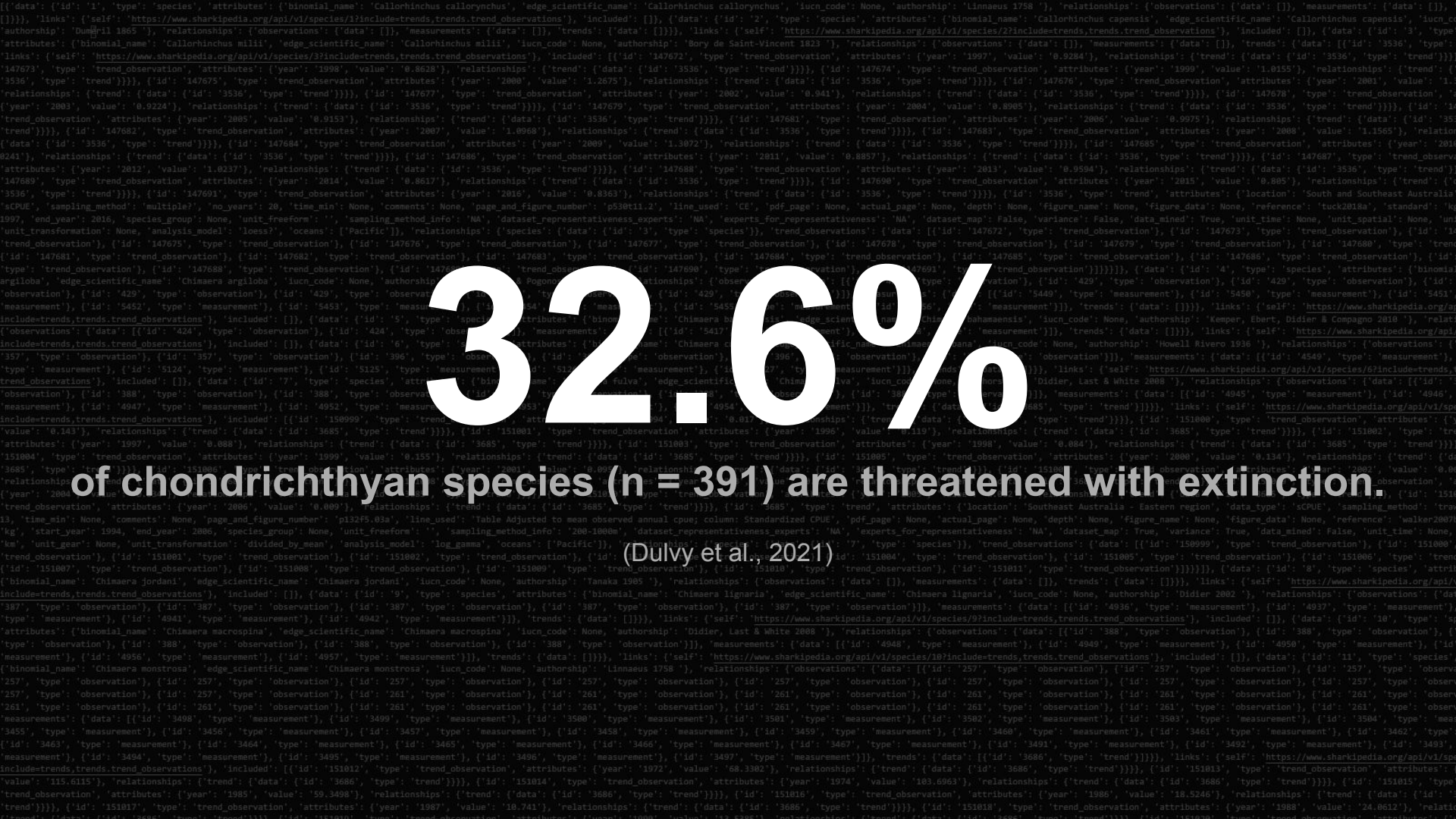


# JAWS AT RISK?

## Exploring the Sharkipedia trends dataset





Sharkipedia an open source research initiative to make all published biological traits and population trends on sharks, rays, and chimaeras accessible to everyone. If you wish to upload trait data, please make an account.

