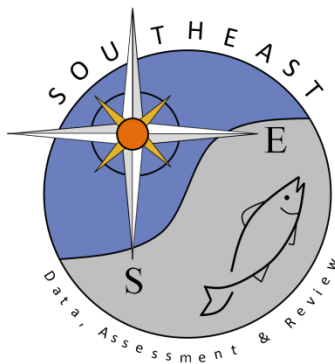


Size Composition Data Availability Overview of Federally Managed Species Surveyed by the Trip Interview Program in the U.S. Caribbean

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Size Composition Data Availability Overview of Federally Managed Species Surveyed by the Trip Interview Program in the U.S. Caribbean

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Science Center

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SEDAR 103: US Caribbean Application of Alternate Assessment Methods

Summary

The Trip Interview Program (TIP) has conducted shore-based sampling of commercial fishing trips in the U.S. Caribbean over the past four decades. The resultant dataset can be used to estimate historical characteristics of commercial fisheries through size composition and species composition.

I. Introduction

In preparations for the SouthEast Data, Assessment, and Review (SEDAR) 103: U.S. Caribbean Application of Alternate Assessment Methods; the Southeast Fisheries Science Center, Sustainable Fisheries Division (SEFSC), Caribbean Fisheries Branch conducted data triage of the Trip Interview Program (TIP) U.S. Caribbean data. This document summarizes data collected from 1981 to 2024.

II. Sampling Method

The Trip Interview Program (TIP) conducts shore-based sampling practices in the U.S. Caribbean islands using trained samplers. These samplers target fishhouses and ports where fishing vessels return to shore to conduct interviews in an effort to collect detailed trip-level commercial fishery information in accordance with the State-Federal Cooperative Statistics Program (Saari 2015).

A. Sampling Years

The TIP data has been collected in the U.S. Caribbean region since the early 1980s. Data collection began in 1980 for Caribbean spiny lobster and 1983 for finfish species across the region. By island platform, the data collection time periods vary slightly by species and consistency. This is due to many factors, including extreme weather events, funding and staffing availability, and fisherman behavior fluctuations due to federal regulation adjustments. Data collection by the TIP survey is ongoing as of the publication of this document, providing roughly four decades of commercial fishery size composition data for the U.S. Caribbean region.

B. Geographic Range

Sampling targets commercial fishing trips that occur within the federally managed waters of the U.S. Caribbean region. These waters are divided into the three island platform regions of Puerto Rico, St. Thomas/St. John, and St. Croix. In this survey, both sampling and fishing locations are recorded in the interview process, allowing for more detailed analysis of size composition trends within and across island platforms.

C. Sample Size

The TIP data was grouped by island platform for analysis. To assess data availability at the island platform level, data was binned in five year increments to investigate the interview and record creation consistency, as well as species and gear abundance changes. Within each island platform, species were categorized by management status and their data summarized by count of years present in the dataset, interviews performed, and lengths recorded, as well as their percent representation of total interviews and length records of their respective island platform. Across the U.S. Caribbean TIP dataset there are 30,416 unique interviews producing 1,095,502 length records. Within those interviews, 410 unique scientific species names and 36 unique standardized gear names are present.

D. Variables or Data Types Collected

The five primary categories of data collected during the TIP sampling process are interview, effort, landing, sample, and observation. Interview data includes high level data such as the interview date, location, and vessel name and ID. The effort portion records data associated with fishing effort, including the area fished, gear specifications, and duration of gear usage. Landing data contains species composition information obtained from the trip ticket or dealer report. The sample data is the summation of data gathered under the observation portion of the survey. The observation portion of the survey is where length, weight, and other biological sample information are recorded for individual specimens (Beggerly, Stevens, and Baertlein 2022).

III. Results

The U.S. Caribbean TIP dataset was summarized at an island platform level to identify trends in the number of interviews performed, lengths recorded, species observed, and gears used. Puerto Rico leads the island platforms in all categories except gear variability, followed by St. Croix and then St. Thomas/St. John. Despite its high interview and length record counts, Puerto Rico has the lowest average length record count per interview ratio of the three sub-regions (Table 1).

