Puerto Rico Departamento de Recursos Naturales y Ambientales' Recreational Port Sampling Program

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SEDAR 103: US Caribbean Application of Alternate Assessment Methods

Table of Contents

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Introduction

In January of 2024, the Puerto Rico Departamento de Recursos Naturales y Ambientales (DRNA), in collaboration with the NOAA Southeast Fisheries Science Center, Caribbean Fisheries Branch, initiated a recreational port sampling program. The project, led by Dr. Grisel Rodriguez Ferrer, collects catch and effort data from recreational fishers and will be used in the future to estimate recreational landings by species by gear. This project fills a crucial data gap, and is the first survey to collect recreational landings data since the Marine Recreational Information Program (MRIP) survey ended in Puerto Rico in 2017. Additionally, this survey collects data on all landed species, including all invertebrates, which are some of the most important fisheries in Puerto Rico. To date, the project has focused solely on boat trips. However, moving forward, the project will expand to also include shore-based recreational anglers. The data presented in this working paper covers sampling from January 2024 through June 2026, although sampling is ongoing.

Sampling Method

Sampling began in January 2024. From January 2024 through November 2024, there was no formal randomized site selection procedure. Rather, samplers decided where they would sample, although effort was made to sample all known recreational landing sites on different days of the week and times of day. Beginning in November 2024, randomized site selection procedures were implemented. Samplers (n=2) sampled two randomly selected weekdays and both Saturday and Sunday each week. Time shifts were also randomized, with 75% of sampling events occurring during the afternoon shift (1:30-5:00pm) and 25% of shifts occurred during the morning shift (10:00am – 1:30pm). Sampling has occurred at recreational landing sites island-wide, although due to limited samplers, the majority of sampling effort has been concentrated on the north and west coasts (Figure 1).

During sampling, the captains of all vessels returning to the sampling site are interviewed. They are asked a series of questions regarding the boating activities, boating location, and trip duration. If fishing occurred, the captains are asked questions related to catch and effort. All landed catch was measured and weighed individually. For catch that was released, or otherwise unavailable to be observed by samplers, the number of individuals per species was recorded. Effort information, including hours fished, gear type, and gear subtype was also recorded.

Post data-collection, a trip type was assigned to each trip based on the species landed, the primary target species, the gear used, and the depth and area fished. The trip types were: deep hookline, pelagic hookline, shallow hookline, inshore hookline, unknown hookline, and dive. Deep hookline trips were trips fishing in greater than 400 ft of water that caught deepwater snapper species such as queen and silk snapper. Pelagic hookline trips were trips where pelagic species were caught, such as dolphinfish and tunas. Shallow hookline trips were trips fishing in less than 400 ft of water that caught shallow water species such as lane and yellowtail snapper. Inshore hookline trips were fishing trips that targeted inshore species such as tarpon and snook. Unknown hookline trips were trips that used hookline gear, but a more specific trip type was unable to be determined. Dive trips were trips where fishers used scuba gear or free diving.

Results

As of June 30, 2026, 591 site visits occurred, resulting in 234 recreational fishing trip interviews and 920 non-fishing trip interviews (Table 1). Due to limited port sampling staff, sampling effort was concentrated in the north and west, which is reflected by the number of site visits and the number of trips observed. There was an essentially even split between for-hire and private trips in the north, east, and south, while the west has a much higher percentage of private trips.

Sixty-nine species were reported. The most commonly caught species was the Atlantic tarpon, with 108 fish caught across 47 trips (Table 2). Three shallow water snapper species (yellowtail, lane, and mutton) and two pelagic species (blackfin tuna and dolphinfish) were in the top ten species caught. Great barracuda, queen conch, blue runner, and red hind were also in the top ten observed species. The average number of species caught per trip was 1.68 in the north, 2.52 in the west, 1.63 in the south, and 4.92 in the east. Ninety seven percent of trips were hookline trips, with the remaining 3% of trips being dive trips (Table 3, Figure 3).

North

A total of 82 recreational trips were recorded in the north (Table 3). The majority of fishes caught in the north were inshore species, which included species such as tarpon and snook (Figure 2). Pelagic species were the second most caught species group, with 22% of the catch in the north. Very few deepwater snappers or shallow water snapper and groupers were caught in the north. The breakdown of trip types follows a similar pattern; inshore trips accounted for 61% of the trips, while pelagic trips accounted for 21% of trips and only two shallow hookline trips occurred in the north (Table 3, Figure 3).

