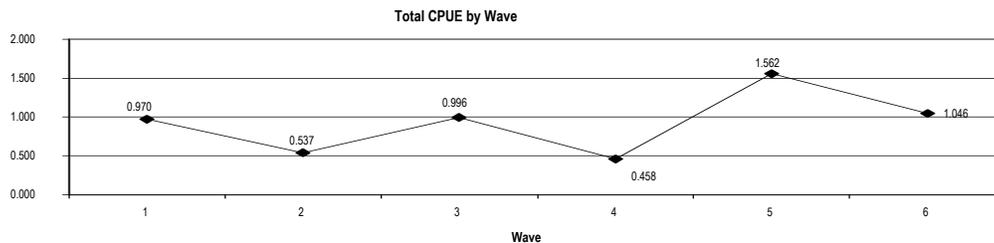


Figure 14. Total CPUE by Wave. Estimated total CPUE decreased from wave 1 through 4, its highest peak was during Wave 5.

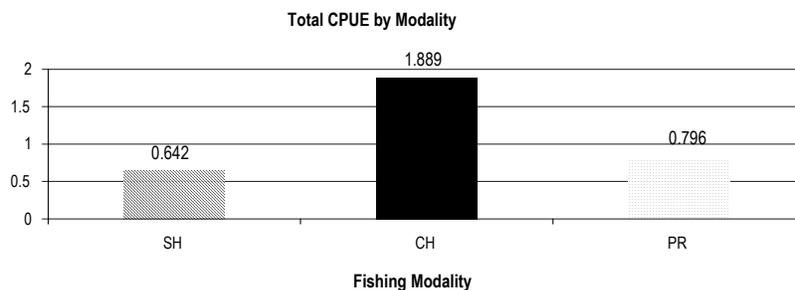


Figure 15. Total CPUE by Modality FY 2006. Estimated CPUE by modality reported CH as the modality with more catch by fishing trips.

Estimated total fish released alive was 168,192 individuals, with an average of 28,032 individuals by wave (Table 20).

In terms of percent of estimated fish released alive (Figure 16), anglers released greater percentage of fish alive in Wave 5 and less in Wave 4.

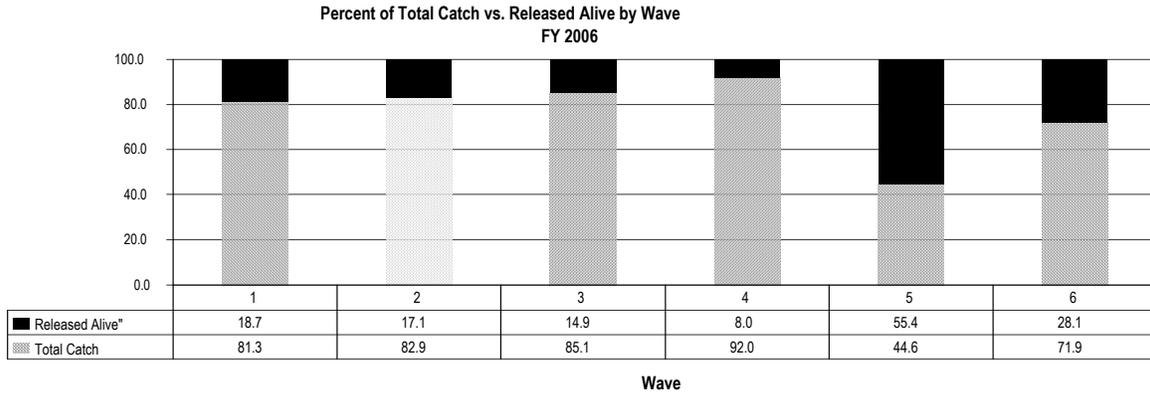


Figure 16. Percent of Total Catch vs. Released Alive by Wave. Percent of fish released alive remained constant from waves 1-3, Wave 5 had the highest percent of fish released alive FY 2006.

Estimated fishing effort, total catch, total released alive, total weight landed and CUPE was measured by fishing area, Inland, STS and FEEZ.

Inland is defined as inshore saltwater and brackish water bodies such as bays, estuaries, sounds, etc., but does not include inland freshwater areas.

State Territorial Seas, or STS is the zone extending up to 10 miles from shore.

Federal Exclusive Economic Zone, or FEEZ is defined as an area contiguous to the State Territorial Seas extending seaward 200 nautical miles.

Estimated total effort by fishing area, regardless modality (Table 21, Figure 17) was higher in STS during all waves, following FEEZ and Inland, therefore total fishing effort by area in 2006 was higher in STS (Figure 18).

Table 21. Total Fishing Effort by Area/Wave. Estimated fishing effort by area shows a higher activity in STS area, following with FEEZ and Inland.

Total Fishing Effort by Area				
Wave	Inland	STS	FEEZ	Total
1	8,238	139,022	23,883	171,143
2	7,217	133,302	96,594	237,113
3	0	233,087	45,371	278,457
4	0	63,970	59	64,030
5	2,529	55,027	4,530	62,086
6	13,746	97,255	31,293	142,294
Total	31,730	271,664	201,729	955,123

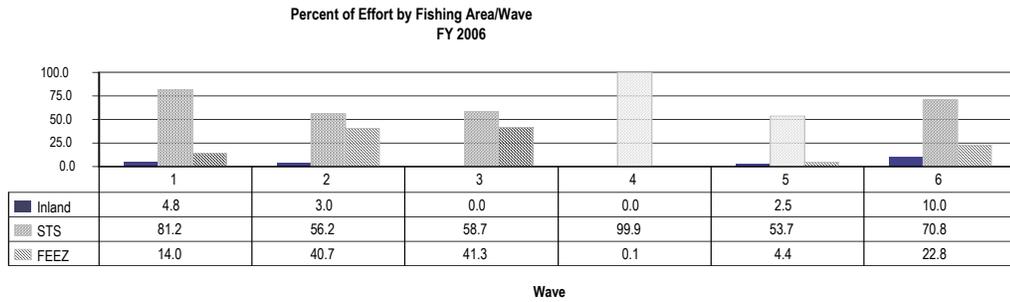


Figure 17. Percent of Effort By Fishing Area/Wave FY 2006. STS had higher fishing effort in all waves, followed by FEEZ, Inland had the lowest fishing effort.

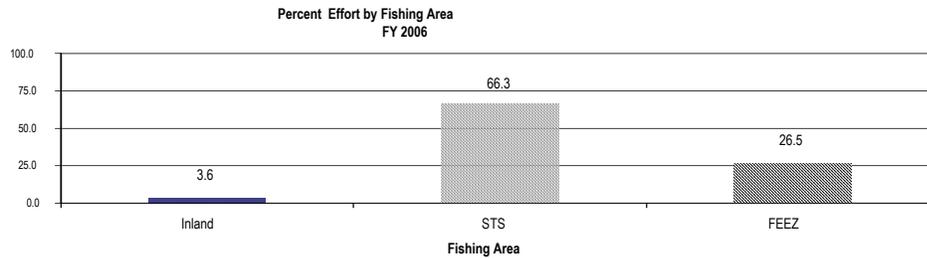


Figure 18. Percent of Effort by Fishing Area FY 2006. Percent trips by fishing area was highest in STS.

In terms of estimated total catch by fishing area (Table 22), STS fishing area reported the highest numbers of fish caught in 2006 (683,745), compared to Inland (21,551) and FEEZ (140,801).

Table 22. Estimated Total Catch by Fishing Area. Inland fishing area reported the highest number of fish caught in 2006.

Estimated Total Catch by Wave/Fishing Area				
Wave	STS	FEEZ	INLAND	Total
1	144,968	17,465	3,842	166,275
2	87,594	33,436	6,315	127,345
3	245,573	31,759	0	277,332
4	29,318	0	0	29,318
5	79,459	9,059	8,431	96,949
6	96,833	49,082	2,963	148,878
Total	683,745	140,801	21,551	846,097

In terms of percent of estimated catch by wave/fishing area, regardless of modality (Figure 19), STS presented the highest percents during all waves, with its highest peak in Wave 4 and its lowest point in Wave 6. FEEZ had its higher points in waves 2 and 6 and its lowest points in waves 1 and 5. Inland fishing area presented the lowest percents of estimated total catch.

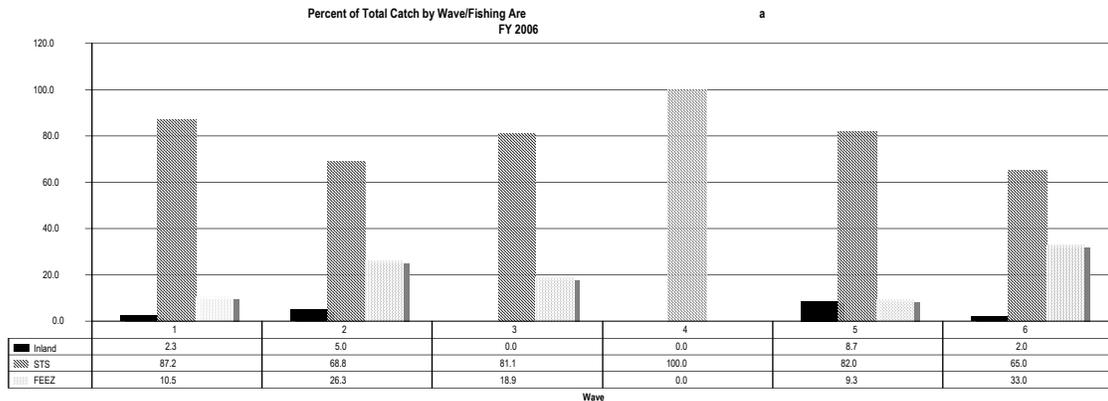


Figure 19. Percent of Total Catch by Wave/Fishing Area FY 2006. STS presented the highest peaks in terms of percent of estimated total catch by fishing area in all waves.

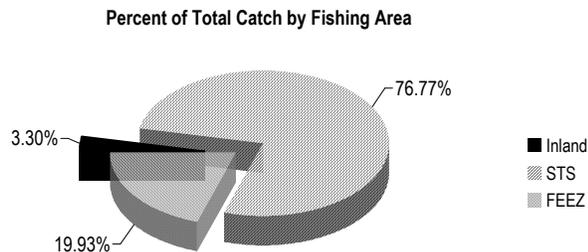


Figure 20. Percent of Total Catch by Fishing Area. STS fishing area had the highest percent of fish caught, followed by FEEZ.

The greater percentage of fish were caught in STS area, followed by FEEZ, Inland had the lowest percentage of fish caught in 2006(Figure 20).

In terms of percentage of total fish released alive by wave/fishing area (Figure 21), STS was reported as the area with the highest percent of fish released from Wave 1 through 6. Inland only reported released in waves 1 and 2, while FEZZ only reported released in waves 1, 3 and 6.

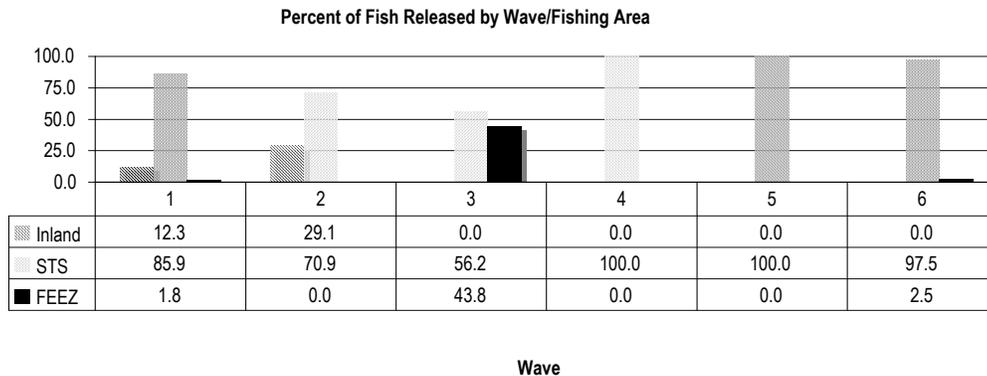


Figure 21. Percent of Fish Released by Wave/Fishing Area. In terms of percent of fish released by wave/fishing area, STS reported the highest percent by wave

In terms of total percentage of fish released alive by fishing area, STS reported the highest percent, followed by Inland and FEEZ (Figure 22).

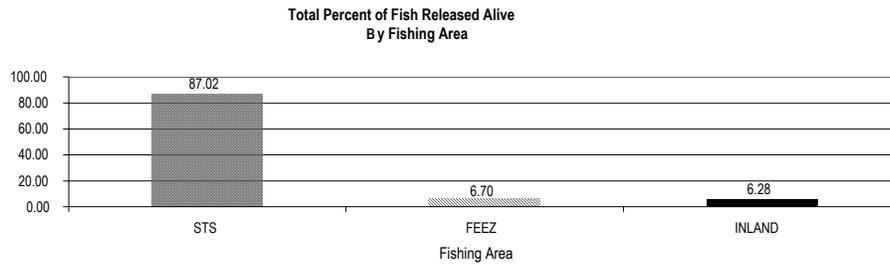


Figure 22. Percent of Fish Released Alive by Area. STS was the area with the highest percent of fish released alive (87.02%)

Total CPUE was highest for STS, followed by Inland (0.947 and 0.698 respectively). FEEZ presented the lowest CPUE, 0.679 (Figure 23).

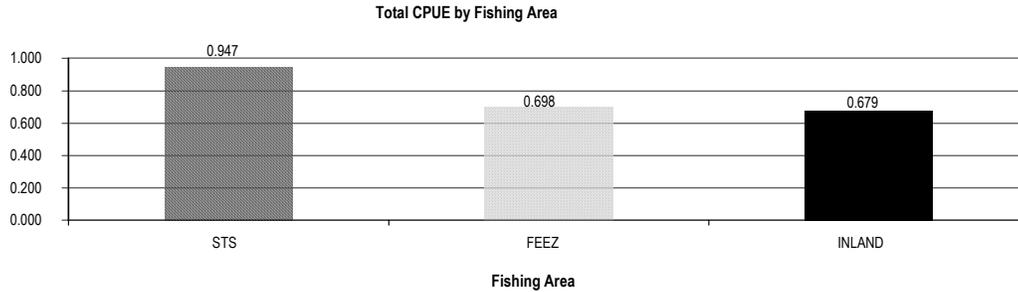


Figure 23. Total CPUE by Fishing Area. STS fishing area presented the highest CPUE on 2006.

Anglers preferred to fish from STS. STS reported higher fishing effort, total catch, fish released alive and CPUE than anglers from FEEZ and anglers from Inland. Anglers from FEEZ reported higher fishing effort, and total catch than anglers from Inland. Anglers from Inland reported more fish released alive than anglers from FEEZ. Anglers from FEEZ and Inland reported similar CPUE.

INLAND

Total effort was 31,730 fishing trips in 2006 (Table 23). Its highest peak was during Wave 6, while it did not report effort in waves 3 and 4 (Figure 24).

Table 23. Total Effort by Wave: Inland Area. Total Effort on Inland Area was highest during Wave 3. Wave 4 did not report fishing effort in 2006.

Total Effort by Wave - Inland							
Wave	1	2	3	4	5	6	Total
Effort	8,238	7,217	0	0	2,529	13,746	31,730

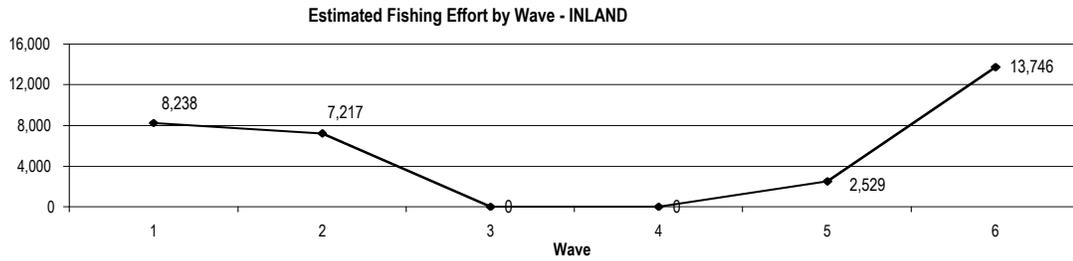


Figure 24. Total Effort by Fishing Area – Inland. Inland area did not report fishing trip during waves 3 and 4 in 2006.

Inland reported an estimated total catch of 22,452 individuals, 11,059 (49.2%) of them were released alive, for a total of 1,939 kg of fish boarded. A total CPUE of 0.708 was reported in 2006 (Table 24).

Estimated total catch by wave/fishing area (Figure 25) had two peaks in 2006, Wave 2 and Wave 5. Waves 3 and 4 did not report catch.

Table 24. Total Catch/Released Alive/Weight/CPUE: Inland. Fish caught, released alive and weighed in 2006.

Total Catch by Wave - Inland				
Wave	Total Catch	Released Alive	Weight	CPUE
1	3,842	3,841	0	0.466
2	7,216	7,217	0	0.999
3	0	0	0	0.000
4	0	0	0	0.000
5	8,431	0	1,939	3.334
6	2,963	0	0	0.216
Total	22,452	11,058	1,939	0.708

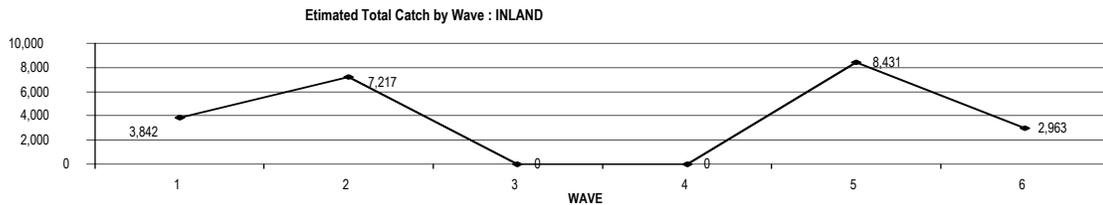


Figure 25. Total Catch by Wave/Fishing Area: Inland. Estimated total catch in Inland Fishing area presented its highest peak in waves 2 and 5.

In terms of species caught by wave (Table 1, App. 2), Wave 1 reported atlantic tarpon (*Megalops atlanticus*), french grunt (*Haemulon flavolineatum*), green moray (*Gymnothorax funebris*) and mutton snapper (*Lutjanus analis*). Wave 2 reported common snook (*Centropomus undecimalis*), parrotfish family members (*Scaridae* sp.), spotfin mojarra (*Eucinostomus argenteus*) and unidentified surface fish. Waves 3 and 4 did not report catch. Wave 5 reported lane snapper (*Lutjanus synagris*) and Wave 6 reported tilapia genus members (*Cichlidae* sp.).

Higher peaks in waves 2 and 5 can be explained due to the greater catch of parrotfish family members and unidentified surface fish in Wave 2 and the greater catch of lane snapper in Wave 5. These numbers were not reported in any other wave.

Fish released alive (Figure 26) were only reported in waves 1 and 2, all fish were 100% released alive.

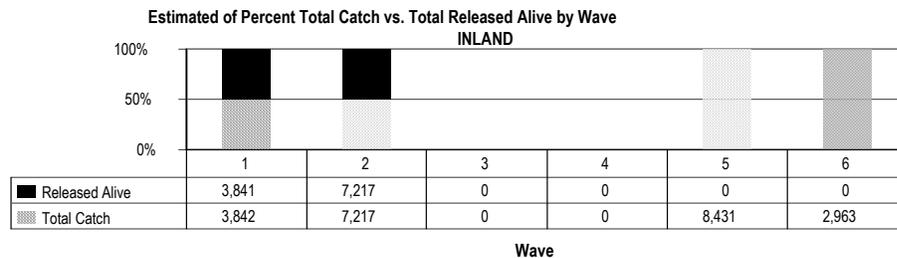


Figure 26. Total Fish Released Alive by Wave: Inland Area. Waves 1 and 2 were the only ones that reported released alive fish in 2006

CPUE was calculated for all waves. Wave 5 had the highest peak, 3.333, while waves 3 and 4 had CPUE of 0.000 (Figure 27).