The sampling intensity of each species was calculated by island platform. The species were divided into federally managed and unmanaged categories. The resultant sampling intensity characterizations were Data Rich, Data Inconsistent, Rarely Present, and Not Present. The Data Rich characterization was assigned to a federally managed or unmanaged species that had sufficient and consistent data across the full time period of TIP sampling. Sufficient and consistent data represents species whose length records represent greater than or equal to 2% of all length records of their respective island platform, have lengths recorded within the last ten years, and have an average interview count per year greater than or equal to 30 interviews or an average length count per year greater than or equal to 150 records (Tables 2, 4, 6, 8, 10, and 11). The Rarely Present characterization was assigned to federally managed species with too few data to pass federal data confidentiality rules. This characterization was given to species whose length records represented less than 2% of length records of their respective island platform and had an average interview count per year of less than 30 interviews or an average length count per year of less than 150 length records. The Data Inconsistent characterization was assigned to federally managed or unmanaged species that had a “hit or miss” sampling consistency. This was characterized by any other combination of length record percentage representation and average length record or interview counts per year where lengths have been recorded in the last ten years (Tables 3, 5, 7, 9, 12). The Not Present characterization was assigned to federally managed species that were not found within the U.S. Caribbean TIP dataset.

After the species were categorized by island platform, data status, and management designation, grouped counts show that species representation within each strata is similar across the island platforms despite the difference in sampling intensity between subregions (Table 13).

IV. Discussion

The Trip Interview Program is a statistical survey by which we can estimate historical characteristics of commercial fisheries through species composition and size composition. With over 40 years of data across the three island platforms within the U.S. Caribbean, continued utilization of this data source is recommended.

V. References

Beggerly, S., Stevens, M., & Baertlein, H. (2022). Trip Interview Program Metadata (pp. 1–10). Key Biscayne, FL.

Saari, C. R. (2015). Sampling History of the Federal Trip Interview Program in the Southeastern United States (pp. 1–13). IAP Worldwide Services.

VI. Tables and Figures

Table 1. Summary of U.S. Caribbean data collected by the Trip Interview Program from 1981 to 2024.

Island	First Complete Year	Years of Data	Interviews	Lengths	Weights	Species	Gears	Avg. Length Count per Interview
Puerto Rico	1984	43	23174	645,609	385,873	334	18	27.86
St. Croix	1982	41	4558	306,937	306,909	258	32	67.34
St. Thomas/ St. John	1981	36	2684	149,831	142,984	212	24	55.82

Table 2. Summary table of federally managed species sampled in Puerto Rico with a data status of Rich. Rows highlighted in yellow indicate species that have SEDAR Assessments performed previously on them in the island platform and blue indicates the species whose SEDAR assessments were recommended as useful for management.

Federally Managed Puerto Rico Species - Data Status: Rich											
Species	Management		Year			Interview			Length		
Common	Stock	Class	Count	First	Last	Count	Mean	Percent	Count	Mean	Percent
Caribbean spiny lobster	Spiny lobster	single	43	1980	2024	8,100	188	34.95	71,348	1,659	11.05
Yellowtail snapper	Snapper 5	single	42	1983	2024	5,238	125	22.6	105,797	2,519	16.39
Red hind	Grouper 6	indicator	42	1983	2024	5,122	122	22.1	32,840	782	5.09
White grunt	Grunts	single	41	1983	2024	4,454	109	19.22	53,884	1,314	8.35
Lane snapper	Snapper 3	single	42	1983	2024	4,010	95	17.3	54,534	1,298	8.45
Queen triggerfish	Triggerfish	indicator	42	1983	2024	2,840	68	12.26	12,921	308	2
Coney	Grouper 3	indicator	39	1983	2023	2,761	71	11.91	19,260	494	2.98
Silk snapper	Snapper 1	indicator	42	1983	2024	2,275	54	9.82	36,852	877	5.71
Redtail parrotfish	Parrotfish 2	multiple	39	1986	2024	1,794	46	7.74	14,913	382	2.31
Stoplight parrotfish	Parrotfish 2	multiple	39	1986	2024	1,706	44	7.36	18,615	477	2.88
Vermilion snapper	Snapper 1	not indicator	42	1983	2024	1,190	28	5.14	14,806	353	2.29

Table 3. Summary table of federally managed species sampled in Puerto Rico with a data status of Inconsistent. Rows highlighted in yellow indicate species that have SEDAR Assessments performed previously on them in the island platform.

