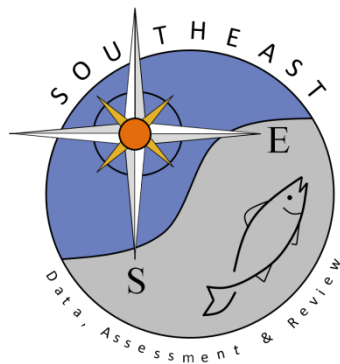


# Summarized information on recreational catches of silk and queen snapper and parrotfish in Puerto Rico since 2000

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## Abstract

Preliminary recreational catch statistics for parrotfish, silk and queen snapper in Puerto Rico between 2000 and 2010 are presented. Estimates of retained and released catch are provided by year and fishing mode and associated estimates of variability.

## Introduction

In preparation for the 26<sup>th</sup> Southeast Data Assessment Review (SEDAR) workshops, focusing on US Caribbean silk and queen snapper and parrotfish resources, it was interest to characterize trends in recreational catches and landings of these resources. Preliminary information on recreational catch, landings and effort statistics are presented in this document.

## Available Data and Methods

Information on recreational catches and landings and angler trips were available for Puerto Rico since 2000 from the Marine Recreational Information Program (MRIP, formerly the Marine Recreational Fisheries Sampling Survey (MRFSS)). Similar data for US Virgin Islands (USVI) from is not available for the US Virgin Islands (USVI) from the MRIP program. Detailed information on the methodology of the survey is provided through MRIP program documentation (see <http://www.countryfish.noaa.gov/aboutus/statistics.html>). Briefly, estimates of total catch (i.e., AB1 (kept) or B2 (released) fish) are developed using observed angler catch rates (CPUE) collected through extensive interviews and estimated angler trips. Estimates of angler trips are developed through extensive telephone surveys. Estimates are available for various stratification levels (i.e., species, state, year, two month wave, mode (charter, private, shore fishing modes), and area of fishing (e.g, ocean<=3mi, ocean>3mi, ocean<=10mi, ocean>10mi, inshore, unknown). Estimates of landings (A+B1) in weight are used when provided by the survey. In cases where there is an estimate of landings in number but not weight, the Southeast Fisheries Science Center has used the MRFSS sample data to obtain an average weight using the following hierarchy: species, region, year, state, mode, and wave (SEDAR 22-DW-16). The minimum number of weights used at each level of substitution is 30 fish, except for the final species level, where the minimum is 1 fish. In cases where no average weights were available (unidentified of parrotfish family, snapper family, and snapper genus), average weights were compiled for all species in the corresponding genus and families. At the species level, average weights were not substituted from other species. Average weights are then multiplied by the landings estimates in number to obtain estimates of landings in weight. These estimates are provided in pounds whole weight.

## Summary

### *Angler Trips*

Table 1 and Figure 1 present estimates of the total number of recreational angler trips and the corresponding coefficient of variation (CV) around the estimate, in Puerto Rico for 2000-2010 from the MRIP survey. Over the 11 year period, the number of angler trips ranged from 0.54 million trips to 1.36 million trips. These estimates suggest the overall trend in estimated recreational angler trips in Puerto is a declining one. Between 2000-2002, about 1.3 million trips on average were taken on Puerto Rico. Thereafter and continuing to the present time, recreational effort has declined by nearly 60% in 2002 to the current level of around 0.54 million trips in 2010.

### *Estimated Numbers and Weight Caught*

In general the variability around the estimated AB1 catch is very high, averaging 60% across the seven species over the 11 year time period, 2000-2010 (Table 2). In addition to the primary species of interest, recreational catch estimates for several other species of interest to the deepwater snapper fishery are presented (e.g, blackfin, black, vermillion), and wenchman. Tables 3 -5 and Figures 2 and 3 present

estimates of the total AB1 catch (numbers) and the corresponding estimates of variability of the estimate (CV) and estimates of release rates (B2 fish divided by AB1 fish) for the species groups of interest in the SEDAR26 evaluation (silk and queen snapper and parrotfish family). Figure 4 presents estimated recreational landings (pounds, whole weight) for the parrotfish family and silk and queen snapper in Puerto Rico, 2000-2010.

*Estimated Numbers Caught by Fishing Mode*

Recreational catches for the majority of the parrotfish species were from shore-based mode (Table 6). Recreational catches of silk snapper and the deepwater snapper species were mainly by the private boat fishery (Table 6).