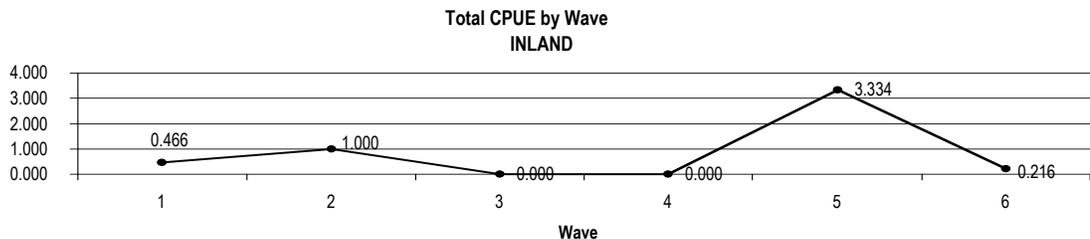


Figure 27. Total CPUE by Wave: Inland Area. The highest CPUE peak was obtained in Wave 5, while waves 3 and 4 reported the lowest ones.

Inland anglers preferred to fish in waves 1, 2 and 6. The greater catch was in waves 2 and 5, therefore a higher CPUE was obtained in these waves.

STATE TERRITORIAL SEAS (STS)

STS fishing area (Figure 28), started with 139,022 fishing trips in Wave 1, a slight decrease was experimented in Wave 2. Wave 3 presented the highest fishing effort, 233,087 fishing trips. Waves 4 and 5 had the lowest effort and slight increase was evident in Wave 6 (97,255 trips).

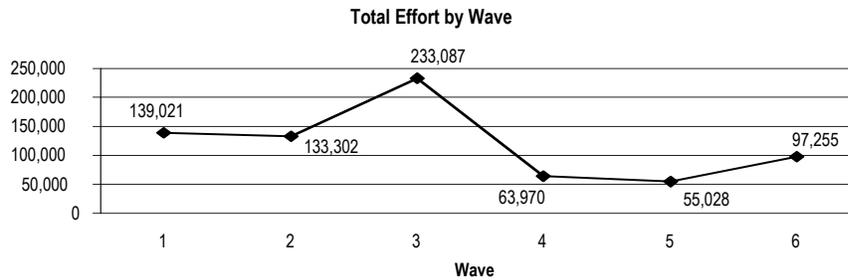


Figure 28. Total Effort by Fishing Area – STS. The highest fishing effort peak was obtained in Wave 3, with 233,087 trips.

State Territorial Seas (STS), reported an estimated total catch of 683,744 individuals, 155,377 fish were released alive a total of 584,519 kg of fish were boarded. Total CPUE was 0.947 (Table 25).

In terms of estimated total catch by wave (Figure 29), 2006 presented its highest peak in Wave 3, followed by waves 1 and 6. Wave 4 presented the lowest level, with an estimated total catch of 29,318 individuals.

Table 25. Estimated Total Catch by Wave - STS. Estimated total catch by wave was higher for wave 3 while lower in wave 4.

Total Catch by Wave : STS				
Wave	Total Catch	Total Released	Total Weight (kg)	CPUE
1	144,967	26,731	133,369	1.043
2	87,594	15,221	35,170	0.657
3	245,573	17,464	284,693	1.054
4	29,318	2,347	6,911	0.458
5	79,459	52,875	35,683	1.444
6	96,833	40,739	88,627	0.966
Total	683,744	155,377	584,519	0.947

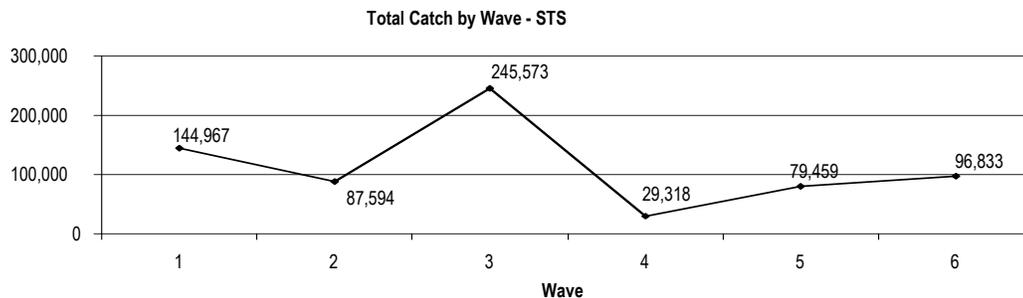


Figure 29. Total Catch by Wave – STS. STS reported the highest peak in Wave 3, while its lowest level in Wave 4.

In terms of individuals and species caught by wave (Table 2, App. 2;), Wave 1 reported an estimated total catch of 142,982 individuals. Schoolmaster (*Lutjanus apodus*), yellowfin mojarra (*Gerres cinereus*), lane snapper, barbu (*Polydactylus virginicus*) and dolphin (*Coryphaena hippurus*) were the top species caught.

Wave 2 reported reported an estimated total catch of 86,904 individuals. Redear sardine (*Harengula humeralis*), schoolmaster, atlantic bumper (*Chloroscombrus chrysurus*), lane snapper, yellowfin mojarra and mojarra family members (Gerreidae sp.) were the top species caught.

Wave 3 reported an estimated total catch of 237,005 individuals. Silk snapper (*Lutjanus vivanus*), false pilchard (*Harengula clupeiola*), dolphin, lane snapper, little tunny (*Euthynnus alletteratus*) and king mackerel (*Scomberomorus cavalla*) were the top species caught.

Wave 4 reported an estimated total catch of 27,841 individuals. Mutton snapper, lane snapper, yellowtail snapper (*Ocyurus chrysurus*), king mackerel and burro grunt (*Pomadasyd crocro*) were the top species caught.

Wave 5 reported an estimated total catch of 83,868 individuals. Schoolmaster, lane snapper, mutton snapper, atlantic spadefish (*Chaetodipterus faber*) and tripletail (*Lobotes surinamensis*) were reported as main species caught.

Finally, Wave 6 reported an estimated total catch of 110,608 individuals. Schoolmaster, false pilchard, dolphin, lane snapper and red hind (*Epinephelus guttatus*) were reported as main species caught.

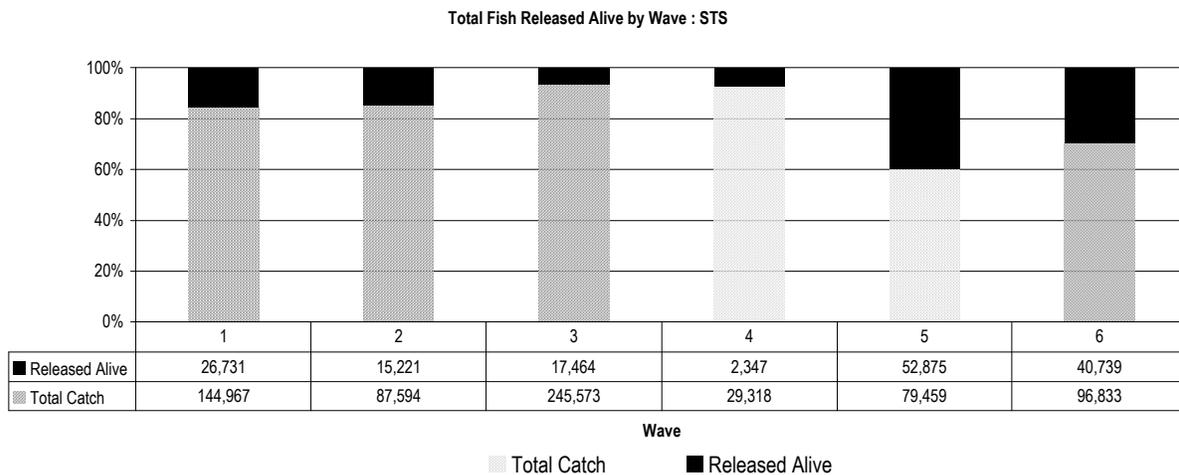


Figure 30. Total Fish Released Alive by Wave – STS. Waves 5 and 6 reported the highest percent of fish released alive in 2006, 63% and 49% respectively.

In terms of estimated total fish released alive, 22.72% from total catch was reported for year 2006 (155,377 individuals released alive from 683,744 caught); waves 5 and 6 reported the highest peaks (Table 25).

Estimated total fish released alive was calculated by wave (Figure 30). Wave 1 reported 26,731 were released alive (18.44% from total catch). In terms of species (Table 2, App. 2), 49 species were caught, 9 of them were reported as 100% released alive, atlantic tarpon, conger eel (*Conger esculentus*), conger eel family members (*Congridae sp.*), ladyfish (*Elops esculentus*), nurse shark (*Ginglymostoma cirratum*), sand tilefish (*Malacanthus plumieri*), southern stingray (*Dasyatis americana*), stoplight parrotfish (*Sparisoma viride*), and unidentified fishes.

Wave 2, reported 15,221 individuals released alive (17.37% from total catch). From 30 species caught, 9 were reported as released alive in an average of 30-100%. The top ones were barred grunt (*Conodon nobilis*) and irish pompano (*Diapterus auratus*) (100% respectively), great barracuda (*Sphyraena barracuda*) and horse-eye jack (*Caranx latus*) (50% respectively) and schoolmaster (58%).

Wave 3 reported 17,464 individuals released alive (7.11% from total catch). From 34 species reported, 11 of them were reported as 100% released alive: atlantic tarpon, bar jack (*Carangoides ruber*), species from the barracuda genus (*Sphyraenidae sp.*), blue runner (*Caranx crysos*), checkered puffer (*Sphoeroides testudineus*), common snook, great barracuda, graysby (*Cephalopholis cruentata*), species from the squirrelfish genus (*Holocentridae sp.*), white grunt (*Haemulon plumieri*) and unidentified fishes.

Wave 4 reported 2,347 individuals released alive (8.01% of total catch). From 26 species caught, 9 were 100% released alive: atlantic tarpon, barred grunt, blue marlin (*Makaira nigricans*), great barracuda, lemon shark (*Negaprion brevirostris*), needlefish genus species (*Belonidae sp.*), nurse shark, scalloped hammerhead (*Sphyrna lewini*) and tomtate (*Haemulon aurolineatum*).

Wave 5 reported 52,875 individuals released alive (66.54% from total catch). From 17 species caught, 3 were reported as 100% released alive: atlantic tarpon, schoolmaster and unidentified fishes.

Wave 6 reported 40,739 individuals released alive (49.29% from total catch). From 25 species caught, 11 of them were 100% released alive: bar jack, blue marlin, blue runner, great barracuda, longbill spearfish (*Tetrapturus pfluegeri*), palometa (*Trachinotus godei*), sailfish (*Itiophorus platypterus*), schoolmaster, unidentified fishes and yellowtail snapper.

An overall CPUE of 0.947 was calculated for year 2006. CPUE was also calculated by wave (Figure 31), being waves 1, 3 and 5 the highest ones. A total CPUE of 0.657, 0.458 and 0.996 was obtained in waves 2, 4 and 6 respectively.

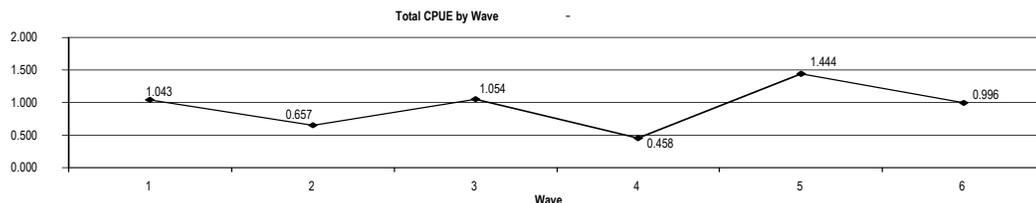


Table 31. Total CPUE by Wave : STS. Total CPUE was calculated for each wave, Wave 5 reported the highest CPUE.

Total effort in FEEZ fishing area was 201,730 fishing trips. Total Effort by Wave increased from Wave 1 through Wave 2, a marked dropped was evident in waves 3 through 5. Finally, there was a slight increase in Wave 6 (Figure 32).

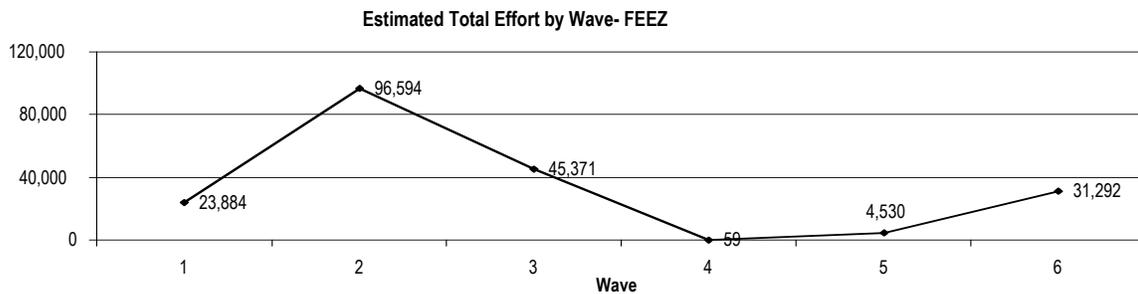


Figure 32. Estimated Total Effort by Fishing Area-FEEZ. Fishing effort in FEEZ was higher in Wave 2, then started decreasing until wave 5.

FEEZ reported an estimated total catch of 140,801 individuals, 20.46% of them were released alive (28,809 individuals) a total of 517,186 kg of fish was boarded (Table 26).

Table 26. Total Catch/Released Alive/Weight/CPUE – FEEZ. An estimated total catch of 145,784 individuals were reported FY 2006; 28,809 of them were released alive.

Total Catch/Released Alive/Weight/CPUE - FEEZ				
	Total Catch	Total Released Alive	Total Weight	CPUE
Total	140,801	28,809	517,186	0.698
Ave. by Wave	23,467	4,802	86,198	0.891

In terms of estimated total catch by wave, the highest peaks were obtained in waves 2, 3 and 6. Waves 1, 4 and 5 had the lowest ones (Figure 33).

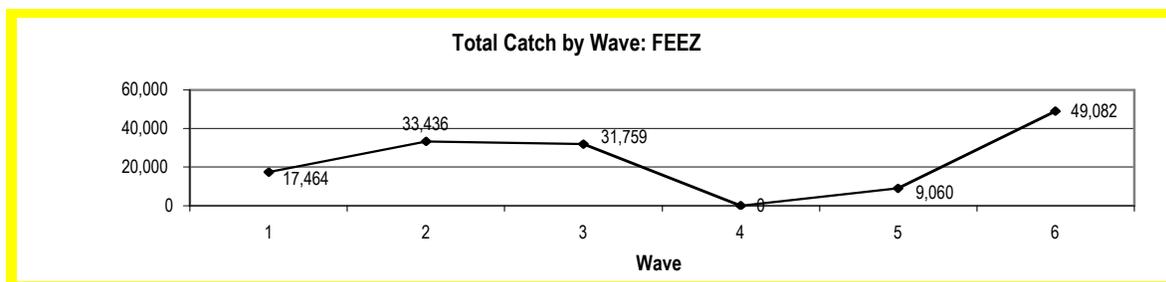


Figure 33. Total Catch by Wave: FEEZ. Total Catch by Wave had its highest peak in Wave 6; 49,082 individuals were caught.

In terms of species caught by wave (Table 3, App. 2), waves 1 and 6 reported the highest numbers of species and individuals. Wave 1 reported, dolphin, wahoo (*Acanthocybium solandri*)

and great barracuda as top ones. Wave 2 only reported dolphin, silk snapper, king mackerel and wahoo. Wave 3 only reported 13,611 blackfin tuna (*Thunnus atlanticus*) and 4,537 blue marlin, cero (*Scomberomorus regalis*), king mackerel and little tunny, each one. Wave 4 did not report fish caught. Wave 5 only reported dolphin, lane snapper and red hind. Wave 6 reported the highest variety of species caught (11 species were reported), dolphin, wahoo, silk snapper and tripletail were reported as the top ones.

Dolphin and king mackerel were the main species caught in 2006, each one caught in 3 out of 6 waves.

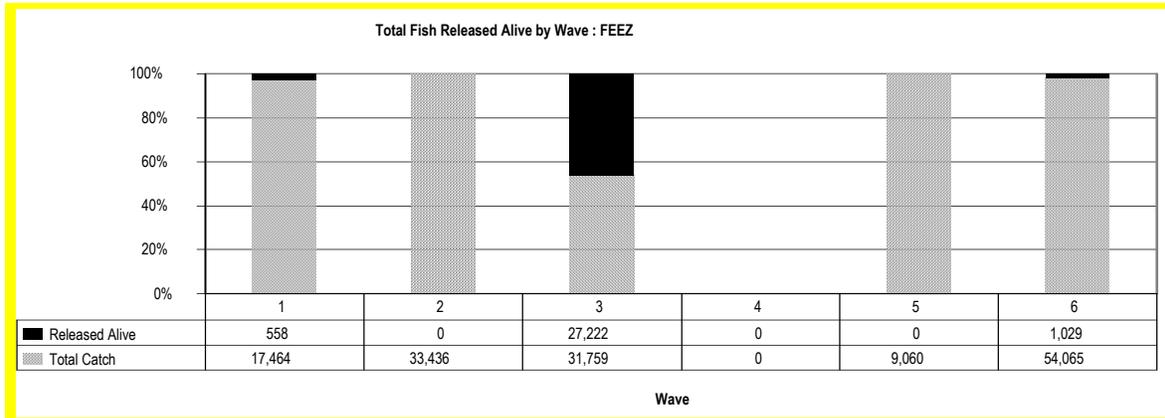


Table 34. Total Fish Released Alive. Wave 3 reported the highest percent of fish released alive in 2006.

Fish released alive (Figure 34) were only reported in waves 1, 3 and 6, being Wave 3 the one with the highest peak, almost all fish were released alive in this wave, 85.7% (only king mackerels were fully boarded). A total of 28,809 individuals were released alive in 2006 (20.46%).

A total CPUE of 0.723 was calculated for year 2006 (Table 26). CPUE was calculated for all waves (Figure 35) in 2006, being Wave 5 and 6 the highest peaks. Year 2006, started with a CPUE of 0.731 in Wave 1, it had a decrease of 47% in Wave 2 (a CPUE of 0.346) and increase again in Wave 3 (0.700). Wave 4 did not report any catch, therefore a CPUE of 0.000 was calculated.

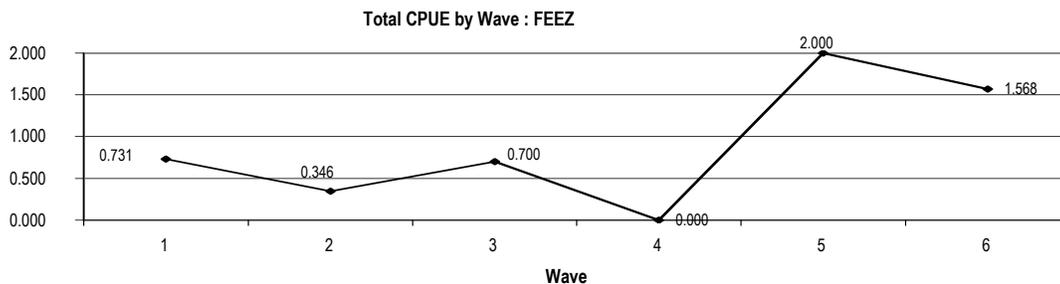


Figure 35. Total CPUE by Wave : FEEZ. A CPUE of 2.000 and 1.728 was calculated for waves 5 and 6 respectively, being these the highest ones in 2006.

Activity 1: Assessment of Shoreline Marine Recreational Fisheries

Objective: To generate statistically valid estimates of catch and fishing effort of marine shoreline anglers.

Procedure/Results: Shoreline marine anglers were surveyed using the point-access intercept method. Fifty percent or less of intercepts in beach/bank mode had to be completed before the angler had finished his/her fishing trip. Fifty percent or more intercepts were completed after a complete fishing trip. A quota of 126 interviews by wave was established.

There were a high number of uncompleted assignments (Table 27) to reach quota during waves 3, 4, 5 and 6. Percent of total completed assignments FY 2006 was 51.04%. The average percent of remaining assignments by wave was 50.42%. Waves 1 and 2 were under expected and accepted numbers (85% and 70%, respectively).

Table 27. Shoreline assignments. Assignments completed and remaining to reach quota FY 2006.

