

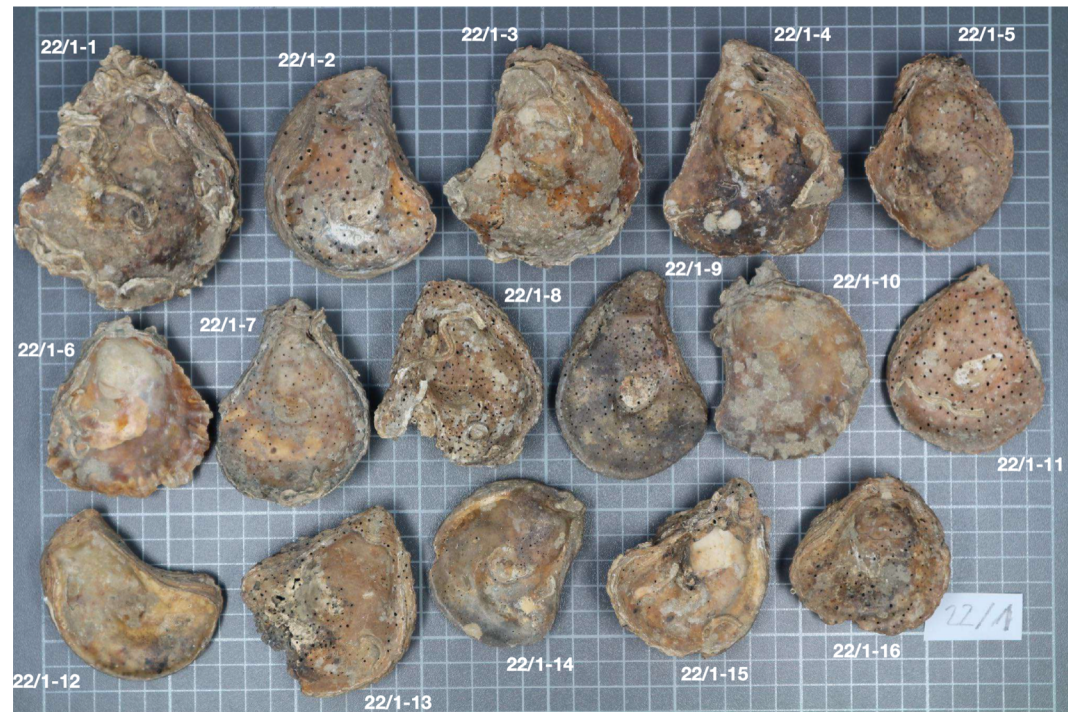
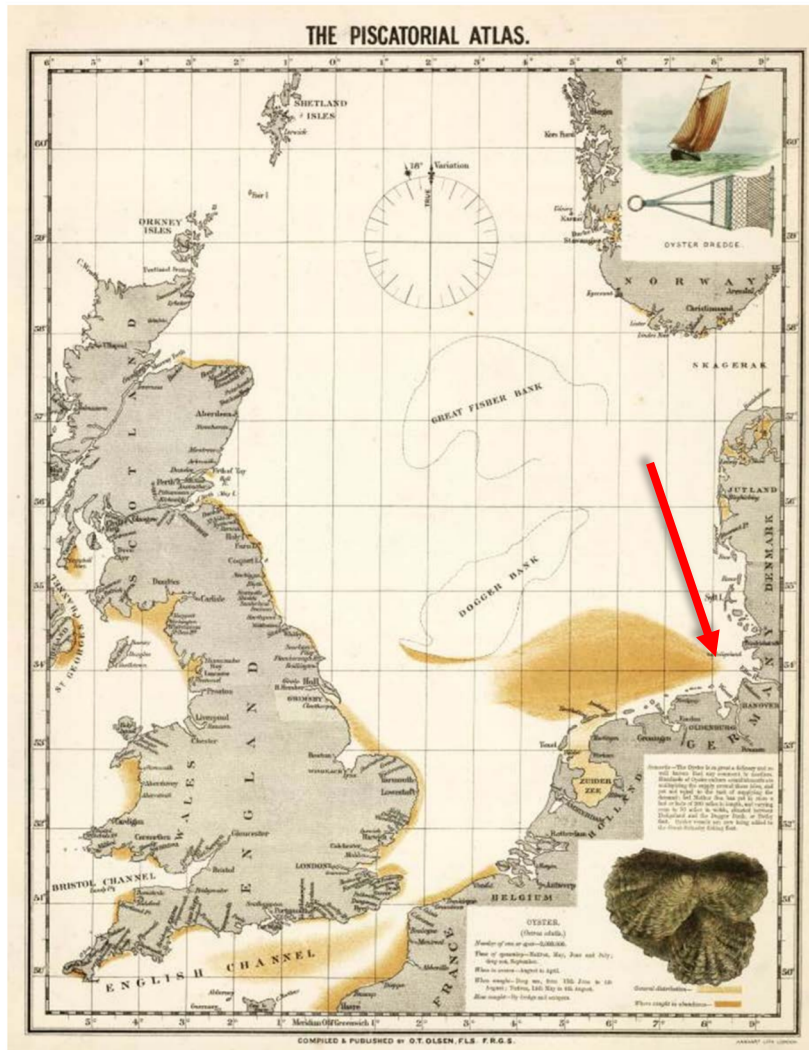
The Rise And Fall Of An Oyster Bed In The German Bight (North Sea) Before The Dawn Of Industrial Fishery

