

Preliminary Analyses REEF data

Some preliminary analyses of the REEF data follow.

remember that species ovations follow a log scale where:

- 0 = 0
- 1 = 1
- 2 = 2:10
- 3 = 11:100
- 4 = > 100

These analyses use both Expert and Novice observations.

I'm not sure what is going on in the data, but some Locations have multiple species observations for the same survey (Form). I have taken the largest value as a default.

Looking at the map of where surveys were done, I've subsetting the data to include only those surveys within the red box.

```
## Loading required package: sp
## Checking rgeos availability: TRUE
##
## -----
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##
## Packaged on 2019-03-14
## Pacific Biological Station, Nanaimo
##
## All available PBS packages can be found at
## https://github.com/pbs-software
##
## To see demos, type '.PBSfigs()'.
## -----
```

The background map is shitty, but shows the location of surveys. #29 is open coast, #27 is the Strait, sort of. There is some wonkyness with the lat-lon but they are close enough for this round. Might be rounding errors in entering the data.

In the first round, I just plotted everything to see the availability of data.

First to get an idea of what species are seen by REEF surveyors, I just plotted some histograms. These are data by 'Form' or dive.

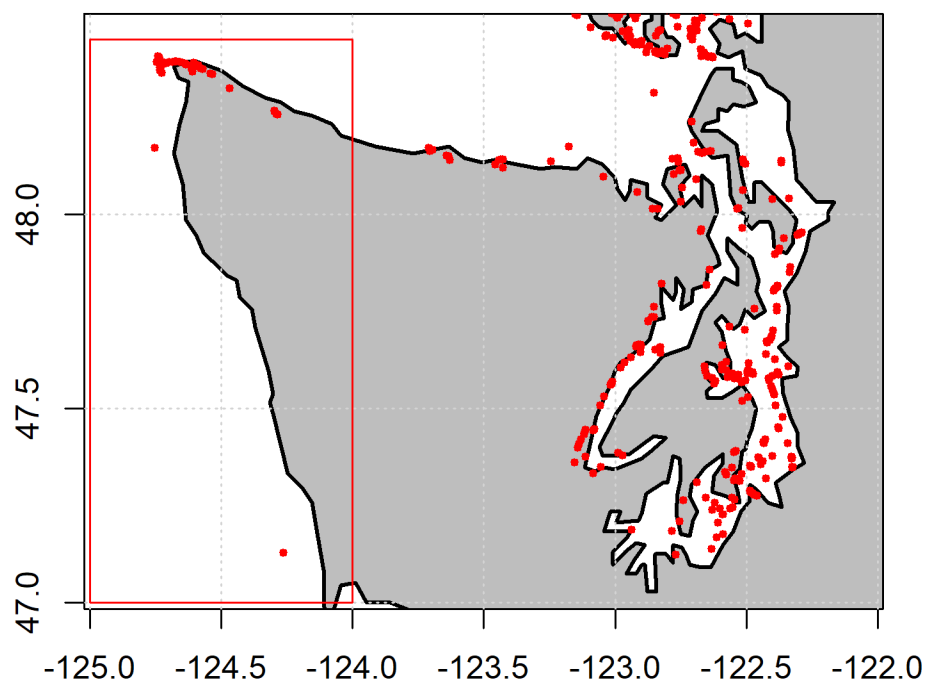


Figure 1: Locations of YOY sightings. Red box indicates surveys used in analyses below.