Table 1. Estimated number recreational angler trips in Puerto Rico, 2000-2010.  
 Source = MRIP survey.

<b>YEAR</b>	<b>Sum of ESTRIPS</b>	<b>Sum of CV_Estrips</b>
2000	1,362,704	9.9
2001	1,411,943	6.9
2002	1,301,059	7.3
2003	1,111,405	7.9
2004	1,050,298	10.1
2005	866,723	8.0
2006	955,123	9.3
2007	1,080,097	8.6
2008	798,551	9.1
2009	636,151	9.4
2010	536,167	9.5
Grand Total	11,110,220	2.7

Table 2. Estimated recreational AB1 and B2 Catch for seven reefish species in Puerto Rico from the MRIP survey. AB1 and B2 units are numbers of fish. CV=estimate/100.

Species	YEA R	Sum of ab1	Sum of b2	CV(AB1)	CV(B2)	Angler_Trips	B2/AB1B2
blackfin snapper	2000	9267.16	0.00	53.57	0.00	1362703.59	0.00
	2001	4534.00	407.59	37.30	100.00	1411942.82	0.08
	2002	1438.70	0.00	80.86	0.00	1301059.11	0.00
	2003	16718.94	0.00	37.89	0.00	1111405.15	0.00
	2004	2361.14	0.00	74.12	0.00	1050298.42	0.00
	2005	4734.51	0.00	65.43	0.00	866722.57	0.00
	2006	452.97	0.00	98.17	0.00	955123.25	0.00
	2007	2837.75	363.79	86.73	100.00	1080096.85	0.11
	2008	7744.08	0.00	81.72	0.00	798550.71	0.00
	2009	6553.03	988.48	41.49	74.26	636150.82	0.13
	2010	1211.39	0.00	96.88	0.00	536166.86	0.00
silk snapper	2000	82610.95	0.00	31.61	0.00		0.00
	2001	65990.60	656.80	28.85	100.00		0.01
	2002	28167.86	919.18	49.36	100.00		0.03
	2003	115176.07	0.00	27.17	0.00		0.00
	2004	47390.27	237.81	33.34	100.00		0.00
	2005	27803.86	2800.90	37.97	100.00		0.09
	2006	131780.89	0.00	54.20	0.00		0.00
	2007	136545.63	397.23	34.35	91.97		0.00
	2008	93484.69	443.27	27.40	100.00		0.00
	2009	29636.32	0.00	37.11	0.00		0.00
	2010	18213.57	0.00	52.35	0.00		0.00
black snapper	2000	2598.33	0.00	74.68	0.00		0.00
	2001	1380.95	2413.25	72.74	100.00		0.64
	2008	886.54	0.00	100.09	0.00		0.00
queen snapper	2000	5718.07	0.00	82.37	0.00		0.00
	2001	17488.75	0.00	47.40	0.00		0.00
	2002	9536.87	0.00	53.79	0.00		0.00
	2003	6587.37	0.00	37.49	0.00		0.00
	2004	2822.05	0.00	56.93	0.00		0.00
	2005	13346.68	0.00	62.49	0.00		0.00
	2006	557.25	0.00	100.20	0.00		0.00
	2007	6823.70	0.00	85.12	0.00		0.00
	2008	26611.18	0.00	47.67	0.00		0.00
	2009	2526.09	0.00	62.90	0.00		0.00
	2010	4008.12	0.00	79.44	0.00		0.00
vermilion snapper	2000	25007.42	2646.44	50.03	100.00		0.10
	2001	42656.74	328.40	59.32	100.00		0.01
	2002	7979.60	0.00	51.44	0.00		0.00
	2003	16906.84	0.00	56.10	0.00		0.00
	2004	3229.20	0.00	67.44	0.00		0.00
	2005	10224.07	0.00	55.80	0.00		0.00