Federally Managed Puerto Rico Species - Data Status: Inconsistent											
Species	Management		Year			Interview			Length		
Common	Stock	Class	Count	First	Last	Count	Mean	Percent	Count	Mean	Percent
Mutton snapper	Snapper 4	indicator	42	1983	2024	2,751	66	11.87	9,821	234	1.52
Hogfish	Wrasses 1	single	42	1983	2024	2,664	63	11.5	8,547	204	1.32
Schoolmaster snapper	Snapper 4	not indicator	42	1983	2024	2,129	51	9.19	7,154	170	1.11
King mackerel	Mackerel	multiple	41	1984	2024	1,381	34	5.96	9,793	239	1.52
Queen snapper	Snapper 2	indicator	41	1983	2024	899	22	3.88	11,496	280	1.78

Table 4. Summary table of federally managed species sampled in St. Thomas and St. John with a data status of Rich. Rows highlighted in yellow indicate species that have SEDAR Assessments performed previously on them in the island platform and blue indicates the species whose SEDAR assessments were recommended as useful for management.

Federally Managed St. Thomas/St. John Species - Data Status: Rich											
Species	Management		Year			Interview			Length		
Common	Stock	Class	Count	First	Last	Count	Mean	Percent	Count	Mean	Percent
Yellowtail snapper	Snapper 4	single	34	1983	2024	1,141	34	42.51	21,692	638	14.48
Red hind	Grouper 3	indicator	34	1983	2024	1,134	33	42.25	13,173	387	8.79
Queen triggerfish	Triggerfish	single	34	1983	2024	1,084	32	40.39	15,054	443	10.05
Coney	Grouper 3	not indicator	33	1983	2024	787	24	29.32	5,243	159	3.5
White grunt	Grunts 1	indicator	33	1984	2024	704	21	26.23	6,705	203	4.48
Caribbean spiny lobster	Spiny lobster	single	34	1980	2024	697	20	25.97	16,397	482	10.94
Blue runner	Jacks	single	27	1984	2024	398	15	14.83	7,774	288	5.19

Table 5. Summary table of federally managed species sampled in St. Thomas and St. John with a data status of Inconsistent. Rows highlighted in yellow indicate species that have SEDAR Assessments performed previously on them in the island platform.

Federally Managed St. Thomas/St. John Species - Data Status: Inconsistent											
Species	Management		Year			Interview			Length		
Common	Stock	Class	Count	First	Last	Count	Mean	Percent	Count	Mean	Percent
Blue tang	Surgeonfish	not indicator	33	1983	2024	588	18	21.91	4,218	128	2.82
Redtail parrotfish	Parrotfish 2	indicator	33	1983	2024	543	16	20.23	3,135	95	2.09
Doctorfish	Surgeonfish	indicator	31	1984	2024	516	17	19.23	4,118	133	2.75
Stoplight parrotfish	Parrotfish 2	indicator	33	1984	2024	479	15	17.85	3,142	95	2.1

Table 6. Summary table of federally managed species sampled in St. Croix with a data status of Rich. Rows highlighted in yellow indicate species that have SEDAR Assessments performed previously on them in the island platform and blue indicates the species whose SEDAR assessments were recommended as useful for management.

