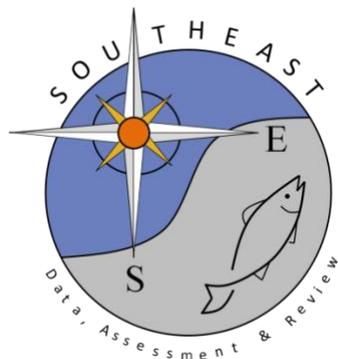


# General Recreational Survey Data for Queen Triggerfish in Puerto Rico

Matthew A. Nuttall and Vivian M. Matter

SEDAR80-WP-01

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## **General Recreational Survey Data for Queen Triggerfish in Puerto Rico**

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General recreational catch estimates for Queen Triggerfish are compiled from the Marine Recreational Information Program (MRIP), formerly known as the Marine Recreational Fisheries Statistics Survey (MRFSS). Details on MRIP can be found in SEDAR68-DW-13.

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Parameters for data prepared for SEDAR 80 recreational catch data:

- Species: Queen Triggerfish
  - Catch estimates provided in this report do not include unidentified triggerfish (i.e., leatherjacket family). As options for allocating unidentified catch across species, this report provides ratios of the relative catch of queen triggerfish to other triggerfish species by year and across years.
- Year Range: 2000 - 2017 (2017 waves 3&4 only)
- Geographic Range: Puerto Rico (US Caribbean).
- Fishing Modes: Charter, Private, Shore
- MRIP Survey Methodology: Estimates provided from 2000-2013 were calculated from MRFSS sampling protocols and those from 2014+ from MRIP sampling protocols. No calibrations currently exist to account for these changes in the Access Point Angler Intercept Survey (APAIS). Charter mode estimates were calculated using the Coastal Household Telephone Survey (CHTS) for all years. The For Hire Survey (FHS) and Fishing Effort Survey (FES) were never implemented in the Caribbean. MRIP sampling was suspended in the Caribbean in Sept 2017.

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Catch and Sample Size Information for Particular Domains:

- 2001 landings estimate: 8,995 fish
  - Strata: PR, private, wave 2, and ocean less than 10 miles
  - Intercept Records: a total of five angler trips that resulted in a landings estimate of 5,223 fish
    - One angler trip that harvested 9 Queen Triggerfish (seen by interviewer)
    - Four angler trips that harvested 1 Queen Triggerfish (seen by interviewer)
  
- 2008 landings estimate: 17,045 fish
  - Strata: PR, private, wave 4, and ocean less than 10 miles
  - Intercept Records: a total of three angler trips that resulted in a landings estimate of 11,902 fish
    - One angler trip that harvested 10 Queen Triggerfish, 1 seen by interviewer and 9 not seen by interviewer
    - One angler trip that harvested 1 Queen Triggerfish (seen by interviewer)
    - One angler trip that harvested 1 Queen Triggerfish (not seen by interviewer)
  
- 2014 landings estimate: 17,933 fish
  - Strata: PR, private, wave 1, and ocean greater than 10 miles
    - Intercept Records: a total of 1 angler trip that harvested 3 Queen Triggerfish (seen by interviewer) and resulted in a landings estimate of 6,514 fish
  - Strata: PR, private, wave 5, and ocean less than 10 miles
    - Intercept Records: a total of 1 angler trip that harvested 7 Queen Triggerfish (not seen by interviewer) and resulted in a landings estimate of 9,385 fish

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## PR Contractor History

There have been various changes in contractors coordinating and conducting the field work for the MRFSS/MRIP over the years. Below is a brief history of these changes (personal communication, NMFS).

- 2000-2008: Macro International with Department of Natural and Environmental Resources of Puerto Rico (PR DNER) sub-contracting. Most of these years included some PR DNER staff and some direct employees of Macro working together under PR onsite supervision.
- 2009: Gulf States Marine Fisheries Commission (GSMFC) coordinates the data acquisition, processing, and delivery of data. PR DNER staff conduct the field APAIS.
- 2010: ICF-Macro coordinates the data acquisition, processing, and delivery of data. PR DNER staff conduct the field APAIS.
- 2011-2013: GSMFC coordinates the data acquisition, processing, and delivery of data. PR DNER staff conduct the field APAIS. Puerto Rico was still conducting MRFSS APAIS procedures and estimation methodologies in 2013, although new APAIS was implemented this year in the Atlantic and Gulf of Mexico.
- 2014-2015: RTI contractor coordinates the data acquisition, processing, and delivery of data. RTI staff also conduct the field APAIS with onsite field coordinator and central (remote) supervision by RTI management staff.
- 2016-2017, wave 4: RTI contractor coordinates the data acquisition, processing, and delivery of data. RTI staff also conduct the field APAIS with onsite field coordinator and central (remote) supervision by RTI management staff. No APAIS sampling was conducted in waves 1-2 of 2017 due to contractual issues. Following the devastation to Puerto Rico by Hurricane Maria in September 2017, the MRIP APAIS was canceled primarily due to destruction of access points but also severe impacts to infrastructure (transportation and power), communications, and the resultant humanitarian crises that followed. MRIP has not re-implemented any data collections in Puerto Rico to date.

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## Tables

**Table 1.** Annual landings (AB1) and discards (B2) of Queen Triggerfish in numbers of fish by mode and year (MRIP).

**Table 2.** Queen Triggerfish landings in numbers of fish (AB1) with associated coefficients of variation (CV; Dettloff et al. 2020) by mode and year (MRIP). Sample size (SS) is provided as the total number of angler trips intercepted by MRIP samplers within a specified strata and, in parentheses, the number of angler trips that intercepted Queen Triggerfish.

**Table 3.** Queen Triggerfish discards in numbers of fish (B2) with associated coefficients of variation (CV; Dettloff et al. 2020) by mode and year (MRIP). Sample size (SS) is provided as the total number of angler trips intercepted by MRIP samplers within a specified strata and, in parentheses, the number of angler trips that intercepted Queen Triggerfish.

**Table 4.** Total Queen Triggerfish landings (AB1) and discards (B2), in numbers of fish, with associated coefficients of variation (CV; Dettloff et al. 2020) by year (MRIP). Sample size (SS) is provided as the total number of angler trips intercepted by MRIP samplers within a specified strata and, in parentheses, the number of angler trips that intercepted Queen Triggerfish.

**Table 5.** Estimated landings of Queen Triggerfish in pounds whole weight by mode and year (MRIP). Average weight estimates are calculated by strata using the following hierarchy: species, region, year, state, mode, wave, and area (Matter and Rios 2013). The minimum number of weights used at each level of substitution is fifteen fish, except for the final species level where the minimum is one fish (Dettloff and Matter 2019).