# Can I use the Sharkipedia dataset to summarize the overall trend of populations of sharks and their relatives?

## Genus & Species

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For example: *Carcharhinus acronotus*



# Data ✨ wrangling ✨

## Trend Dataframe

Species ID

Species Name

Trend ID

Type

Location

Data Type

Sampling Method

Number of Years

Comments

Page and Figure Number

Line Used

... etc.

## Trend Observation Dataframe

Species Name

Observation ID

Type

Year

Value

Trend ID

Trend Data Type

• Sharkipedia API

• Reshaping the Sharkipedia JSON

• Trend values transformation

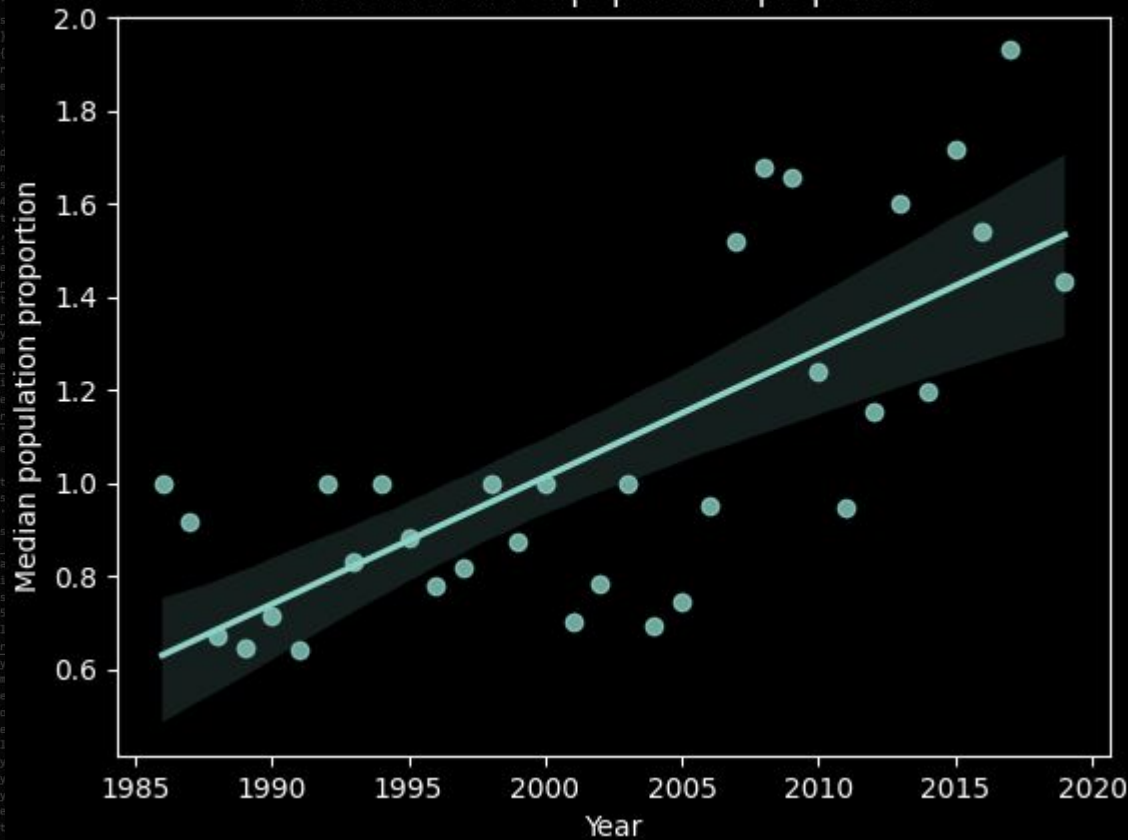
# Methodology

- For each trend, calculated:
  - Percent change year by year
  - Total change compared to first data point
  - Normalizes the values to be compared with other trends
- Generated median values for total change (expressed as ratio to first observation)

