

Darkening Skies : A look at the Conservation capabilities of a post pandemic world

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A post pandemic world

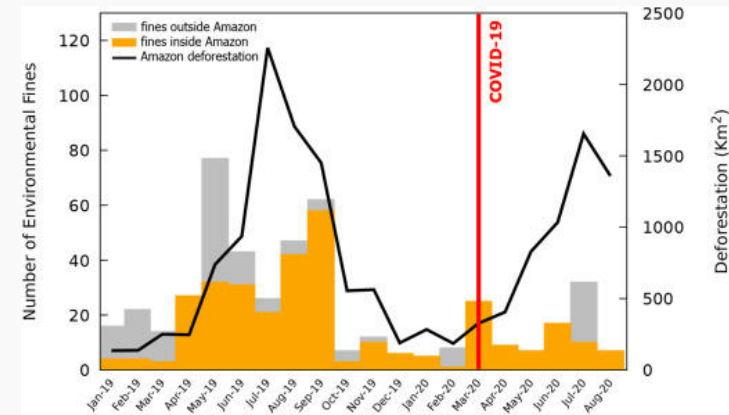
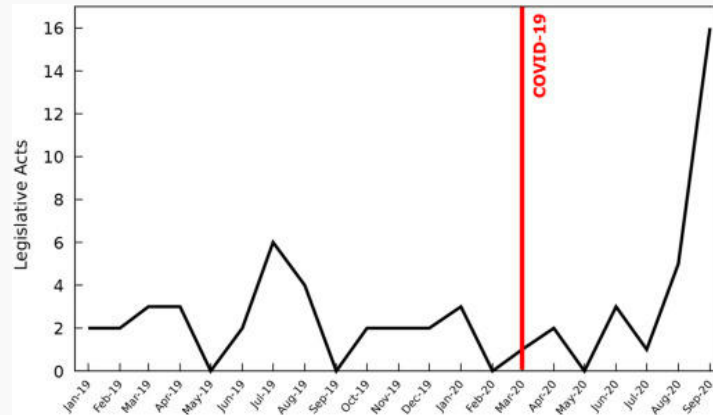
- COVID-19 happened and as expected, the problem was a complex system, with multiple points for possible feedback
- Positives?
 - Initial decrease in emissions
 - Decreased human disturbance
 - Data to model green policies
- Negatives?
 - Decreased conservation funding
 - More beneficial for invasive species than indigenous species
 - Weakened enforcement of environmental regulations

A societal shift in priorities

- Under the guise of providing relief during the pandemic, governments around the world have struck down and weakened environmental frameworks, passing legislation
- Climate protections were eased to provide economic relief with media attention being exclusively on COVID-19

Example

- Leading to unprecedented environmental damage
- For example, take Brazil's number of legislative acts concerning the environment have increased 4-fold since the pandemic.





Our Aim

- Find cases where we can provide evidence of the detrimental effects of changing regulations and advocate for reversal of protective measures to prevent further damage.
- Once we understand the effects of legislative changes on the ecosystem's health. This evidence will allow us to advocate for stronger environmental protections to prevent the depletion of this extremely important food source.

Fisheries as a Model System

- Fisheries crucial for study due to economic importance, data availability, and existing modelling.
- Marine organisms among most over-exploited, making fisheries vital for conservation.
- A large number of modelling work already exists in the literature and can be built upon (Coll et al.).

Plan of Action

- Model how the post pandemic dynamics would be, assuming no degradation of protections.
- Any deviations from this behaviour would be evidence for the detrimental nature of the changes in regulation.
- Variables of interest: landings, revenues & fishing effort (Coll et al.).

Studying Fisheries in the Northern Mediterranean Sea

- Northern Mediterranean Sea chosen as a starting point for modeling effects of policies on fisheries.
- General Linear Models used to study economic indicators and projected effects under different restriction scenarios.
- Pre-existing modeling work specific to forecasting effects of COVID-19 data.
- Biomass change projections compared to actual data from 2017 to 2021.