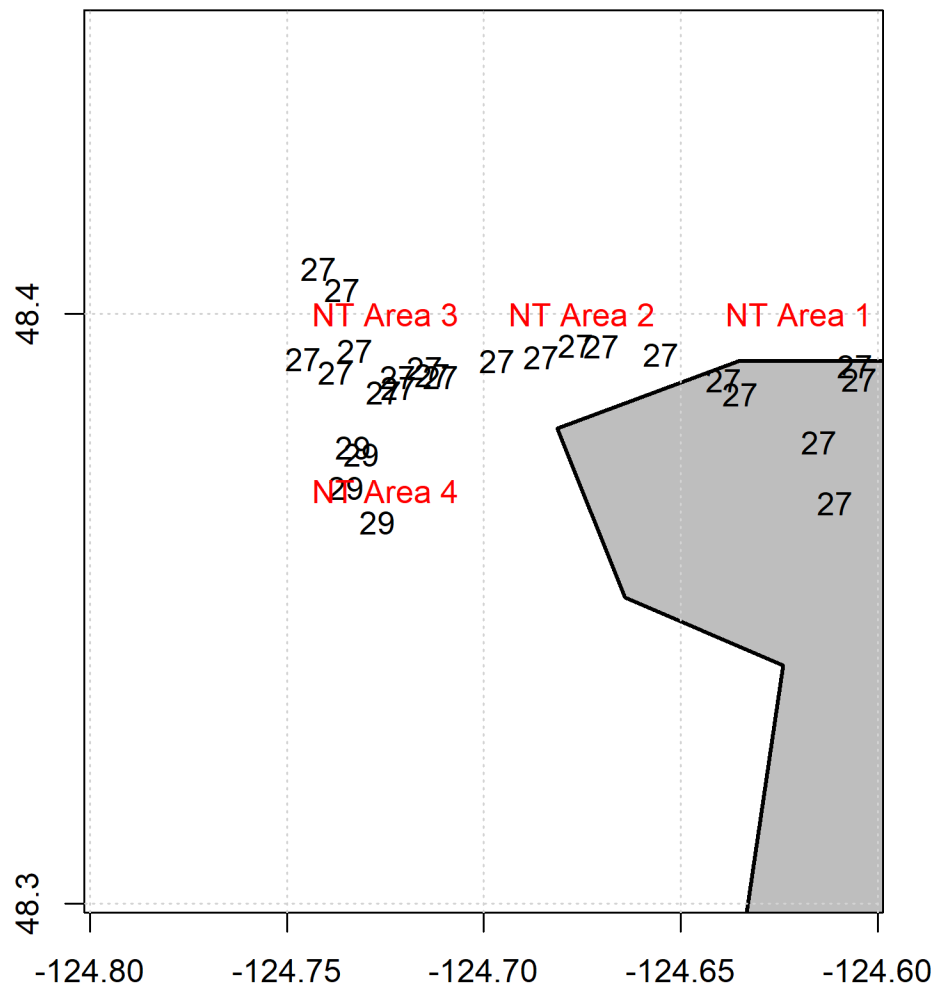


Figure 2: Locations of YOY sightings. Red box indicates surveys used in analyses below. The areas are used below.

There were 1486 from 1998 - 2019. These are the species with at least one observation.

- Most surveys did not record rockfish YOY
- Unidentified rockfish YOY was the mostly commonly observed group
- Canary were also seen with some frequency
- Blue (deacon) rockfish were also seen with some frequency
- Maybe yellowtail and black had a few observations

I calculated the mean for each species for a location an year for June through September. However, most observations were in July with a few more in August.

The data include bottom time, which I have not included here. One could weight the observations by bottom time, but that seems overkill with log-scale categorical data (eg. 0, 1, 2, 4).