	2006	452.97	0.00	98.17	0.00		0.00
	2007	25594.48	0.00	57.26	0.00		0.00
	2008	8125.06	0.00	50.20	0.00		0.00
	2009	12887.41	0.00	42.88	0.00		0.00
	2010	21705.74	0.00	82.73	0.00		0.00
Wenchman	2000	14746.13	7228.55	63.61	63.54		0.33
	2001	6225.73	0.00	40.89	0.00		0.00
	2002	9521.37	0.00	42.24	0.00		0.00
	2003	19219.19	222.72	36.24	100.00		0.01
	2004	9438.91	0.00	90.50	0.00		0.00
	2005	11944.85	0.00	83.34	0.00		0.00
	2007	17872.10	0.00	80.12	0.00		0.00
	2008	8467.44	0.00	67.65	0.00		0.00
	2009	1735.48	0.00	69.23	0.00		0.00
	2010	3417.21	0.00	62.86	0.00		0.00
parrotfish family	2001	3260.73	862.89	46.43	100.00		0.21
	2002	1153.66	0.00	100.00	0.00		0.00
	2005	4274.26	5864.68	100.00	100.00		0.58
	2006	0.00	2706.27	0.00	77.00		1.00
	2007	3967.91	190.12	59.61	100.00		0.05
	2008	936.37	579.75	100.00	69.02		0.38
	2009	22303.56	242.50	47.94	100.00		0.01
	2010	6565.94	605.70	82.15	100.00		0.08

Table 3. Estimated recreational AB1 catch (number of fish and weight) for the parrotfish species in Puerto Rico from the MRIP survey.

<b>family</b>	<b>Species</b>	<b>YEAR</b>	<b>AB1 Numbers</b>	<b>AB1 Pounds (whole weight)</b>
<i>parrotfish</i>	blue parrotfish	2000	1,904	2,486
		2001	128	141
		2003	3,326	3,666
	blue parrotfish Total		5,358	6,294
	emerald parrotfish	2001	3,587	551
		2002	9,961	1,757
	emerald parrotfish Total		13,548	2,308
	greenblotch parrotfish	2000	544	480
	greenblotch parrotfish Total		544	480
	princess parrotfish	2000	2,533	1,254
		2001	2,783	614
		2003	1,099	1,091
		2005	3,199	3,189
		2006	1,856	1,149
		2008	366	358
	princess parrotfish Total		11,837	7,653
	queen parrotfish	2000	1,930	4,511
		2001	3,920	5,319
		2002	620	957
		2003	6,097	9,380
		2009	364	460
	queen parrotfish Total		12,931	20,627
	rainbow parrotfish	2000	662	31,360
		2003	550	26,056
		2007	0	0
		2008	707	33,496
	rainbow parrotfish Total		1,918	90,912
	redband parrotfish	2001	1,769	1,115
		2003	4,902	5,502
		2004	324	428
		2008	1,244	1,303
	redband parrotfish Total		8,239	8,348



<b>family</b>	<b>Species</b>	<b>YEAR</b>	<b>AB1 Numbers</b>	<b>AB1 Pounds (whole weight)</b>
	redfin parrotfish	2000	1,598	1,938
		2001	6,034	7,191
		2002	1,277	845
		2003	4,702	6,375
		2009	3,517	3,797
		2010	114	136
	redfin parrotfish Total		17,242	20,281
	redtail parrotfish	2000	772	1,703
		2001	2,584	2,464
		2002	3,187	2,423
		2003	8,782	12,040
		2004	877	946
		2007	1,261	1,359
		2009	1,015	1,287
	redtail parrotfish Total		18,479	22,221
	stoplight parrotfish	2001	22,336	32,246
		2002	719	1,023
		2003	20,003	38,806
		2004	439	624
		2006	0	0
		2007	2,970	4,643
		2008	10,073	12,777
		2009	9,203	11,596
		2010	1,837	736
	stoplight parrotfish Total		67,581	102,452
	striped parrotfish	2001	928	102
	striped parrotfish Total		928	102
	parrotfish family	2001	3,261	4,983
		2002	1,154	1,763
		2005	4,274	6,531
		2006	0	0
		2007	3,968	6,063
		2008	936	1,431
		2009	22,304	34,081
		2010	6,566	10,033
	parrotfish family Total		42,462	64,885

Table 4. Estimated recreational AB1 catch (number of fish and weight) for the deepwater snapper species in Puerto Rico from the MRIP survey

