

OCEANS PAST NEWS No.10

NOVEMBER 2018



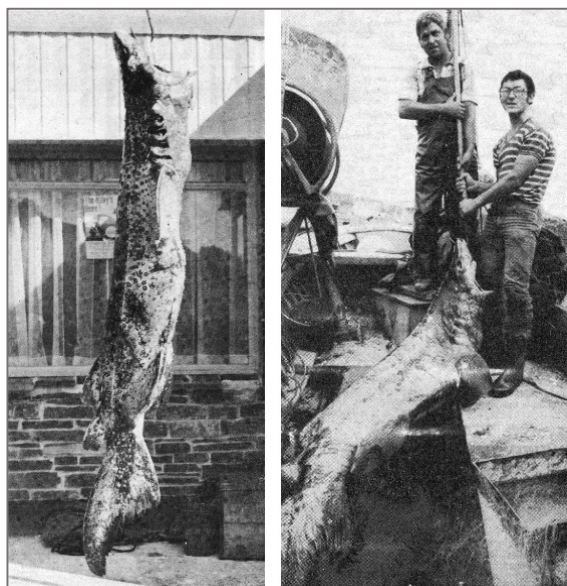
REASSEMBLING THE PUZZLE

Understanding the life history, abundance, and distribution of species, especially those at risk of extinction, is critical – but what if current science does not recognize missing ecosystem pieces in the first place? In our October Spotlight, **Samuel P. Iglésias** and **Frederik H. Mollen** discuss their work unraveling the “cold case” of the Bramble Shark, and how their historical detective work revealed a species considered rare today was not only common in the past, but had a life history and habits unknown to current scientists. Similarly, **Brian MacKenzie** and **Henn Ojaveer** uncovered the past biomass and future potential of autumn-spawning herring in the Gulf of Riga (Baltic Sea), a stock that is nearly commercially extinct today. Both examples demonstrate how important studies of the past are for illuminating our impact on the seas, not just in species numbers but also their behavior, and how these losses can affect people today and in the future. This insight is crucial for contemporary science, monitoring, and management.



“The capture of a school of blackfish in Cape Cod Bay” by Henry W. Elliot, from a sketch by John S. Ryder (NOAA Photo Library).

Emily S. Klein, PhD
Southwest Fisheries Science Center & The Farallon Institute, USA
OPN Editor



The last record of a Bramble shark for United Kingdom waters in 1969 (left; published in the newspaper *Anglers' Mail*, on Sept. 4th, 1969) and for French Atlantic waters in 1981 (right; published in the newspaper *Sud-Ouest*, on Sept. 10th, 1981).

OCEANS PAST SPOTLIGHT*

Cold case: The early disappearance of the Bramble shark (*Echinorhinus brucus*) in European and adjacent waters.

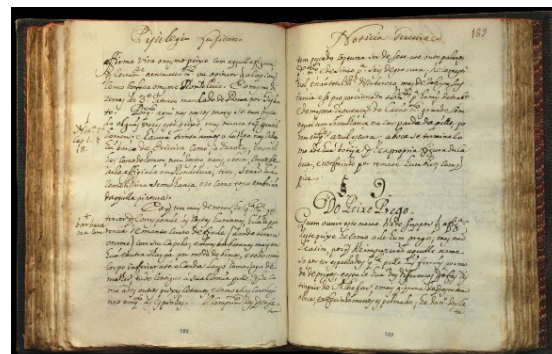
Samuel P. Iglésias¹ & Frederik H. Mollen²

Surveys of marine resources suffer from the lack of long time series, particularly concerning targeted species currently not of high value. The disappearance of a marine species, even of large size, can go completely unnoticed. Large shark species are among the most affected by depletion because of their life history traits. In European and adjacent waters, the rare Bramble shark (*Echinorhinus brucus*; formerly known as the Spinous shark) is suspected of being threatened, but the lack of population data precludes its evaluation. As a result, the species is currently unregulated and listed as “Data Deficient” by the International Union for Conservation of Nature (IUCN).

*Each issue of *Oceans Past News* includes a feature article to highlight research happening in our community, as either an **Oceans Past Spotlight** or as **10 Questions**, which will pose the same 10 questions to different leaders in our field. If you would like to be considered for either, or to nominate a colleague or mentee, please contact Emily Klein at emily.klein04@gmail.com.