**Table 6.** Summary of length measurements (millimeters fork length) from MRIP-intercepted Queen Triggerfish by mode and year. Summaries include the number of fish measured by MRIP (Fish), the number of angler trips from which those fish were measured (Trp), and the minimum (Min), arithmetic mean (Avg), and maximum (Max) size of fish lengths.

**Table 7.** Summary of weight measurements (pounds whole weight) from MRIP-intercepted Queen Triggerfish by mode and year. Summaries include the number of fish weighed by MRIP (Fish), the number of angler trips from which those fish were weighed (Trp), and the minimum (Min), arithmetic mean (Avg), and maximum (Max) size of fish weights.

**Table 8.** Summary of length (millimeters fork length) and weight measurements (pounds whole weight) from MRIP-intercepted Queen Triggerfish by year. Summaries include the number of fish for which size information was collected by MRIP (Fish), the number of angler trips from which those fish were sampled (Trp), and the minimum (Min), arithmetic mean (Avg), and maximum (Max) size of fish lengths and weights.

**Table 9.** Resolution of weight estimates for Caribbean Queen Triggerfish by year and hierarchy level (MRIP), defined by species, region, year, state, mode, wave, and area. Average weight estimates are calculated at the finest strata meeting a minimum sample size threshold (Dettloff and Matter 2019). Larger sample sizes therefore allow average weights to be calculated at finer stratifications, the finest being at the srysmwa level (Matter and Rios 2013). Annual summaries include the number of fish for which weight information was collected (Fish) and the landings-in-weight estimates (AB1.lbs) by hierarchy level. As an example, (srys) summarizes those landings-in-weight estimates originating from cells where average weights are specific to a particular species, region, year, and state (i.e., weight observations collapsed across modes, waves, and areas).

**Table 10.** Recreational Fishing Effort (in angler trips) for Caribbean anglers by mode and year (MRIP).

**Table 11.** Catch estimates for the Caribbean leatherjacket family (UNID CATCH) and estimates of the relative contribution of queen triggerfish to this catch (Ratio). Ratios are the average catch of queen triggerfish relative to all triggerfish species (gray triggerfish, queen triggerfish, rough triggerfish, ocean triggerfish) and are provided for individual years (2000-2017) and across all years (Grand Total).

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## Figures

**Figure 1.** Annual landings (AB1) and discard (B2) estimates, in thousands of fish with standard error intervals shown, for Caribbean Queen Triggerfish between 2000 to 2017 (MRIP).

**Figure 2.** Annual Queen Triggerfish landings (AB1) and discards (B2), in thousands of fish, by mode from 1981 to 2017 (MRIP).

**Figure 2a.** Percent of Queen Triggerfish landings (AB1) and discards (B2), in numbers of fish, from each mode by year (bar graph) and overall (pie chart) between 1981 and 2017 (MRIP).

**Figure 3.** Estimates of annual landings for Queen Triggerfish in the Caribbean, as estimated from MRIP: estimated landings in thousands of fish (top), estimated landings in thousands of pounds whole weight (middle), and average weight of landed fish (estimated lbs/estimated fish) (bottom). Average weight estimates are calculated by strata using the following hierarchy: species, region, year, state, mode, wave, and area (Matter and Rios 2013). The minimum number of weights used at each level of substitution is fifteen fish, except for the final species level where the minimum is one fish (Dettloff and Matter 2019).

**Figure 4.** Annual landings estimates of Caribbean Queen Triggerfish in thousands of pounds whole weight by hierarchy level (MRIP), defined by species, region, year, state, mode, wave, and area. Landings are grouped by the strata at which average weights were estimated, the finest stratification being at the srysmwa level (Matter and Rios 2013). As an example, (srys) summarizes those landings-in-weight estimates originating from cells where average weights are specific to a particular species, region, year, and state (i.e., weight observations collapsed across modes, waves, and areas). Landings are provided (A) in absolute pounds and (B) as a percentage of total landings-in-weight, which is summarized by year (stacked bar plot) and across all years (pie chart).

**Figure 5.** Annual landings estimates for all Caribbean triggerfish species in thousands of fish (MRIP). Landings are summarized by year and provided (A) in absolute units and (B) as a percentage of the total landings.

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**Table 1.** Annual landings (AB1) and discards (B2) of Queen Triggerfish in numbers of fish by mode and year (MRIP).

Year	Cbt		Priv		Shore		Total	
	AB1	B2	AB1	B2	AB1	B2	AB1	B2
2000	0	0	4,844	0	0	0	4,844	0
2001	0	0	8,136	0	860	0	8,995	0
2002	0	0	891	0	0	0	891	0
2003	0	0	1,789	0	0	0	1,789	0
2004	0	0	558	238	0	0	558	238
2005	0	0	4,472	304	0	0	4,472	304
2006	30	0	279	0	0	0	308	0
2007	17	0	375	0	0	0	392	0
2008	0	0	17,045	829	0	0	17,045	829
2009	0	0	3,872	729	508	0	4,380	729
2010	0	0	3,708	0	0	0	3,708	0
2011	0	0	240	0	0	0	240	0
2012	0	0	5,345	0	0	0	5,345	0
2013	0	0	1,066	0	0	0	1,066	0
2014	0	0	17,933	0	0	0	17,933	0
2015	0	0	13,374	0	0	0	13,374	0
2016	0	0	1,316	2,160	0	0	1,316	2,160
2017	0	0	0	293	0	0	0	293

**Table 2.** Queen Triggerfish landings in numbers of fish (AB1) with associated coefficients of variation (CV; Dettloff et al. 2020) by mode and year (MRIP). Sample size (SS) is provided as the total number of angler trips intercepted by MRIP samplers within a specified strata and, in parentheses, the number of angler trips that intercepted Queen Triggerfish.