Shoreline Mode Assignments				
Wave	Needed	Completed	Remaining	% Completed
1	29	27	2	93.10
2	22	21	1	95.45
3	36	21	15	58.33
4	44	19	25	43.18
5	56	21	35	37.50
6	52	38	14	73.08
Total	239	147	92	
Ave. by Wave	39.83	24.50	15.33	66.78

A total of 756 valid intercepts (number of people interviewed) were obtained in 2006 (Table 28). Every wave needs a quota of 126 intercepts, 90% is accepted (114 interviews), only waves 1 and 2 were among the accepted numbers with a percent of 96.03 and 96.83 respectively.

Table 28. Valid Intercepts – Shoreline. Total valid intercepts (interviews obtained) FY 2006.

Shoreline Mode : Valid Intercepts				
Wave	Needed	Obtained	Remaining	% Obtained
1	126	121	5	96.03
2	126	122	4	96.83
3	126	81	45	64.29
4	126	62	64	49.21
5	126	50	76	39.68
6	126	90	36	71.43
Total	756	526	230	69.58

Number of valid intercepts (Figure 35) in 2006 was highest in waves 1 and 2. A decrease in obtained intercepts was evident from Wave 3 through 5, a slight increase was evident in Wave 6, although it did not reach the expected percent of accepted number of intercepts (90% or more).

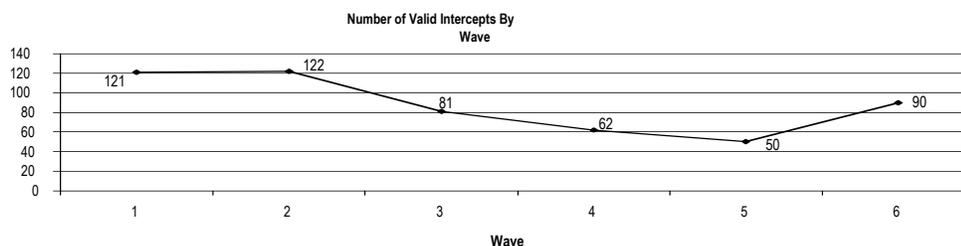


Figure 35. Number of Valid Intercepts by Wave – SH Mode. The number of Valid intercepts were higher in waves 1 and 2, while its lower peak was in Wave 5.

The need for full time interviewers can explain the excess of remaining assignments and the decrease in interviews obtained during waves 3 through 5. Waves 1 and 2 had 6 interviewers (4 from ORC Macro, 2 from DNER), the number of interviewers was reduced to 3 in waves 3 through 5 (2 from ORC Macro, 1 from DNER). Wave 6 counted with 4 interviewers in November (2 from ORC Macro, 2 from DNER) and 8 in December (6 from ORC Macro and 2 from DNER).

Total estimated effort for 2006 was 507,026 fishing trips (Table 29). 2006 started with 112,268 fishing trips in Wave 1, and went almost constant until Wave 3. A marked drop of 35% – 36% was observed in waves 4 and 5, then an increase was evident in Wave 6 (Figure 37).

Table 29. Total effort by Wave/Fishing Area – SH. STS reported the highest number of fishing trips in SH mode FY 2006.

Total Effort by Wave/Fishing Area: SH				
Wave	STS	FEEZ	INLAND	Total
1	104,845	0	7,423	112,268
2	102,838	0	7,217	110,055
3	114,372	0	0	114,372
4	39,282	0	0	39,282
5	39,626	0	2,529	42,155
6	76,054	0	12,840	88,894
Total	477,017	0	30,009	507,026

In terms of estimated fishing effort by fishing area, STS reported the highest number of fishing trips, 477,017 compared to Inland, which reported 30,009 and FEEZ (did not report fishing trips) (Table 29).

Inland fishing effort activity was very low compared to STS (Figure 38). STS reported higher fishing effort in all waves, while Inland only reported effort in waves 1, 2, 5 and 6.

Inland fishing effort was constant in waves 1 and 2 (Figure 39). A marked drop of 100% in waves 3 and 4 was observed, while a slight increase was reported in Wave 5. An increase of 79.73% (compared to Wave 5) was evident in Wave 6.

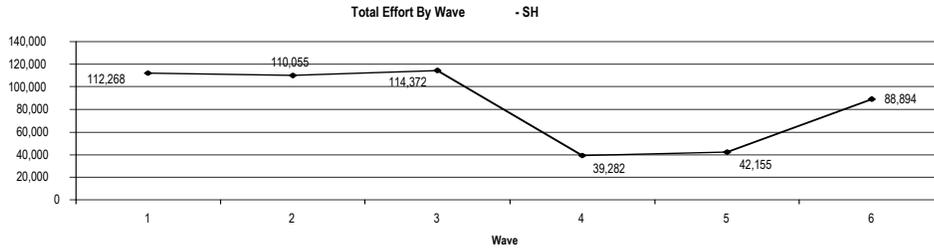


Figure 37. Total Effort by Wave – SH Mode. Estimated total effort was calculated for waves 1 through 6, a decrease was evident in waves 4 and 5.

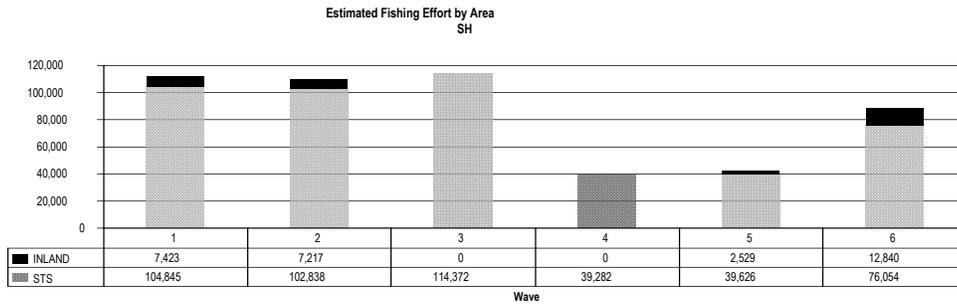


Figure 38. Estimated Fishing Effort by Area – SH. Inland reported lower fishing effort activity compared to STS.

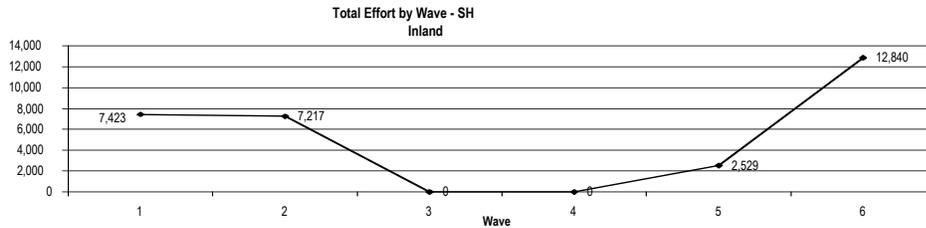


Figure 39. Total Effort by Wave – SH: Inland. Inland fishing area did not report fishing effort activity in waves 3 and 4.

STS (Figure 40), reported constant fishing effort activity for waves 1 through 3, then a marked drop was evident in waves 4 and 5, a slight increase was evident in Wave 6.

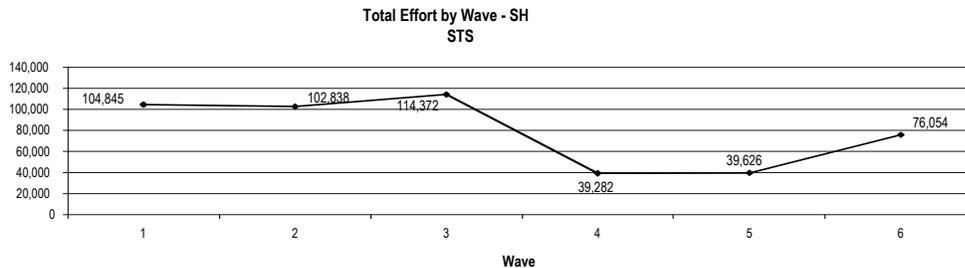


Figure 40. Total Fishing Effort by Area – SH. STS reported the highest fishing effort activity in all waves compared to Inland.

Waves 4 and 5 reported very bad weather episodes in August and September, which could contribute to the decrease in effort in these waves. The National Weather Service reported in August, 12 days of small craft advisories, gusty winds, steep and high waves, dangerous lightning, heavy rains and water spouts. September had 15 days of small craft advisories, high waves, heavy rains and dangerous lighting. This can explain the low fishing effort in waves 4 and 5.

SH anglers preferred to fish from STS than from Inland, in all waves. Both, Inland and STS reported effort decreases in waves 4 and 5, although STS reported its highest peak in Wave 3. Inland reported its highest peak in Wave 6.

SH reported an estimated total catch of 332,531 individuals (Table 30). STS reported the greatest total catch with 311,110 individuals, while Inland reported an estimated total catch of 21,421 individuals. STS reported more fish released alive, while Inland reported 10,027 fish released alive. Total CPUE for STS was 0.652, Inland reported a Total CPUE of 0.714

Table 30. Total Catch by Wave/Fishing Area – SH. STS reported higher total catch, while Inland reported a higher CPUE .

Total Catch by Wave/Area - SH									
Wave	STS			INLAND			TOTAL		
	Total Catch	Released Alive	CPUE	Total Catch	Released Alive	CPUE	Total Catch	Released Alive	CPUE
1	75,457	15,774	0.720	3,712	3,712	0.500	79,169	19,486	0.705
2	34,097	12,449	0.332	6,315	6,315	0.875	40,412	18,764	0.367
3	76,770	10,245	0.671	0	0	0.000	76,770	10,245	0.671
4	10,773	1,901	0.274	0	0	0.000	10,773	1,901	0.274
5	66,604	53,114	1.681	8,431	0	3.334	75,035	53,114	1.780
6	47,409	26,629	0.623	2,963	0	0.231	50,372	26,629	0.567
Total	311,110	120,112	0.652	21,421	10,027	0.714	332,531	130,139	0.656

Estimated total catch by wave reported highest peaks in waves 1, 3 and 5; while waves 2, 4 and 6 reported the lowest ones (Figure 41). At this moment we do not have enough information to explain this year tendency.

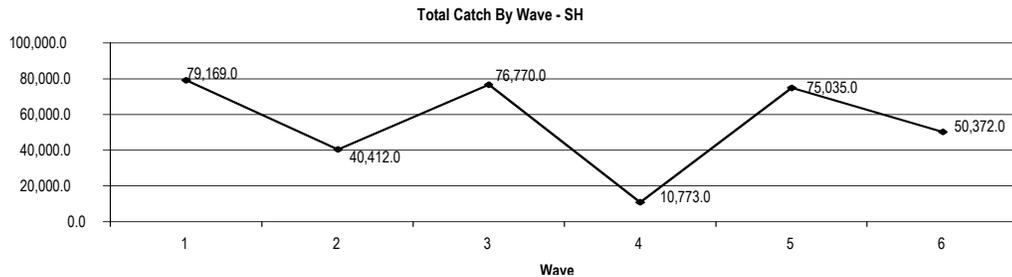


Figure 41. Total Catch by Wave – SH. Waves 1, 3 and 5 reported the highest peaks of total catch for shoreline mode in 2006.

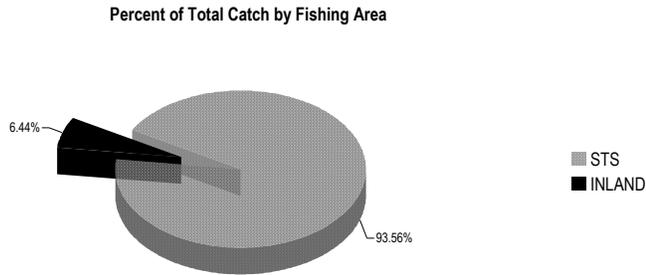


Figure 42. Percent of Total Catch by Fishing Area. The greater percentage of fish caught in Shoreline mode took place in STS.

Percent of total catch by fishing area was higher in STS than Inland (Figure 42).

Estimated total catch by wave in STS fishing area reported peaks in waves 1, 3 and 5, while reporting lower levels in waves 2, 4, and 6 (Figure 43).

Wave 1 reported 18,557 schoolmaster and 15,773 yellowtail snapper caught (45.50% of total catch). Wave 3 reported 23,501 false pilchard, 10,967 yellowtail snapper and 9,400 lane snapper (57.14% of total catch), Wave 5 reported 46,370 schoolmaster and 10,117 lane snapper (84.81% of total catch). These numbers were not obtained in the rest of the waves for these or any other species.

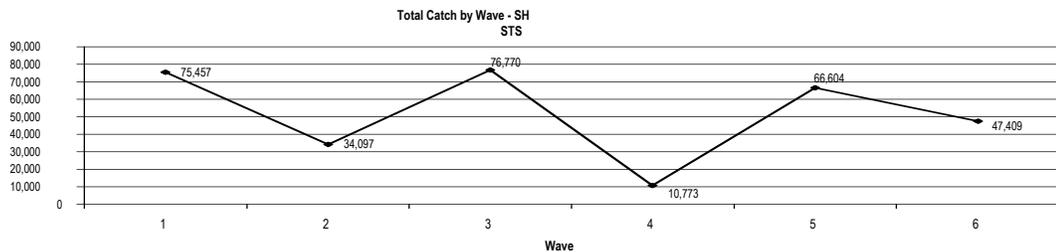


Figure 43. Total Catch by Wave – SH: STS. Total catch in STS fishing area reported higher peaks in waves 1, 3 and 5.

Estimated total catch by wave in Inland fishing area reported peaks in waves 2 and 5, while reported lower levels in waves 1, 3, 4, and 6. Waves 3 and 4 did not report fishing effort, therefore, did not report catch (Figure 44).

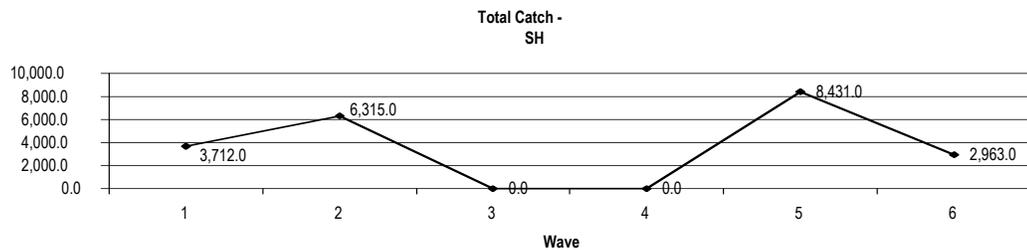


Figure 44. Total Catch – SH: INLAND. Waves 3 and 4 did not report any catch in 2006.

With regards of species caught by wave/fishing area (Table 1, App.3), Wave 1 reported 17 species in STS, being schoolmaster, yellowfin mojarra, barbu, crevalle jack (*Caranx hippos*) and yellowtail snapper the top species caught. Inland only reported 3 species, green moray, french grunt and mutton snapper.

Wave 2 reported 17 species caught in STS, being schoolmaster, mojarra family members, yellowfin mojarra, barred grunt and blue runner the top ones. Inland reported 4 identified species caught, common snook, parrotfish family members and spotfin mojarra.

Wave 3 reported 16 species in STS, being false pilchard, yellowtail snapper, lane snapper schoolmaster and atlantic spadefish the top ones. Inland did not report any catch.

Wave 4 reported 9 species in STS, being burro grunt, lane snapper, mutton snapper and tomtate the top ones. Inland did not report any catch.

Wave 5 reported 7 species in STS, being schoolmaster, lane snapper and mutton snapper the top ones. Inland only reported lane snapper.

Wave 6 reported 10 identified species in STS, being schoolmaster, lane snapper, mutton snapper, palometa, yellowtail snapper and atlantic tarpon the top ones. Anglers caught and released alive 19,754 individuals without identify them. Inland only reported 2,963 tilapia genus species.

Total weight by area was as follows: 31,511 kg – STS, 1,950 kg Inland, for a grand total of 33,461 kg FY 2006 (App. 3, Table 1).

In terms of percent of fish released alive SH mode reported 39.14% of total catch. STS reported 38.61% of total catch while Inland reported 46.81% of total catch (Table 30). Waves 2 and 6 reported the highest percent of fish released alive (Figure 45).

Inland had the greatest percentage of total fish released alive in 2006 (92.30%) in SH mode (Figure 46).

Percent of fish released alive by wave in STS (Figure 47) was higher in Wave 5 and 6. Waves 1, 3 and 4 only released alive were the lowest ones.

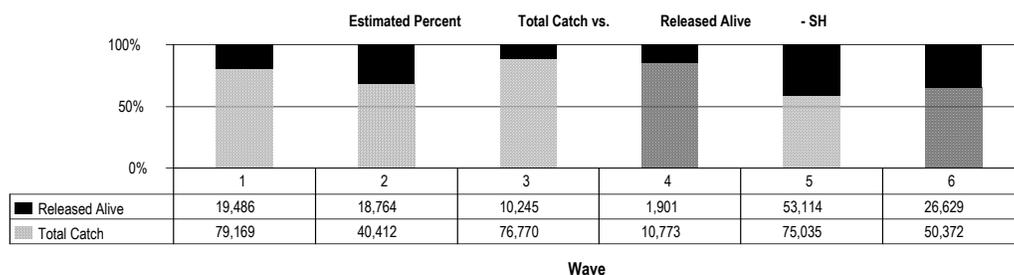


Figure 45. Estimated Percent of Total Catch vs. Released Alive – SH. Waves 2, 5 and 6 reported the highest percent of fish released alive.

Percent of fish released alive by wave in Inland was 100% for waves 1 and 2 and 0% for waves 4 through 6 (Figure 48).

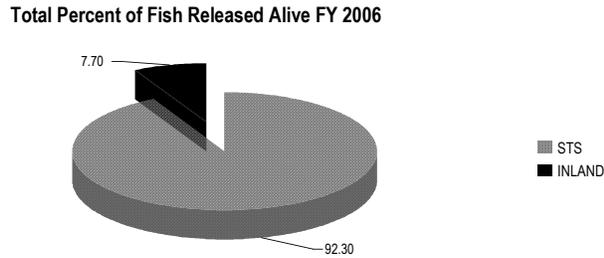


Figure 46. Total Percent of Fish Released Alive FY 2006. Inland released alive the greatest percentage of total catch in 2006.

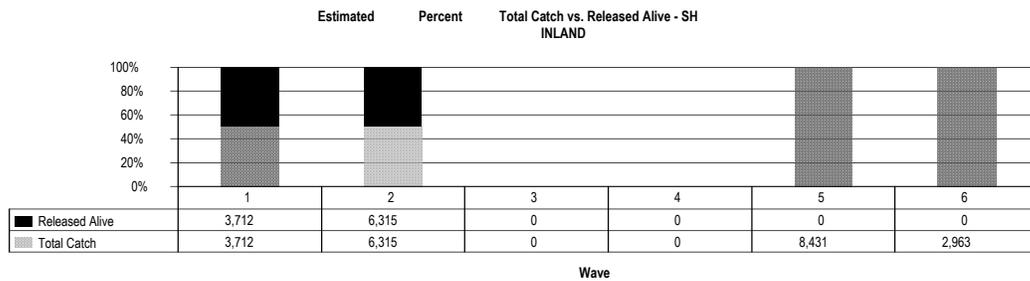


Figure 47. Estimated Percent of Total Catch vs. Released Alive – SH: INLAND. Waves 1 and 2 reported 100% of their catch as released alive, while waves 5 and 6 reported 0% of their catch as released alive.

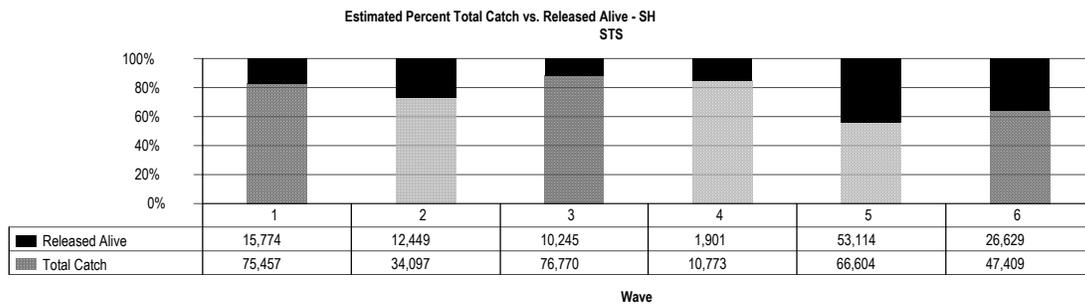


Figure 48. Estimated Percent of Total Catch vs. Released Alive – SH: STS. Waves 2, 5 and 6 reported the highest percents of fish released alive in STS FY 2006.

