What's the Catch? Recreational Fishing Trends in North Carolina (1990-2019)

https://github.com/ardathdixon/Data_FinalProject

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1 Rationale and Research Questions

- Are there trends in the amount of these fish caught over time? How do they compare?
- What could these trends look like in the future?

2 Dataset Information

Data retrieved from NOAA Marine Recreational Information Program download query tool

- Bimonthly recreational fisheries catch totals for NC, 1990-2019
- All species, bluefish (*Pomatomus saltatrix*), and black sea bass (*Centropristis striata*)
- Multiple areas and modes of fishing

Table 1: General Information About the Data Used

Detail	Description
Data Source	NOAA MRIP
Retrieved from	https://www.fisheries.noaa.gov/data-tools/recreational-fisheries-statistics-queries
Variables Used	Year, Wave, Total Catch, Mode, Area
Date Range	January 1990 - December 2019

Table 2: Total Catch Summaries

Summary Statistics	All Fish	Bluefish	Black Sea Bass
Minimum	11869.99	2.654465e+01	1168.843
Mean	12402954.90	1.342064e+06	411196.959
Median	11292146.32	1.064370e+06	313437.853
Maximum	34932698.46	5.254125e+06	1746847.176

3 Exploratory Analysis

##code and table of number of NAs per fish category

While wrangling the data, we checked the number of waves without catch records for each dataset by joining the existing data to a list of all possible waves between Wave 1 of 1990 (represented in the dataframe by 1990-01-01 for ease of time series analysis) and Wave 6 of 2019 (2019-11-01). The results of this exploration, which informed our approach for interpolation, can be found in Table 3.