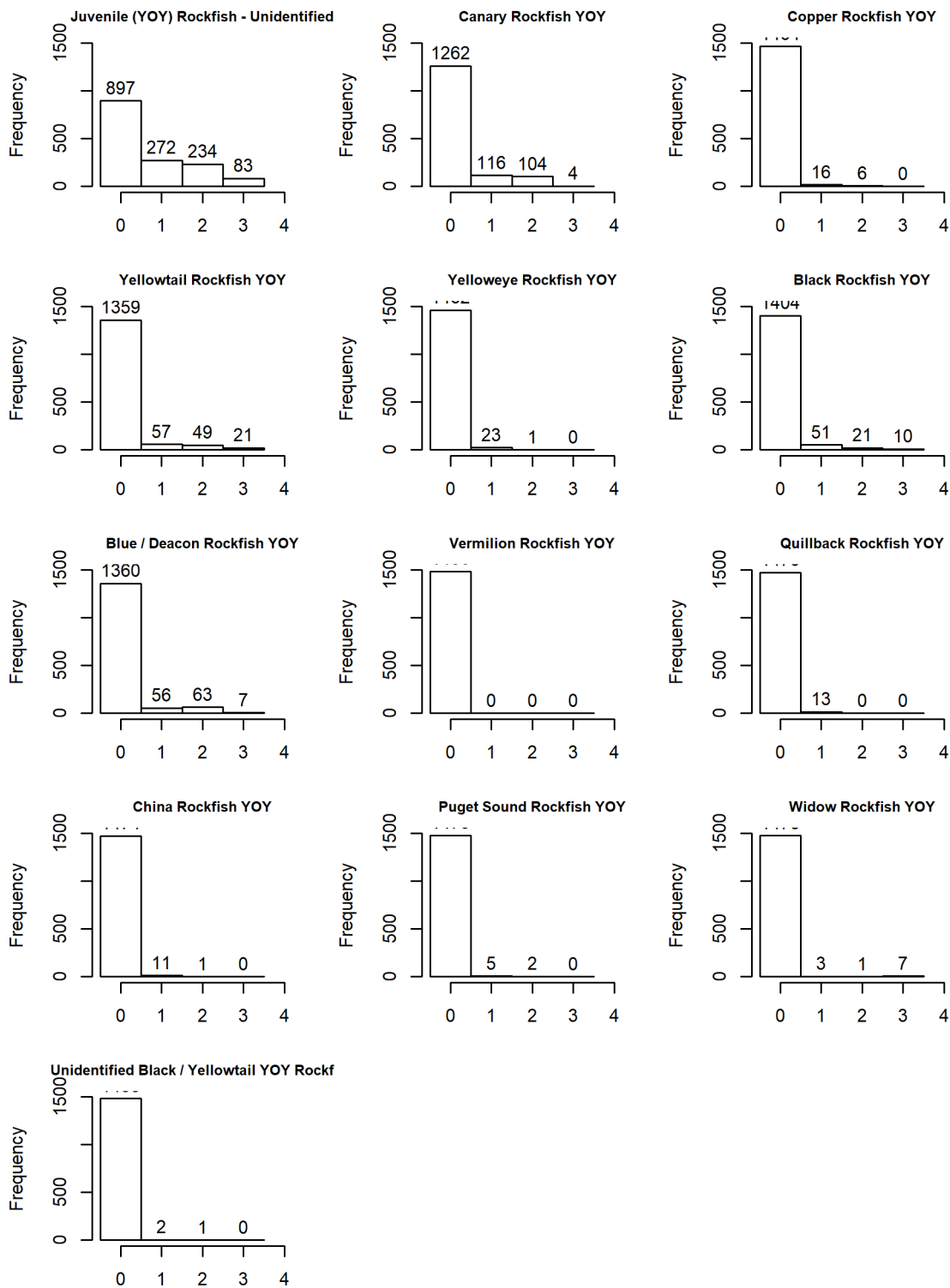


Figure 3: Frequency of observations by REEF abundance category for rockfish YOY

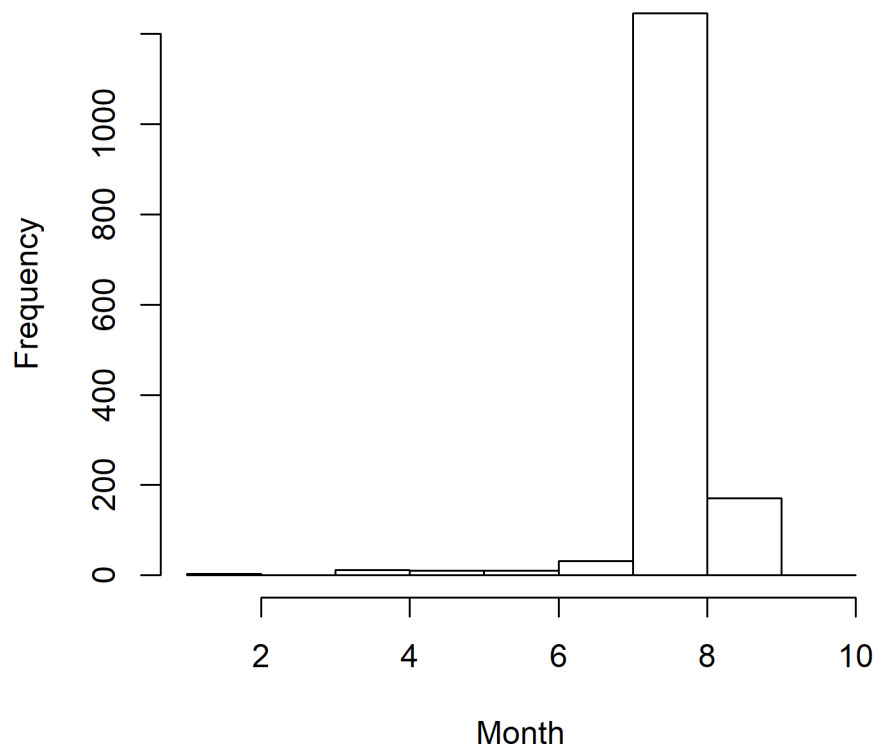


Figure 4: Monthly frequency of REEF surveys

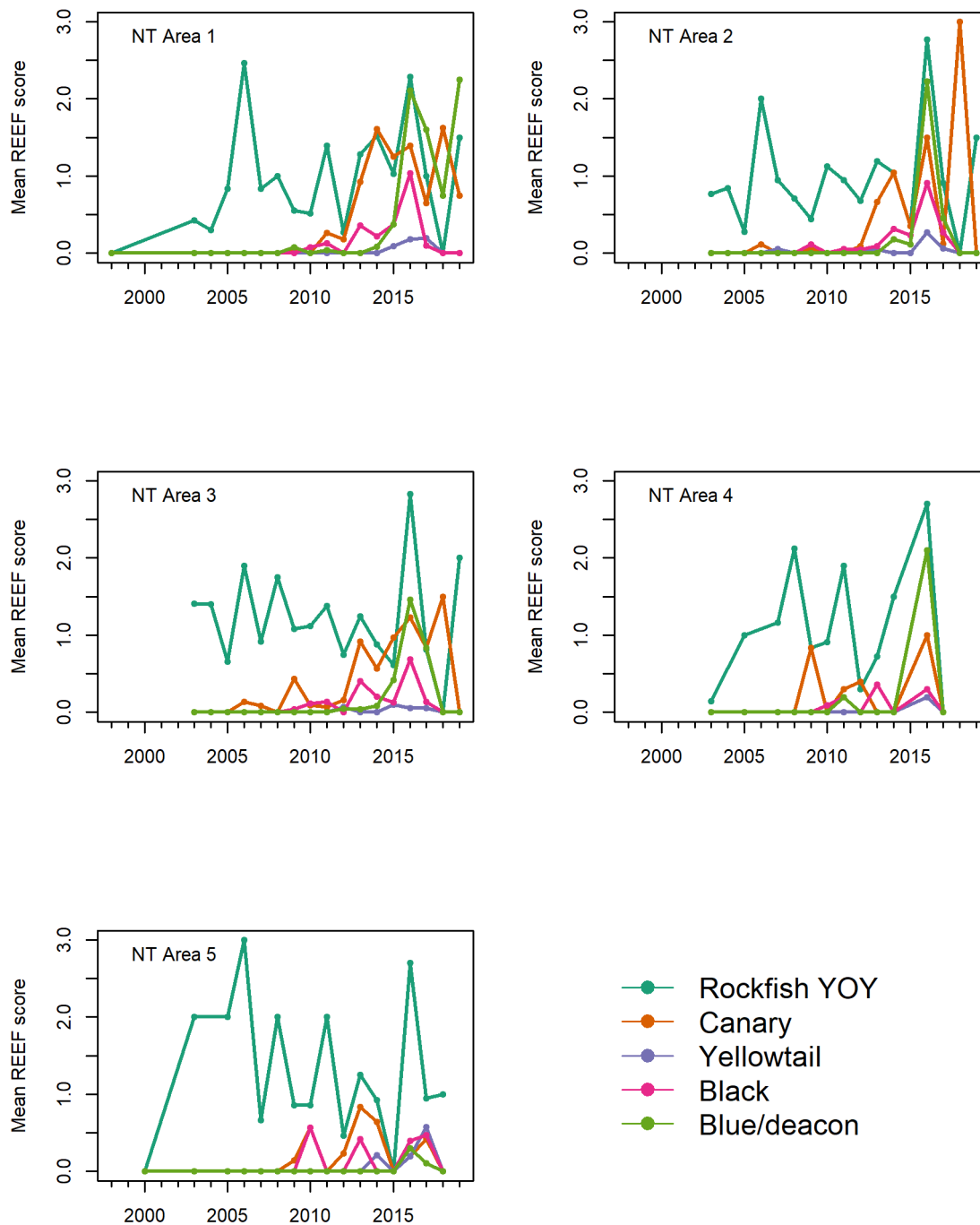


Figure 5: Mean REEF abundance for the YOY of five rockfish species in five geographic areas (NT Areas). Area 1 is in the north east, Area 5 is farther south. See the maps above for areas. Area 6 had only one year of observations and was excluded.