In 2014, we started the challenging task of documenting the long-term population trend of the Bramble shark using a transdisciplinary integrative approach, as promoted by historical marine ecology. Assisted with modern digital tools, we looked for scientific papers, grey literature, preserved specimens, collection records, fishery data, newspapers, unpublished manuscripts, photographs, and artwork, all combined with old-school field inquiries. This research focused on finding evidence in historical records, coming together as pieces of a puzzle, as in a cold case police investigation.

From this work, we dug up more than 350 individual records of Bramble shark in the Atlantic and the Mediterranean, most of them unknown to current science. The semi-quantitative treatment of these qualitative data, spread over more than three centuries, shows that this benthic shark was exploited in European waters for food but also to produce lighting oil. The species records showed a bathymetric seasonality and a more coastal affinity than previously suspected, and it appears that the species was locally common to very common until the late 19th century. Its significant collapse in the early 20th century appears to be strongly correlated with the advent of steamships and the spectacular growth of fishing performance in the 1880s.



The oldest known text dealing with the "Peixe Prego" (the Bramble shark), found in the unpublished and unstudied Portuguese manuscript "Piscilegio Lusitano" by Domingos Franco Quaresma, in about 1750.



The stuffed voucher ERB1080 of a Bramble shark 175 cm long (top and bottom right), trawled on the Galloper Bank (Suffolk, United Kingdom) in the southern North Sea on Jan. 15th, 1893. Detail of dermal denticles (bottom left).

Our integrative approach shows that the early disappearance in the European waters of large and charismatic species may go totally unnoticed, and could not even be suspected from datasets of modern fishery surveys. Nowadays, our work shows the Bramble shark can be considered extinct for decades in most European countries. Only rare individuals appear to be present in very small areas, such as the Marmara Sea in Turkey and off southern Portugal. The ban of its fishing would probably not be enough to prevent total extinction of the Bramble shark without the addition of further voluntary policies, including strong measures of spatial protection. We hope that the forthcoming publications of our results will motivate such measures.

¹Institut Systématique Evolution Biodiversité (ISYEB), Muséum national d'Histoire naturelle, CNRS, Sorbonne Université, Station Marine de Concarneau, Place de la Croix, 29900 Concarneau, France. iglesias@mnhn.fr.
²Elasmobranch Research, Rehaegenstraat 4, 2820 Bonheiden, Belgium. frederik.mollen@gmail.com.

RESEARCH NEWS

The long history – and controversy – of trawling in England. Bottom trawling has been used in England for centuries. To demonstrate this use, and explore its acceptance by fishing communities, **Peter Jones** showed that trawling, particularly beam trawling, dates back to at least the fourteenth century in England. Dr. Jones also establishes how it spread from the Thames Estuary along the south and south-east coasts of England, and was in widespread use by 1600, when it was already being pursued some distance from shore. This work also illustrates that the controversy around bottom trawling is not new, either. It was unpopular by the early modern period, not only among non-trawling fishermen (who viewed it as a threat to their livelihood), but with many in positions of power who sought to limit and even prohibit its use. Finally, Dr. Jones draws this history forward to today, considering its contemporary significance – and finds contemporary concerns around trawling to be “remarkably similar” with those of the past. *P. Jones (2018). The long 'lost' history of bottom trawling in England, c.1350–1650. International Journal of Maritime History. <https://doi.org/10.1177/0843871418766765>.*