Federally Managed St. Croix Species - Data Status: Rich											
Species	Management		Year			Interview			Length		
Common	Stock	Class	Count	First	Last	Count	Mean	Percent	Count	Mean	Percent
Caribbean spiny lobster	Spiny lobster	single	37	1981	2024	1,532	41	33.61	19,205	519	6.26
Red hind	Grouper 4	indicator	38	1983	2024	1,218	32	26.72	9,038	238	2.94
Redtail parrotfish	Parrotfish 2	indicator	36	1983	2024	1,209	34	26.52	43,167	1199	14.06
White grunt	Grunts	multiple	37	1983	2024	1,149	31	25.21	23,266	629	7.58
Queen triggerfish	Triggerfish	single	38	1983	2024	1,143	30	25.08	9,839	259	3.21
Stoplight parrotfish	Parrotfish 2	indicator	36	1983	2024	1,094	30	24	30,455	846	9.92
Coney	Grouper 3	indicator	37	1983	2024	1,044	28	22.9	12,957	350	4.22
Blue tang	Surgeonfish	multiple	36	1983	2024	1,000	28	21.94	34,123	948	11.12
Yellowtail snapper	Snapper 6	single	37	1983	2024	909	25	19.94	7,665	207	2.5

Table 6. (continued)

Federally Managed St. Croix Species - Data Status: Rich											
Species	Management		Year			Interview			Length		
Common	Stock	Class	Count	First	Last	Count	Mean	Percent	Count	Mean	Percent
Doctorfish	Surgeonfish	multiple	37	1983	2024	858	23	18.82	11,891	321	3.87
Redband parrotfish	Parrotfish 2	not indicator	33	1983	2024	537	16	11.78	8,652	262	2.82

Table 7. Summary table of federally managed species sampled in St. Croix with a data status of Inconsistent. Rows highlighted in yellow indicate species that have SEDAR Assessments performed previously on them in the island platform.

Federally Managed St. Croix Species - Data Status: Inconsistent											
Species	Management		Year			Interview			Length		
Common	Stock	Class	Count	First	Last	Count	Mean	Percent	Count	Mean	Percent
Blackfin snapper (hambone)	Snapper 1	indicator	32	1983	2024	405	13	8.89	5021	157	1.64
Queen snapper	Snapper 2	single	31	1983	2024	385	12	8.45	4921	159	1.6

Table 8. Summary table of federally unmanaged species sampled in Puerto Rico with a data status of Rich.

Federally Unmanaged Puerto Rico Species - Data Status: Rich									
Species	Year			Interview			Length		
Common	Count	First	Last	Count	Mean	Percent	Count	Mean	Percent
Spotted goatfish	40	1983	2024	1,291	32	5.57	14,605	365	2.26

Table 9. Summary table of federally unmanaged species sampled in Puerto Rico with a data status of Inconsistent.

Federally Unmanaged Puerto Rico Species - Data Status: Inconsistent									
Species	Year			Interview			Length		
Common	Count	First	Last	Count	Mean	Percent	Count	Mean	Percent
Bluestriped grunt	40	1984	2024	16,49	41	7.12	9,338	233	1.45
Pluma porgy	40	1984	2024	15,59	39	6.73	10,629	266	1.65
Bar jack	41	1983	2024	12,33	30	5.32	8,451	206	1.31

Table 10. Summary table of federally unmanaged species sampled in St. Thomas and St. John with a data status of Rich.

Federally Unmanaged St. Thomas/St. John Species - Data Status: Rich									
Species	Year			Interview			Length		
Common	Count	First	Last	Count	Mean	Percent	Count	Mean	Percent
Squirrelfish	28	1983	2024	522	19	19.45	5231	187	3.49

Table 11. Summary table of federally unmanaged species sampled in St. Croix with a data status of Rich.

Federally Unmanaged St. Croix Species - Data Status: Rich									
Species	Year			Interview			Length		
Common	Count	First	Last	Count	Mean	Percent	Count	Mean	Percent
Honeycomb cowfish	33	1983	2024	619	19	13.58	8926	270	2.91

Table 12. Summary table of federally unmanaged species sampled in St. Croix with a data status of Inconsistent.

Federally Unmanaged St. Croix Species - Data Status: Inconsistent									
Species	Year			Interview			Length		
Common	Count	First	Last	Count	Mean	Percent	Count	Mean	Percent
French grunt	36	1983	2024	456	13	10	5,510	153	1.8
Yellow goatfish	29	1983	2024	426	15	9.35	4,421	152	1.44
Panuliridae species	11	1983	2024	165	15	3.62	2,474	225	0.81
Cardinal snapper	17	1984	2023	134	8	2.94	3,263	192	1.06

Table 13. Summary table of all species sampled in the U.S. Caribbean by federal management and data status designation by island platform.

