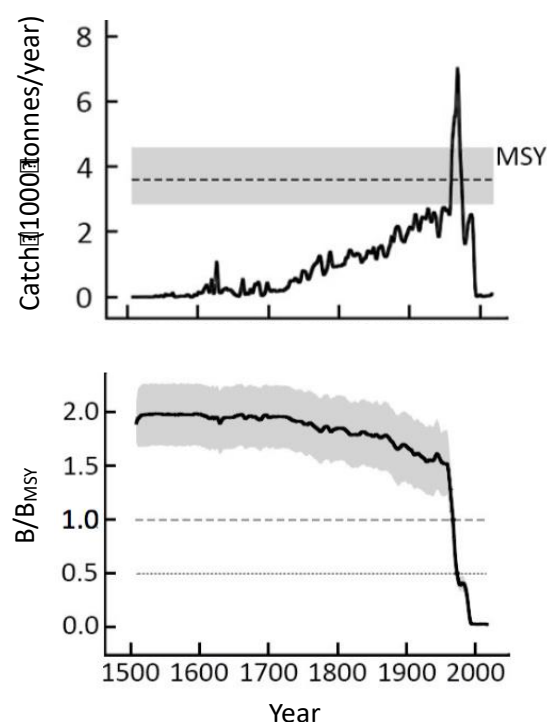


Schijns, R. and D. Pauly. 2021. The widespread practice of truncating time series data in fisheries. Ocean Past News, No. 21: 2-3

### RESEARCH NEWS

**The widespread practice of truncating time series data in fisheries.** Key to understanding the state of our fisheries – and our full impact – is looking to the past for how much was caught before scientific stock assessments were routine. Yet important data can be lacking in many countries, and perversely, is mostly ignored in countries that have it. We compared successive official assessments for major fish stocks around the world, and found it common practice to only work with data covering recent, short time periods - i.e. using truncating time series of catch and other information. This creates new, shifted baselines which often exclude important historic trends and foster illusions about population health. As a consequence, management objectives, such as recovery targets, can be set too low and can prevent stock rebuilding.

A well-known case of mismanagement due to such shifted baselines is the collapse of Northern Atlantic cod (*Gadus morhua*) off Eastern Canada. European vessels fished extensively for cod here starting in the late 15th century. Catches peaked in 1968, driven by a massive expansion of foreign industrial trawling. In 1992, a moratorium on industrial fishing was declared after the stock – and a large part of the economy in eastern Canadian provinces – collapsed. Three decades later, cod remains in a critical state.



We used a reconstructed catch time series and a simple stock assessment tool (CMSY) to model the cod population trajectory from 1508 to 2019. Results suggest the current cod population is ~2% of its historical biomass. We also showed that, if historical data had been used and the population was effectively managed in the 1980s, the devastating collapse may have been avoided with potentially sustainable annual catches of around 200,000 tonnes. Our findings also suggest post-moratorium fishing pressure remains too high for the population to rebuild. Collectively, our work demonstrates how integrating historical knowledge can counteract the shifting baseline syndrome in management, and encourage effective safeguards for marine populations over the long-term. ~ *Rebecca Schijns and Daniel Pauly (Sea Around Us Project, Univ of British Columbia, Canada)*. Related publications: Schijns R, Froese R, Hutchings J, & Pauly D. 2021. Five centuries of cod catches in Eastern Canada. ICES JMS. DOI:10.1093/icesjms/fsab153; Schijns R & Pauly D. 2021. Management implications of shifting baselines in fish stock assessments. Fish Mngmt & Ecol 00:1–13. DOI: 10.1111/fme.12511.

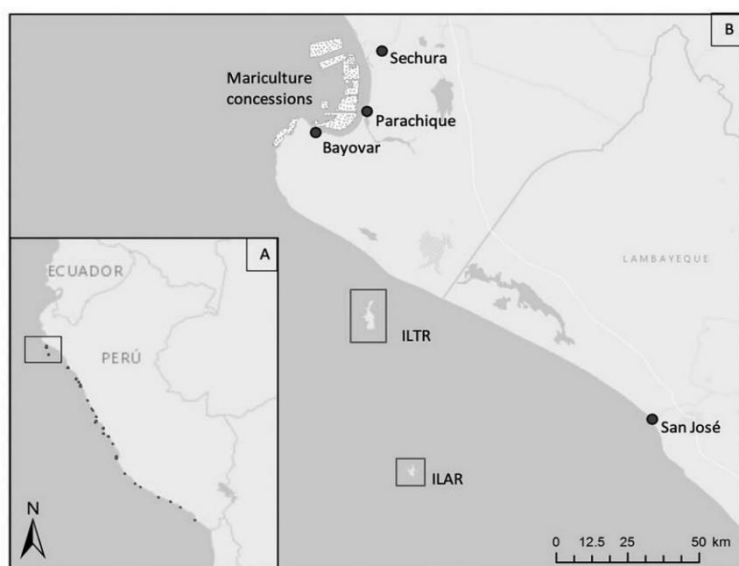


Fig. 1 from the text. (A) Guano Islands, Islets and Capes Reserve System. (B) Isla Lobos de Tierra Reserve, Isla Lobos de Afuera Reserve and the mariculture concessions in the bay of Sechura.

ibility. Success will also depend on a deeper understanding of social complexities to address the culture of informality and potential equity issues. In spite of this, the land ecosystem and its species remain relatively protected due to a deeper time legacy of strict enforcement and fraternal relationships between guardians and artisanal fishers over centuries. The MPAs show the crucial role history can play in the governance of protected areas, including incentives not often explicitly recognised that can be strengthened in areas where humans have long protected their resources. The challenge remains whether these historical arrangements and local governance can stand the test of increasing extraction, and ultimately these areas demonstrate the necessity of both bottom-up and top-down approaches while highlighting the importance of history in conservation. Publication: del Pozo DL and Jones PJS 2021. Governance analysis of two historical MPAs in northern Peru. Marine Policy: doi.org/10.1016/j.marpol.2020.104096.

**How much cod and herring?** The **NorFish Project** has published a review of 25 North Atlantic fisheries in the early modern period. Total landings vastly exceeded previous assessments and more than doubled between 1520 and 1620 from about 220,000 metric tonnes (t) to 460,000 t. Supplies of cod and herring to the European market peaked in 1788 at more than 1 million t before the unrest connected with the French Revolution brought many fisheries to a temporary halt. The authors propose the concept of Accelerated Marine Extraction to signify two periods, c.1540–1600 and c. 1730–1790, when rapidly increasing cod and herring fisheries exceeded human demographic growth and almost doubled the supplies of fish protein per capita. The results fundamentally shift our understanding of the scale of Atlantic fisheries in the past and underline the role of marine resources for European societies. Related publication: Holm P, Nicholls J, Hayes PW, Iverson J, & Allaire B. 2021. Accelerated Extractions of North Atlantic Cod and Herring, 1520-1790. Fish and Fisheries. 00:1–19 doi/full/10.1111/faf.12598.