Table 3: Number of missing values from NOAA MRIP data

Dataset	Number of missing values
All fish	11
Bluefish	17
Black sea bass	13

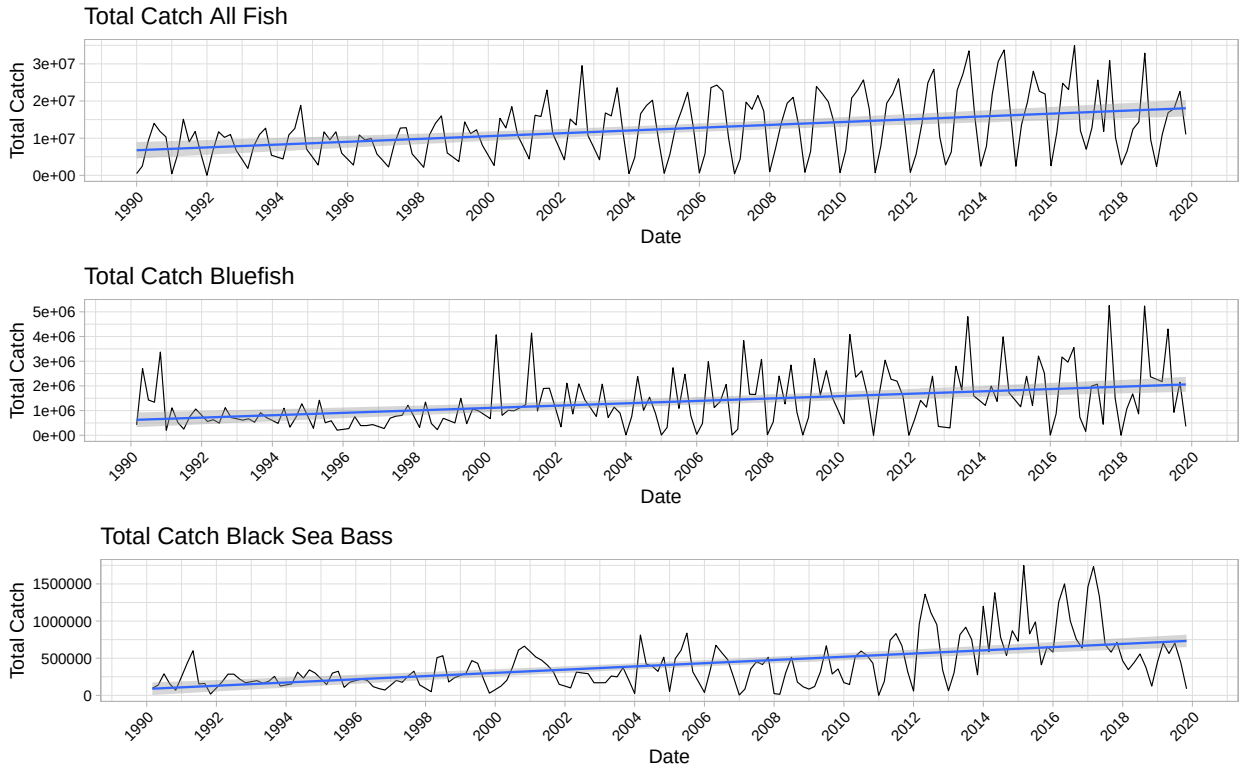
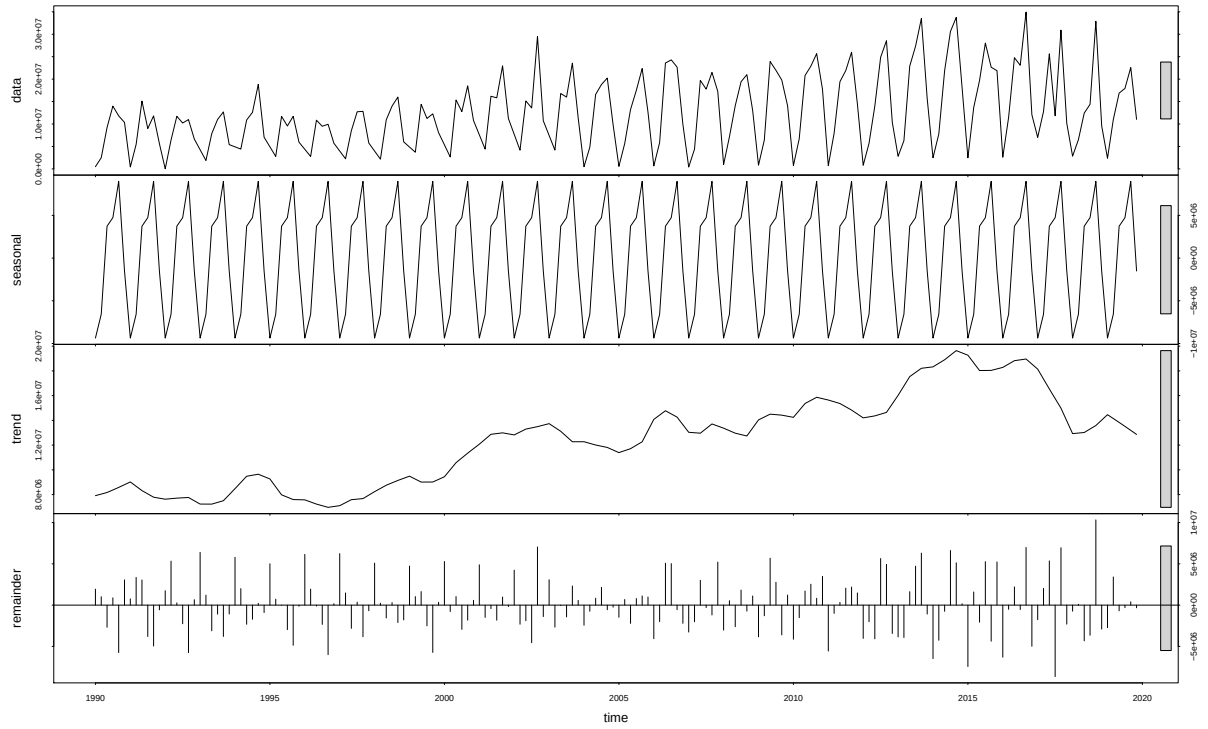