# RESULTS

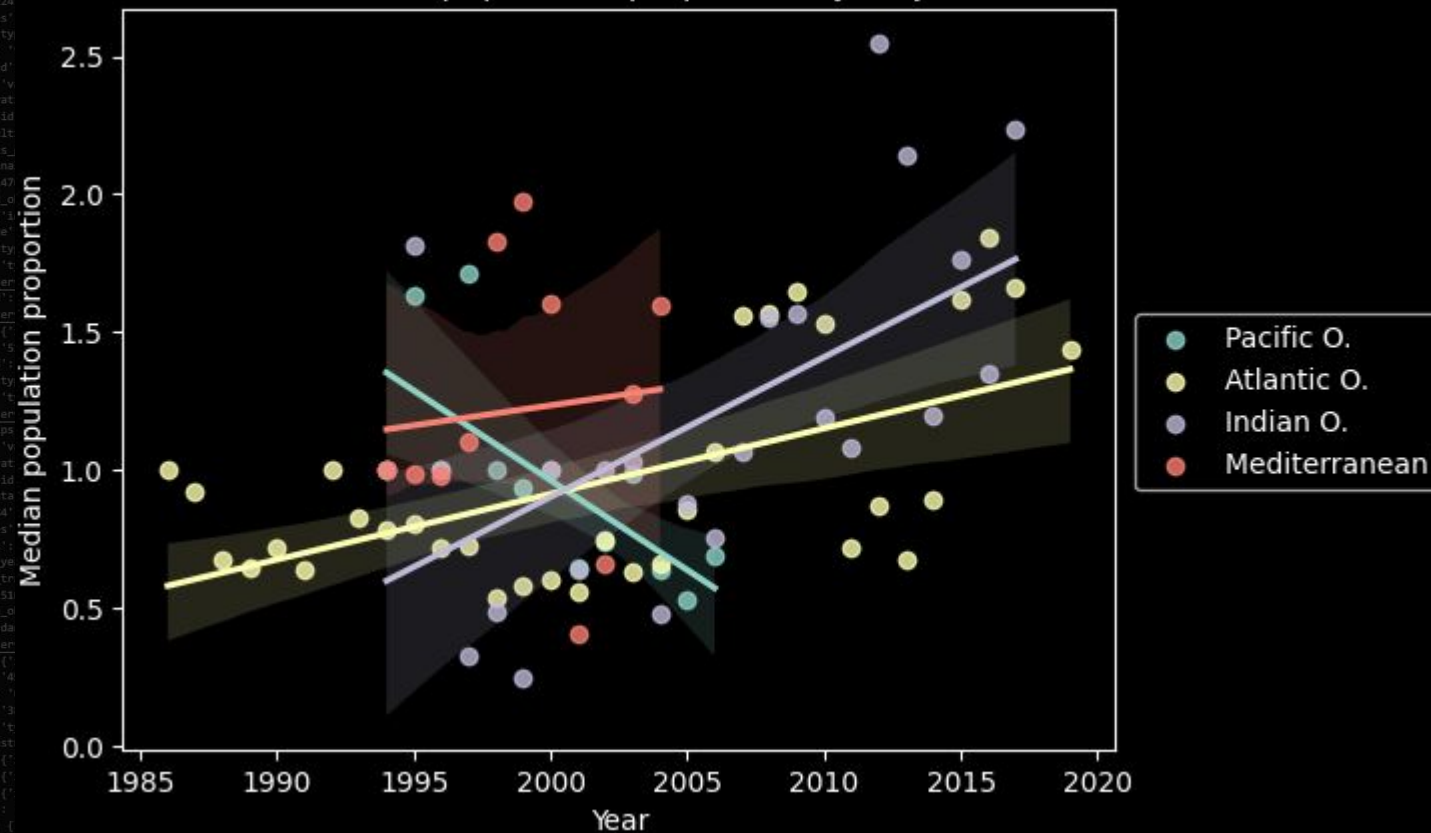


## Median trend of population proportion



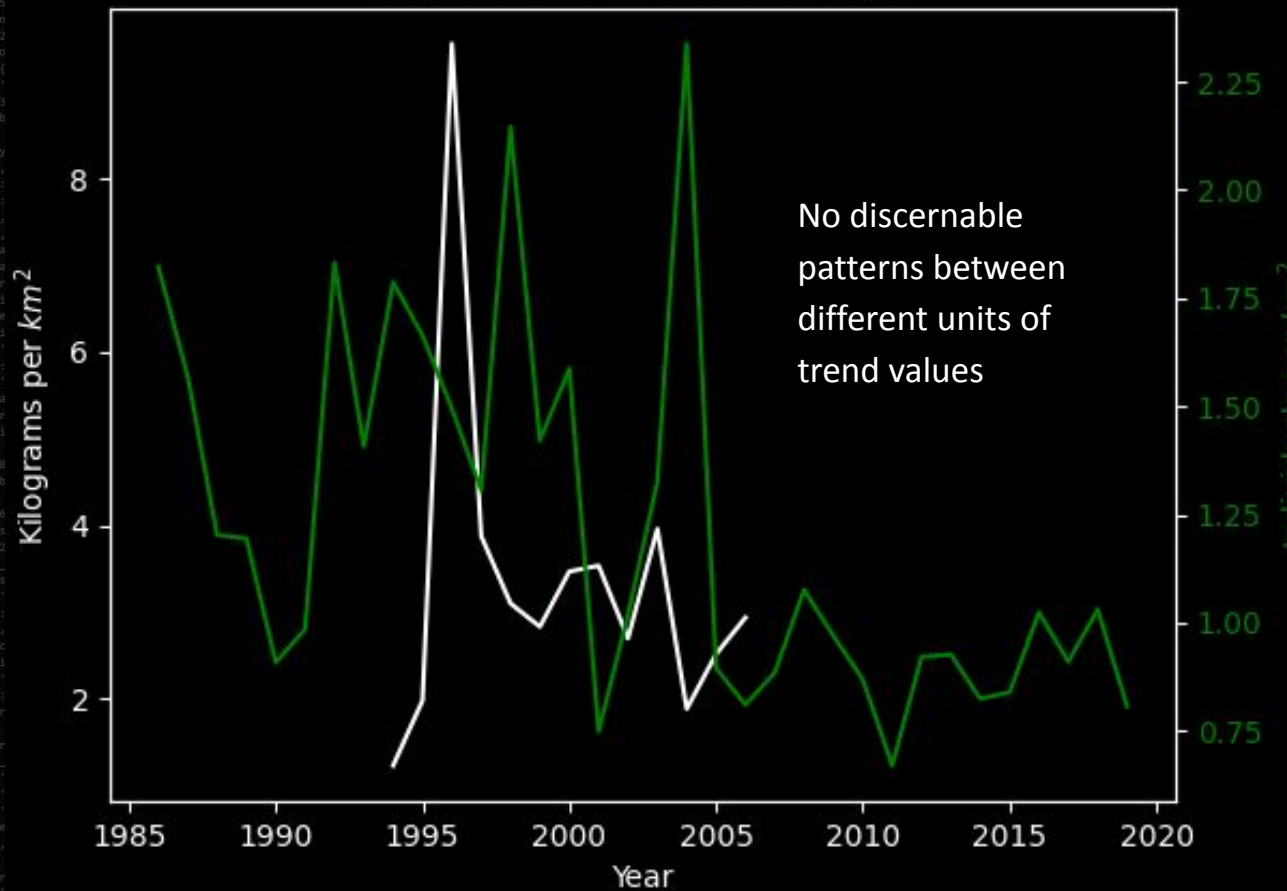
General positive trend

Median trend of population proportion by major ocean



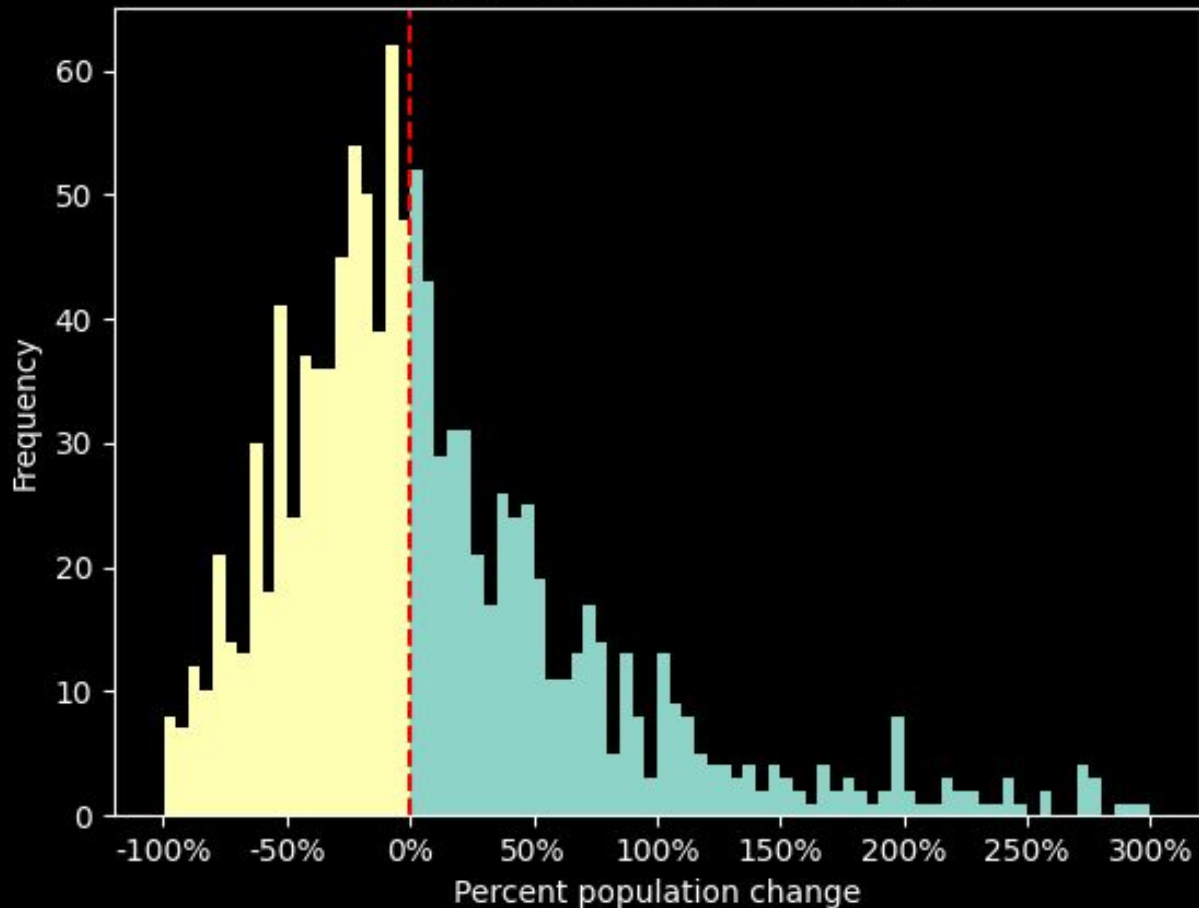


## Trend values by unit over time



No discernable patterns between different units of trend values

## Change in population per year





# Threat status of species with data

## Species with trends data grouped by IUCN Red List Category

	Number of species	Proportion of total species
CR(PE)	nan	nan
CR	6.0	0.103
EN	5.0	0.086
VU	14.0	0.241
NT	11.0	0.19
LC	21.0	0.362
DD	1.0	0.017
In Progress	nan	nan
Invalid Species	nan	nan