<b>family</b>	<b>Species</b>	<b>YEAR</b>	<b>AB1 Numbers</b>	<b>AB1 Pounds (whole weight)</b>
<b><i>Deep water snapper</i></b>	black snapper	2000	2,598	2,148
		2001	1,381	1,364
		2008	887	814
	black snapper Total		4,866	4,326
	blackfin snapper	2000	9,267	6,409
		2001	4,534	3,126
		2002	1,439	1,943
		2003	16,719	10,892
		2004	2,361	1,145
		2005	4,735	3,278
		2006	453	349
		2007	2,838	2,042
		2008	7,744	6,530
		2009	6,553	5,475
		2010	1,211	801
	blackfin snapper Total		57,854	41,990
	queen snapper	2000	5,718	66,703
		2001	17,489	17,637
		2002	9,537	96,045
		2003	6,587	40,317
		2004	2,822	3,081
		2005	13,347	21,932
		2006	557	2,106
		2007	6,824	14,950
		2008	26,611	82,467
		2009	2,526	6,313
		2010	4,008	15,148
	queen snapper Total		96,026	366,699
	vermillion snapper	2000	25,007	14,274
		2001	42,657	34,799
		2002	7,980	7,230
		2003	16,907	7,310

		2004	3,229	676
		2005	10,224	5,107
		2006	453	264
		2007	25,594	16,643
		2008	8,125	6,176
<b>family</b>	<b>Species</b>	<b>YEAR</b>	<b>AB1 Numbers</b>	<b>AB1 Pounds (whole weight)</b>
		2009	12,887	7,650
		2010	21,706	5,592
	vermilion snapper	174,770	105,722	
	wenchman	2000	14,746	30,046
		2001	6,226	6,836
		2002	9,521	13,644
		2003	19,219	16,237
		2004	9,439	5,071
		2005	11,945	10,843
		2007	17,872	6,159
		2008	8,467	4,491
		2009	1,735	1,319
		2010	3,417	3,458
	wenchman Total		102,588	98,103

Table 5. Estimated recreational AB1 catch (number of fish and weight) for the silk snapper in Puerto Rico from the MRIP survey

Species	YEAR	AB1 Numbers	AB1 Pounds (whole weight)
silk snapper	2000	82,611	210,855
	2001	65,991	47,893
	2002	28,168	34,035
	2003	115,176	132,431
	2004	47,390	35,098
	2005	27,804	30,605
	2006	131,781	252,203
	2007	136,546	132,697
	2008	93,485	112,425
	2009	29,636	35,326
	2010	18,214	32,644
silk snapper Total		776,801	1,056,212

Table 6. Percentage AB1 recreational catch by fishing mode for the parrotfish family species, silk snapper and the deepwater snapper Reefish complex. Units are percentage of AB1 catch (number of fish). Source is MRIP survey.

Species	Percentage AB1 by Mode		
	Fishing Mode		
	Charterboat	Private	Shore
blue parrotfish	2.4	21.1	76.5
emerald parrotfish		79.5	20.5
greenblotch parrotfish		100.0	0.0
parrotfish family		81.9	18.1
princess parrotfish		54.6	45.4
queen parrotfish		14.1	85.9
rainbow parrotfish		100.0	0.0
redband parrotfish		44.2	55.8
redfin parrotfish		15.2	84.8
redtail parrotfish		17.6	82.4
stoplight parrotfish	0.1	45.9	54.0
striped parrotfish		0.0	100.0
black snapper		28.9	71.1
blackfin snapper		99.0	1.0
queen snapper		100.0	0.0
silk snapper		99.9	0.1
vermilion snapper		100.0	0.0
wenchman		97.1	2.9