Year	Priv			Cbt			Shore		
	AB1	CV	SS	AB1	CV	SS	AB1	CV	SS
2000	4,844	0.46	1,102 ( 6)	0	0.00	683 (0)	0	0.00	999 (0)
2001	8,136	0.47	1,336 (12)	0	0.00	693 (0)	860	0.99	1,139 (1)
2002	891	0.71	1,267 ( 2)	0	0.00	468 (0)	0	0.00	786 (0)
2003	1,789	0.50	1,333 ( 5)	0	0.00	573 (0)	0	0.00	1,073 (0)
2004	558	0.71	1,167 ( 2)	0	0.00	736 (0)	0	0.00	1,140 (0)
2005	4,472	0.65	815 ( 3)	0	0.00	383 (0)	0	0.00	633 (0)
2006	279	1.00	571 ( 1)	30	1.00	325 (1)	0	0.00	518 (0)
2007	375	0.99	872 ( 1)	17	1.00	511 (1)	0	0.00	725 (0)
2008	17,045	0.55	719 (11)	0	0.00	494 (0)	0	0.00	777 (0)
2009	3,872	0.37	1,209 (13)	0	0.00	354 (0)	508	1.00	1,053 (1)
2010	3,708	0.53	1,017 ( 4)	0	0.00	475 (1)	0	0.00	773 (0)
2011	240	0.71	878 ( 2)	0	0.00	674 (0)	0	0.00	837 (0)
2012	5,345	0.47	1,029 (10)	0	0.00	550 (2)	0	0.00	904 (0)
2013	1,066	0.47	401 ( 5)	0	0.00	414 (0)	0	0.00	310 (0)
2014	17,933	0.59	841 ( 5)	0	0.00	307 (0)	0	0.00	340 (0)
2015	13,374	0.63	851 ( 2)	0	0.00	260 (0)	0	0.00	277 (0)
2016	1,316	1.01	645 ( 1)	0	0.00	189 (0)	0	0.00	524 (0)
2017	0	0.00	248 ( 0)	0	0.00	57 (0)	0	0.00	342 (0)

**Table 3.** Queen Triggerfish discards in numbers of fish (B2) with associated coefficients of variation (CV; Dettloff et al. 2020) by mode and year (MRIP). Sample size (SS) is provided as the total number of angler trips intercepted by MRIP samplers within a specified strata and, in parentheses, the number of angler trips that intercepted Queen Triggerfish.

Year	Priv			Cbt			Shore		
	B2	CV	SS	B2	CV	SS	B2	CV	SS
2000	0	0.00	1,102 (0)	0	0.00	683 (0)	0	0.00	999 (0)
2001	0	0.00	1,336 (0)	0	0.00	693 (0)	0	0.00	1,139 (0)
2002	0	0.00	1,267 (0)	0	0.00	468 (0)	0	0.00	786 (0)
2003	0	0.00	1,333 (0)	0	0.00	573 (0)	0	0.00	1,073 (0)
2004	238	1.00	1,167 (1)	0	0.00	736 (0)	0	0.00	1,140 (0)
2005	304	1.00	815 (1)	0	0.00	383 (0)	0	0.00	633 (0)
2006	0	0.00	571 (0)	0	0.00	325 (0)	0	0.00	518 (0)
2007	0	0.00	872 (0)	0	0.00	511 (0)	0	0.00	725 (0)
2008	829	0.71	719 (2)	0	0.00	494 (0)	0	0.00	777 (0)
2009	729	0.73	1,209 (2)	0	0.00	354 (0)	0	0.00	1,053 (0)
2010	0	0.00	1,017 (0)	0	0.00	475 (0)	0	0.00	773 (0)
2011	0	0.00	878 (0)	0	0.00	674 (0)	0	0.00	837 (0)
2012	0	0.00	1,029 (0)	0	0.00	550 (0)	0	0.00	904 (0)
2013	0	0.00	401 (0)	0	0.00	414 (3)	0	0.00	310 (0)
2014	0	0.00	841 (0)	0	0.00	307 (0)	0	0.00	340 (0)
2015	0	0.00	851 (0)	0	0.00	260 (0)	0	0.00	277 (0)
2016	2,160	1.00	645 (1)	0	0.00	189 (0)	0	0.00	524 (0)
2017	293	0.80	248 (1)	0	0.00	57 (0)	0	0.00	342 (0)

**Table 4.** Total Queen Triggerfish landings (AB1) and discards (B2), in numbers of fish, with associated coefficients of variation (CV; Dettloff et al. 2020) by year (MRIP). Sample size (SS) is provided as the total number of angler trips intercepted by MRIP samplers within a specified strata and, in parentheses, the number of angler trips that intercepted Queen Triggerfish.

Year	AB1			B2		
	Total	CV	SS	Total	CV	SS
2000	4,844	0.46	2,784 ( 6)	0	0.00	2,784 (0)
2001	8,995	0.43	3,168 (13)	0	0.00	3,168 (0)
2002	891	0.71	2,521 ( 2)	0	0.00	2,521 (0)
2003	1,789	0.50	2,979 ( 5)	0	0.00	2,979 (0)
2004	558	0.71	3,043 ( 2)	238	1.00	3,043 (1)
2005	4,472	0.65	1,831 ( 3)	304	1.00	1,831 (1)
2006	308	0.91	1,414 ( 2)	0	0.00	1,414 (0)
2007	392	0.95	2,108 ( 2)	0	0.00	2,108 (0)
2008	17,045	0.55	1,990 (11)	829	0.71	1,990 (2)
2009	4,380	0.35	2,616 (14)	729	0.73	2,616 (2)
2010	3,708	0.53	2,265 ( 5)	0	0.00	2,265 (0)
2011	240	0.71	2,389 ( 2)	0	0.00	2,389 (0)
2012	5,345	0.47	2,483 (12)	0	0.00	2,483 (0)
2013	1,066	0.47	1,125 ( 5)	0	0.00	1,125 (3)
2014	17,933	0.59	1,488 ( 5)	0	0.00	1,488 (0)
2015	13,374	0.63	1,388 ( 2)	0	0.00	1,388 (0)
2016	1,316	1.01	1,358 ( 1)	2,160	1.00	1,358 (1)
2017	0	0.00	647 ( 0)	293	0.80	647 (1)

**Table 5.** *Estimated landings of Queen Triggerfish in pounds whole weight by mode and year (MRIP). Average weight estimates are calculated by strata using the following hierarchy: species, region, year, state, mode, wave, and area (Matter and Rios 2013). The minimum number of weights used at each level of substitution is fifteen fish, except for the final species level where the minimum is one fish (Dettloff and Matter 2019).*

Year	Cbt	Priv	Shore	Total
2000	0	9,990	0	9,990
2001	0	17,637	1,864	19,501
2002	0	1,838	0	1,838
2003	0	3,690	0	3,690
2004	0	1,152	0	1,152
2005	0	9,222	0	9,222
2006	61	575	0	636
2007	34	774	0	809
2008	0	35,148	0	35,148
2009	0	7,985	1,047	9,031
2010	0	7,646	0	7,646
2011	0	495	0	495
2012	0	11,021	0	11,021
2013	0	2,198	0	2,198
2014	0	36,978	0	36,978
2015	0	27,577	0	27,577
2016	0	2,714	0	2,714
2017	0	0	0	0



**Table 7.** Summary of weight measurements (pounds whole weight) from MRIP-intercepted Queen Triggerfish by mode and year. Summaries include the number of fish weighed by MRIP (Fish), the number of angler trips from which those fish were weighed (Trp), and the minimum (Min), arithmetic mean (Avg), and maximum (Max) size of fish weights.