Uncovering past stock abundance: In the first half of the 1900s in the Baltic Sea, autumn-spawning herring (*Clupea harengus*) were the dominant spawning group of herring, and supported commercially critical fisheries, including those in the Gulf of Riga (GoR). These fish nearly collapsed in the early 1980s in the GoR, and have not recovered since. Today, the former biomass of this stock was unknown, as were reasons for the decline. **Brian MacKenzie** and **Henn Ojaveer** used historical fishery and biological data alongside population development simulations to recall the previous importance of the stock, and explore whether historical exploitation led to their commercial extinction. They found historical fishing, which included substantial exploitation of juveniles, was unsustainable and contributed directly to the decline in GoR fall herring, with fishing mortality exceeding 2-3 times sustainable levels. Yet this work also offers hope. The authors conclude that if herring are encouraged to return, the stock could support sustainable annual yields of ~4000t, and help diversify fishery resources in the area. This diversification would be valuable for supporting local fishing communities, which are currently restricted in the species-poor system to a relatively small number of species for essentially local coastal inhabitants. *MacKenzie, BR, & H Ojaveer. 2018. Evidence from the past: exploitation as cause of commercial extinction of autumn-spawning herring in the Gulf of Riga, Baltic Sea. ICES Journal of Marine Science. <https://doi.org/10.1093/icesjms/fsy028>.*

Long-term patterns in global fisheries revealed, from mid-1800s to today. Employing a range of resources, **Reg Watson** and **A. Tidd** illuminated nearly a century and half (1869–2015) of fishing patterns in the global ocean. They combined unmapped sources with satellite tracking data, regional tuna management, known ranges of fished taxa and fleet access, the logistics of associated fishing gear, and the expansion and intensification of marine fisheries to uncover these patterns. This work makes available spatially explicit information on the catch of industrial and non-industrial marine fishing by year, fishing country, taxa and gear, and delineated by reported catch, IUU, and discards. Results also shows changes in which countries dominated some fisheries, where landed catches originated, and what gear was used. They also reveal a historical increase in bottom trawl with corresponding reduction in the landings from seines – and that recent landings are dominated by demersal and small pelagic species. *RA Watson & A Tidd (2018). Mapping nearly a century and a half of global marine fishing: 1869–2015. <https://www.sciencedirect.com/science/article/pii/S0308597X18300605>.*

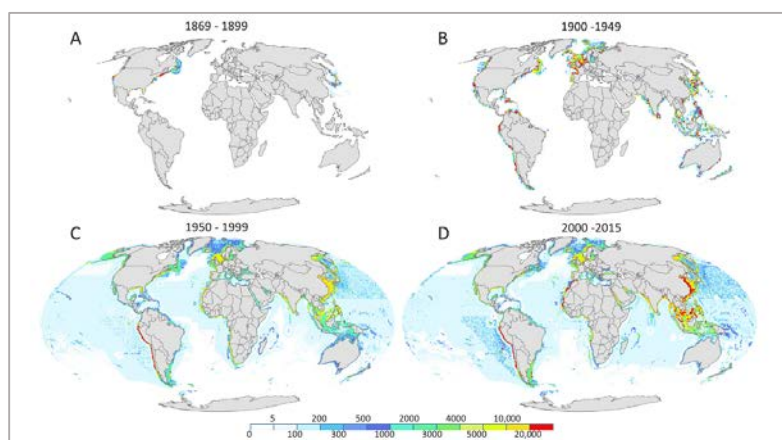


Fig. 2 from Watson and Tidd. Map of average annual reported landings for (A) 1869-1899, (B) 1900-1949, (C) 1950-1999, and (D) 2000-2015. Units for (A) and (B) are kg, but for (C) and (D) are tonnes per year.



RECENT EVENTS

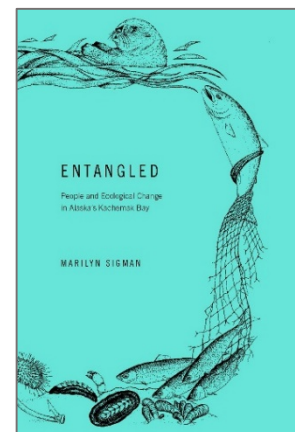
The **Oceans Past VII** Conference was held in Bremerhaven, Germany, with the local support from the **Alfred Wegener Institute for Polar and Marine Research (AWI)** and the **German Ships Museum**, from 22 to 26 October 2018. Around 100 participants from 24 different nationalities were present during the six days of talks and meetings, where current research was showcased and final results of the EU COST Action **Oceans**

Past Platform (OPI) were presented. In addition to the conference, a general assembly was convened, which ratified a new constitution for the Oceans Past Initiative (OPI), and elected a new Board. The Board is composed of Drs. **Poul Holm**, **Alison Macdiarmid**, **Gesche Krausse**, **Ben Fitzhugh**, **Ruth Thurstan** and **Cristina Brito**. The next Oceans Past Conference will take place in 2020 in Belgium. OPI is also now on Twitter under [@oceans_past](https://twitter.com/oceans_past).