Island	Species Type	Data Status			
		Rich	Inconsistent	Rare	Not Present
Puerto Rico	Federally Managed	11	5	54	6
Puerto Rico	Federally Unmanaged	1	3	260	
St. Croix	Federally Managed	11	2	30	4
St. Croix	Federally Unmanaged	1	4	210	
St. Thomas/St. John	Federally Managed	7	4	37	3
St. Thomas/St. John	Federally Unmanaged	1		163	

Distribution of TIP Sampling by 5 Year Bin Across Caribbean Region

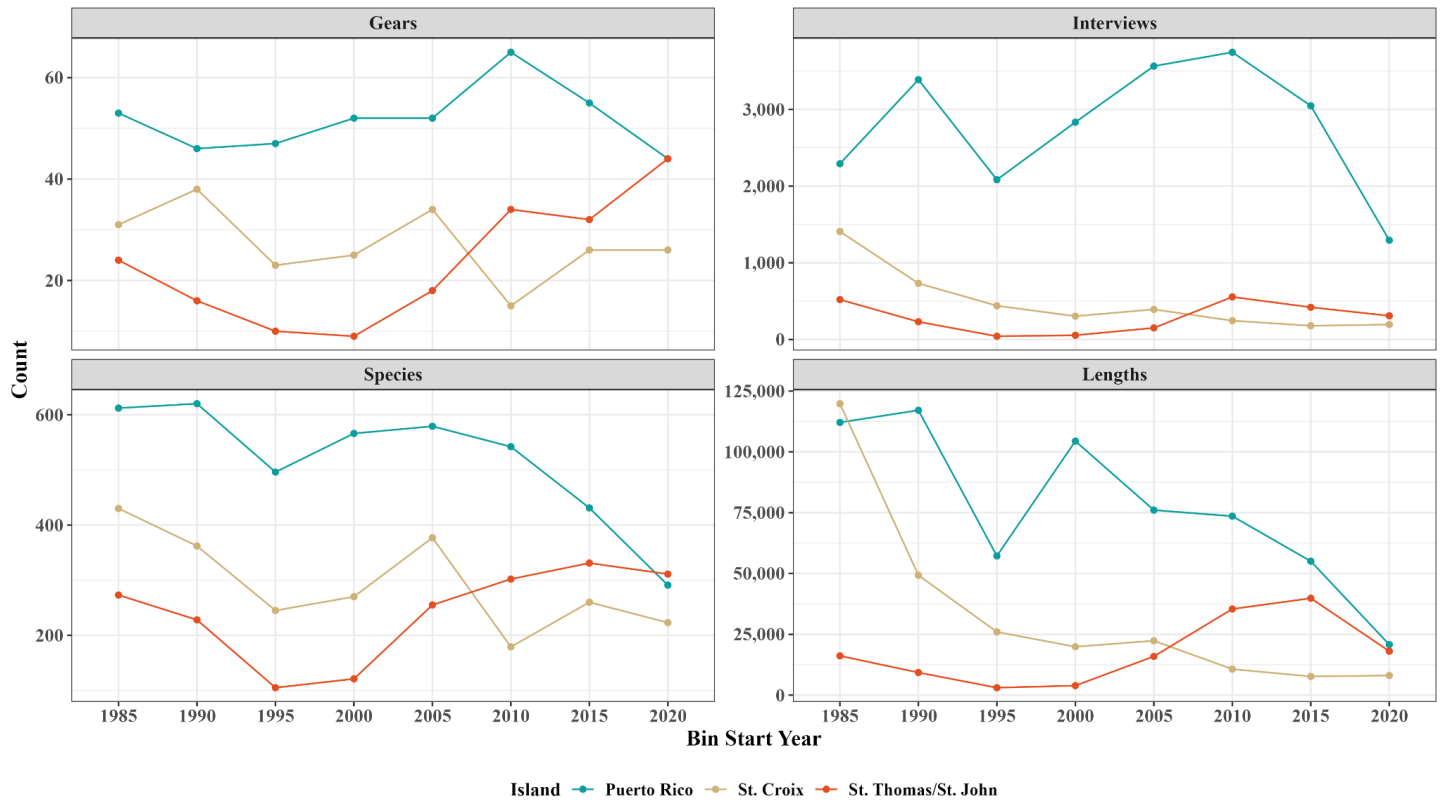


Figure 1. U.S. Caribbean TIP data binned in 5 year increments summarized by number of unique gears, species, interviews, and length records recorded by island platform.