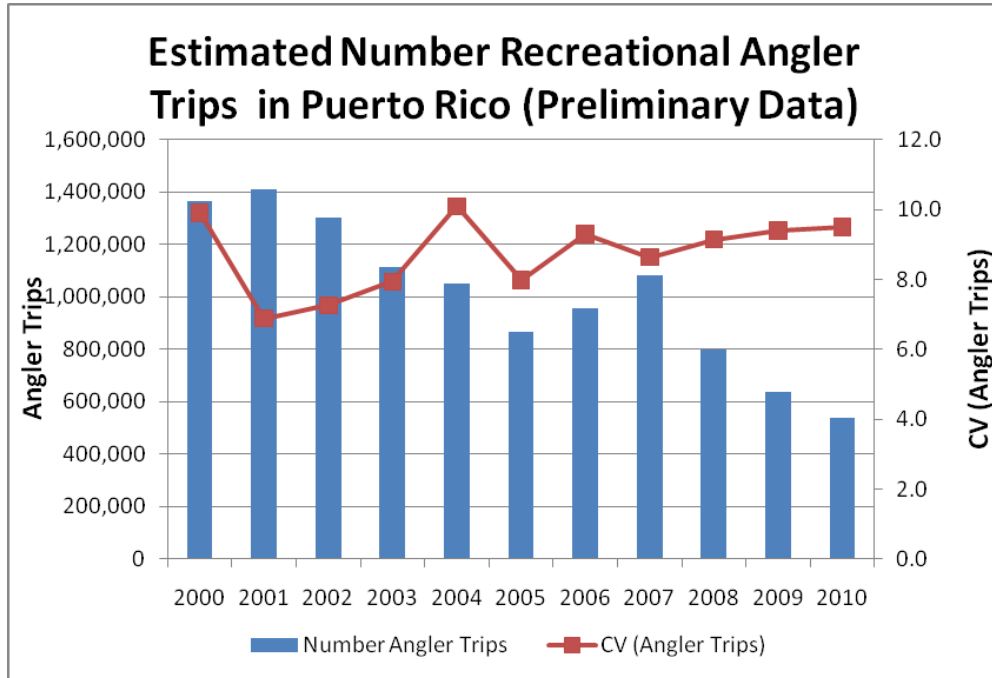


Figure 1. Profile of estimated number recreational angler trips in Puerto Rico 2000-2010. Source =MRIP survey.

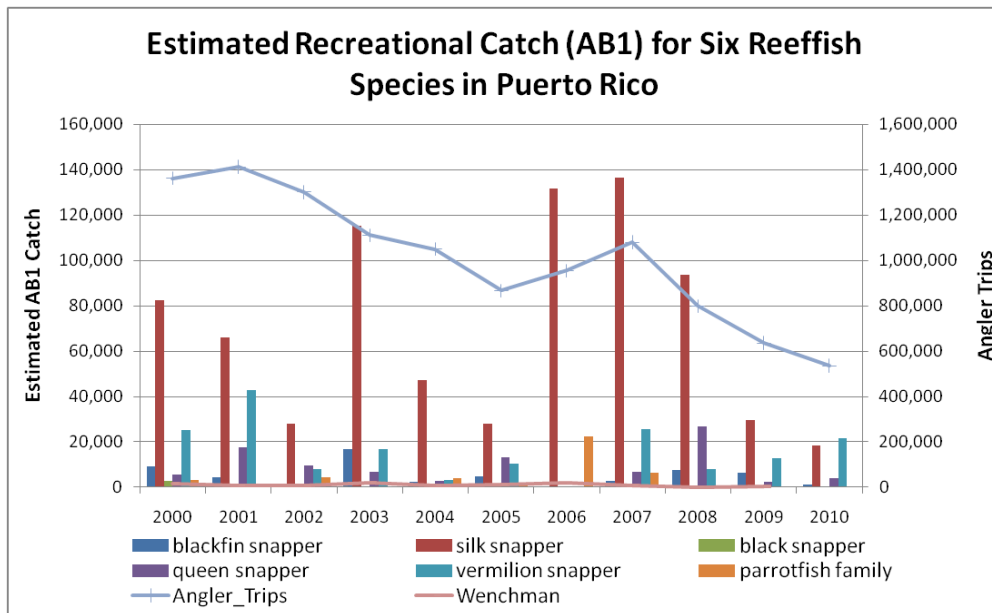


Figure 2. Estimated AB1 catch for six Reeffish species and number recreational angler trips in Puerto Rico, 2000-2010. Units are numbers of fish. Source =MRIP survey.