RECENT PUBLICATIONS

Entangled: People and Ecological Change in Alaska's Kachemak Bay by Marilyn Sigman:

Entangled takes a look backward at shifts in marine ecology over 8,000 years and the role of humans as participants in the Gulf of Alaska ecosystem as they both cause and respond to the shifts. The book is also grief work as the author examines the scientific evidence and reflects on it through the lens of shifting baselines – both her own personal baselines during her 40 years as an Alaskan biologist, naturalist, and tidepooler and those of other people who settled in Kachemak Bay or later influenced it by extracting furs and fish to supply the needs and desires of distant people. Sigman weaves together the archaeological and “top-down, bottom-up” debates in fisheries management with recent evidence of climate change cycles to situate the indigenous peoples, fish populations, and the ups and downs of sea otters within the ocean climate record. “The ecosystem,” she concludes, “was a process of constantly shifting relationships, not a destination. It had no true reference point, except in human memory and desire.” www.press.uchicago.edu/ucp/books/book/distributed/E/bo28205932.html.



New Zealand and the sea – Historical perspectives, edited by Frances Steel: New Zealand is a nation deeply connected to the sea, and a new multi-disciplinary book explores the ways in which New Zealanders have shaped the ocean, and in turn been shaped by it themselves – offering new insight into and perspectives. Seventeen authors contributed to illustrated work, which encompasses maritime history, historical marine ecology, archaeology and visual culture. Collectively, the work of these authors is “challenging the conventional view that history unfolds on land”. <https://www.bwb.co.nz/books/new-zealand-and-sea>.

Bernal-Casasola D. (2018). **Whale Hunting in the Strait of Gibraltar during the Roman Period?** *The SAA Archaeological Record*. 18(4): 15-22. <https://bit.ly/2AnOQ1E>.

De Nicolò, M. L. (2018). **Evolution of the gangamo (ganguy) fishing gear in the Mediterranean Sea from Antiquity to the early Modern period and the debate on trawling sustainability.** *Regional Studies in Marine Science*. 21: 79-85. <https://doi.org/10.1016/j.rsma.2018.03.007>.

Edie, S. M., and D. Jablonski, J. W. Valentine (2018). **Contrasting responses of functional diversity to major losses in taxonomic diversity.** *PNAS*. <https://doi.org/10.1073/pnas.1717636115>.

Jones, P. (2018). **The long ‘lost’ history of bottom trawling in England, c.1350–1650.** *International Journal of Maritime History*.30(2). <https://doi.org/10.1177/0843871418766765>.

Lovell, S. and A. E. Johnson, R. Ramdeen, L. McClenachan (2018). **Shifted baselines and the policy placebo effect in conservation.** *Oryx*. <https://doi.org/10.1017/S0030605318000169>.

Nogués-Bravo, D. and F. Rodríguez-Sánchez, L. Orsini, E. de Boer, R. Jansson, H. Morlon, D. A. Fordham, S. T. Jackson (2018). **Cracking the code of biodiversity responses to past climate change.** *TREE*. 33(10): 765-776. <https://doi.org/10.1016/j.tree.2018.07.005>.

Ojaveer, H., and B. S. Galil, J. T. Carlton, H. Alleway, P. Gouletquer, M. Lehtiniemi, A. Marchini, W. Miller, A. Occhipinti-Ambrogi, M. Peharda, G. M. Ruiz, S. L. Williams, A. Zaiko. (2018). **Historical baselines in marine bioinvasions: Implications for policy and management.** *PLOS ONE*. <https://doi.org/10.1371/journal.pone.0202383>.

Watson, R.A., and A. Tidd (2018). **Mapping nearly a century and a half of global marine fishing: 1869–2015.** *Marine Policy*. 93: 171-177. <https://www.sciencedirect.com/science/article/pii/S0308597X18300605>.