With regards of species released alive by wave/area, Wave 1 reported conger eel family members, stoplight parrotfish, and unidentified fishes released in 100% in STS, while all fishes were released alive in Inland (App. 3, Table 1).

Wave 2 reported barred grunt, irish pompano, unidentified eel and unidentified fishes released in 100% in STS. Inland report 100% released to all the species.

Wave 3 reported checkered puffer, squirrelfish genus and white grunt released in 100%. Wave 4 reported barred grunt and tomtate released in 100%. Wave 5 reported puffer family

members, schoolmaster and unidentified fishes released in 100% in STS, Inland did not report fish released.

Wave 6 reported palometa, unidentified fishes, white mullet and yellowtail snapper in 100%, Inland did not report fish released.

Total CPUE for shoreline mode was 0.656 (Table 30). CPUE by wave reported a peak in Wave 5. Waves 1, 3 and 6 were almost constant. Waves 2 and 4 presented the lowest levels (Figure 48).

Both, STS and Inland reported higher CPUE in Wave 5 (Figures 49 & 50).

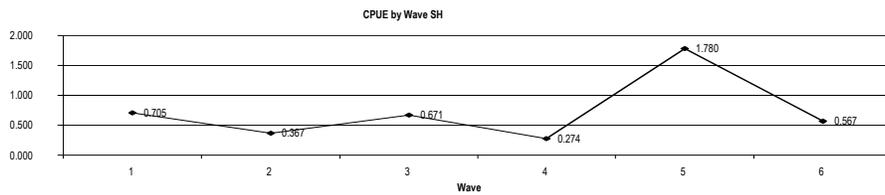


Figure 49. CPUE by Wave – SH. CPUE for SH mode was higher during Wave 5.

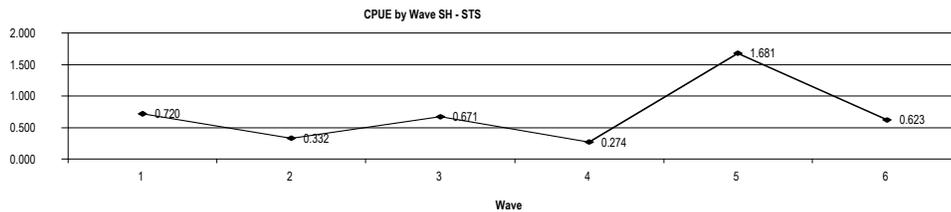


Figure 50. CPUE by Wave – SH: STS. Shoreline mode presented a higher CPUE in Wave 5.

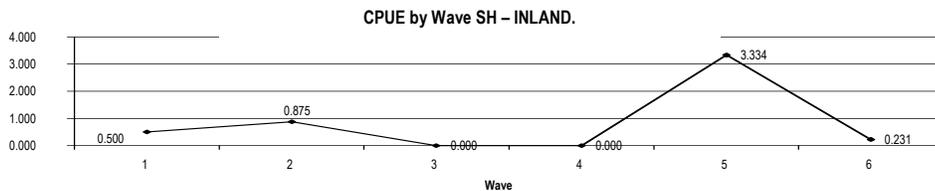


Figure 51. Total CPUE – SH: Inland. CPUE in Inland fishing area was higher in Wave 3.

SH reported an estimated total catch of 332,531 individuals (Table 30). STS reported greater total catch than Inland, while Inland reported a greater percentage of fish released, compared with its total catch. CPUE was higher in Inland area than STS area.

STS had higher fishing effort and total catch, while Inland had higher CPUE.

SH anglers preferred to fish from STS. STS reported greater catch than Inland, but anglers that fish from Inland had more catch per unit effort than anglers that fish from STS.

Activity 2: Assessment of Charter Boat Marine Recreational Fisheries

Objective: To generate statistically valid estimates of catch and fishing effort of charter boat marine anglers.

Procedure/Results: Charter boat marine anglers were surveyed using the point-access intercept method. All intercepts were completed after a complete fishing trip. A quota of 87 interviews was established for all waves.

There were a high number of uncompleted assignments (Table 31) to reach quota. Total assignments were completed in 58.29%, with an average of 63.70% by wave. Although Waves 1 through 3 were under accepted numbers (>70%), they were not completed as expected (85%). Waves 4 through 6 were under the accepted percentage.

Table 31. Charter Boat Assignments. Assignments completed and remaining to reach quota FY 2006.

Charter Boat Mode : Completed Assignments				
Wave	Needed	Completed	Remaining	% Completed
1	35	22	13	62.86
2	30	25	5	83.33
3	62	45	17	72.58
4	58	37	21	63.79
5	110	39	71	35.45
6	67	43	24	64.18
Total	362	211	151	58.29
Ave. by Wave	60.33	35.17	25.17	63.70

A total of 522 valid intercepts were obtained in 2006 (Table 32). Every wave needs a quota of 87 interviews, 90% from quota is accepted (78 interviews). None of the waves were completed as expected and none of the waves were completed with accepted numbers of valid intercepts.

Table 32. Valid Intercepts – Charter Boat. Total valid interviews obtained FY 2006.

Charter Boat Mode : Valid Intercepts				
Wave	Needed	Obtained	Remaining	% Obtained
1	87	60	27	68.97
2	87	73	14	83.91
3	87	48	39	55.17
4	87	58	29	66.67
5	87	32	55	36.78
6	87	55	32	63.22
Total	522	326	196	62.45

Total estimated effort for 2006 was 16,823 fishing trips. STS reported the highest effort numbers, followed by FEEZ. Inland reported the lowest number of fishing trips (Table 33).

Table 33. Total Effort by Wave/Fishing Area: CH. Total Effort FY 2006 was 16,823 fishing trips. STS reported the highest effort number with 13,308 fishing trips.

Total Effort by Wave/Fishing Area : CH				
Wave	STS	FEEZ	INLAND	Total
1	4,642	2,708	258	7,608
2	0	0	0	0
3	752	0	0	752
4	1,661	59	0	1,720
5	0	0	0	0
6	6,253	490	0	6,744
Total	13,308	3,258	258	16,823

In terms of fishing effort by wave, Waves 1 and 6 reported the highest number of fishing trips FY 2006. Waves 2 and 5 did not report fishing effort activity (Figure 51). Effort data is collected randomly through telephone survey (intercepts were chosen randomly from a telephone book), NMFS didn't contact anyone in the telephone survey who reported charter fishing during waves 2 or 5, for that reason numbers for these particular waves are zeros rather than missing.

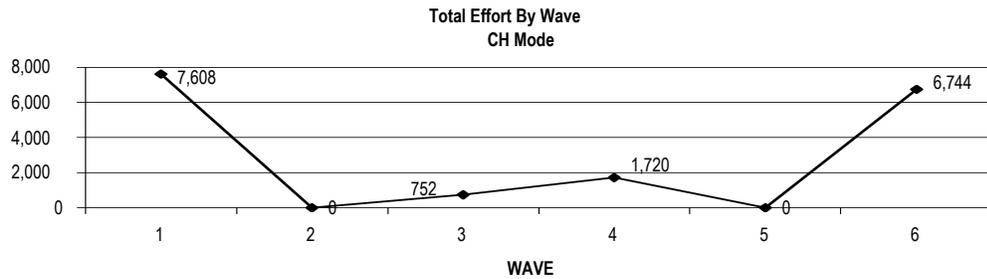


Figure 51. Total Effort by Wave – CH Mode. CH reported higher peaks in waves 1 and 6.

In terms of estimated fishing effort by area, Inland only reported fishing activity in Wave 1 (Figure 52). STS reported higher peaks in waves 1 and 6 (Figure 53). FEEZ only reported fishing effort in waves 1, 4 and 6, being Wave 1 the highest peak (Figure 54).

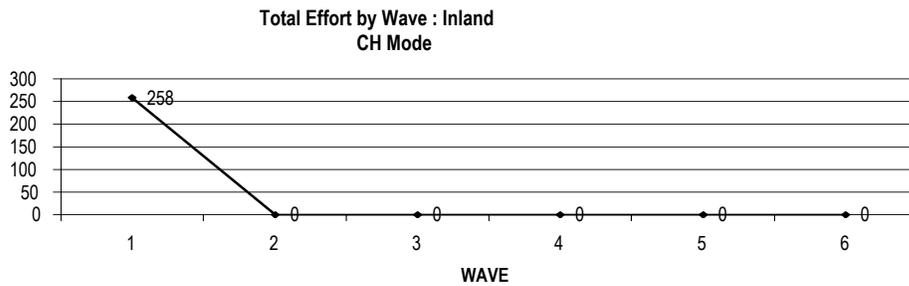


Figure 52. Total Effort by Wave – Inland: CH Mode. Inland only reported fishing effort activity in Wave 1.

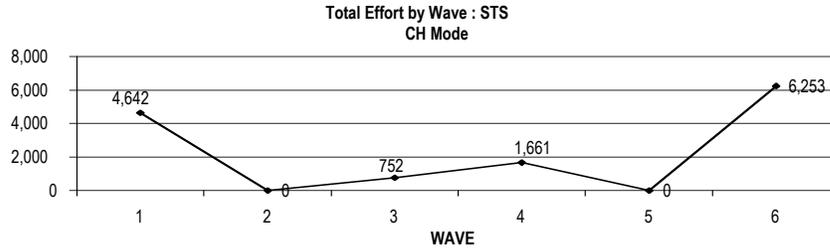


Figure 53. Total Effort by Wave – STS: CH Mode. STS reported higher fishing effort peaks in CH mode in waves 1 and 6.

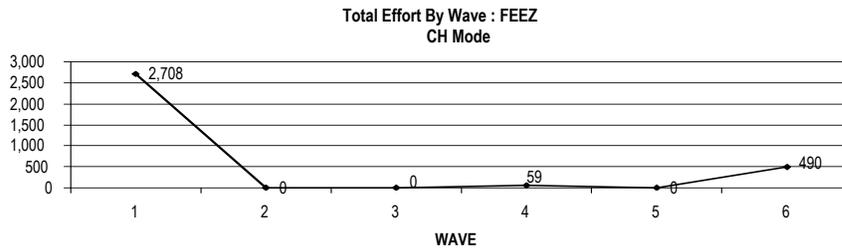


Figure 54. Total Effort by Wave – FEEZ: CH Mode. FEEZ had a higher fishing effort peak in Wave 1.

CH reported an estimated total catch of 59,504 individuals (Table 34). STS reported 88.13% of total catch, while FEEZ and Inland reported 11.65% and 0.21% respectively (Figure 56).

Total fish released alive was 21.86% out of total catch. STS released alive 24.32% of its total catch, FEEZ released alive 1.77% of its total catch and Inland released alive 100% of its total catch.

Total CPUE was 3.537, STS reported higher CPUE (3.941) than FEEZ and Inland (2.128 and 0.504 respectively).

Table 34. Total Catch by Wave/Fishing Area – CH. STS reported the highest total catch and CPUE in 2006.

Total Catch by Wave/Area - CH												
Wave	STS			FEEZ			INLAND			TOTAL		
	Total Catch	Released Alive	CPUE	Total Catch	Released Alive	CPUE	Total Catch	Released Alive	CPUE	Total Catch	Released Alive	CPUE
1	17,407	9,292	3.750	6,318	0	2.333	130	130	0.504	23,855	9,422	3.118
2	0	0	0.000	0	0	0	0	0	0.000	0	0	0.000
3	2,445	2,158	3.251	0	0	0	0	0	0.000	2,445	2,158	3.251
4	832	446	0.501	0	0	0	0	0	0.000	832	446	0.481
5	0	0	0.000	0	0	0	0	0	0.000	0	0	0.000
6	31,758	860	5.079	614	123	1.253	0	0	0.000	32,372	983	4.774
Total	52,442	12,756	3.941	6,932	123	2.128	130	130	0.504	59,504	13,009	3.537

Estimated total CH catch by wave reported peaks in waves 1 and 6 (Figure 55). The greater percentage of total catch took place in STS (Figure 56). In terms of fishing catch by area, Inland only reported catch in Wave 1 (Figure 57). STS reported catch in waves 1, 3, 4 and 6, Wave 6 reported the highest peak (Figure 58). FEEZ only reported catch activity in waves 1 and 6, being Wave 1 the highest one (Figure 59).

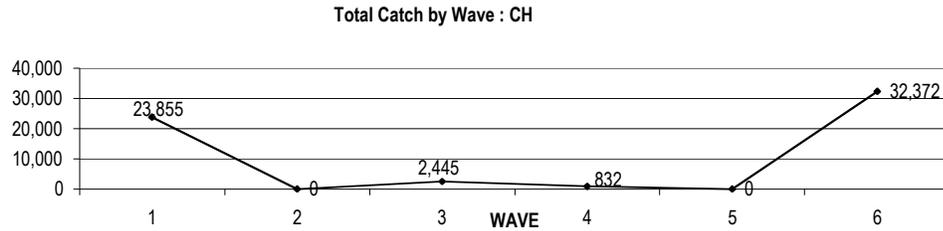


Figure 55. Total Catch by Wave: CH. Estimated total catch was highest in waves 1 and 6.

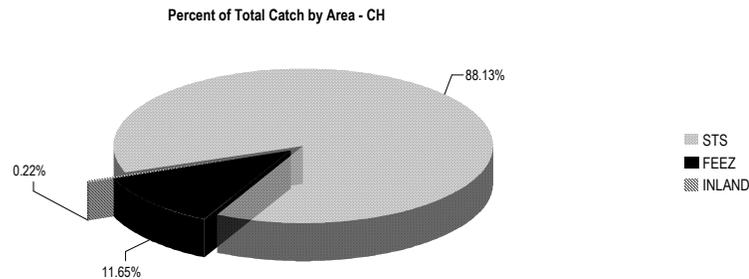


Figure 56. Percent of Total Catch by Area – CH. The greatest percentage of fish caught in Charter boat mode took place in STS.

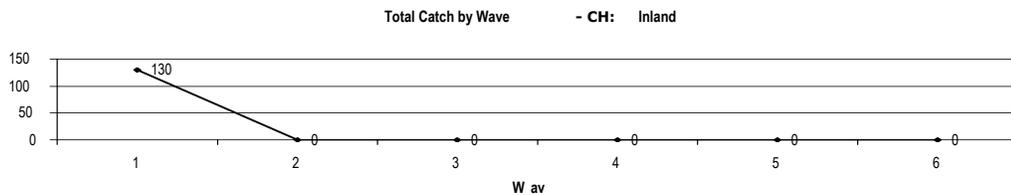


Figure 57. Total Catch by Wave – CH: Inland. Inland fishing area only reported fishing activity in Wave 1.

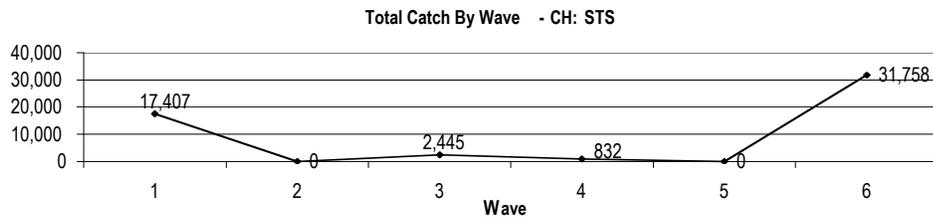


Figure 58. Total Catch by Wave – CH: STS. Total Catch in STS fishing area reported its highest peak in Wave 6.

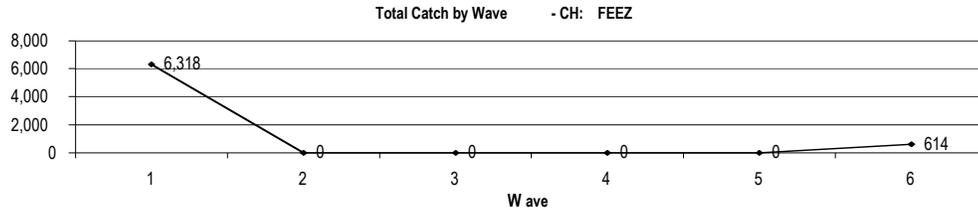


Figure 59. Total Catch by Wave – CH: FEEZ. FEEZ only reported fishing effort in waves 1 and 6.

With regards of species caught by wave/fishing area (Table 2, App. 3), Wave 1 reported 25 species caught in STS, lane snapper, yellowtail snapper, atlantic thread herring (*Opisthonema oglinum*), mutton snapper and atlantic tarpon were the top ones. FEEZ reported 6 species caught, being great barracuda, dolphin and wahoo the top ones caught, Inland only reported atlantic tarpon.

Wave 2 did not report catch in 2006. Wave 3 reported 20 species caught in STS, gray snapper (*Lutjanus griseus*), common snook, atlantic tarpon and blue runner were the top ones. FEEZ and Inland did not have fishing activity.

Wave 4 reported 13 species caught in STS, little tunny and skipjack tuna (*Katsuwonus pelamis*) were the top ones. FEEZ and Inland did not have fishing activity. Wave 5 did not report any catch in 2006.

Wave 6 reported 12 species caught in STS, being false pilchard, dolphin and wahoo the top ones. FEEZ only reported dusky shark (*Carcharhinus obscurus*), little tunny and wahoo. Inland fishing area did not report any catch.

Total weight by area was as follows: 28,909 kg fish boarded in STS, 41,271 kg of fish boarded in FEEZ and 0.000 kg of fish boarded in Inland.

In terms of fish released alive FY 2006, CH mode reported 21.86% of total catch. STS reported 24.32%, FEEZ reported 1.77% and Inland reported 100% of total catch as released alive.

In terms of percent of total fish released alive by wave, waves 1, 3, 4 and 6 went as follows: 39.5%, 88.26%, 53.61% and 3.04% respectively (Figure 60). Waves 2 and 5 did not report fishing activity.

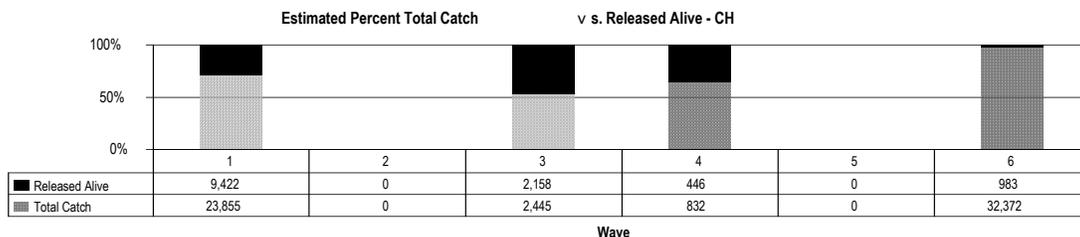


Figure 60. Estimated Percent of Total Catch vs. Released Alive – CH. Wave 3 had the highest percent of fish released alive in 2006.

In terms of total percent of fish released alive, 98.06% of fish released alive in 2006 took place in STS, 0.99% in Inland and 0.95% in FEEZ (Figure 61).

Therefore, Inland released alive 100% of its total catch (Figure 62), while STS only released 24.32% and FEEZ 1.77% .

Percentage of fish released alive by wave in STS (Figure 63), was higher in Wave 3. Waves 1 and 4 had almost the same percent of fish released alive (53%) and Wave 6 had the lowest percent of fish released alive, 2.71% .

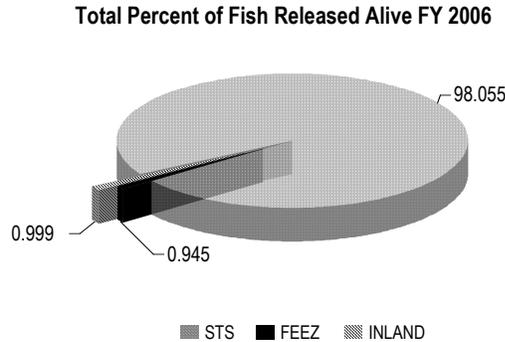


Figure 61. Total Percent of Fish Released Alive FY 2006. The greatest percent of fish released alive took place in STS.