West

The west had more observed trips (n = 133) than the other three regions. Relative to the north, shallow water snappers and groupers make up a much larger percentage of the catch, accounting for 25% of the catch and 24% of the trips. Pelagic species in the west accounted for 20% of the catch and 27% of the trips. The west had six dive trips (5%), which is where the conch landings occurred.

South & East

The south and east had far fewer trips, with only eight and 11 trips, respectively. In the south, three of the eight trips were inshore hookline trips. There were also two shallow hookline trips, one pelagic hookline trip, one unknown hookline trip, and one dive trip. Of the 11 trips recorded in the east, six were shallow hookline, two were deep hookline, two were unknown hookline, and one was pelagic hookline.

Discussion

The data collected from this survey shows that trip types and species targeted varies across regions. The large proportion of inshore trips in the north is attributed to trips that target tarpon and other inshore species in estuaries. The lack of shallow water snappers and groupers in the north is not surprising, considering the lack of shallow water reef habitat located on the north

coast of Puerto Rico. However, there is a large percentage of shallow water trips and species caught in the west, which has a much wider shelf and more shallow water habitat.

The recreational fishery is primarily hookline, although some dive effort was observed in the west and south. Based on communication with DRNA staff, more diving occurs in the south and east, where sampling has been limited. As more data are collected and more sampling effort is allocated to the south and east, the survey will be able to pick up these trips. Those additional data will shed light on the recreational fisheries in the south and east of Puerto Rico.

In addition to incorporating more sampling in the south and east, there are plans to expand the survey to include shore-based anglers. When fully implemented, this survey will enable landings estimates by species by gear for the recreational fishery of Puerto Rico, which will fill an important data gap and can be incorporated into stock assessments and fisheries management in Puerto Rico.

Tables

Table 1: number of site visits, number of fishing trips, categorized as for-hire vs. private recreational trips, number of non-fishing trips, and total number of trips per region.

		Number of Recreational Trips		
	N site visits	**Fishing (*for-hire, private*)**	**Non-fishing**	**Total**
North	241	82 (*40, 42*)	333	415
West	218	133 (*35, 98*)	318	451
South	54	8 (*4, 4*)	38	46
East	78	11 (6, 5)	231	242
Total	**591**	**234 (*85, 149*)**	**920**	**1,154**

Table 2: Top twenty caught species (includes landed and released fish). The table includes species name, number of fish caught, and the number of trips in which that species was caught.

	Species	N Fish	N Trips		Species	N Fish	N Trips
1	Atlantic tarpon	108	47	**11**	silk snapper	32	9
2	yellowtail snapper	81	24	**12**	rainbow runner	32	8
3	blackfin tuna	67	20	**13**	bar jack	25	10
4	great barracuda	63	23	**14**	cero mackerel	23	12
5	queen conch	54	2	**15**	common snook	22	11
6	lane snapper	50	12	**16**	king mackerel	15	13
7	blue runner	49	19	**17**	wahoo	13	11
8	red hind	48	17	**18**	yellow jack	13	6
9	dolphinfish	45	13	**19**	coney	13	6
10	mutton snapper	34	16	**20**	bonefish	11	5

Table 3: Number of trips by region by trip type.

	Hookline Deep	Hookline Pelagic	Hookline shallow	Hookline Inshore	Hookline Unknown	Dive	Total
North	-	17	2	50	13	-	**82**
West	6	36	32	9	44	6	**133**
South	-	1	2	3	1	1	**8**
East	2	1	6	-	2	-	**11**
Total	**8**	**55**	**42**	**62**	**60**	**7**	**234**

Figures

Figure 1: Map of regions (yellow = north; red = west; blue = south; green = east) and sampling sites. Size of points marking sampling sites is based on the number of times each site was visited for sampling.