Year	Cbt					Priv					Shore				
	Fish	Trp	Min	Avg	Max	Fish	Trp	Min	Avg	Max	Fish	Trp	Min	Avg	Max
2000	0	0	0.0	0.0	0.0	6	6	0.9	1.9	2.6	0	0	0.0	0.0	0.0
2001	0	0	0.0	0.0	0.0	14	11	1.3	2.2	3.5	1	1	1.1	1.1	1.1
2002	0	0	0.0	0.0	0.0	2	2	1.8	1.9	2.0	0	0	0.0	0.0	0.0
2003	0	0	0.0	0.0	0.0	4	4	1.2	1.8	2.2	0	0	0.0	0.0	0.0
2004	0	0	0.0	0.0	0.0	2	2	1.9	2.7	3.5	0	0	0.0	0.0	0.0
2005	0	0	0.0	0.0	0.0	4	3	0.9	1.2	1.4	0	0	0.0	0.0	0.0
2006	1	1	2.4	2.4	2.4	0	1	0.0	0.0	0.0	0	0	0.0	0.0	0.0
2007	1	1	3.5	3.5	3.5	2	1	1.3	3.2	5.1	0	0	0.0	0.0	0.0
2008	0	0	0.0	0.0	0.0	7	6	0.9	2.4	5.5	0	0	0.0	0.0	0.0
2009	0	0	0.0	0.0	0.0	1	2	1.8	1.8	1.8	1	1	2.2	2.2	2.2
2010	2	1	3.3	3.9	4.4	5	3	1.0	1.4	2.4	0	0	0.0	0.0	0.0
2011	0	0	0.0	0.0	0.0	2	2	1.3	1.9	2.4	0	0	0.0	0.0	0.0
2012	2	2	2.2	2.4	2.6	4	7	0.7	1.8	3.5	0	0	0.0	0.0	0.0
2013	0	0	0.0	0.0	0.0	3	5	1.8	2.1	2.4	0	0	0.0	0.0	0.0
2014	0	0	0.0	0.0	0.0	5	3	0.9	1.3	1.8	0	0	0.0	0.0	0.0
2015	0	0	0.0	0.0	0.0	1	1	2.2	2.2	2.2	0	0	0.0	0.0	0.0
2016	0	0	0.0	0.0	0.0	2	1	2.3	2.5	2.6	0	0	0.0	0.0	0.0
2017	0	0	0.0	0.0	0.0	0	0	0.0	0.0	0.0	0	0	0.0	0.0	0.0

**Table 8.** Summary of length (millimeters fork length) and weight measurements (pounds whole weight) from MRIP-intercepted Queen Triggerfish by year. Summaries include the number of fish for which size information was collected by MRIP (Fish), the number of angler trips from which those fish were sampled (Trp), and the minimum (Min), arithmetic mean (Avg), and maximum (Max) size of fish lengths and weights.

Year	Length					Weight				
	Fish	Trp	Min	Avg	Max	Fish	Trp	Min	Avg	Max
2000	7	6	225	304	361	6	6	0.9	1.9	2.6
2001	16	12	242	327	385	15	12	1.1	2.2	3.5
2002	2	2	309	312	315	2	2	1.8	1.9	2.0
2003	4	4	273	297	322	4	4	1.2	1.8	2.2
2004	2	2	342	365	388	2	2	1.9	2.7	3.5
2005	4	3	250	283	311	4	3	0.9	1.2	1.4
2006	2	2	313	323	333	1	2	2.4	2.4	2.4
2007	3	2	261	350	403	3	2	1.3	3.3	5.1
2008	7	6	240	344	504	7	6	0.9	2.4	5.5
2009	3	3	310	318	325	2	3	1.8	2.0	2.2
2010	7	4	272	339	428	7	4	1.0	2.1	4.4
2011	2	2	335	359	383	2	2	1.3	1.9	2.4
2012	14	9	216	413	620	6	9	0.7	2.0	3.5
2013	5	5	230	298	339	3	5	1.8	2.1	2.4
2014	5	3	247	277	315	5	3	0.9	1.3	1.8
2015	1	1	322	322	322	1	1	2.2	2.2	2.2
2016	2	1	340	350	360	2	1	2.3	2.5	2.6
2017	0	0	0	0	0	0	0	0.0	0.0	0.0

**Table 9.** Resolution of weight estimates for Caribbean Queen Triggerfish by year and hierarchy level (MRIP), defined by species, region, year, state, mode, wave, and area. Average weight estimates are calculated at the finest strata meeting a minimum sample size threshold (Dettloff and Matter 2019). Larger sample sizes therefore allow average weights to be calculated at finer stratifications, the finest being at the srysmwa level (Matter and Rios 2013). Annual summaries include the number of fish for which weight information was collected (Fish) and the landings-in-weight estimates (AB1.lbs) by hierarchy level. As an example, (srys) summarizes those landings-in-weight estimates originating from cells where average weights are specific to a particular species, region, year, and state (i.e., weight observations collapsed across modes, waves, and areas).