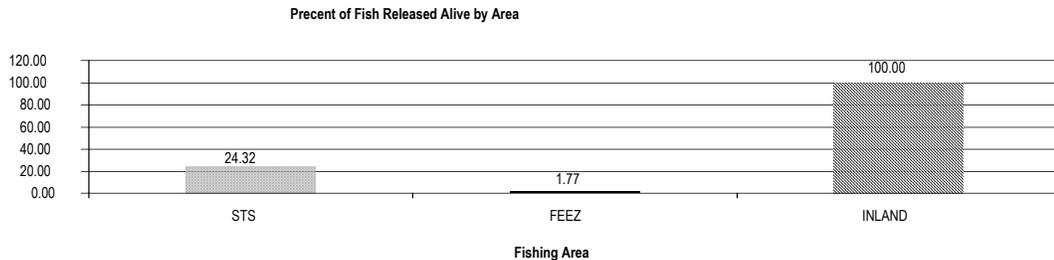


Figure 62. Estimated Percent of Fish Released Alive by Area. Inland fishing area released 100% of its total catch, while FEEZ only released 1.77% of its total catch.

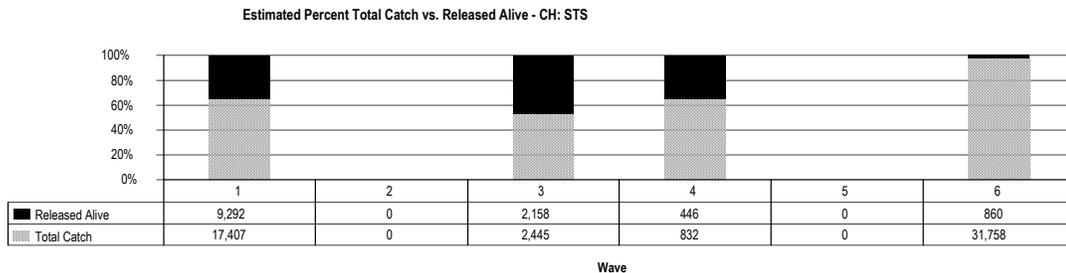


Figure 63. Estimated Percent of Total Catch vs. Released Alive – CH: STS. Percentage of fish released alive in STS was higher in Wave 3.

FEEZ only reported fish released alive in Wave 6, 20.03%. Inland reported 100% of total catch as released alive in Wave 1.

With regards of species released alive by wave/area (Table 2, App. 3), Wave 1 released 17 of 25 species in STS, reporting 10 of them as 100% released alive: atlantic tarpon, conger ell, crevalle jack, great barracuda, ladyfish, lane snapper, mutton snapper, sand tilefish, southern sennet, southern stingray, white grunt, yellow jack and yellowtail snapper. FEEZ did not report any fish released alive. Inland reported all its catch (atlantic tarpon) as 100% released alive.

Wave 3 released alive 16 of 20 species in STS, reporting atlantic tarpon, bar jack, barracuda genus species, blue runner, gray snapper, graysby, great barracuda, greater amberjack and mutton snapper as 100% released alive.

Wave 4 released alive 8 of 13 species in STS, being atlantic tarpon, blue marlin, great barracuda, lemon shark, little tunny, needlefish genus, nurse shark and scalloped hammerhead 100% released alive.

Wave 6 released alive 4 of 12 species, bar jack, blue marlin, blue runner and longbill spearfish were 100% released alive in STS. FEEZ only released alive 1 species of 3, dusky shark, in 100%.

Total CPUE for CH was 3.537 (Table 34). CPUE by wave reported a peak in Wave 6 (Figure 64). Waves 1 and 3 had very similar CPUE, Wave 4 had the lowest CPUE in 2006 (waves 2 and 5 did not report fishing activity, therefore had a CPUE of 0).

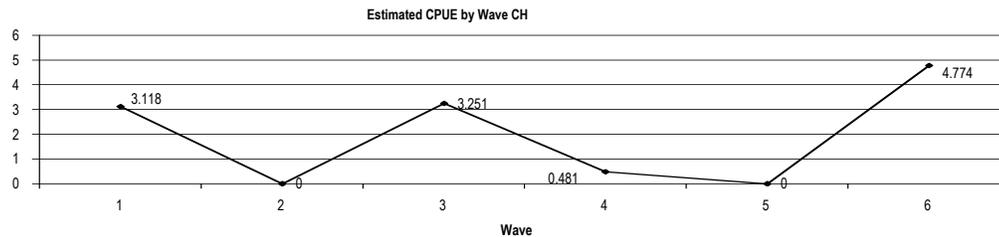


Figure 64. Estimated CPUE by Wave – CH. CPUE by Wave in CH mode had its higher peak in Wave 6. Waves 2 and 5 did not report fishing activity in 2006, therefore reported a CPUE of 0.

STS had a higher CPUE in Wave 6, false pilchard reported a total catch of 27,465 individuals in this wave, this number was not obtained in other wave or species, therefore contributed to increased CPUE in this wave (Figure 65).

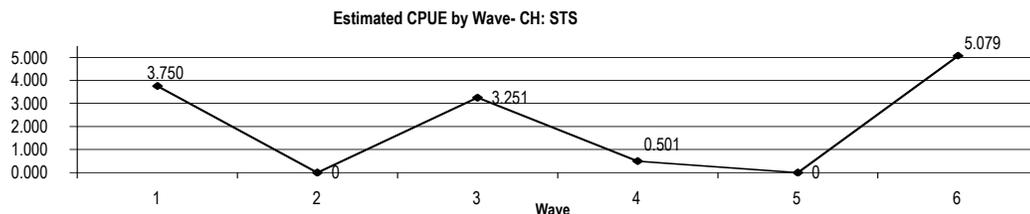


Figure 65. Estimated CPUE by Wave - CH: STS. CPUE in STS was higher in Wave 6, waves 1 and 3 had similar CPUE.

FEEZ reported the highest CPUE in Wave 1, while Inland reported a CPUE of 0.504 in Wave 1 (Table 34).

CH mode anglers preferred to fish from STS, having the greatest catch and CPUE in this fishing area. FEEZ only reported fishing activity in Waves 1, 4 and 6, while Inland only reported fishing activity in Wave 1. The greater percentage of catch released alive in 2006 was in STS. Therefore, Inland released 100% of its total catch, followed by STS and FEEZ.

Activity 3: Assessment of Private/Rental Boat Marine Recreational Fisheries

Objective: To generate statistically valid estimates of catch and fishing effort of marine anglers fishing from private or rental boats.

Procedures and Results: Private/rental boat anglers were surveyed using the point-access intercept method. All intercepts were completed after a complete fishing trip. A quota of 193 interviews was established for all waves.

There were a high number of uncompleted interviews (Table) to reach quota. Total assignments FY 2006 were completed in 43.45%. Waves 1 and 2 were completed as expected, > 85%.

Table 35. Private Boat Assignments. Only waves 1 and 2 were completed as expected (> 90%), the rest of the waves did not reach the accepted numbers (> 70%).

Private Boat Mode Assignments				
Wave	Needed	Completed	Remaining	% Completed
1	80	76	4	95.00
2	88	77	11	87.50
3	132	30	102	22.73
4	183	33	150	18.03
5	143	47	96	32.87
6	53	32	21	60.38
Total	679	295	384	43.45

A total of 571 valid intercepts were obtained in 2006 (Table 36). Every wave needed a quota of 194 intercepts, 90% from quota is accepted (174 intercepts). Only waves 1 and 2 were under accepted numbers.

Total estimated effort in 2006 was 431,274 fishing trips. STS reported the highest fishing effort, followed by FEEZ, Inland had the lowest fishing effort in 2006 (Table 37).

Table 36. Private Boat Mode Valid Intercepts. PR valid intercepts were under accepted numbers only in waves 1 and 2.

Private Boat Mode Valid Intercepts				
Wave	Needed	Obtained	Remaining	% Obtained
1	194	184	10	94.85
2	194	171	23	88.14
3	194	36	158	18.56
4	194	11	183	5.67
5	194	66	128	34.02
6	194	103	91	53.09
Total	1,164	571	593	49.05

Table 37. Total Estimated Effort by Wave/Fishing Area: PR. Total estimated effort in PR mode was 431,274 fishing trips, STS had the highest fishing effort in 2006.

Total Estimated Effort by Wave/Fishing Area : PR				
Wave	STS	FEEZ	INLAND	Total
1	29,534	21,176	557	51,267
2	30,464	96,594	0	127,058
3	117,963	45,371	0	163,334
4	23,027	0	0	23,027
5	15,402	4,530	0	19,932
6	14,948	30,802	906	46,656
Total	231,339	198,472	1,463	431,274

In terms of fishing effort by wave, PR reported an increase from Wave 1 through Wave 3, being Wave 3 the highest peak in 2006, then started decreasing from Wave 4 through 6, although a slight increase was evident in Wave 6 (Figure 66).

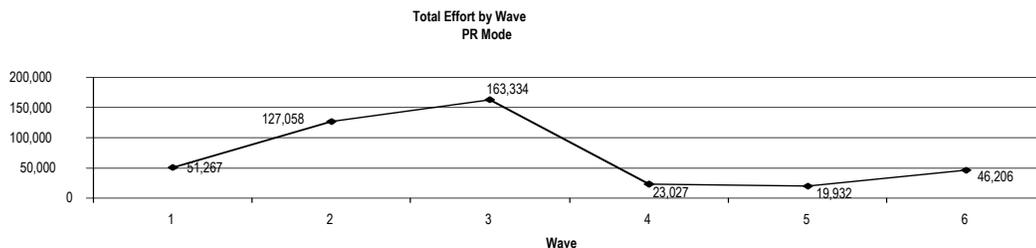


Figure 66. Total Effort by Wave: PR Mode. PR total effort reported its higher peak in Wave 3.

In terms of fishing effort by area, STS reported waves 1 and 2 almost constant, a considerable peak took place in Wave 3, then decreased again in Wave 4, and continued decreasing until Wave 6 (Figure 67).

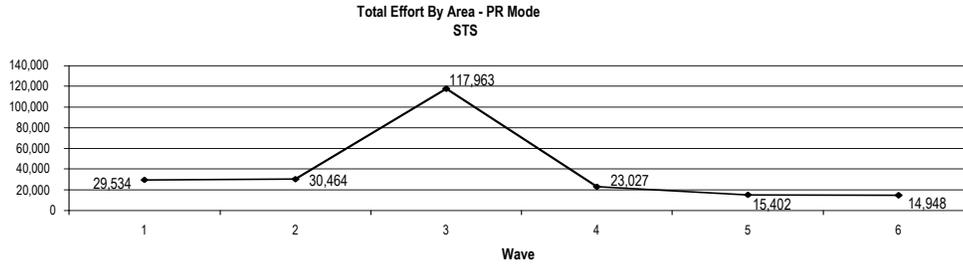


Figure 67. Total Effort by Area – PR Mode: STS. STS fishing area had its higher fishing effort peak in Wave 3.

FEEZ started Wave 1 with a very low peak, then increase considerable in Wave 2. After Wave 2, fishing effort started to decrease, being Wave 4 the lowest level (0 effort), a slight increase was noted in Wave 6, but did not reach the numbers in Wave 2 (Figure 67).

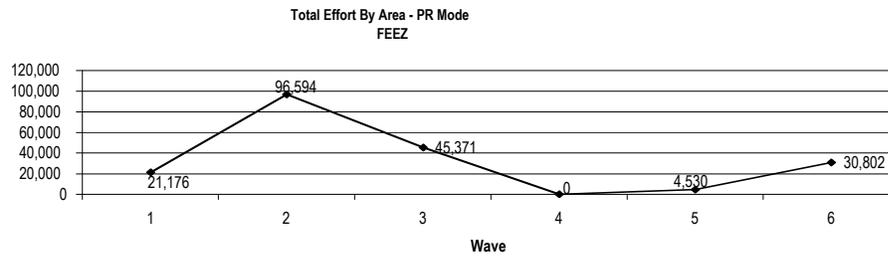


Figure 68. Total Effort by Area – PR Mode: FEEZ. FEEZ reported its higher peak in Wave 2, while its lower peak in Wave 4.

Inland only reported fishing activity in waves 1 and 6, being wave 6 the highest one (Figure 69).

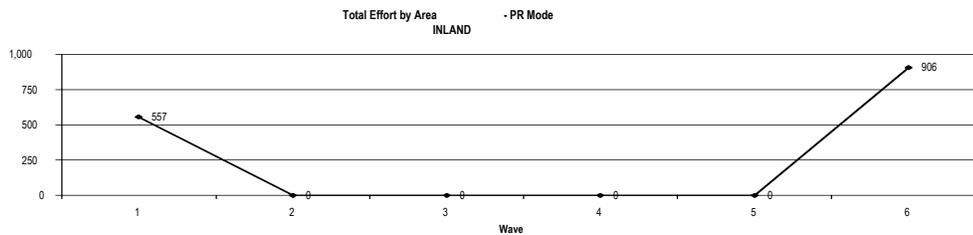


Figure 69. Total Effort by Area – PR Mode: Inland. Inland only reported fishing activity in waves 1 and 6.

In terms of total catch FY 2006, PR reported a total of 454,062 individuals (Table 38), 4.09% of them were released alive. STS reported 70.52% of PR total catch, while FEEZ reported 29.48% (Figure 70). Inland did not report any catch in PR FY 2006. STS released alive 2.46% of its total catch, while FEEZ released alive 7.99% of its total catch. A total CPUE of 1.053 was reported, STS reported higher CPUE than FEEZ.

Table 38. Total Catch by Wave/Area – PR. STS reported the greater catch and CPUE by wave in PR Mode FY 2006.

Total Catch by Wave/Area – PR												
Wave	STS			FEEZ			INLAND			TOTAL		
	Total Catch	Released Alive	CPUE									
1	52,104	1,676	1.756	11,147	560	0.524	0	0	0	63,251	2,236	1.228
2	53,497	2,988	1.746	33,436	0	0.344	0	0	0	86,933	2,988	0.680
3	166,358	783	6.070	31,759	9,235	0.356	0	0	0	198,117	10,018	1.698
4	17,713	0	0.765	0	0	0	0	0	0	17,713	0	0.765
5	12,855	604	0.830	9,059	0	0.199	0	0	0	21,914	604	0.359
6	17,666	1,818	1.175	48,468	911	1.565	0	0	0	66,134	2,729	1.410
Total	320,193	7,869	1.384	133,869	10,706	0.674	0	0	0.000	454,062	18,575	1.053

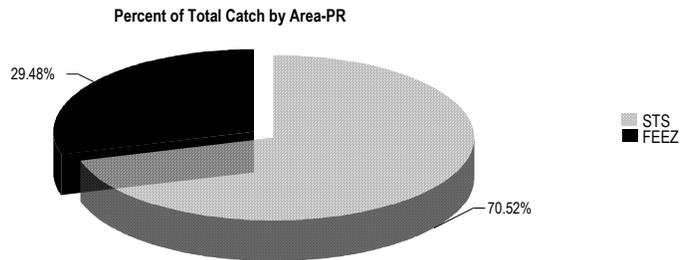


Figure 70. Percent of Total Catch by Area – PR. STS had the greater percentage of fish caught in PR FY 2006.

In terms of total catch by wave, PR reported an ascending pattern from Wave 1 through Wave 3 (Figure 71), a marked drop took place in Wave 4, a slight increase was reported in Waves 5 and 6, but did not reach almost 50.00% of total catch in Wave 3 (a total catch of 117,963 silk snapper were reported in Wave 3, these numbers were not reported in any other wave or species).

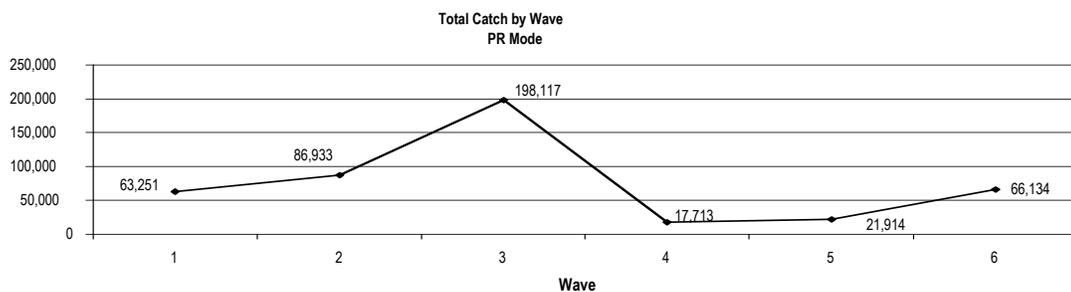


Figure 71. Total Catch by Wave – PR Mode. Total catch in PR mode had its higher peak in Wave 3.

In terms of total catch by wave/fishing area, STS reported its higher peak in Wave 3 (Figure 72). Wave 3 reported an estimated total catch of 117,963 silk snapper (70.90% of total catch), these numbers were not reported in any other wave or species (Table 3, App. 3).

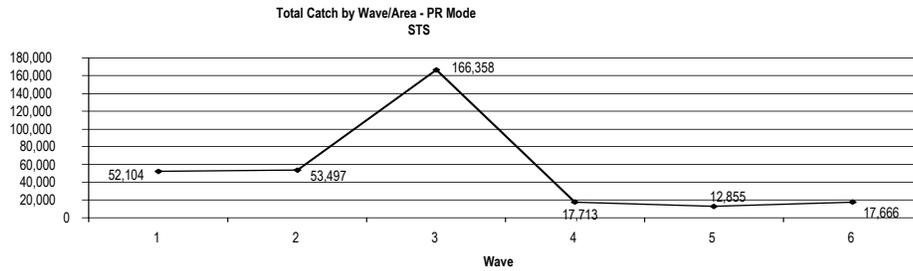


Figure 72. Total Catch by Wave/Area – PR Mode: STS. Total Catch for STS fishing area in PR Mode reported its higher peak in Wave 3.

FEEZ started 2006 at a very low level, then increased an average of 34.20% in waves 2 and 3, then a drop in 100% took place in Wave 4. Wave 5 had a slight increase in total individuals caught, and finally, Wave 6 had a high increase, reporting the highest peak in 2006.

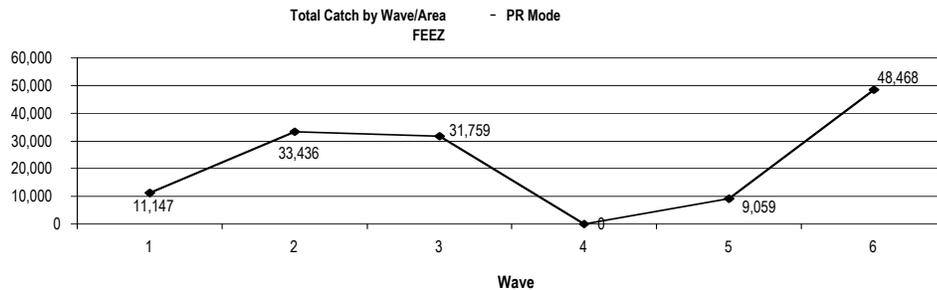


Figure 73. Total Catch by Wave/Area – PR Mode: FEEZ. Total catch in FEEZ reported its higher peak in Wave 6.

With regards of species caught by wave/fishing area (Table 2, App. 3), Wave 1 reported more variety of species and individuals caught by species, than any other wave (excepting silk snapper in Wave 3). Thirty-three species were reported in STS, dolphin, coney (*Cephalopholis fulva*), red hind and atlantic bumper were reported as top one caught. FEEZ reported 8 species caught, dolphin was reported as the top one (59.90% of its total catch).

Wave 2 reported 18 species in STS, 41.67% of total catch was redear sardine, FEEZ reported 4 species, 66.67% of then were dolphin.

Wave 3 reported 7 species in STS, 59.54% was silk snapper, FEEZ reported 5 species, 42.86% of its total catch was blackfin tuna.

Wave 4 reported 8 species in STS, king mackerel and yellowtail snapper were the top ones (20% of total catch each one). FEEZ did not report any catch.

Wave 5 reported 11 species in STS, tripletail and dolphin were reported as top ones (29.40% and 24.95% of total catch, respectively). FEEZ reported 9 species caught, lane snapper represented 69.99% of its total catch.

Wave 6 reported 10 species caught in STS, dolphin represented 51.28% of its total catch. FEEZ reported 9 species caught, dolphin and wahoo represented 55.14% and 22.42% of its total catch respectively.

Wave 6 reported 10 species caught in STS, dolphin represented 51.27% of its total catch, red hind, lane snapper and wahoo were also mainly caught. FEEZ reported 9 species caught, dolphin represented 55.14% of its total catch.

