

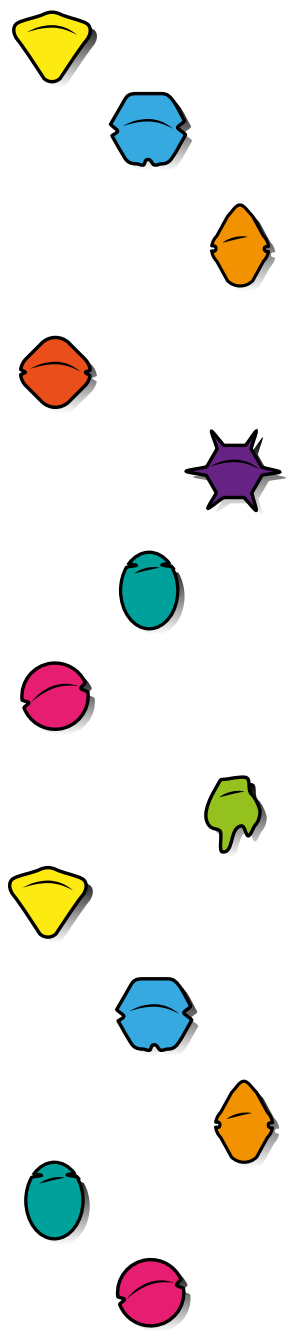
ICHA

19th INTERNATIONAL
CONFERENCE ON
HARMFUL ALGAE
MEXICO 2021

LA PAZ | baja california sur | october 10-15

www.icha2021.com

ABSTRACT BOOK



CONVENOR



ORGANIZED BY



FIRST
VIRTUAL
MEETING

Bloom dynamics of an exceptional red tide of the toxigenic dinoflagellate

Francisco Rodríguez¹, Enrique Nogueira¹, Isabel Bravo¹, Pilar Díaz-Tapia¹, Marta M. Varela¹, Begoña Ben-Gigirey¹, Rosa Figueroa¹, José Luis Garrido², Isabel Ramilo¹, Nuria Lluch¹, Araceli Rossignoli³, Pilar Riobó²

¹ Spanish Oceanographic Institute (IEO), Subida a Radio Faro 50 36390, Vigo, Pontevedra, 36390, Spain. ² Marine Research Institute (CSIC), Eduardo Cabello 6 Vigo, 36208, Spain. ³ Marine Research Institute (CIMA), Spain.

francisco.rodriquez@ieo.es

The toxic dinoflagellate *Alexandrium minutum* generally proliferates in semi-enclosed sites such as estuaries, harbours and lagoons, where stratification, restricted circulation and accumulation of resting cysts set suitable conditions for its development. In the Galician Rías (NW Iberian Peninsula), its blooms follow also this pattern. They are recurrent in small, shallow estuarine bays inside the Rías, but rarely detected, and if so in minor amount, out of these areas. However, a massive proliferation of *A. minutum* from June to July 2018 in the Rías Baixas (Vigo and Pontevedra) changed this picture. The bloom initiated in semi-enclosed waters, as previously described for this species, but thereafter spread to the whole embayments where persisted more than one month. It generated a noticeable red tide with disperse patches that became heavily concentrated inside the port of Vigo. During that period shellfish harvesting closures and paralytic shellfish toxins in certain marine invertebrates and fish were reported for the first time in Spain. Meteorological conditions (higher than usual rains/runoff, sustained temperature increment and oscillating wind pattern promoting a series of upwelling-relaxation cycles) fostered optimal circumstances for the outbreak of *A. minutum*: strong vertical stratification and the alternation of retention and dispersion processes. Simulations from a particle tracking model portrayed the observed bloom development phases: onset, transport within the surface layer towards the interior parts of the Ría of Vigo, and dispersion all over the embayment. High concentrations of resting cysts were detected several months after the bloom, which may have favoured flourish of *A. minutum* in the following years, markedly in 2020.

