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Tidal level influence on the spawning process of the sea urchin *Paracentrotus lividus* (Lamarck, 1816) on a rocky shore (Bay of Biscay).

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1 **Tidal level influence on the spawning process of the sea urchin *Paracentrotus lividus***
2 **(Lamarck, 1816) on a rocky shore (Bay of Biscay).**

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9 **Abstract**

10 The sea urchin *Paracentrotus lividus* is an important exploited resource on the Mediterranean coast
11 and has been the subject of much research. In the Bay of Biscay, the situation is different, as some
12 studies have been conducted on the Spanish Basque coast but few on the French part of that coast.
13 However, the Basque coast offers favourable conditions for the development of this species, and its
14 exploitation could be a source of potential diversification for fishermen, especially in the context of
15 difficulties with some other resources. At the request of the managers of this coastal resource, a study
16 was undertaken on sea urchins to improve knowledge of this stock, particularly about its biological
17 characteristics. In this work, assessment consisted of determining the spawning process of the stock
18 throughout the year by collecting data on sea urchin size and wet weights of the test, dry gonads and
19 viscera. From September 2013 to September 2014, sea urchins were collected monthly at this site,
20 from intertidal and subtidal areas, and then analysed in the laboratory. This study takes into account
21 the tidal level in the sample design, which allows a novel highlighting of significant differences in
22 biological characteristics between intertidal and subtidal individuals. Spawning occurs mainly during
23 May and June, which is important knowledge for defining relevant management measures for
24 fisheries.

25

26 **Key-words:** sea urchin, Bay of Biscay, spawning, tidal level, rocky coast

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