Wave 4 reported the lowest level, 40.07% of its catch were king mackerel and yellowtail snapper. Wave 5 reported 12,855 individuals, 54.35% of the catch reported was dolphin and tripletail, finally, Wave 6 reported 17,666 individuals caught, 51.28% of them were dolphin.

In terms of percent of total fish released alive by wave, waves 1 through 6 were almost constant, 3.53%, 3.43%, 5.06%, 0%, 2.76% and 4.13% respectively (Figure 74), except Wave 4, this wave did not report any fish released alive.

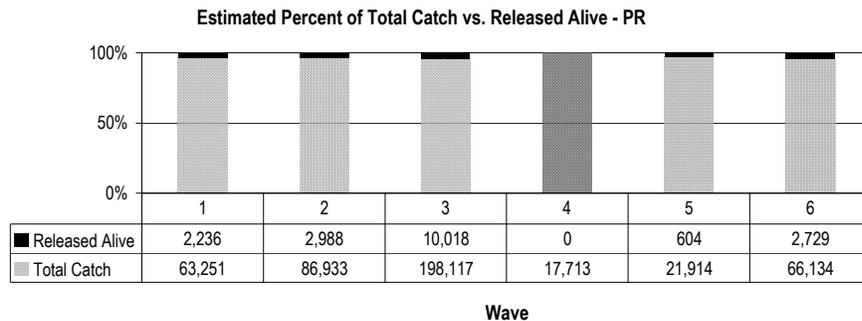


Figure 74. Estimated Percent of Total Catch vs. Released Alive – PR. Percentage of fish released alive by wave in 2006 went almost constant from waves 1 through 6, although Wave 4 did not report any released fish.

Total percent of fish released alive from total catch was 4.09%. The 57.64% of fish released alive took place in FEEZ, while 42.36% in STS (Figure 75). In addition, FEEZ released more fish alive from its total catch than STS (Figure 76).

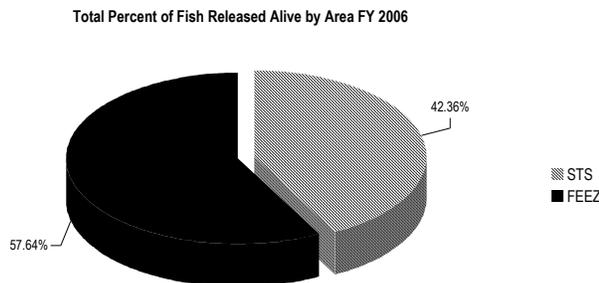


Figure 75. Total Percent of Fish Released Alive by Area FY 2006. The greatest percentage of total fish released alive in 2006 took place in STS.

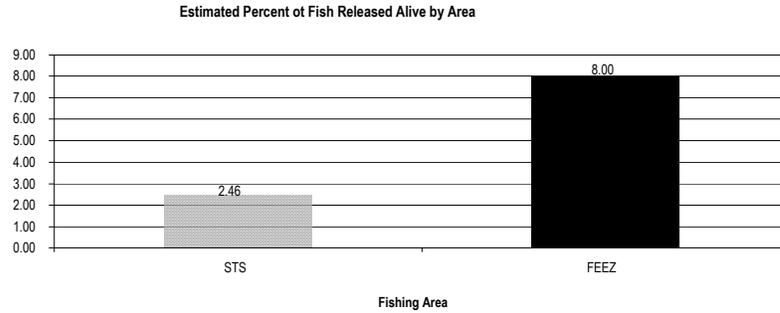


Figure 76. Estimated Percent of Fish Released Alive by Area. FEEZ released alive more fish from its total catch than STS.

In terms of estimated percent of fish released alive by wave/area, STS released alive more fish by wave than FEEZ (Figures 77 and 78). STS released an average of 4.04% of fish by wave, although no fish were released alive in Wave 4, the highest percentage of fish released alive took place in Wave 6, 10.29% (Figure 77).

FEEZ released alive an average of 7.96% of fish by wave, but waves 2 and 6 did not report fish released alive in waves 2 and 5, while a higher peak took place in Wave 3, 29.08% (Figure 78).

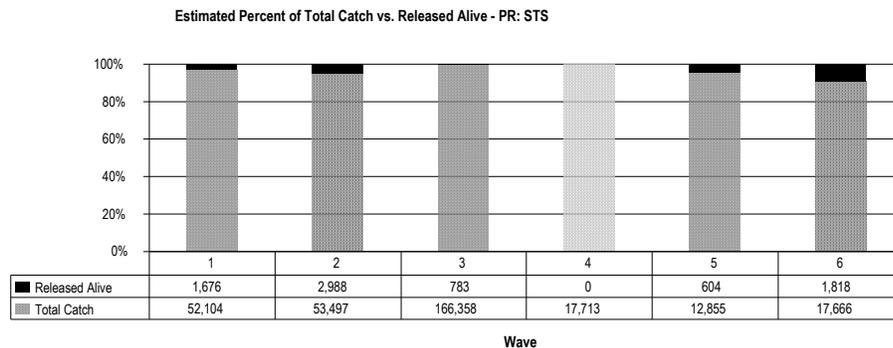


Figure 77. Estimated Percent of Total Catch vs. Released Alive – PR: STS. Anglers from STS released more fish alive in Wave 6.

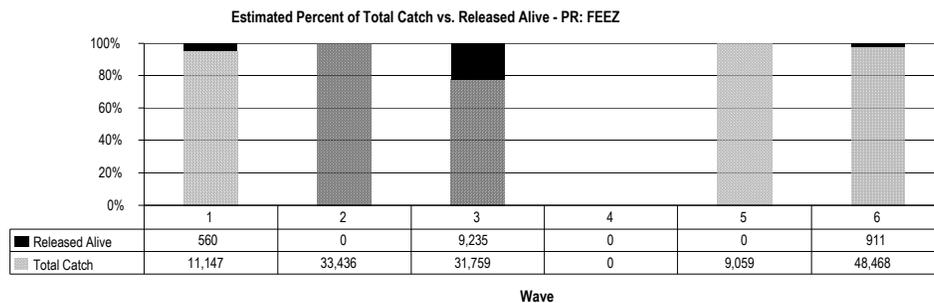


Figure 78. Estimated Percent of Total Catch vs. Released Alive – PR: FEEZ. Anglers from FEEZ released more fish alive in Wave 3.

With regards of species released alive by wave/area (Table 3, App. 3), Wave 1 released alive 3 of 33 species in STS, being atlantic tarpon the only one released alive in 100%. FEEZ reported as released alive 2 of 8 species, great barracuda in 100% and wahoo in 14.35%.

Wave 2 reported 3 species released alive in STS, great barracuda, horse-eye jack (50.27% each one) and red hind, 33.51%. FEEZ did not report any fish released alive.

Wave 3 only reported red hind as released alive in STS (17.26%), FEEZ reported blue marlin, cero (100% each one) and little tunny 17.26%.

Wave 4 did not released alive any fish in STS or FEEZ.

Wave 5 only released alive atlantic tarpon (100%) in STS, while no fish were released alive in FEEZ.

Wave 6 only released alive in STS, great barracuda, blue marlin and sailfish, each one in 100%. Dolphin was the only species released alive in FEEZ (3.41%).

Total CPUE for PR was 1.053 (Table 38). CPUE by wave reported a higher peak in Wave 6 (Figure 79).

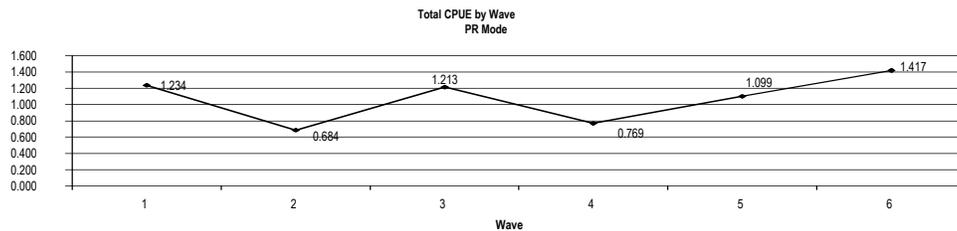


Figure 79. Total CPUE by Wave – PR Mode. PR mode had its higher CPUE in Wave 6, while its lower in Wave 2 and 4.

STS started 2006 with its higher peak in Wave 1, then started decreasing until Wave 5, a slight increase took place in Wave 6 (Figure 80).

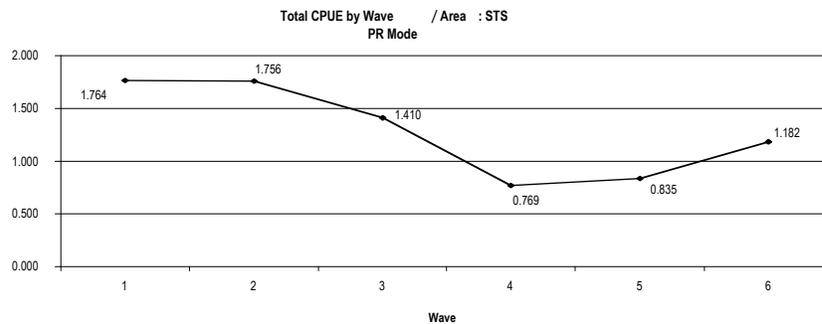


Figure 80. Total CPUE by Wave/Area – PR Mode: STS. STS started 2006 with its higher peak in Wave 1, then start decreasing until Wave 5.

Waves 1 through 4 had the lowest peaks in FEEZ CPUE, a great increase took place in waves 5 and 6 (Figure 81).

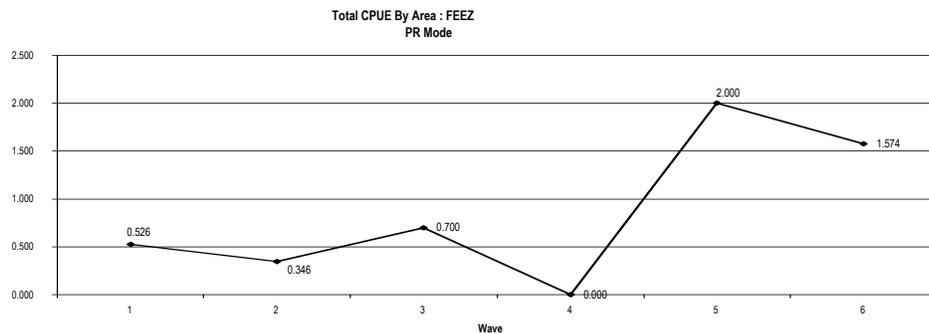


Figure 81. Total CPUE by Area – PR: FEEZ. FEEZ reported its higher CPUE peak in Wave 5.

PR mode anglers preferred to fish from STS than in FEEZ in waves 1, 3, 4 and 5. Inland had the lowest fishing effort in PR. Although, anglers had a greater catch in waves 1, 2, 3 and 6 (higher CPUE) in STS, while waves 5 and 5 had a greater CPUE in FEEZ. Wave 4 had lower effort and catch in both, STS and FEEZ. Inland reported the lowest effort in PR, and did not report any catch in 2006. FEEZ reported the highest percent of fish released alive.

Recreational fishery is a significant component of Puerto Rico’s marine fisheries. There were an estimated average of 32,089 resident anglers and 3,411 non-residents anglers by wave who made an estimated average of 159,187 fishing trips by wave and captured an estimated average of 157,809 individuals by wave. Shoreline mode represented an average of 52.9% of the fishing effort, private/rental boat mode represented 46.1% and charter boat mode represented 1.3% of the fishing effort. PR mode anglers reported 52.3% from total catch, while SH anglers reported 40.5% and CH 7.3%. CH anglers had the greater CPUE, 1.889, while PR and SH had 0.796 and 0.642.

Anglers preferred to fish from STS (66.3%), than FEEZ (26.5%) and Inland (3.6%). STS reported the highest number of fish caught (76.77%), than FEEZ (19.93) and Inland (3.30%). Total CPUE was higher in STS (0.947) than FEEZ (0.698) and Inland (0.679).

SH anglers preferred to fish and had more catch from STS, than Inland, but had higher catch per unit effort in Inland in waves 2 and 5. CH anglers preferred to fish from STS, than FEEZ and Inland, and had more catch in STS. PR anglers preferred to fish from and had more catch and greater CPUE in STS than FEEZ or Inland.

The percentage of participation, assignments completed, valid intercepts, fishing effort and total catch were affected mostly by the bad weather conditions the Island experimented during waves 4 and 5 and the lack of personnel in the project. Another reason is that anglers continue refusing to be interviewed and to allow the interviewers to take the species measurements or answer if they had any catch during their fishing trip. The refusals were especially to DNER employees, mostly as a reaction to the approval of the new fishing regulations.

Job 4: Data Entry, Analysis and Reporting

Job Objective: To enter collected intercept data into computerized databases, analyze the data, prepare and submit written reports that summarize the project achievements and the collected information. Data entry will be conducted on a daily basis throughout the fiscal year.

Procedure/Results: Computerized data generated from intercepts was checked for accuracy and consistency on a daily basis. An annual written progress report was generated. The report included an evaluation of the marine recreational fishery statistics program.

Specific recommendations to improve the statistics program and marine recreational fisheries management were made in NMFS/ORC Macro wave meetings 1, 2 and 3 (Table 21). Status of the Marine Recreational Fisheries Statistics Survey (MRFSS) on each state, the importance of complete the quotas, the obstacles the project had to complete them, ways to manage the interview process and statistics was discuss in each wave meeting.

A monthly meeting was made with project staff in 2006. The objective of each meeting is to collect important data of each interviewer, discuss the monthly achievements, monthly results (measurements and identification of fish seen, intercept data, interviews errors encountered), field process, obstacles encounter in the field, fish identification hints, etc. A test was given to every interviewer in each meeting, which content fish photos for identification, field problems management and project/interview procedures.

One presentation was held with DNER Ranger Corp (Table 22), explaining the project objective, methods and results. The objective of these presentations was to obtain support from the Rangers Corp in our field assignments when needed.

Table 21. NMFS/ORC Macro Wave Meeting. NMFS and ORC Macro reunions in 2006.

Date	Place	Wave Meeting Number
February -2006	Miami, FL	1
June - 2006	Burlington, VT	2
October - 2006	Washington, DC	3

Table 22. DNER Rangers Corp Presentations. Presentations gave to DNER Rangers Corp in 2005.

Date	Place	Ranger Corp Unit
May - 2006	San Juan	Ranger Corp – Maritime Unit

MRFSS Effort and Catch Estimates Formulas

Telephone Survey

Fishing Effort by Coastal Residents with Phones

$$T(CR) = N * (t/n)$$

T(CR) = estimated total number of fishing trips by coastal county residents with phones

N = number of residential households in county (from U.S. Census)

n = number of residential households contacted by telephone survey

t = number of fishing trips reported by interviewed residents

t/n = estimated mean number of trips per residential household

Telephone & Intercept Surveys

Total Fishing Effort

$$T/T(CR) = i/i(CR)$$

T/T(CR) = estimated ratio of total angler trips to trips by state coastal county residents with phones

i = number of intercepted angler trips

i(CR) = number of intercepted angler trips by state coastal county residents with phones

$$T = T(CR) * T/T(CR)$$

T = estimated total number of angler fishing trips

T(CR) = estimated total fishing trips by state coastal county residents with phones

Intercept Survey

Estimates of Effort by Area

$$T(A)/T = i(A)/i$$

T(A)/T = estimated proportion of angler trips that fished in area A

i = number of intercepted angler trips

i(A) = number of intercepted angler trips that fished in area A

$$T(A) = T * T(A)/T$$

T(A) = estimated total number of angler fishing trips in area A

T = estimated total number of angler fishing trips

Intercept Survey

Estimates of Mean Catch per Angler Trip

$$h(A) = h(A,o) + h(A,r)$$

h(A) = number of fish harvested by intercepted angler trips that fished in area A

h(A,o) = number of fish harvested by intercepted angler trips in area A that are observed by the interviewer

$h(A,r)$ = number of fish harvested by intercepted angler trips in area A that are reported by the angler but not observed by the interviewer

$$H(A)/T(A) = h(A) / i(A)$$

$H(A)/T(A)$ = estimated mean number of fish harvested per angler fishing trip in area A

$i(A)$ = number of intercepted angler trips in area A

Estimates of Total Catch

$$H(A) = T(A) * H(A)/T(A)$$

H(A) = estimated total number of fish harvested by anglers fishing in area A

T(A) = estimated total number of angler fishing trips in area A

H(A)/T(A) = estimated mean number of fish harvested per angler fishing trip in area A

Table 1. Species Caught by Wave – INLAND

Common Name	Total Catch	Released Alive	Total Weight Kg	Mean Length mm	Mean Weight Kg	CPU
WAVE 1						
ATLANTIC TARPON	129	129	0.0	0.0	0.0	0.015659141
FRENCH GRUNT	928	928	0.0	0.0	0.0	0.112648701
GREEN MORAY	1,856	1,856	0.0	0.0	0.0	0.225297402
MUTTON SNAPPER	928	928	0.0	0.0	0.0	0.112648701
WAVE 2						
COMMON SNOOK	902	902	0.0	0.0	0.0	0.12498268
PARROTFISH FAMILY	2,706	2,706	0.0	0.0	0.0	0.374948039
SPOTFIN MOJARRA	902	902	0.0	0.0	0.0	0.12498268
UNIDENTIFIED (SURFACE FISH)	2,707	2,707	0.0	0.0	0.0	0.375
WAVE 3						
<i>No Catch Data Reported</i>						
WAVE 4						
<i>No Catch Data Reported</i>						
WAVE 5						
LANE SNAPPER	8,431	0	1,939	0.0	0.2	3.333728747
WAVE 6						
TILAPIA GENUS	2,963	0	0.0	0.0	0.0	0.215553616
Total	22,452	11,059	1,939	0	0	0.708

Table 2. Species Caught by Wave – STS.