Distribution of TIP Sampling by 5 Year Bin Across Caribbean Region

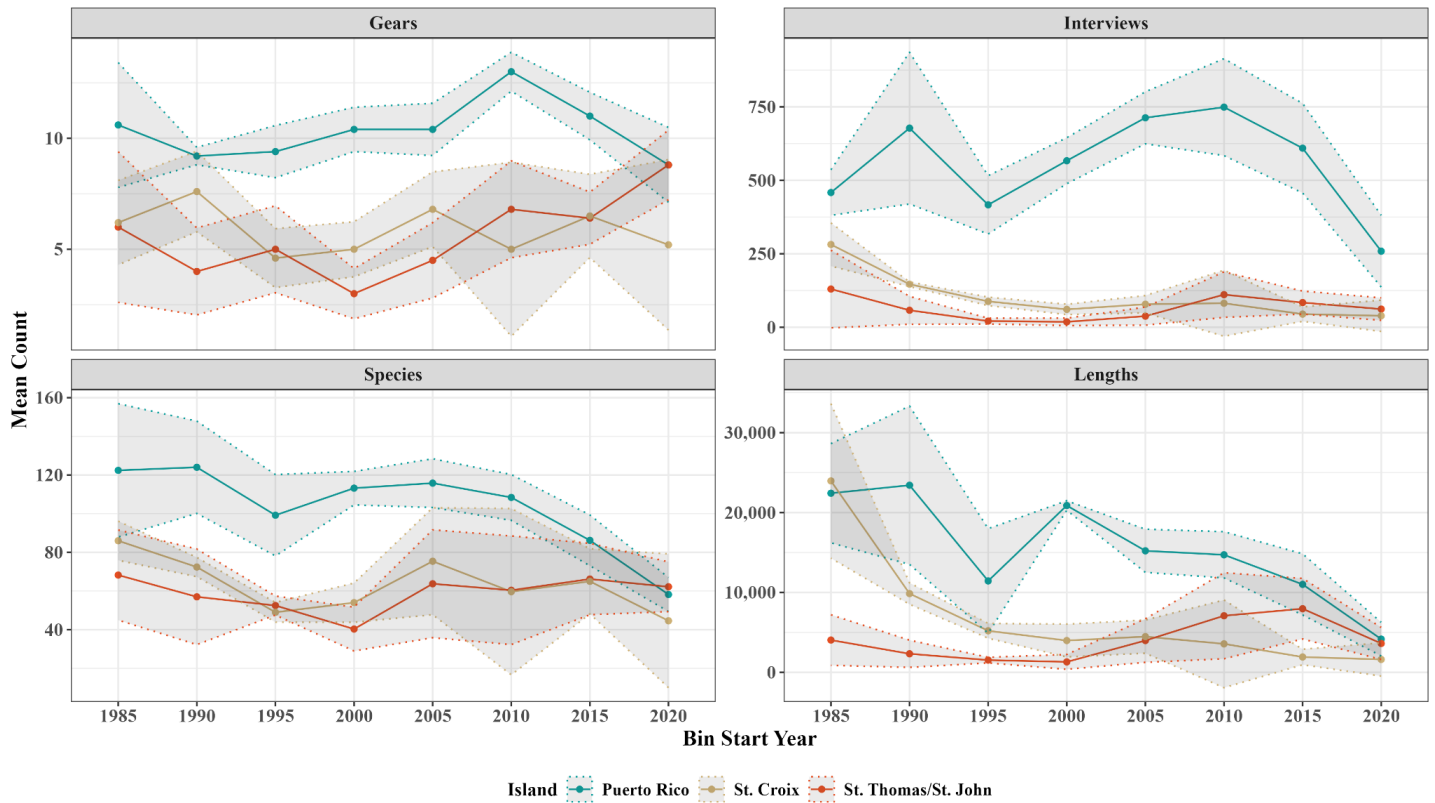


Figure 2. U.S. Caribbean TIP data binned in 5 year increments summarized by the mean number of unique gears, species, interviews, and length records recorded by island platform. Grey area represents a 95% confidence interval surrounding the mean counts.

