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Impacts of green tides on estuarine fish assemblages

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1 **Impacts of green tides on estuarine fish assemblages**

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11 **Abstract**

12

13 All around the world, an increasing proportion of estuarine systems are facing massive
14 proliferations of green macroalgae, called green tides, in response to nutrient enrichment. The
15 consequences of this perturbation for ichthyofauna that use estuarine systems as essential fish
16 habitats remain understudied. To estimate these consequences, we combined outputs of both
17 macroalgae proliferation and fish community surveys conducted for the European Water
18 Framework Directive in thirteen estuaries in northwestern France, a region where green tides
19 are of great concern. The approach revealed the influence of green tides on estuarine fish
20 communities. The response of each community to the green tides differed according to their
21 functional guild composition. Benthic and marine juvenile guilds were negatively impacted,
22 while demersal and pelagic fish guilds appeared to be more resilient. Green tides, which
23 significantly affect the suitability of fish habitat, change the composition of the fish
24 community and may hinder the future recruitment of marine fish species that rely on estuaries
25 during the juvenile stage.

26 **Keywords:** fish community; estuarine ecology; green tides; macroalgae; nursery

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