Common Name	Total Catch	Released Alive	Total Weight Kg	Mean Length mm	Mean Weight Kg	CPU
WAVE 1						
ATLANTIC BUMPER	4,566	258	0	128.7	0.0	0.033
ATLANTIC TARPON	1,867	1,867	0	0.0	0.0	0.013
ATLANTIC THREAD HERRING	1,289	0	0	0.0	0.0	0.009
BARBU	9,278	0	510	177.8	0.1	0.067
BLUE RUNNER	2,915	0	1,487	276.0	0.5	0.021
BONEFISH	2,784	928	464	216.0	0.3	0.020
CERO	1,930	0	4,884	659.0	2.5	0.014
COMMON SNOOK	836	279	2,647	752.5	4.7	0.006
CONEY	5,015	0	1,042	218.8	0.2	0.036
CONGER EEL	129	129	0	0.0	0.0	0.001
CONGER EEL FAMILY	928	928	0	0.0	0.0	0.007
CREVALLE JACK	7,110	129	26,988	564.3	4.6	0.051
CUBERA SNAPPER	129	0	2,747	1,282.0	21.3	0.001
DOLPHIN	5,980	557	31,659	863.1	5.8	0.043
GREAT BARRACUDA	1,335	129	5,387	381.0	4.5	0.010
GRAY SNAPPER	1,909	387	0	279.6	0.0	0.014
HORSE-EYE JACK	1,485	0	93	286.5	0.1	0.011
IRISH POMPANO	258	0	13	115.0	0.1	0.002
KING MACKEREL	516	258	602	0.0	2.1	0.004
LADYFISH	387	387	0	0.0	0.0	0.003
LANE SNAPPER	11,223	1,547	12,860	237.3	0.1	0.081
MOJARRA FAMILY	1,950	0	0	0.0	0.0	0.014
MUTTON SNAPPER	3,203	645	3,323	392.0	1.3	0.023
NURSE SHARK	129	129	0	0.0	0.0	0.001
PALOMETA	279	0	0	302.0	0.0	0.002
PERMIT	2,786	0	0	448.9	0.0	0.020
PORGY FAMILY	279	0	0	0.0	0.0	0.002
PRINCESS PARROTFISH	1,856	0	0	0.0	0.0	0.013
QUEEN SNAPPER	557	0	0	517.5	0.0	0.004
QUEEN TRIGGERFISH	279	0	0	313.0	0.0	0.002
RED HIND	4,737	0	895	233.9	0.2	0.034
SAND DRUM	279	0	0	260.0	0.0	0.002
SAND TILEFISH	129	129	0	0.0	0.0	0.001
SCHOOLMASTER	18,835	4,639	3,076	218.7	0.2	0.135
SILK SNAPPER	1,115	0	0	0.0	0.0	0.008
SKIPJACK TUNA	279	0	1,142	581.0	4.1	0.002
SOUTHERN SENNET	1,243	129	0	284.5	0.0	0.009
SOUTHERN STINGRAY	258	258	0	0.0	0.0	0.002
SPANISH GRUNT	3,990	1,856	285	168.6	0.1	0.029
SPOTTED MORAY	928	0	0	0.0	0.0	0.007
STOPLIGHT PARROTFISH	928	928	0	0.0	0.0	0.007
TIGER SHARK	129	0	3,572	1,422.0	27.7	0.001
TOMTATE	944	0	28	171.5	0.0	0.007
TRIPLETAIL	2,786	0	5,573	456.1	2.0	0.020
TRUNKFISH	1,856	0	2,134	409.0	1.2	0.013
UNIDENTIFIED FISH	2,784	2,784	0	0.0	0.0	0.020
WAHOO	1,672	0	15,046	1,121.7	9.0	0.012
WHITE GRUNT	686	129	167	252.5	0.3	0.005
YELLOW JACK	3,668	1,161	1,923	361.3	0.8	0.026
YELLOWFIN GROUPER	557	0	3,121	742.5	5.6	0.004
YELLOWFIN MOJARRA	15,773	0	986	132.6	0.1	0.113
YELLOWTAIL SNAPPER	8,204	6,161	715	217.7	0.3	0.059

Table 2. Species caught by Wave - STS

Common Name	Total Catch	Released Alive	Total Weight Kg	Mean Length mm	Mean Weight Kg	CPU
WAVE 2						
ATLANTIC BUMPER	1,804	0	226	224.0	0.0	0.014
ATLANTIC MOONFISH	902	0	135	218.0	0.2	0.007
BARBU	1,624	722	135	226.0	0.2	0.012
BARRED GRUNT	2,706	2,706	0	0.0	0.0	0.020
BLACKFIN TUNA	1,486	0	6,093	569.0	4.1	0.011
BLUE RUNNER	5,678	0	271	0.1	0.5	0.043
CERO	2,229	0	4,124	0.0	1.9	0.017
CONEY	743	0	149	172.0	0.2	0.006
CREVALLE JACK	1,486	0	0	0.0	0.0	0.011
DOLPHIN	2,229	0	15,219	890.7	6.8	0.017
DRUM FAMILY	902	0	0	0.0	0.0	0.007
GREAT BARRACUDA	1,486	743	0	0.0	0.0	0.011
HORSE-EYE JACK	2,972	1,486	0	0.0	0.0	0.022
IRISH POMPANO	902	902	0	0.0	0.0	0.007
LANE SNAPPER	3,715	0	650	154.3	0.2	0.028
LEMON SHARK	743	0	0	0.0	0.0	0.006
MOJARRA FAMILY	3,608	0	0	0.0	0.0	0.027
PALOMETA	1,804	0	180	209.0	0.1	0.014
RED HIND	2,229	743	0	264.0	0.0	0.017
REDEAR SARDINE	22,291	0	0	0.0	0.0	0.167
ROCK HIND	743	0	0	372.0	0.0	0.006
SAND DRUM	1,804	0	226	226.5	0.1	0.014
SCHOOLMASTER	10,932	6,315	1,558	310.8	0.3	0.082
SKIPJACK TUNA	1,486	0	0	0.0	0.0	0.011
SLIPPERY DICK	902	0	45	112.0	0.1	0.007
SMALLMOUTH GRUNT	902	0	45	137.0	0.1	0.007
UNIDENTIFIED EEL	902	902	0	0.0	0.0	0.007
UNIDENTIFIED FISH	1,645	702	0	0.0	0.0	0.012
WAHOO	743	0	5,474	992.0	7.4	0.006
YELLOWFIN MOJARRA	3,608	0	361	203.0	0.1	0.027
YELLOWTAIL SNAPPER	2,388	0	279	218.7	0.1	0.018
WAVE 3						
AGUJON	1,567	0	2,037	502.0	1.3	0.007
ATLANTIC CROAKER	1,567	0	313	0.0	0.2	0.007
ATLANTIC SPADEFISH	4,700	0	588	150	0.1	0.020
ATLANTIC TARPON	454	454	0	0.0	0.0	0.002
BARK JACK	31	31	0	0.0	0.0	0.000
BARRACUDA GENUS	16	16	0	0.0	0.0	0.000
BLACKFIN TUNA	4,369	0	24,030	629.0	5.5	0.019
BLUE RUNNER	172	172	0	0.0	0.0	0.001
CERO	47	16	52	557.0	1.6	0.000
CHECKERED PUFFER	1,567	1,567	0	0.0	0.0	0.007
COMMON SNOOK	251	251	0	637.0	0.0	0.001
CREVALLE JACK	4,857	141	354	269.4	0.1	0.021
DOLPHIN	17,539	0	109,178	896.7	6.2	0.075
FALSE PILCHARD	23,501	0	1,175	111.1	0.1	0.101
GREAT BARRACUDA	31	31	0	0.0	0.0	0.000
GREATER AMBERJACK	16	1	0	0.0	0.0	0.000
GRAYSBY	16	16	0	0.0	0.0	0.000
GRAY SNAPPER	2,225	658	157	179.0	0.1	0.010
JACK FAMILY	1,567	0	0	0.0	0.0	0.007
KING MACKEREL	8,863	31	23,674	689.1	2.7	0.038
LANE SNAPPER	9,479	1,598	919	201.8	0.1	0.041

Table 2. Species caught by Wave – STS

Common Name	Total Catch	Released Alive	Total Weight Kg	Mean Length mm	Mean Weight Kg	CPU
WAVE 3 (CONT.)						
LITTLE TUNNY	8,911	63	13,270	461.2	1.5	0.038
MUTTON SNAPPER	3,149	16	1,488	285.5	0.5	0.014
RED HIND	4,568	4,537	8	183.0	0.2	0.020
SCHOOLMASTER	4,700	0	235	146.0	0.1	0.020
SILK SNAPPER	117,963	0	106,703	0.0	0.9	0.506
SQUIRRELFISH	3,133	1,567	157	176.0	0.1	0.013
SQUIRRELFISH GENUS	1,567	1,567	0	0.0	0.0	0.007
TUNA GENUS	4,537	0	0	0.0	0.0	0.019
UNIDENTIFIED FISH	1,567	1,567	0	0.0	0.0	0.007
WAHOO	31	0	0	0.0	0.0	0.000
WHITE GRUNT	1,567	1,567	0	0.0	0.0	0.007
YELLOW JACK	31	0	39	422.5	1.2	0.000
YELLOWTAIL SNAPPER	11,014	1,598	629	156.6	0.1	0.047
WAVE 4						
ATLANTIC TARPON	30	30	0	0.0	0.0	0.000
BALLYHOO	634	0	32	310.0	0.1	0.010
BARRED GRUNT	634	634	0	0.0	0.0	0.010
BLACKFIN TUNA	30	0	86	524.0	2.9	0.000
BLUE MARLIN	59	59	0	0.0	0.0	0.001
BURRO GRUNT	2,534	0	348	207.7	0.1	0.040
CONY	1,801	0	360	124.2	0.2	0.028
CREVALLE JACK	1,771	0	0	338.0	0.0	0.028
DOG SNAPPER	1,171	0	1,151	221.0	0.7	0.018
GREAT BARRACUDA	30	30	0	0.0	0.0	0.000
KING MACKEREL	3,543	0	531	257.0	0.2	0.055
LANE SNAPPER	3,672	0	389	206.3	0.1	0.057
LEMON SHARK	30	30	0	0.0	0.0	0.000
LITTLE TUNNY	926	178	196	465.0	1.3	0.014
MOJARRA FAMILY	634	0	0	0.0	0.0	0.010
MUTTON SNAPPER	3,702	0	864	172.5	0.2	0.058
NASSAU GROUPE	1,771	0	0	381.0	0.0	0.028
NEEDLEFISH GENUS	30	30	0	0.0	0.0	0.000
NURSE SHARK	59	59	0	0.0	0.0	0.001
QUEEN TRIGGERFISH	30	0	33	33.0	1.1	0.000
SCALLOPED HAMMERHEAD	30	30	0	0.0	0.0	0.000
SCHOOLMASTER	634	0	63	165.0	0.1	0.010
SKIPJACK TUNA	119	0	454	529.2	3.8	0.002
SOUTHERN STINGRAY	634	0	1,584	850.0	2.5	0.010
TOMTATE	1,267	1,267	0	0.0	0.0	0.020
YELLOWTAIL SNAPPER	3,543	0	886	238.5	0.2	0.055
WAVE 5						
ATLANTIC SPADEFISH	291	0	1,296	588.0	149.5	0.100
ATLANTIC TARPON	604	604	0	0.0	0.0	0.011
BAR JACK	581	0	145	344.0	0.3	0.011
BLACK DURGON	581	0	901	403.0	1.5	0.011
DOLPHIN	3,208	0	11,406	751.9	3.6	0.058
LANE SNAPPER	10,698	843	2,267	244.1	0.2	0.194
MUTTON SNAPPER	5,902	3,372	0	0.0	0.0	0.107
PUFFER FAMILY	843	0	0	0.0	0.0	0.015
ROCK HIND	291	0	0	321.0	0.0	0.005
SCHOOLMASTER	46,370	46,370	0	0.0	0.0	0.843
TRIPLETAIL	3,789	0	3,979	348.9	1.1	0.069

Table 2. Species caught by Wave – STS

Common Name	Total Catch	Released Alive	Total Weight Kg	Mean Length mm	Mean Weight Kg	CPU
WAVE 5 (CONT.)						
UNIDENTIFIED FISH	843	843	0	0.0	0.0	0.015
WAHOO	1,766	0	15,058	940.0	8.5	0.032
WHITE GRUNT	843	0	253	216.0	0.3	0.015
YELLOW JACK	872	0	262	280	0.3	0.016
YELLOWFIN MOJARRA	1,686	843	0	0.0	0.0	0.031
YELLOWTAIL SNAPPER	291	0	116	187.0	0.4	0.005
WAVE 6						
ATLANTIC BUMPER	123	0	0	0.0	0.0	0.001
BAR JACK	123	123	0	0.0	0.0	0.001
BLUE MARLIN	698	698	0	0.0	0.0	0.007
BLUE RUNNER	123	123	0	0.0	0.0	0.001
CERO	698	123	74	444.1	0.6	0.007
CREVALLE JACK	988	0	49	178.0	0.1	0.010
DOLPHIN	11,267	123	68,455	868	6.1	0.116
FALSE PILCHARD	27,465	0	0	0.0	0.0	0.282
GREAT BARRACUDA	453	453	0	0.0	0.0	0.005
KING MACKEREL	453	0	2,310	879.0	5.1	0.005
LANE SNAPPER	4,445	0	568	171	0.1	0.046
Longbill Spearfish	123	123	0	0.0	0.0	0.001
MUTTON SNAPPER	1,975	988	99	109.0	0.1	0.020
PALOMETA	1,975	1,975	0	0.0	0.0	0.020
RED HIND	2,718	0	838	257.0	0.3	0.028
REDEAR SARDINE	368	0	0	0.0	0.0	0.004
SAILFISH	453	453	0	0.0	0.0	0.005
SCHOOLMASTER	12,840	12,840	0	0.0	0.0	0.132
SPOTTED TRUNKFISH	988	0	198	175.0	0.2	0.010
TARPON FAMILY	1,975	0	0	0.0	0.0	0.020
TRIPLETAIL	453	0	1,382	496.0	3.1	0.005
UNIDENTIFIED FISH	19,754	19,754	0	0.0	0.0	0.203
WAHOO	2,302	0	14,506	1,179.8	6.3	0.024
WHITE MULLET	1,110	988	49	305.0	0.4	0.011
YELLOWFIN MOJARRA	988	0	99	139.0	0.1	0.010
YELLOWTAIL SNAPPER	1,975	1,975	0	0.0	0.0	0.020
Total	683,744	155,377	584,519	---	---	0.947

Table 3. Species Caught by Wave – FEEZ.

Common Name	Total Catch	Released Alive	Total Weight Kg	Mean Length mm	Mean Weight Kg	CPU
WAVE 1						
BALLYHOO	279	0	98	620.0	0.4	0.012
BLACKFIN TUNA	686	0	3,329	653.2	4.9	0.029
CERO	557	0	334	395.0	0.6	0.023
DOLPHIN	8,363	0	59,412	947.9	7.1	0.350
GREAT BARRACUDA	2,600	279	10,234	879.6	4.4	0.109
KING MACKEREL	537	0	1,501	604.3	2.8	0.022
LITTLE TUNNY	258	0	0	0.0	0.0	0.011
WAHOO	3,627	279	37,287	1141.8	11.1	0.152
YELLOWTAIL SNAPPER	557	0	265	327.5	0.5	0.023
WAVE 2						
DOLPHIN	22,291	0	167,818	1028.8	7.5	0.231
KING MACKEREL	2,229	0	18,576	1008.3	8.3	0.023
SILK SNAPPER	8,173	0	0	400.8	0.0	0.085
WAHOO	743	0	5,474	1006.0	7.4	0.008
WAVE 3						
BLACKFIN TUNA	13,611	13,611	0	0.0	0.0	0.300
BLUE MARLIN	4,537	4,537	0	0.0	0.0	0.100
CERO	4,537	4,537	0	0.0	0.0	0.100
KING MACKEREL	4,537	0	21,763	0.0	4.8	0.100
LITTLE TUNNY	4,537	4,537	0	0.0	0.0	0.100
WAVE 4						
<i>No Catch Data Reported</i>						
WAVE 5						
DOLPHIN	2,416	0	12,321	801.0	5.1	0.533
LANE SNAPPER	6,342	0	1,797	226.7	0.3	1.400
RED HIND	302	0	60	242.0	0.2	0.067
WAVE 6						
BLACKFIN SNAPPER	453	0	0	0.0	0.0	0.014
DOLPHIN	26,725	906	120,569	713.4	4.7	0.854
DUSKY SHARK	123	123	0	0.0	0.0	0.004
GREAT BARRACUDA	906	0	3,850	739.0	4.3	0.029
KING MACKEREL	1,359	0	0	0.0	0.0	0.043
LANE SNAPPER	1,359	0	1,797	226.7	0.3	0.043
LITTLE TUNNY	123	0	98	375.0	0.8	0.004
SILK SNAPPER	4,530	0	0	0.0	0.0	0.145
TRIPLETAIL	1,812	0	5,526	0.0	3.0	0.058
VERMILION SNAPPER	453	0	0	0.0	0.0	0.014
WAHOO	11,239	0	45,077	961.6	4.0	0.359
TOTAL	140,801	28,809	517,186	---	---	0.698

Table 1. Total Catch-Shoreline Mode

COMMON NAME	TOTAL CATCH	RELEASED ALIVE	TOTAL WEIGHT Kg	MEAN LENGTH mm	MEAN WEIGHT Kg	CPUE
WAVE 1						
STS						
BARBU	9,278	0	510.0	177.8	0.1	0.088
BONEFISH	2,784	928	464.0	216.5	0.2	0.027
CONGER EEL GAMILY	928	928	0.0	0.0	0.0	0.009
CREVALLE JACK	5,867	0	2,988.0	629.0	4.6	0.056
GREAT BARRACUDA	928	0	4,143.0	381.0	4.5	0.009
HORSE-EYE JACK	928	0	93.0	216.0	0.1	0.009
LANE SNAPPER	2,784	0	278.0	185.3	0.1	0.027
MUTTON SNAPPER	928	0	1,253.0	0.0	0.4	0.009
PRINCESS PARROTFISH	1,856	0	0.0	0.0	0.0	0.018
SCHOOLMASTER	18,557	4,639	3,015.0	217.3	0.2	0.177
SPANISH GRUNT	3,711	1,856	247.0	155.5	0.1	0.035
SPOTTED MORAY	928	0	0.0	0.0	0.0	0.009
STOPLIGHT PARROTFISH	928	928	0.0	0.0	0.0	0.009
TRUNKFISH	1,856	0	2,134.0	409.0	1.1	0.018
UNIDENTIFIED FISH	2,784	2,784	0.0	0.0	0.0	0.027
YELLOWFIN MOJARRA	15,773	0	986.0	132.6	0.1	0.150
YELLOWTAIL SNAPPER	4,639	3,711	325.0	0.0	0.3	0.044
Inland						
FRENCH GRUNT	928	928	0.0	0.0	0.0	0.125
GREEN MORAY	1,856	1,856	0.0	0.0	0.0	0.250
MUTTON SNAPPER	928	928	0.0	0.0	0.0	0.125
WAVE 2						
STS						
ATLANTIC BUMPER	1,804	0	226.0	224.0	0.1	0.018
ATLANTIC MOONFISH	902	0	135.0	218.0	0.1	0.009
BARBU	1,624	722	135.0	226.0	0.1	0.016
BARRED GRUNT	2,706	2,706	0.0	0.0	0.0	0.026
BLUE RUNNER	2,706	0	271.0	172.0	0.1	0.026
DRUM FAMILY	902	0	0.0	0.0	0.0	0.009
IRISH POMPANO	902	902	0.0	0.0	0.0	0.009
MOJARRA FAMILY	3,608	0	0.0	0.0	0.0	0.035
PALOMETA	1,804	0	184.0	209.0	0.1	0.018
SAND DRUM	1,804	0	226.0	226.5	0.1	0.018
SCHOOLMASTER	7,217	6,315	304.0	0.0	0.3	0.070
SLIPPERY DICK	902	0	45.0	112.0	0.1	0.009
SMALLMOUTH GRUNT	902	0	45.0	137.0	0.1	0.009
UNIDENTIFIED EEL	902	902	0.0	0.0	0.0	0.009
UNIDENTIFIED FISH	902	902	0.0	0.0	0.0	0.009
YELLOWFIN MOJARRA	3,608	0	361.0	203.0	0.1	0.035
YELLOWTAIL SNAPPER	902	0	105.0	144.0	0.1	0.009
Inland						
COMMON SNOOK	902	902	0.0	0.0	0.0	0.125
PARROTFISH FAMILY	2,706	2,706	0.0	0.0	0.0	0.375
SPOTFIN MOJARRA	902	902	0.0	0.0	0.0	0.125
UNIDENTIFIED FISH	1,805	1,805	0.0	0.0	0.0	0.250

Table 1. Total Catch-Shoreline Mode

COMMON NAME	TOTAL CATCH	RELEASED ALIVE	TOTAL WEIGHT Kg	MEAN LENGTH mm	MEAN WEIGHT Kg	CPUE
WAVE 3						
<u>STS</u>						
AGUJON	1,567	0	2,037.0	502.0	1.3	0.014
ATLANTIC CROAKER	1,567	0	313.0	0.0	0.2	0.014
ATLANTIC SPADEFISH	4,700	0	588.0	149.5	0.1	0.041
CHECKERED PUFFER	1,567	1,567	0.0	0.0	0.0	0.014
CREVALLE JACK	4,700	0	274.0	269.0	0.1	0.041
FALSE PILCHARD	23,501	0	1,175.0	111.1	0.1	0.205
GRAY SNAPPER	1,567	0	157.0	179.0	0.1	0.014
JACK FAMILY	1,567	0	0.0	0.0	0.0	0.014
LANE SNAPPER	9,400	1,567	914.0	202.1	0.1	0.082
MUTTON SNAPPER	3,133	0	1,488.0	285.5	0.5	0.027
SCHOOLMASTER	4,700	0	183.0	146.0	0.1	0.041
SQUIRRELFISH	3,133	1,567	157.0	176.0	0.1	0.027
SQUIRRELFISH GENUS	1,567	1,567	0.0	0.0	0.0	0.014
UNIDENTIFIED FISH	1,567	843	0.0	0.0	0.0	0.014
WHITE GRUNT	1,567	1,567	0.0	0.0	0.0	0.014
YELLOWTAIL SNAPPER	10,967	1,567	627.0	156.3	0.1	0.096
WAVE 4						
<u>STS</u>						
BALLYHOOD	634	0	32.0	310.0	0.1	0.016
BARRED GRUNT	634	634	0.0	0.0	0.0	0.016
BURRO GRUNT	2,534	0	350.0	207.7	0.1	0.065
LANE SNAPPER	1,901	0	190.0	183.3	0.1	0.048
MOJARRA FAMILY	634	0	0.0	0.0	0.0	0.016
MUTTON SNAPPER	1,901	0	444.0	160.0	0.2	0.048
SCHOOLMASTER	634	0	63.0	165.0	0.1	0.016
SOUTHERN STINGRAY	634	0	1,584.0	850.0	2.5	0.016
TOMTATE	1,267	1,267	0.0	0.0	0.0	0.032
WAVE 5						
<u>STS</u>						
LANE SNAPPER	10,117	843	1,939.0	252.0	0.2	0.255
MUTTON SNAPPER	5,902	3,372	0.0	0.0	0.0	0.149
PUFFER FAMILY	843	843	0.0	0.0	0.0	0.021
SCHOOLMASTER	46,370	46,370	0.0	0.0	0.0	1.170
UNIDENTIFIED FISH	843	843	0.0	0.0	0.0	0.021
WHITE GRUNT	843	0	253.0	216.0	0.3	0.021
YELLOWFIN MOJARRA	1,686	843	0.0	0.0	0.0	0.043
<u>INLAND</u>						
LANE SNAPPER	8,431	0	1,939.0	0.0	0.2	3.334
WAVE 6						
CREVALLE JACK	988	0	49.0	178.0	0.0	0.013
LANE SNAPPER	2,963	653	296.0	138.7	0.1	0.039
MUTTON SNAPPER	1,975	0	99.0	109.0	0.1	0.026
PALOMETA	1,975	1,975	0.0	0.0	0.0	0.026
SCHOOLMASTER	12,840	1,284	0.0	0.0	0.0	0.169
SPOTTED TRUNKFISH	988	0	198.0	175.0	0.2	0.013