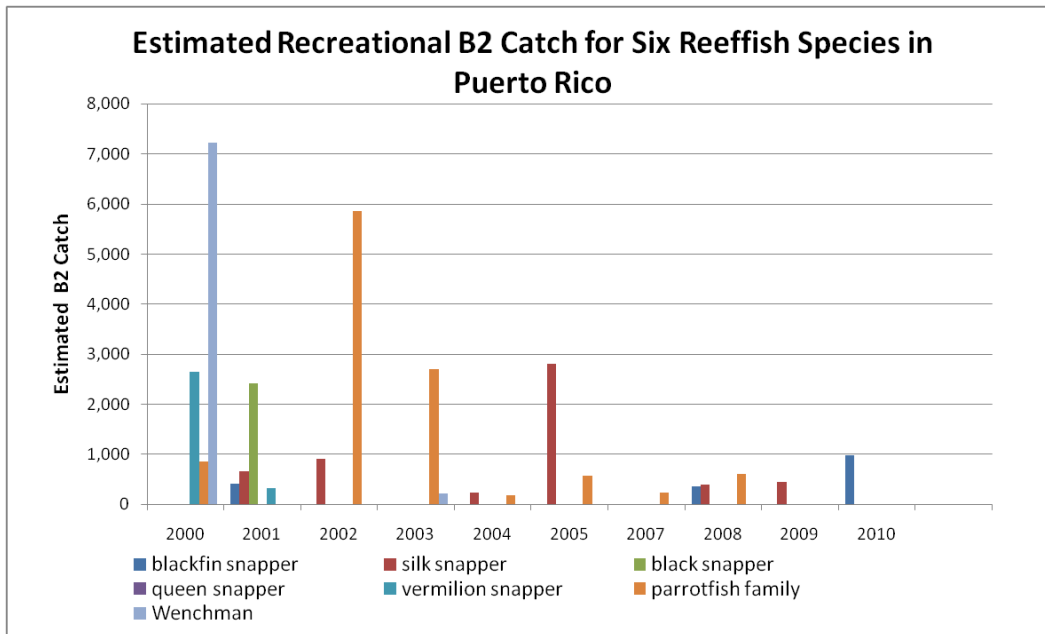


Figure 3. Estimated B2/(AB1B2) ratios by year for seven reefish species in Puerto Rico from 2000-2010 from the MRFSS survey. Units are numbers of fish. Source =MRIP survey

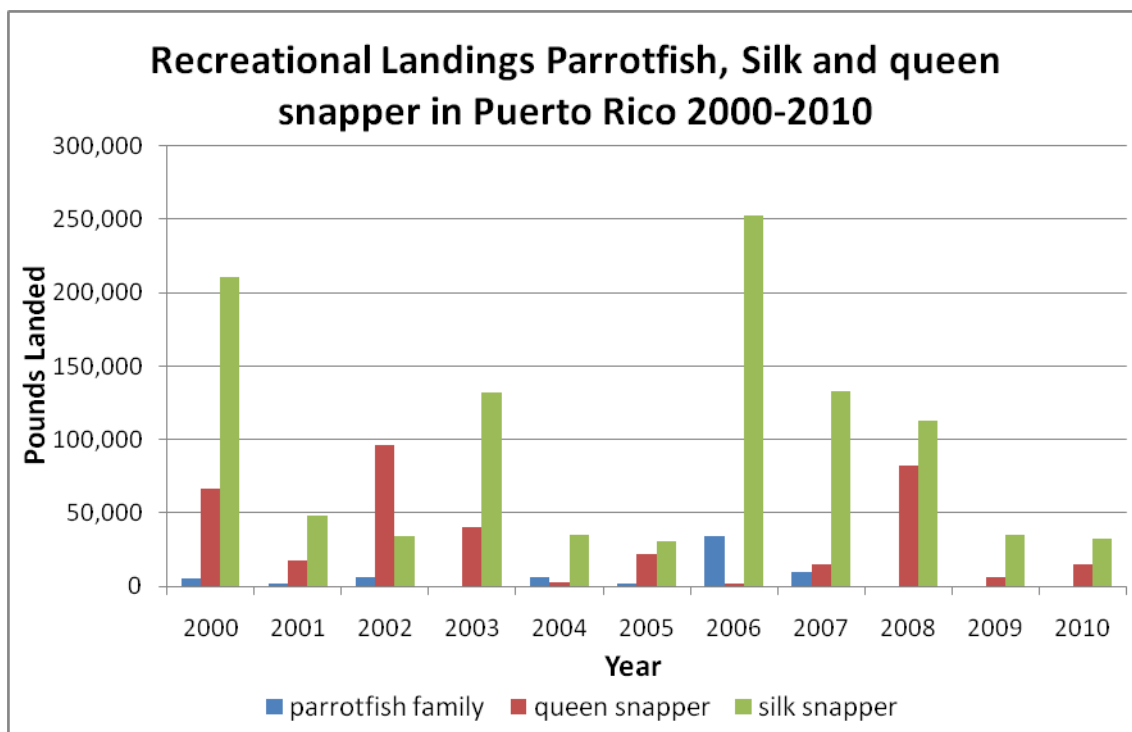


Figure 4. Estimated landings (AB1 catch in weight) for parrotfish family, silk and queen snapper in Puerto Rico from 2000-2010 from the MRFSS survey. Units are pounds whole weight. Source =MRIP survey