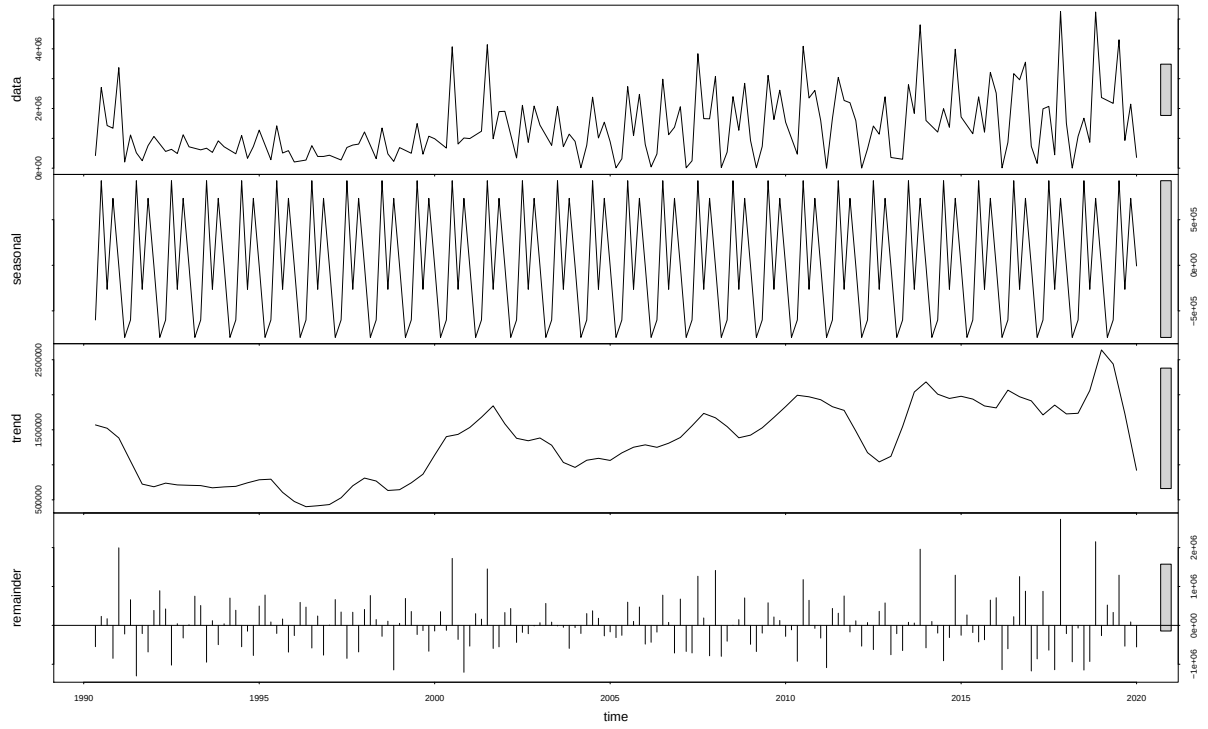
Figure 1: Catch Patterns over Time

4 Analysis

4.1 Question 1: Are there trends in the amount of these fish caught over time? How do they compare?




```
## tau = 0.49, 2-sided pvalue =< 2.22e-16
```