Underrepresentation of 'Least Concern' in trend dataset

## All chondrichthyan species grouped by IUCN Red List Category

	Number of species	Proportion of total species
CR(PE)	3	0.002
CR	87	0.07
EN	122	0.098
VU	181	0.145
NT	124	0.099
LC	533	0.427
DD	157	0.126
In Progress	35	0.028
Invalid Species	5	0.004



# Discussion

- My methodology did not clearly reproduce the findings that sharks and their relatives are doing worse
- There are over 1,000 species of chondrichthyans, cannot simply take the median value across all of them
- The IUCN Red List uses additional criteria for assessing threat, not just catch trend information

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# References

Dulvy, N. K., Pacoureau, N., Rigby, C. L., Pollom, R. A., Jabado, R. W., Ebert, D. A., Finucci, B., Pollock, C. M., Cheek, J., Derrick, D. H., Herman, K. B., Sherman, C. S., VanderWright, W. J., Lawson, J. M., Walls, R. H. L., Carlson, J. K., Charvet, P., Bineesh, K. K., Fernando, D., Ralph, G. M., Matsushiba, J. H., Hilton-Taylor, C., Fordham, S. V., & Simpfendorfer, C. A. (2021). Overfishing drives over one-third of all sharks and rays toward a global extinction crisis. *Current Biology*, 31(21), 4773-4787.e8.

<https://doi.org/10.1016/j.cub.2021.08.062>

Sharkipedia. (n.d.). Retrieved October 18, 2022, from <https://www.sharkipedia.org/>