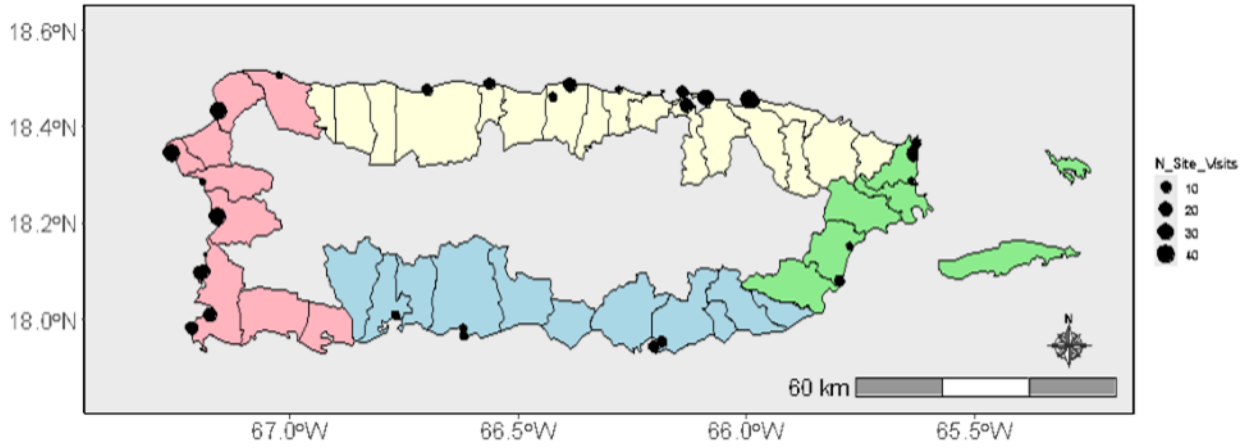
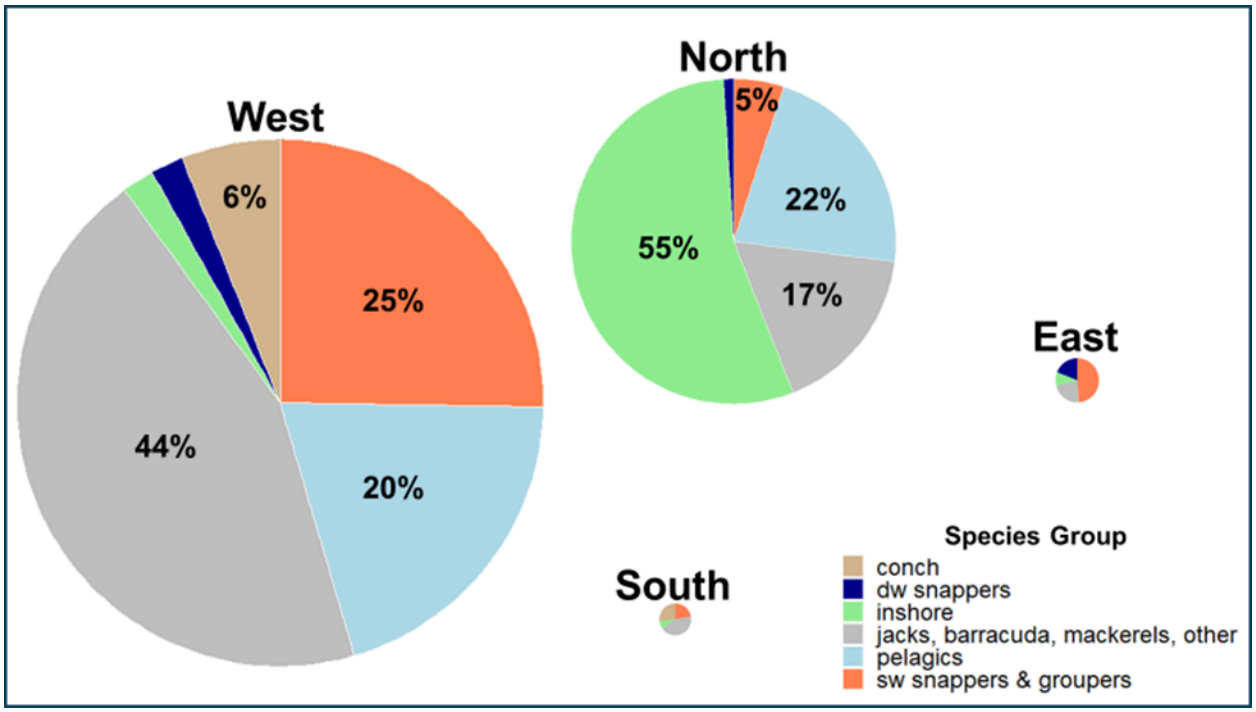


Figure 2: Percentage of landed and released catch by species-group by region. Size of each pie is representative of the number of trips sampled in each region.



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