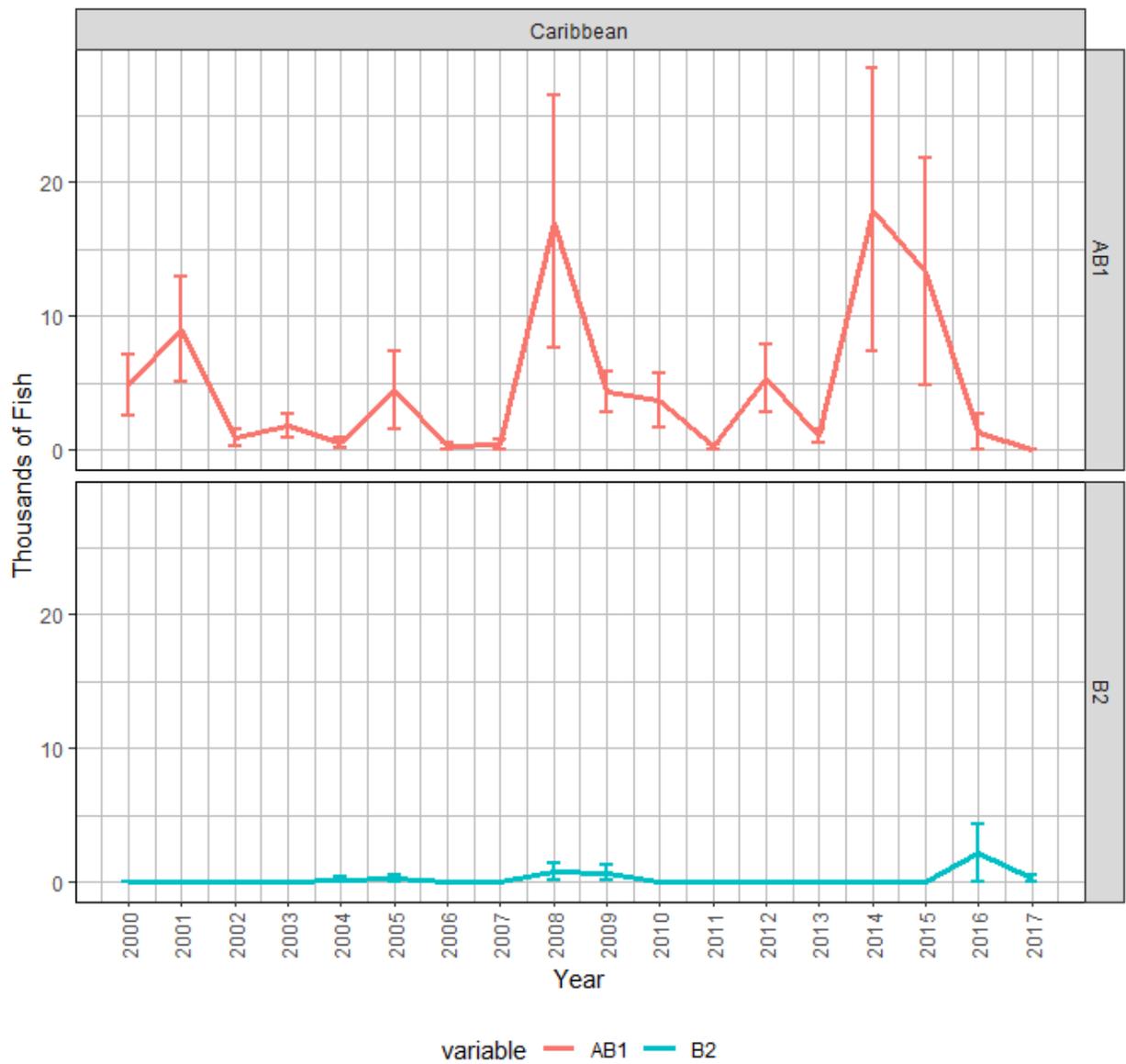
Year	Fish	AB1.lbs	
		sr	srys
2000	6	9,990	0
2001	15	0	19,501
2002	2	1,838	0
2003	4	3,690	0
2004	2	1,152	0
2005	4	9,222	0
2006	1	636	0
2007	3	809	0
2008	7	35,148	0
2009	2	9,031	0
2010	7	7,646	0
2011	2	495	0
2012	6	11,021	0
2013	3	2,198	0
2014	5	36,978	0
2015	1	27,577	0
2016	2	2,714	0

**Table 10.** *Recreational Fishing Effort (in angler trips) for Caribbean anglers by mode and year (MRIP).*

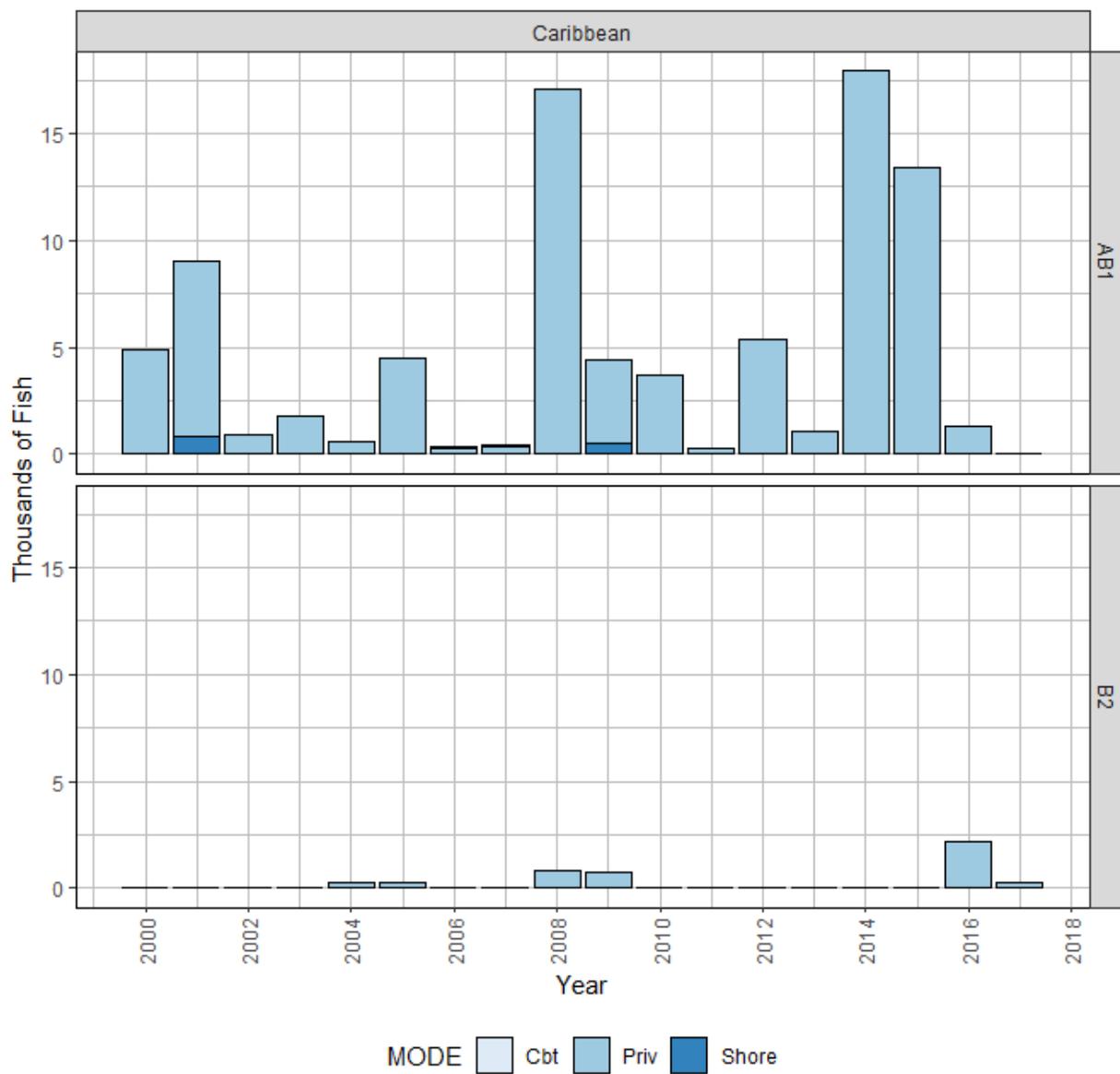
<b>Year</b>	<b>Cbt</b>	<b>Priv</b>	<b>Shore</b>	<b>Total</b>
2000	16,899	552,914	792,890	1,362,703
2001	10,919	504,349	896,675	1,411,943
2002	34,277	572,844	693,938	1,301,059
2003	21,764	471,741	617,900	1,111,405
2004	22,028	389,469	638,802	1,050,299
2005	17,969	379,910	468,843	866,722
2006	16,823	431,274	507,026	955,123
2007	10,734	453,907	615,455	1,080,096
2008	12,622	362,739	423,190	798,551
2009	2,610	287,957	345,584	636,151
2010	4,113	312,419	219,651	536,183
2011	4,730	186,939	232,917	424,586
2012	1,839	208,462	140,266	350,567
2013	6,470	228,661	275,132	510,263
2014	0	258,864	275,636	534,500
2015	2,350	296,745	368,465	667,560
2016	0	344,112	309,502	653,614
2017	0	126,555	209,749	336,304