Distribution of Management groups Across Caribbean TIP Data by 5 Year Bin

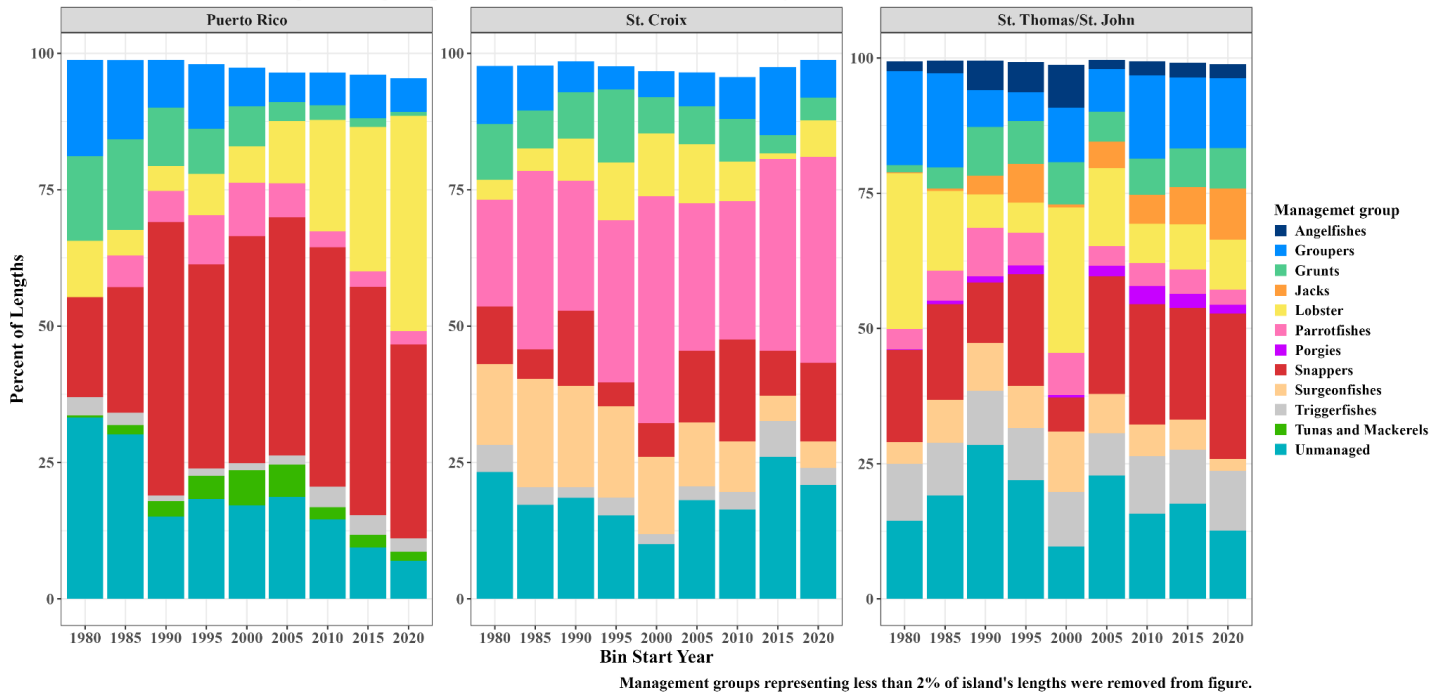


Figure 3. U.S. Caribbean TIP data binned in 5 year increments showing the change in percent representation of length records by federal management group in each island platform.