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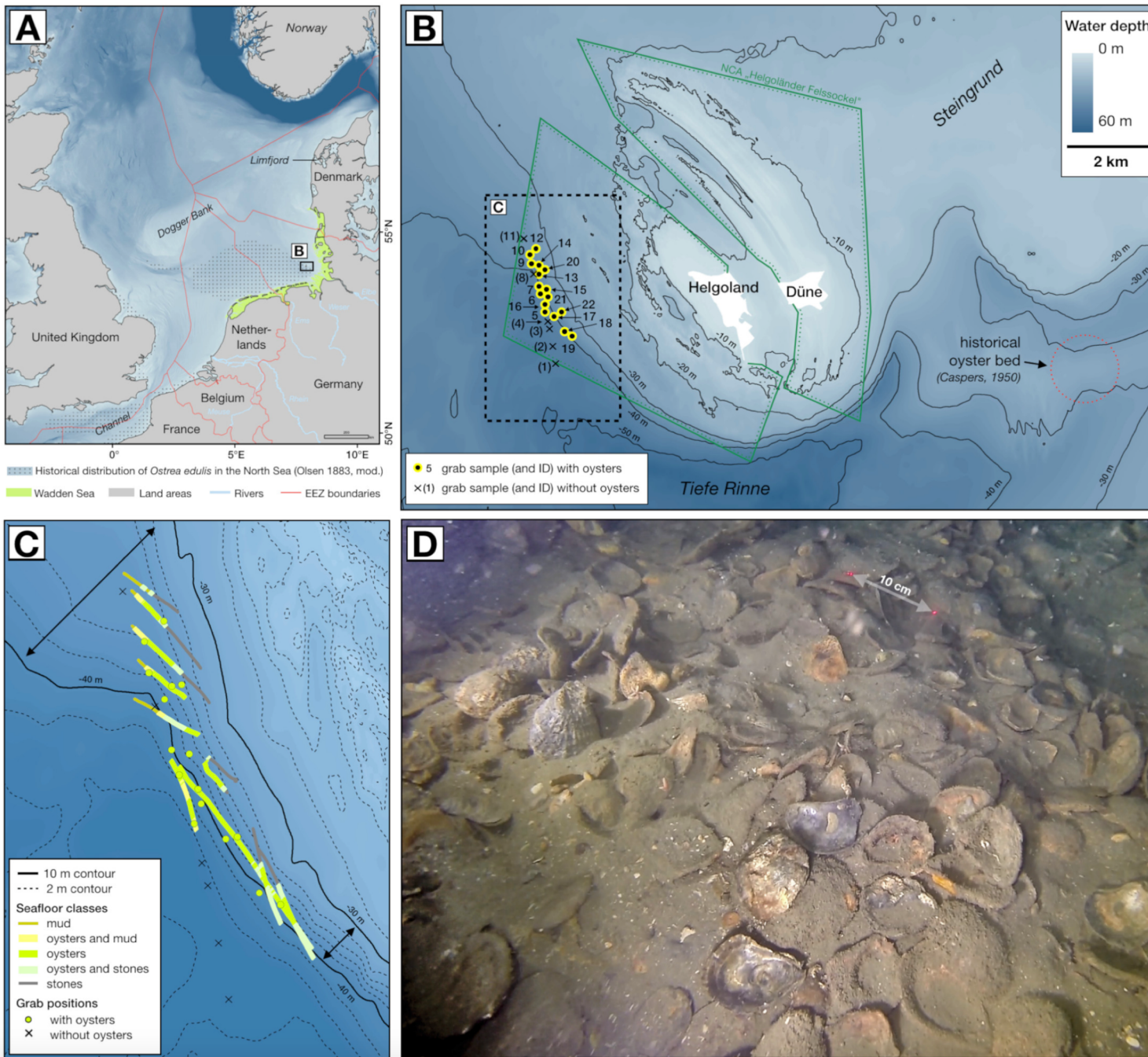
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Above: *Ostrea edulis* (European flat oyster) shells from the oyster bank close to Helgoland.