**Table 11.** Catch estimates for the Caribbean leatherjacket family (UNID CATCH) and estimates of the relative contribution of queen triggerfish to this catch (Ratio). Ratios are the average catch of queen triggerfish relative to all triggerfish species (gray triggerfish, queen triggerfish, rough triggerfish, ocean triggerfish) and are provided for individual years (2000-2017) and across all years (Grand Total).

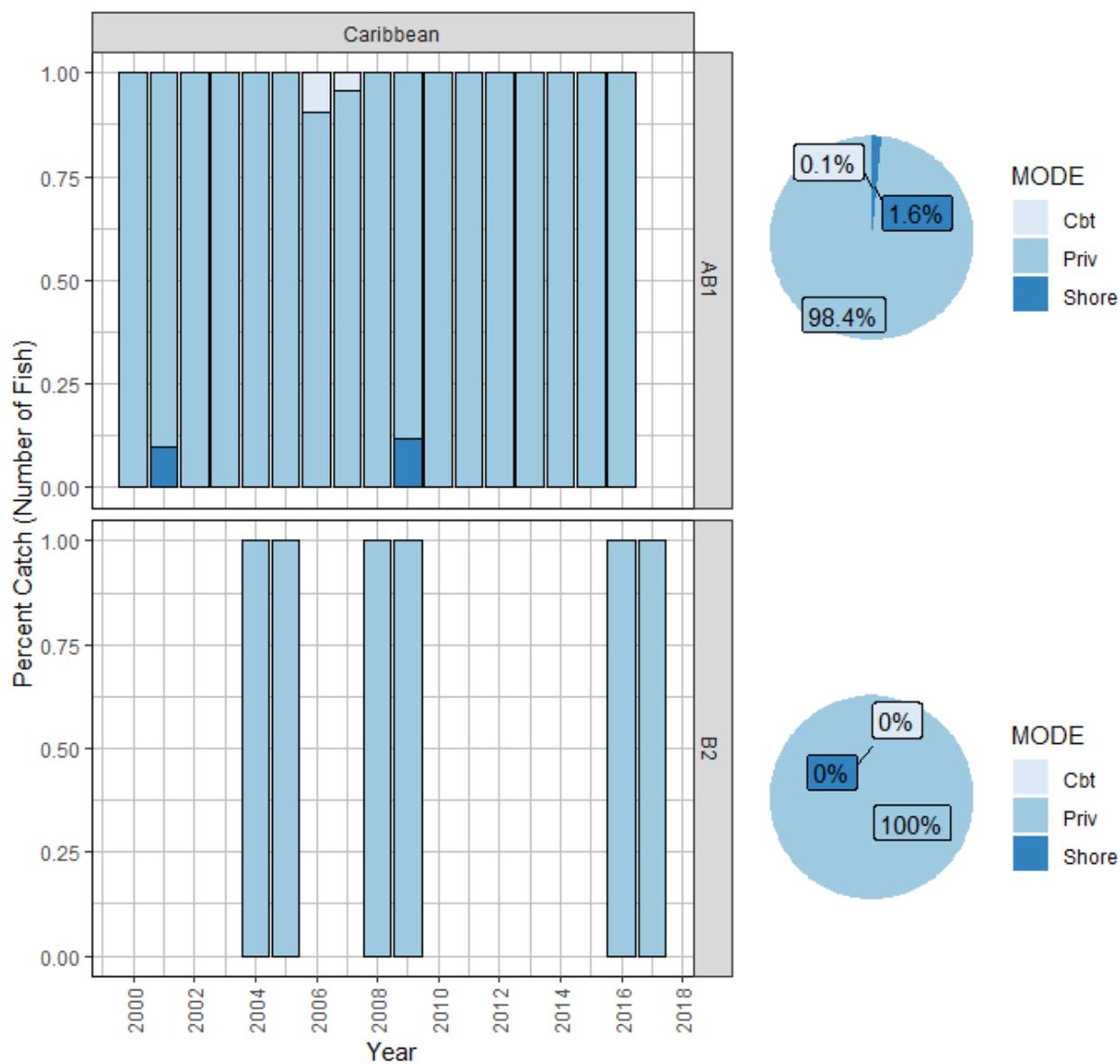
Year	UNID CATCH		Ratio	
	AB1	B2	%AB1	%B2
2000	0	0	0.224	0.000
2001	3,626	0	0.918	0.000
2002	0	0	1.000	0.000
2003	445	0	0.173	0.000
2004	0	238	0.131	1.000
2005	0	0	0.673	1.000
2006	0	0	1.000	0.000
2007	0	0	0.212	0.000
2008	0	0	1.000	1.000
2009	0	0	0.893	1.000
2010	0	0	1.000	0.000
2011	0	0	0.506	0.000
2012	0	0	0.490	0.000
2013	0	0	0.460	0.000
2014	0	0	0.931	0.000
2015	0	0	1.000	0.000
2016	0	0	1.000	0.969
2017	0	0	0.000	1.000
Grand Total	4,072	238	0.667	0.521