ANNOUNCEMENTS: JOB OPPORTUNITY

Tenure track faculty position, Kent State University (USA): The Department of Geology at Kent State University (<http://www.kent.edu/geology>) invites applications for an open-rank tenure-track position in **sedimentary geology with an emphasis on reconstructing environments and climates across geologic time**. The position starts August 2019. Applicants must possess a Ph.D., have a strong background in the geological sciences, and be able to interface well with faculty working at the nexus of environmental and earth system science research. The successful candidate will integrate field and laboratory investigations of depositional systems with applications to earth-life-environment interactions. Responsibilities will include developing a strong, externally funded research program, advising M.S. and Ph.D. students; teaching undergraduate courses in sedimentology/stratigraphy and/or paleontology, graduate courses in their specialty, and an introductory course in Oceanography or Earth History. **Review of applications begins 15 November, 2018.** More at <https://bit.ly/2RZWO7S>.

ANNOUNCEMENTS: CONFERENCES

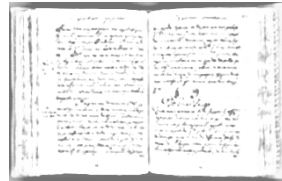
The **1st CONCHA Workshop, "Crossing Seas, Rising Islands, Connecting People"** will be held in Lisbon, 14-16 November 2018. A central discussion of the meeting will be on understanding how early settlements in the Atlantic Islands (15th to 17th Ce) developed in relation to differing regional and local ecological and economic environments. More at: http://www.cham.fcsh.unl.pt/ac_actividade.aspx?ActId=696 and <https://www.facebook.com/events/1584620631613858/>.

The Centre for Research in Political Science (CICP) and the Interdisciplinary Center for History, Culture and Societies (CIDEHUS) of the University of Évora are pleased to be hosting the **III Meeting of the Portuguese Network of Environmental History, "Dynamics and Resilience in Socio-Environmental Systems"**, to be held in Évora, Portugal, between 28 and 30 March 2019. More information at <https://encontreportha2019.weebly.com/>.

Honoring the 150-year anniversary, a symposium, **"Challenging the scientific legacy of Johan Hjort: Time for a new paradigm in marine research?"** will convene in Bergen, Norway 12–14 June 2019. Contributions will be published in *ICES Journal of Marine Science* (manuscripts can be submitted at any time until 3 months after the conference, i.e. 14 September 2019). Final registration and abstract submission is 1 May 2019 at <https://www.hi.no/conferences/JohanHjort/>, and manuscripts can be submitted to *ICES Journal of Marine Science* at https://academic.oup.com/icesjms/pages/General_Instructions.

The **3rd World Congress of Environmental History, "Convergences: The Global South and the Global North in the Era of Great Acceleration"**, will take place from 22 – 26 July, 2019, in Florianopolis, Brazil, at the Universidade Federal de Santa Catarina. More information on the webpage, <http://www.3wceh2019.floripa.br/>.

The **20th Meeting of the Fish Remains Working Group (FRWG)** is set for August 26-30, 2019 in Portland Oregon, USA, and will be preceded by a weekend field trip to the Oregon Coast. FRWG is an outstanding way to meet with scholars from around the world in a small supportive atmosphere. The local organizer and host is Virginia Butler (Portland State University (U.S.A.)), with help from a planning committee: Madonna Moss (University of Oregon, U.S.A.), Iain McKechnie (University of Victoria, Canada), Elizabeth Reitz (University of Georgia, U.S.A.) and Jen Harland (University of the Highlands, Scotland). More at <https://www.2019frwg.com/welcome>.



CONTACT

Oceans Past News is a quarterly newsletter that aspires to both unite and inform the worldwide community interested in historical perspectives of marine social-ecological systems by providing insight into the wide-ranging and excellent work being done and the resources available. If you would like to propose work for OPN in the future, please contact our editors, **Emily Klein** (emily.klein04@gmail.com) or **Cristina Brito** (escolademar@gmail.com).

*The next Oceans Past News will be mid-January 2019. We **warmly welcome submissions** through the end of the year.*

RESOURCES

The Oceans Past News Archive is available online: <http://oceanspast.org/newsletter.html>

More on the Oceans Past Initiative: <http://oceanspast.org/index.html>

We are also on Facebook: <https://www.facebook.com/groups/122288493384/>