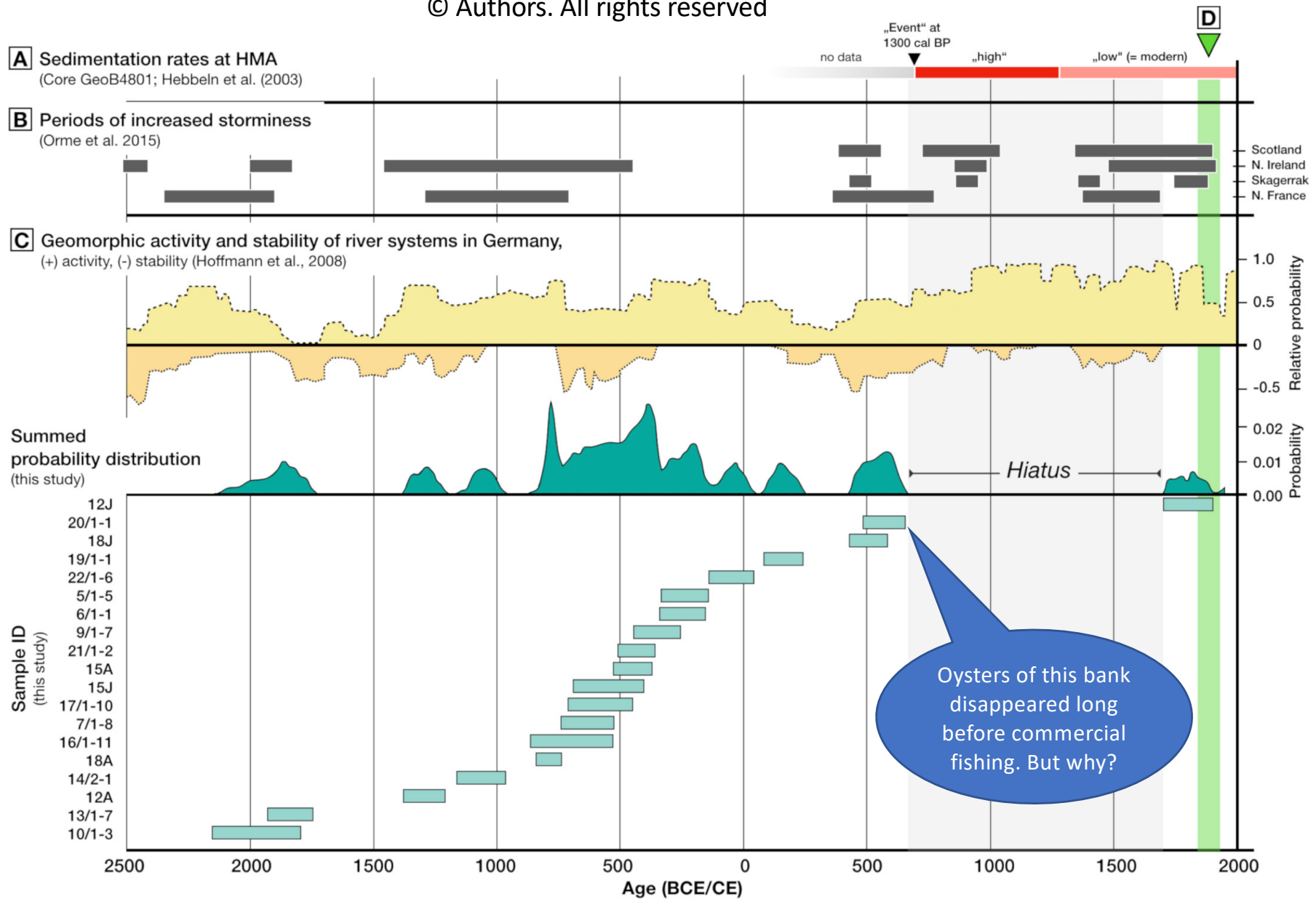
Above: Historical distribution of *Ostrea edulis* in the North Sea according to Olsen (1883). The red arrow points to Helgoland.



- (A) Overview map of the North Sea basin with the historical distribution of *Ostrea edulis* based on Olsen (1883)
- (B) Bathymetry and location of the studied oyster bed offshore Helgoland
- (C) Drift-video transects and the surface composition around the oyster bed
- (D) Still- image example of oyster shells under a thin veneer of sediment (NB: laser for scale = 10 cm).

Sander L, Hass HC, Michaelis R, Groß C, Hausen T, Pogoda B (subm.)

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Age ranges and the summed probability distributions for the dated oysters from our study site combined with (A) past sedimentation in the Helgoland Mud Area (HMA; Hebbeln et al. 2003), (B) Storminess records from Atlantic Europe (Orme et al. 2015 and references therein), and (C) a record of Holocene river activity (Hoffmann et al. 2008). (D) The green area marks the time window from the first documentation of offshore oysters in the German Bight to their functional extinction (Gercken & Schmidt 2014).

- The European flat oyster (*Ostrea edulis*) covered vast areas of the North Sea floor until the end of the 19th century.
- It became functionally extinct in the German Bight during the first half of the 20th century. Overexploitation is blamed to be the main reason for that.
- However, we encountered a previously unknown fossil bed of this oyster (0.6 km², 33-44 m deep, >200 M valves) close to the island Helgoland (German Bight, SE North Sea).
- 19 Radiocarbon datings reveal 18 ages between about 4000 and 1300 years BP and only one age of about 200 years. Hence, this oyster bed has perished about 1300 years ago, well before any human influence.
- Our study challenges the assumption of stable preindustrial conditions for this species. A combination of factors such as the Medieval climate and land-use change may have affected the North Sea and eventually caused this early demise of the European flat oyster.