Fisheries model in a bit more detail

- Coll et. al projected biodiversity change for extended lockdowns under different time periods and for most projections they saw a substantial increase in biomass for many species.
 - So, for recovering commercial species and ecosystem sustainability, the best approach is a large, sustained reduction in fishing activity.
- Ecosystem sustainability requires longer lockdowns and another major pandemic or disruption in our lives

Projections VS what actually happened

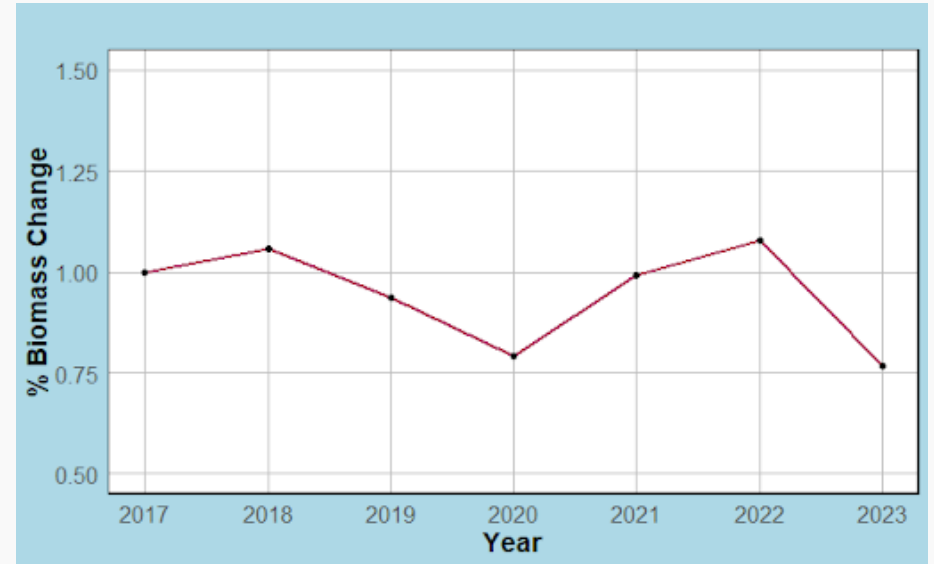
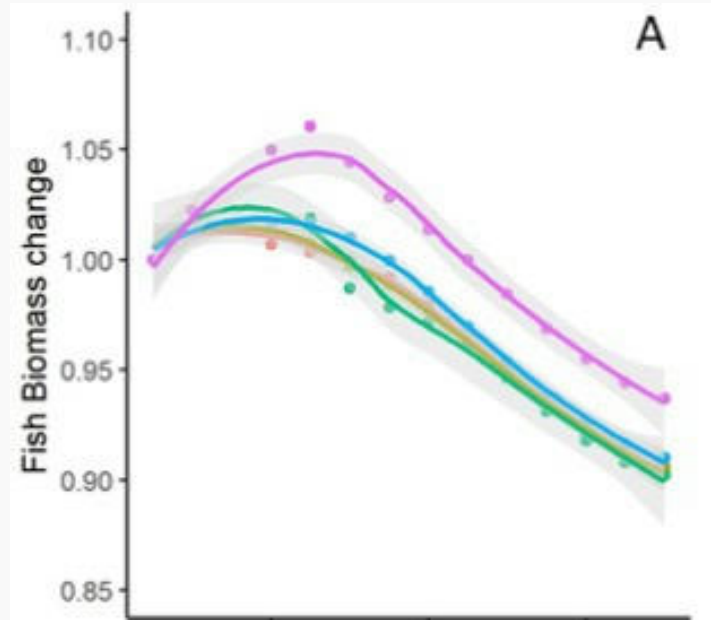
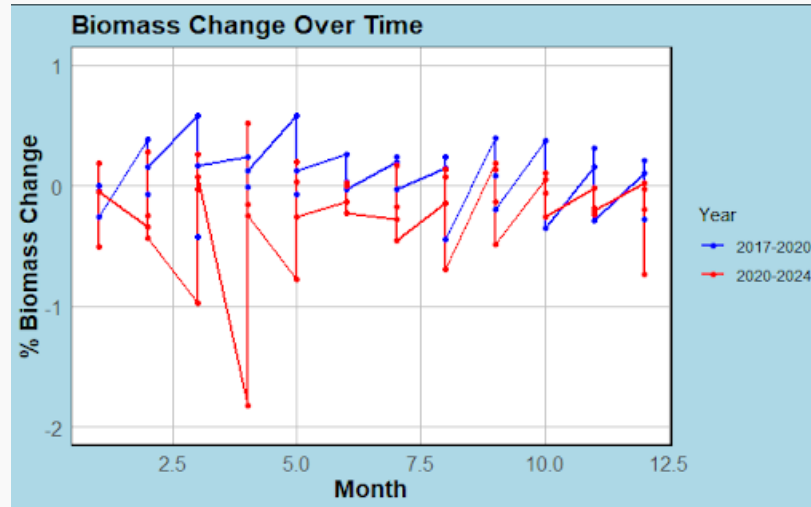