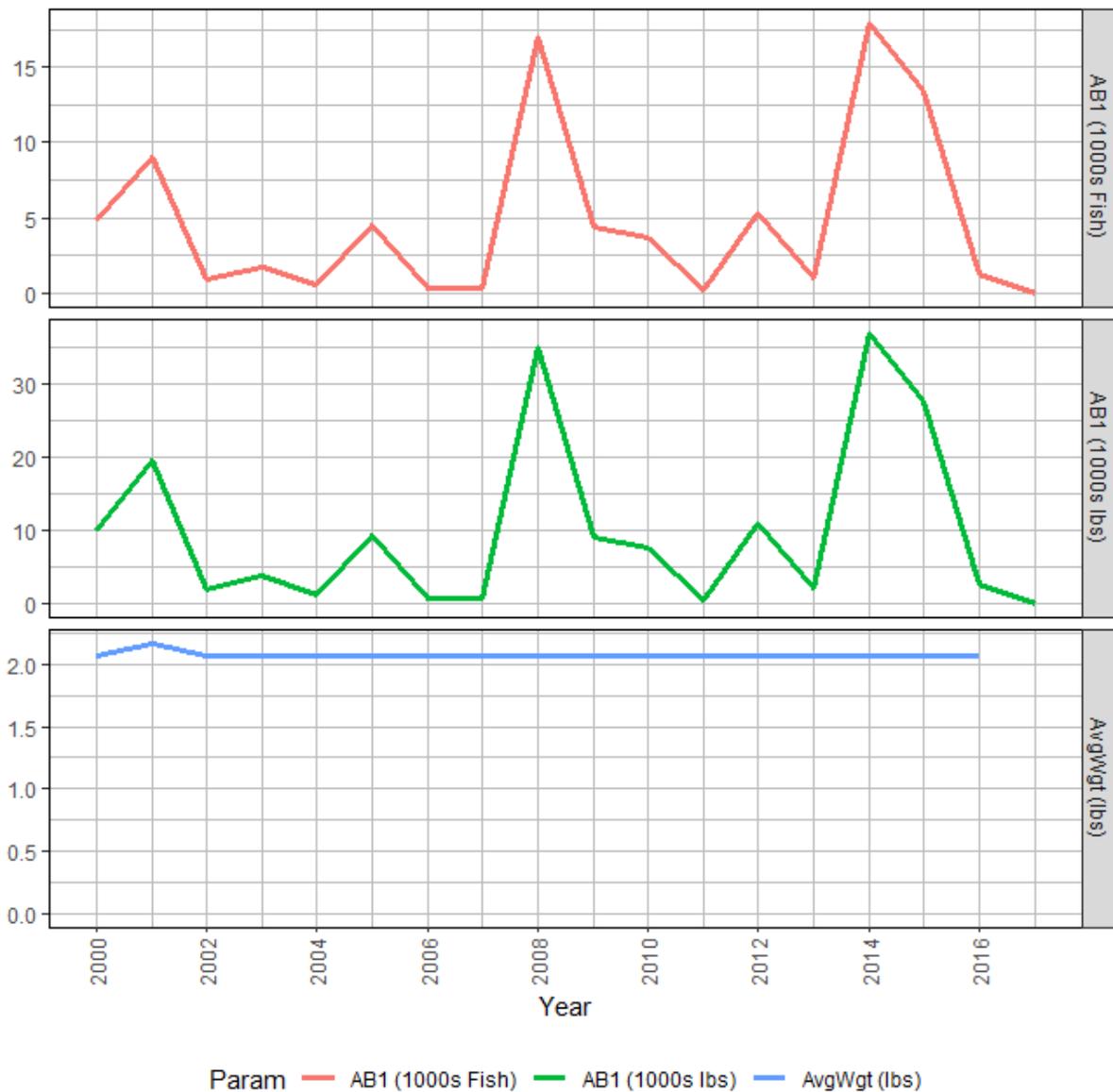
**Figure 1.** Annual landings (AB1) and discard (B2) estimates, in thousands of fish with standard error intervals shown, for Caribbean Queen Triggerfish between 2000 to 2017 (MRIP).



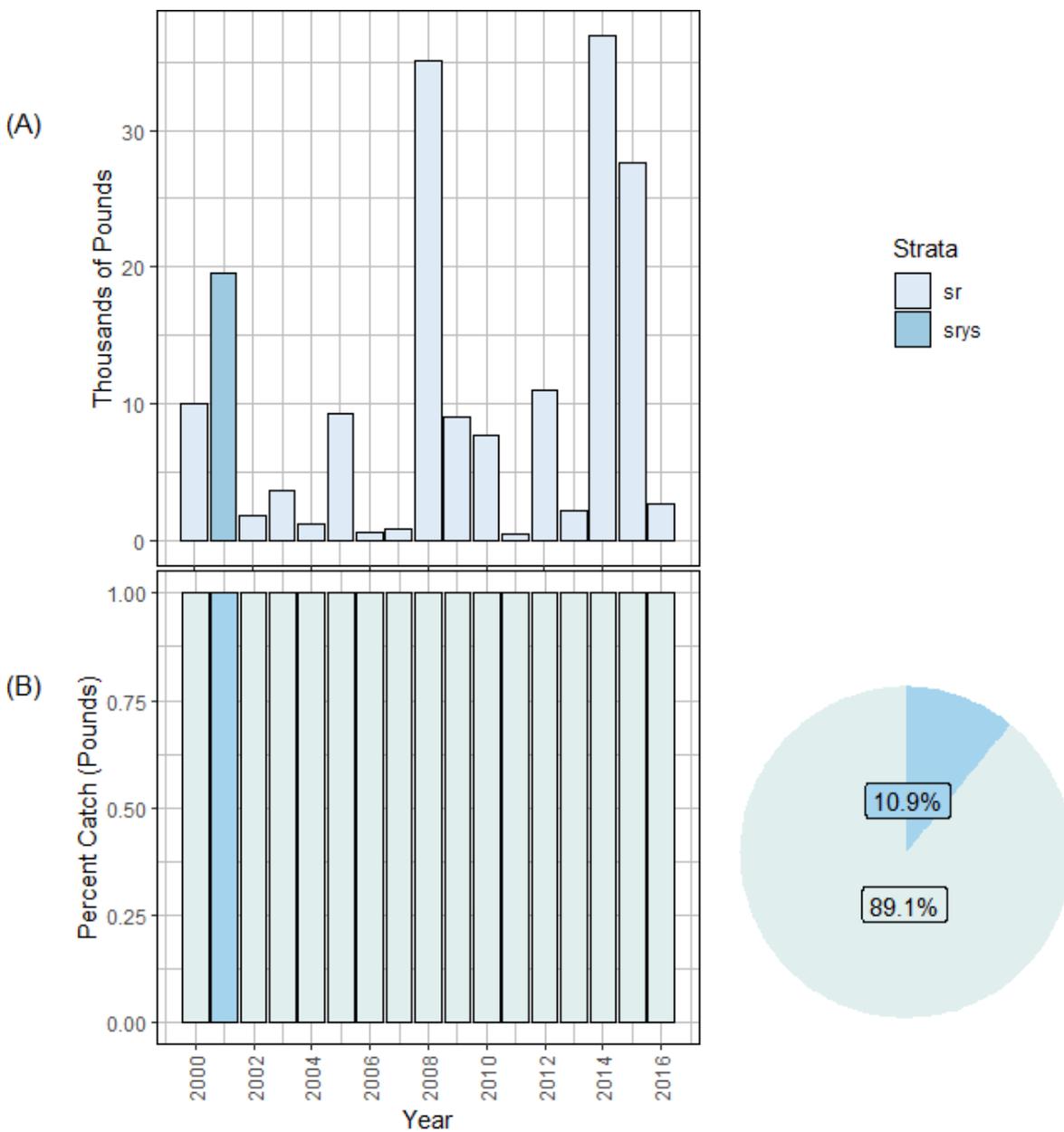
**Figure 2.** Annual Queen Triggerfish landings (AB1) and discards (B2), in thousands of fish, by mode from 1981 to 2017 (MRIP).