Table 1. Total Catch-Shoreline Mode

COMMON NAME	TOTAL CATCH	RELEASED ALIVE	TOTAL WEIGHT Kg	MEAN LENGHT mm	MEAN WEIGHT Kg	CPUE
WAVE 6 (CONT.)						
<u>STS</u>						
UNIDENTIFIED FISH	19,754	19,754	0.0	0.0	0.0	0.260
WHITE MULLET	988	988	0.0	0.0	0.0	0.013
YELLOWFIN MOJARRA	988	0	99.0	139.0	0.1	0.013
YELLOWTAIL SNAPPER	1,975	1,975	0.0	0.0	0.0	0.026
ATLANTIC TARPON	1,975	0	0.0	0.0	0.0	0.026
<u>INLAND</u>						
TILAPIA GENUS	2,963	0	0.0	0.0	0.0	0.231
Total	332,531	130,139	33,461.0	---	---	0.656

Table 2. Total Catch - Charter Boat Mode

COMMON NAME	TOTAL CATCH	RELEASED ALIVE	TOTAL WEIGHT KG	MEAN LENGTH MM	MEAN WEIGHT KG	CPUE
WAVE 1						
<u>STS</u>						
ATLANTIC BUMPER	387	258	0.0	0.0	0.0	0.083
ATLANTIC TARPON	1,032	1,038	0.0	0.0	0.0	0.221
ATLANTIC THREAD HERRING	1,289	0	0.0	0.0	0.0	0.276
BLUE RUNNER	129	0	66.0	0.0	0.5	0.028
CERO	258	0	426.0	0.0	1.7	0.055
CONGER EEL	129	129	0.0	0.0	0.0	0.028
CREVALLE JACK	129	129	0.0	0.0	0.0	0.028
CUBERA SNAPPER	129	0	2,747.0	1,282.0	21.3	0.028
DOLPHIN	129	0	753.0	863.0	5.8	0.028
GRAY SNAPPER	516	387	0.0	0.0	0.0	0.111
GREAT BARRACUDA	129	129	0.0	0.0	0.0	0.028
IRISH POMPAÑO	258	0	13.0	115.0	0.1	0.055
KING MACKEREL	516	258	602.0	0.0	2.3	0.111
LADYFISH	387	387	0.0	0.0	0.0	0.083
LANE SNAPPER	5,931	1,547	694.0	280.0	0.2	1.271
MUTTON SNAPPER	1,161	645	993.0	453.0	1.9	0.249
NURSE SHARK	129	129	0.0	0.0	0.0	0.028
SAND TILEFISH	129	129	0.0	0.0	0.0	0.028
SOUTHERN SENNET	129	129	0.0	0.0	0.0	0.028
SOUTHERN STINGRAY	258	258	0.0	0.0	0.0	0.055
TIGER SHARK	126	0	3,572.0	1,422.0	27.7	0.027
TOMTATE	387	0	0.0	0.0	0.0	0.083
WHITE GRUNT	129	129	0.0	0.0	0.0	0.028
YELLOW JACK	1,161	1,161	0.0	0.0	0.0	0.249
YELOWTAIL SNAPPER	2,450	2,450	0.0	0.0	0.0	0.525
<u>FEEZ</u>						
BLACKFIN TUNA	129	0	612.0	650.0	4.7	0.047
DOLPHIN	1,676	0	4,882.0	752.1	2.9	0.615
GREAT BARRACUDA	2,321	0	10,234.0	879.6	4.4	0.852
KING MACKEREL	258	0	851.0	825.0	3.3	0.095
LITTLE TUNNY	258	0	0.0	0.0	0.0	0.095
WAHOO	1,676	0	19,922.0	1,059.8	11.9	0.615
<u>INLAND</u>						
ATLANTIC TARPON	129	129	0.0	0.0	0.0	0.498
WAVE 2						
<u>STS</u>						
No Catch Data Reported						
<u>FEEZ</u>						
No Catch Data Reported						
<u>INLAND</u>						
No Catch Data Reported						
WAVE 3						
<u>STS</u>						
ATLANTIC TARPON	454	454	0.0	0.0	0.0	0.662
BAR JACK	31	31	0.0	0.0	0.0	0.045
BARRACUDA GENUS	16	16	0.0	0.0	0.0	0.023
BLUE RUNNER	172	172	0.0	0.0	0.0	0.251
CERO	47	16	52.0	557.0	1.6	0.069
COMMON SNOOK	251	235	0.0	637.0	0.0	0.366
CREVALLE JACK	158	141	1.0	379.0	0.1	0.230
DOLPHIN	63	0	390.0	0.0	27.7	0.092

Table 2. Total Catch - Charter Boat Mode

COMMON NAME	TOTAL CATCH	TOTAL RELEASED ALIVE	TOTAL WEIGHT KG	MEAN LENGTH MM	MEAN WEIGHT KG	CPUE
WAVE 3 (CONT.)						
<u>STS</u>						
GRAY SNAPPER	658	658	0.0	0.0	0.0	0.959
GRAYSBY	16	16	0.0	0.0	0.0	0.023
GREAT BARRACUDA	31	31	0.0	0.0	0.0	0.045
GREATER AMBERJACK	16	16	0.0	0.0	0.0	0.023
KING MACKEREL	125	31	518.0	885.0	7.4	0.182
LANE SNAPPER	78	31	163.0	133.0	0.1	0.114
LITTLE TUNNY	173	63	155.0	508.2	1.7	0.252
MUTTON SNAPPER	16	16	0.0	0.0	0.0	0.023
RED HIND	31	0	8.0	183.0	0.2	0.045
WAHOO	31	0	0.0	0.0	0.0	0.045
YELLOW JACK	31	0	39.0	422.5	1.3	0.045
YELLOWTAIL SNAPPER	47	31	2.0	324.0	0.1	0.069
<u>FEEZ</u>						
No Catch Data Reported						
<u>INLAND</u>						
No Catch Data Reported						
WAVE 4						
<u>STS</u>						
ATLANTIC TARPON	30	30	0.0	0.0	0.0	0.018
BLACKFIN TUNA	30	0	86.0	524.0	2.9	0.018
BLUE MARLIN	59	59	0.0	0.0	0.0	0.035
CONEY	30	0	6.0	257.0	0.2	0.018
GREAT BARRACUDA	30	30	0.0	0.0	0.0	0.018
LEMON SHARK	30	30	0.0	0.0	0.0	0.018
LITTLE TUNNY	325	178	196.0	465.0	1.3	0.195
MUTTON SNAPPER	30	0	7.0	350.0	0.2	0.018
NEEDLEFISH GENUS	30	30	0.0	0.0	0.0	0.018
NURSE SHARK	59	59	0.0	0.0	0.0	0.035
QUEEN TRIGGERFISH	30	0	33.0	333.0	1.1	0.018
SCALLOPED HAMMERHEAD	30	30	0.0	0.0	0.0	0.018
SKIPJACK TUNA	119	0	454.0	529.2	3.8	0.071
<u>FEEZ</u>						
No Catch Data Reported						
<u>INLAND</u>						
No Catch Data Reported						
WAVE 5						
<u>STS</u>						
No Catch Data Reported						
<u>FEEZ</u>						
No Catch Data Reported						
<u>INLAND</u>						
No Catch Data Reported						
WAVE 6						
<u>STS</u>						
ATLANTIC BUMPER	123	0	0.0	0.0	0.0	0.020
BAR JACK	123	123	0.0	0.0	0.0	0.020
BLUE MARLIN	245	245	0.0	0.0	0.0	0.039
BLUE RUNNER	123	123	0.0	0.0	0.0	0.020
CERO	245	123	74.0	400.0	0.6	0.039
DOLPHIN	2,207	123	13,893.0	925.0	6.7	0.351
FALSE PILCHARD	27,465	0	0.0	0.0	0.0	4.368
LANE SNAPPER	123	0	23.0	294.0	0.2	0.020
Longbill Spearfish	123	123	0.0	0.0	0.0	0.020

Table 2. Total Catch – CH boat Mode

COMMON NAME	TOTAL CATCH	TOTAL RELEASED ALIVE	TOTAL WEIGHT KG	MEAN LENGTH MM	MEAN WEIGHT KG	CPUE
WAVE 6 (CONT.)						
<u>STS</u>						
REDEAR SARDINE	368	0	0.0	0.0	0.0	0.059
WAHOO	490	0	2,894.0	780.0	5.9	0.078
WHITE MULLET	123	0	49.0	305.0	0.4	0.020
<u>FEEZ</u>						
DUSKY SHARK	123	123	0.0	0.0	0.0	0.249
LITTLE TUNNY	123	0	98.0	375.0	0.8	0.249
WAHOO	368	0	4,672.0	1,304.0	12.7	0.746
<u>INLAND</u>						
No Catch Data Reported						
Total FY 2006	59,504	13,009	70,180	---	---	3.537

Table 3. Total Catch -Private Boat Mode

COMMON NAME	TOTAL CATCH	RELEASED ALIVE	TOTAL WEIGHT KG	MEAN LENGTH MM	MEAN WEIGHT KG	CPUE
WAVE 1						
STS						
ATLANTIC BUMPER	4,179	0	0	128.7	0.0	0.141
ATLANTIC TARPON	836	836	0	0.0	0.0	0.028
BLUE RUNNER	2,786	0	1,421	309.6	0.5	0.094
CERO	1,672	280	4,458	659.0	2.7	0.057
COMMON SNOOK	833	0	2,647	752.5	4.7	0.028
CONEY	5,015	0	1,042	218.8	0.2	0.170
CREVALLE JACK	1,115	0	0	223.5	0.0	0.038
DOLPHIN	5,851	560	30,906	863.1	5.8	0.198
GRAY SNAPPER	1,393	0	0	279.6	0.0	0.047
GREAT BARRACUDA	279	0	1,251	0.0	4.5	0.009
HORSE-EYE JACK	557	0	0	404.0	0.0	0.019
LANE SNAPPER	2,508	0	313	220.2	0.1	0.085
MOJARRA FAMILY	1,950	0	0	0.0	0.0	0.066
MUTTON SNAPPER	1,115	0	1,077	363.7	1.0	0.038
PALOMETA	279	0	0	302.0	0.0	0.009
PERMIT	2,786	0	0	448.9	0.0	0.094
PORGY FAMILY	279	0	0	0.0	0.0	0.009
QUEEN SNAPPER	557	0	0	517.5	0.0	0.019
QUEEN TRIGGERFISH	279	0	0	313.0	0.0	0.009
RED HIND	4,737	0	895	233.9	0.2	0.160
SAND DRUM	279	0	0	260.0	0.0	0.009
SCHOOLMASTER	279	0	60	286.0	0.2	0.009
SILK SNAPPER	1,115	0	0	0.0	0.0	0.038
SKIPJACK TUNA	279	0	1,142	581.0	4.1	0.009
SOUTHERN SENNET	1,115	0	0	284.5	0.0	0.038
SPANISH GRUNT	279	0	37	256.0	0.1	0.009
TOMTATE	557	0	28	171.5	0.1	0.019
TRIPLETAIL	2,786	0	5,573	456.1	2.0	0.094
WAHOO	1,672	0	15,130	1,121.7	9.0	0.057
WHITE GRUNT	557	0	168	252.5	0.3	0.019
YELLOW JACK	2,508	0	1,923	361.3	0.8	0.085
YELLOWFIN GROUPER	557	0	3,121	742.5	5.6	0.019
YELLOWTAIL SNAPPER	1,115	0	392	217.7	0.3	0.038
FEEZ						
BALLYHOO	279	0	98	620.0	0.4	0.013
BLACKFIN TUNA	560	0	2,732	654.0	4.9	0.026
CERO	557	0	334	395.0	0.6	0.026
DOLPHIN	6,685	0	54,530	997.0	8.2	0.316
GREAT BARRACUDA	279	279	0	0.0	0.0	0.013
KING MACKEREL	280	0	654	400.0	2.3	0.013
WAHOO	1,950	280	17,462	1,224.0	10.4	0.092
YELLOWTAIL SNAPPER	557	0	266	327.5	0.5	0.026
WAVE 2						
STS						
BLACKFIN TUNA	1,486	0	6,127	569.0	4.1	0.049
BLUE RUNNER	2,972	0	0	0.0	0.0	0.098
CERO	2,229	0	4,124	0.0	1.9	0.073
CONEY	743	0	149	172.0	0.2	0.024
CREVALLE JACK	1,486	0	0	0.0	0.0	0.049
DOLPHIN	2,229	0	15,219	890.7	6.8	0.073
GREAT BARRACUDA	1,486	747	0	0.0	0.0	0.049
HORSE-EYE JACK	2,972	1,494	0	0.0	0.0	0.098
LANE SNAPPER	3,715	0	650	154.3	0.2	0.122

Table 3. Total Catch - Private Boat Mode

COMMON NAME	TOTAL CATCH	RELEASED ALIVE	TOTAL WEIGHT kg	MEAN LENGTH mm	MEAN WEIGHT kg	CPUE
WAVE 2 (CONT.)						
<u>STS</u>						
LEMON SHARK	743	0	0	0.0	0.0	0.024
RED HIND	2,229	747	0	264.0	0.0	0.073
REDEAR SARDINE	22,291	0	0	0.0	0.0	0.728
ROCK HIND	743	0	0	372.0	0.0	0.024
SCHOOLMASTER	3,715	0	1,254	310.8	0.3	0.121
SKIPJACK TUNA	1,486	0	115	0.0	0.0	0.049
UNIDENTIFIED FISH	743	0	0	0.0	0.0	0.024
WAHOO	743	0	5,504	992.0	7.4	0.024
YELLOWTAIL SNAPPER	1,486	0	174	264.0	0.1	0.049
<u>FEEZ</u>						
DOLPHIN	22,291	0	167,818	1,028.8	7.5	0.231
KING MACKEREL	2,229	0	18,679	1,008.3	8.3	0.023
SILK SNAPPER	8,173	0	0	400.8	0.0	0.085
WAHOO	743	0	5,504	1,006.0	7.4	0.008
<u>INLAND</u>						
No Catch Data Reported						
WAVE 3						
<u>STS</u>						
BLACKFIN TUNA	4,369	0	24,030	629.0	5.5	0.037
DOLPHIN	17,476	0	108,788	896.7	27.7	0.148
KING MACKEREL	8,738	0	4,035	688.0	2.6	0.074
LITTLE TUNNY	8,738	0	2,284	461.0	1.5	0.074
RED HIND	4,537	783	0	0.0	0.0	0.038
SILK SNAPPER	117,963	0	18,594	0.0	0.9	1.000
TUNA GENUS	4,537	0	0	0.0	0.0	0.038
<u>FEEZ</u>						
BLACKFIN TUNA	13,611	0	0	0.0	0.0	0.300
BLUE MARLIN	4,537	4,537	0	0.0	0.0	0.100
CERO	4,537	4,537	0	0.0	0.0	0.100
KING MACKEREL	4,537	0	3,756	0.0	4.8	0.100
LITTLE TUNNY	4,537	783	0	0.0	0.0	0.100
<u>INLAND</u>						
No Catch Data Reported						
WAVE 4						
<u>STS</u>						
CONEY	1,771	0	354	122.0	0.2	0.077
CREVALLE JACK	1,771	0	0	338.0	0.0	0.077
DOG SNAPPER	1,771	0	1,158	221.0	0.7	0.077
KING MACKEREL	3,544	0	534	257.0	0.2	0.154
LANE SNAPPER	1,771	0	199	231.0	0.1	0.077
MUTTON SNAPPER	1,771	0	413	183.0	0.2	0.077
NASSAU GROUPE	1,771	0	0	381.0	0.0	0.077
YELLOWTAIL SNAPPER	3,543	0	891	238.5	0.3	0.154
<u>FEEZ</u>						
No Catch Data Reported						
<u>INLAND</u>						
No Catch Data Reported						

Table 3. Total Catch - Private Boat Mode

COMMON NAME	TOTAL CATCH	RELEASED ALIVE	TOTAL WEIGHT KG	MEAN LENGTH MM	MEAN WEIGHT KG	CPUE
WAVE 5						
<u>STS</u>						
DOLPHIN	3,208	0	11,406	751.9	3.6	0.208
BAR JACK	581	0	146	344.0	0.2	0.038
YELLOW JACK	872	0	263	279.7	0.3	0.056
ATLANTIC SPADEFISH	291	0	29	138.0	0.1	0.019
ATLANTIC TARPON	604	604	0	0.0	0.0	0.039
TRIPLETAIL	3,779	0	3,979	348.9	1.0	0.244
ROCK HIND	291	0	0	321.0	0.0	0.019
LANE SNAPPER	581	0	134	118.5	0.2	0.038
YELLOWTAIL SNAPPER	291	0	117	187.0	0.4	0.019
BLACK DURGON	581	0	906	403.0	1.5	0.038
WAHOO	1,776	0	15,142	940.0	8.5	0.115
<u>FEEZ</u>						
DOLPHIN	2,416	0	11,406	801.0	5.1	0.533
RED HIND	302	0	60	242.0	0.2	0.067
LANE SNAPPER	6,341	0	1,797	226.7	0.3	1.400
<u>INLAND</u>						
No Catch Data Reported						
WAVE 6						
<u>STS</u>						
GREAT BARRACUDA	453	453	0	0.0	0.0	0.031
DOLPHIN	9,059	0	54,563	855.4	6.0	0.625
BLUE MARLIN	453	453	0	0.0	0.0	0.031
SAILFISH	453	453	0	0.0	0.0	0.031
TRIPLETAIL	453	0	1,382	469.0	3.1	0.031
RED HIND	2,718	0	838	257.0	0.3	0.187
LANE SNAPPER	1,359	0	249	232.3	0.2	0.094
KING MACKEREL	453	0	2,323	879.0	5.1	0.031
CERO	453	0	0	456.0	0.0	0.031
WAHOO	1,812	0	23,458	1,288.0	12.9	0.125
<u>FEEZ</u>						
BLACKFIN SNAPPER	453	0	0	0.0	0.0	0.015
DOLPHIN	26,725	911	120,569	713.4	4.7	0.868
GREAT BARRACUDA	906	0	3,872	739.0	4.3	0.029
KING MACKEREL	1,359	0	0	0.0	0.0	0.044
LANE SNAPPER	1,359	0	252	0.0	0.2	0.044
SILK SNAPPER	4,530	0	0	0.0	0.0	0.147
TRIPLETAIL	1,812	0	5,526	0.0	3.0	0.059
VERMILION SNAPPER	453	0	0	0.0	0.0	0.015
WAHOO	10,871	0	40,630	950.0	3.7	0.353
<u>INLAND</u>						
No Catch Data Reported						
TOTAL FY 2006	454,062	18,575	837,060	---	---	1.053