

# Sawfish captures in the Queensland Shark Control Program, 1962–2016

Barbara E. Wueringer

Corresponding author: b.wueringer@gmail.com

*Endangered Species Research* 34: 293–300 (2017)

---

## Supplement 1: Example of gear changes in the data file provided by the Queensland Shark Control Program (QSCP) and their interpretation

Conversations with Jeff Krause, the Manager of QSCP indicated that:

- (1) If gear changes for a given year were only recorded for one location within an area, the gear in the other locations of that area remained unchanged.
- (2) The provided tables that have headlines such as “July 1969 location/equipment“ and contain all gear locations within an area during a given year were considered to be complete. Blank fields indicated zero for this gear type and location.

Original data excerpt:

### CAPRICORN COAST (ROCKHAMPTON)

Program commenced July 1969

July 1969 location/equipment

	Drum lines	Nets
North Yeppoon	2	1
Yeppoon Beach	2	1
Cooee Bay	4	1
Double Heads	2	
Kemp Beach	6	1
Tanby Beach	2	
Emu Park North	2	1
Emu Park	4	1

July 1972 location/equipment

	Drum lines	Nets
North Yeppoon	4	1
Yeppoon Beach		1
Cooee Bay	1	1
Lammermoor Beach	3	
Kemp Beach	2	1
Mullambin Beach	3	
Tanby Beach	1	
Emu Park North		1
Emu Park	4	1

April 1975 – Cooee Bay net replaced with 6 drum lines

1992 – All nets replaced with drum lines with 54 deployed

*Interpretation by author:*

Location	July 1969		July 1972		April 1975		1992	
	Drum lines	Gillnets	Drum lines	Gillnets	Drum lines	Gillnets	Drum lines	Gillnets
North Yeppoon	2	1	4	1	4	1	?	0
Yeppoon Beach	2	1	0	1	0	1	?	0
Cooee Bay	4	1	1	1	7	0	?	0
Lammermoor Beach	0	0	3	0	3	0	?	0
Double Heads	2	0	0	0	0	0	0	0
Kemp Beach	6	1	2	1	2	1	?	0
Tanby Beach	2	0	1	0	1	0	?	0
Emu Park North	2	1	0	1	0	1	?	0
Emu Park	4	1	4	1	4	1	?	0
TOTAL	24	6	15	6	21	5	54	0

## Supplement 2: Analysis of duplicates

Data prior to mid-1996 contained duplicated data entries whose validity was unknown (Jeff Krause, Manager QSCP, pers. comm.). Duplicate data entries were identified manually, and only marked as such if every entry associated with the capture was identical (species, area, location, date, size (if available), capture gear, state: “Alive” or “Dead”). An initial analysis presented here could not identify if they represented (1) invalid duplicates of data entries that occurred over time, or (2) valid data entries indicating that multiple sawfish were captured in the same gear on the same day. Thus, duplicates were excluded from further data analysis.

The QSCP data contained 370 cases of duplicated data entries including their respective originals (n=147). Duplicates only occurred between 1963 and 1996, and only in 6 of 8 areas in Queensland, and 20 of 26 locations where sawfish have been caught (Fig. S1). All duplicates were in the “Sawfish(Ray)” category. All had an area assigned to them (as did all entries in the data set), but 21 were missing a location code.

The highest number of duplicates was from Horseshoe Bay (Magnetic Island, Townsville, n=28), followed by Ellis Beach (Cairns, n=11), Bucasia Beach (Mackay, n=11), Trinity Beach (Cairns, n=10), and Yorkey’s Knob (Cairns, n=10). In Cairns, which is the most northern point of the QSCP, duplicates occurred in 5 of 6 locations (a 7<sup>th</sup> location, Buchan’s Beach, was added in 2013). Most duplicates (73.5%) were duplicates, 12.9% were triplicates, 8.8% were quadruplicates, 2.0% were sextuplicates, while octuplicates and quintuplicates only occurred in 1.4% of all cases each. Gillnets were the capture method responsible for 42.2% of all duplicates, while 57.8% were caught in “Other” gear, and none were caught on drum lines. A one-sample  $\chi^2$  test was conducted to assess whether duplicates were equally frequent across all locations. The results of the test were significant  $\chi^2(20, N = 121) = 122.802, p < 0.01$ , indicating that duplicates occurred more frequently in some sampling locations.

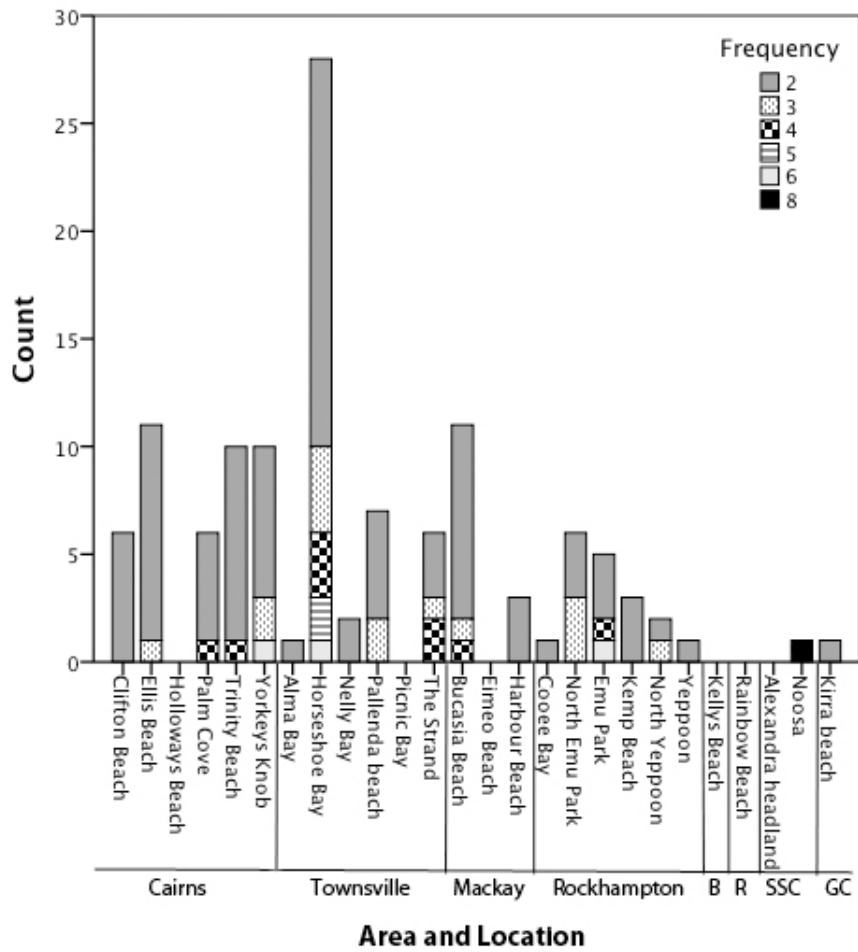


Fig. S1. Frequency of duplicated data entries by area and location, and number of duplicates for each capture; there were no septuplicates. Twenty-six duplicates that lacked a location code were excluded. Interestingly, the most animals were reportedly caught on the same day in the same location in Horseshoe Bay, Magnetic Island, Townsville Area. B= Bundaberg, R= Rainbow Beach, SSC= Sunshine Coast, GC= Gold Coast.