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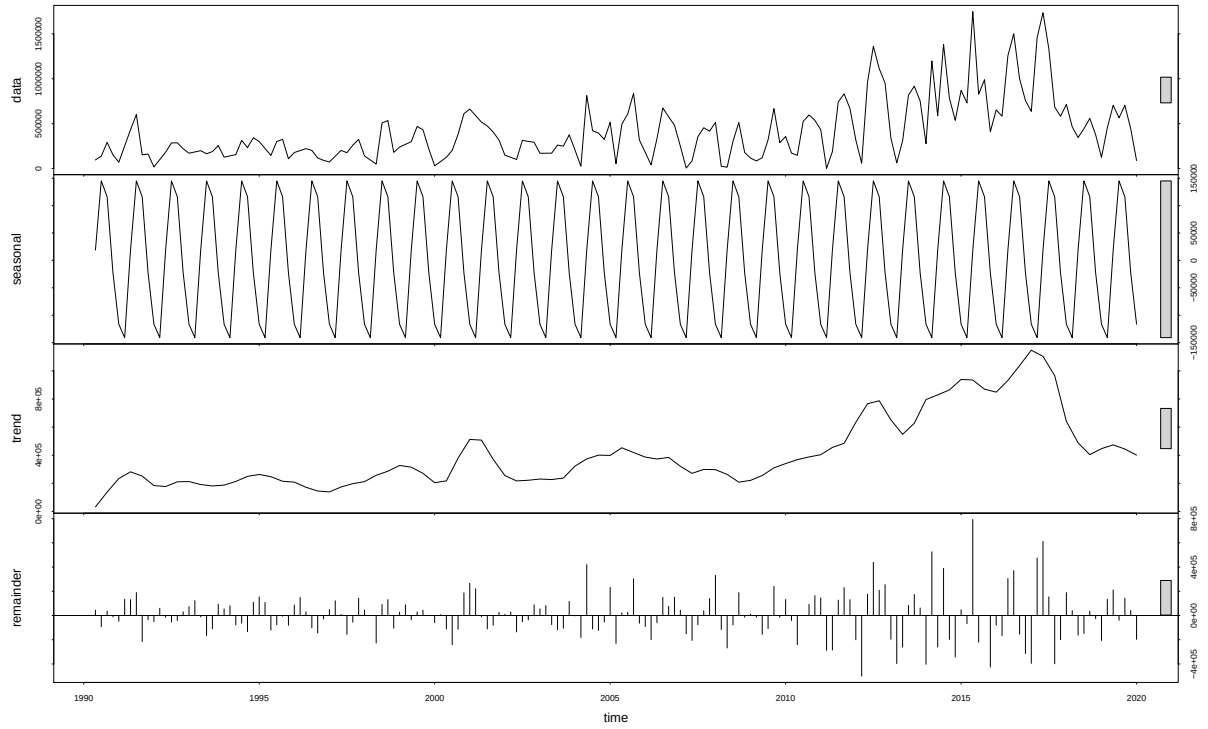
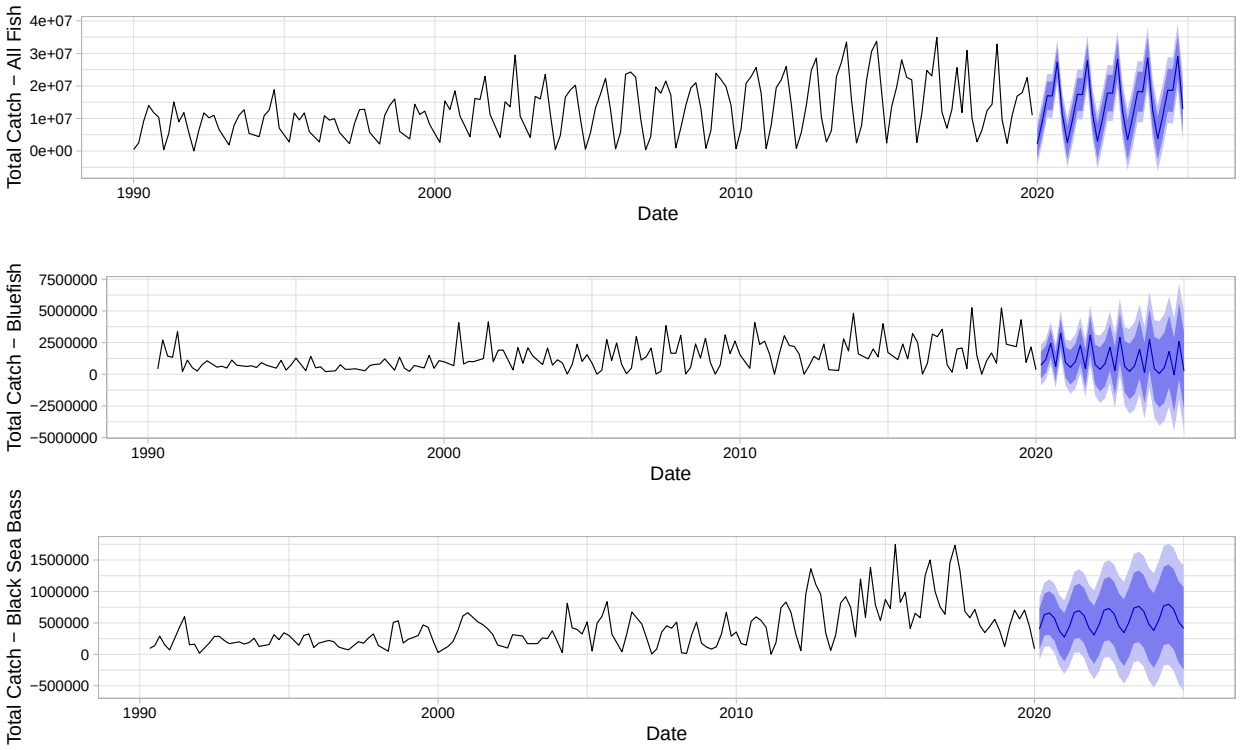
## tau = 0.324, 2-sided pvalue =8.7489e-10
```



```
## tau = 0.41, 2-sided pvalue =8.4377e-15
```

For both individual species and all species combined, **reject the null hypothesis** that there is no trend.

4.2 Question 2: What could these trends look like in the future?



5 Summary and Conclusions

5.1 Strong seasonal trends

- Bimodal peaks for bluefish
- Possibly due to effort, fish abundance

5.2 Overall positive trend

- Increase in recreational fishing
- Variation from changing regulations, behavior

5.3 Limitations

- Data collection: Estimates based on surveys of fishers
- Interpolation
- Uncertainty in forecasting

5.4 Future recommendations

- Comparisons of other species or other states
- Catch per unit effort
- Include earlier data

6 References

<add references here if relevant, otherwise delete this section>