Figure 2: Projected Biomass change (left) VS actual biomass change (right)

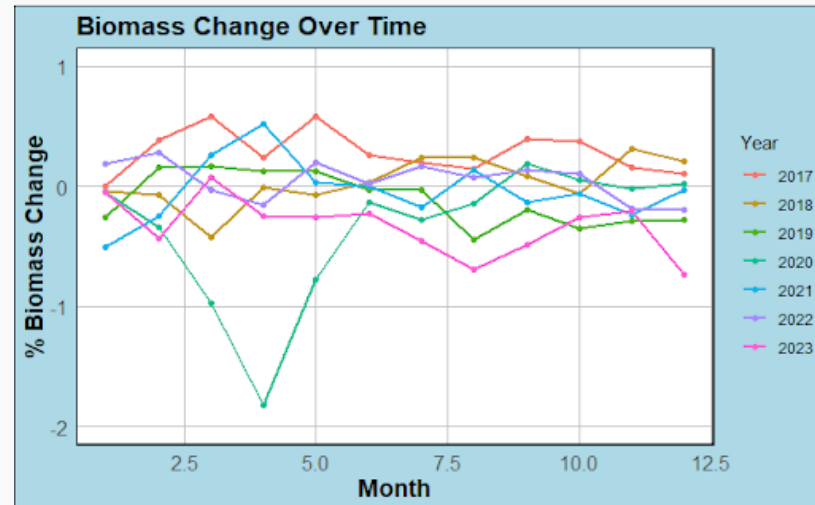
Monthly & seasonal fluctuations

- We observe monthly and seasonal fluctuations:
 - Post-COVID-19 have significant larger reductions than pre-COVID-19
 - Feb-March-April the largest.



Yearly difference in % change of biomass

- Yearly difference:
 - 2020 = disruption year
 - 2023 the largest negative % biomass change over the last 7 years
 - Clear trend going on as % biomass on average is lower in every subsequent year.



Conclusion

- Coll et. al only looked at use, not expecting changes in regulation
- The ecosystem's health is way worse than even the most pessimistic forecasts, pointing to the issue being more than that of overuse
- Any predictions that are made for a post pandemic world, it will be naive to assume that the wildlife and conservation landscape is the same as it used to be before the pandemic.
- This is expected due to reduced environmental protection legislation, allowing overfishing and possibly even inefficient fishing
- Human beings, using COVID-19 as cover, have dismantled our environmental protection apparatus to serve their own agendas.

Next Steps

- It is key to share these stories with the wider community
- Using these models to detect degrading regulation apparatus will allow us to focus our attention on fisheries systems that are especially vulnerable.
- We would eventually like to incorporate regulation into the model, which will then allow us to use it as an interactive negotiation tool with all the stakeholders, showing them the effects the policies proposed would have on the ecosystem.
- In the bigger picture: develop a framework for analysis of the effects of changing regulation on ecosystem that we can eventually generalise to other fisheries systems across the world

Acknowledgements

Thank you!