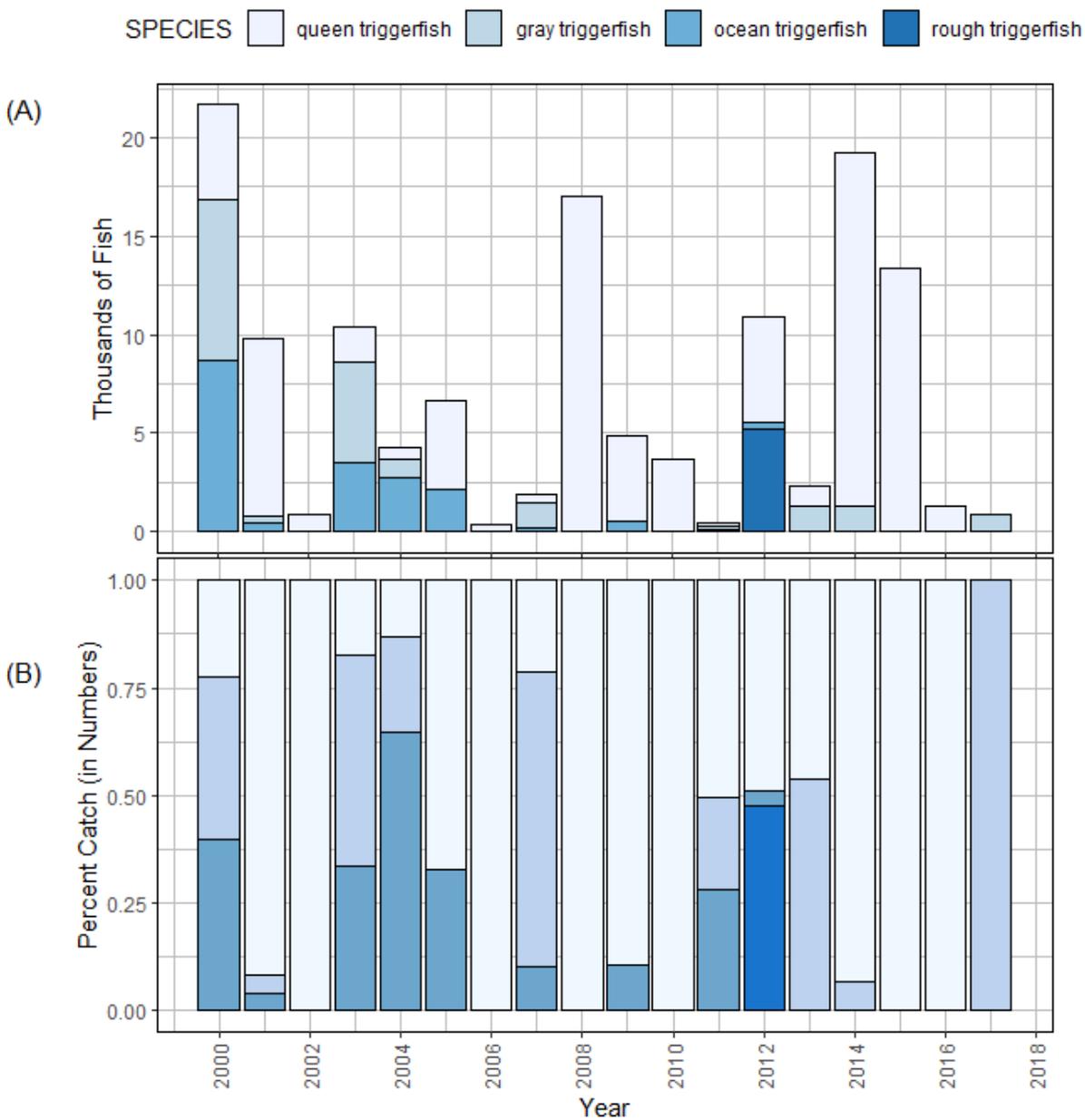
**Figure 2a.** Percent of Queen Triggerfish landings (AB1) and discards (B2), in numbers of fish, from each mode by year (bar graph) and overall (pie chart) between 1981 and 2017 (MRIP).



**Figure 3.** Estimates of annual landings for Queen Triggerfish in the Caribbean, as estimated from MRIP: estimated landings in thousands of fish (top), estimated landings in thousands of pounds whole weight (middle), and average weight of landed fish (estimated lbs/estimated fish) (bottom). Average weight estimates are calculated by strata using the following hierarchy: species, region, year, state, mode, wave, and area (Matter and Rios 2013). The minimum number of weights used at each level of substitution is fifteen fish, except for the final species level where the minimum is one fish (Dettloff and Matter 2019).



**Figure 4.** Annual landings estimates of Caribbean Queen Triggerfish in thousands of pounds whole weight by hierarchy level (MRIP), defined by species, region, year, state, mode, wave, and area. Landings are grouped by the strata at which average weights were estimated, the finest stratification being at the srysmwa level (Matter and Rios 2013). As an example, (srys) summarizes those landings-in-weight estimates originating from cells where average weights are specific to a particular species, region, year, and state (i.e., weight observations collapsed across modes, waves, and areas). Landings are provided (A) in absolute pounds and (B) as a percentage of total landings-in-weight, which is summarized by year (stacked bar plot) and across all years (pie chart).



**Figure 5.** Annual landings estimates for all Caribbean triggerfish species in thousands of fish (MRIP). Landings are summarized by year and provided (A) in absolute units and (B) as a percentage of the total landings.