

Accepted Manuscript

Environmental control on larval stages of fish subject to specific salinity range in tropical estuaries

Régis Vinícius Souza Santos, Sandra Ramos, Ana Cristina Teixeira Bonecker

PII: S2352-4855(16)30297-3

DOI: <http://dx.doi.org/10.1016/j.rsma.2017.03.010>

Reference: RSMA 238

To appear in: *Regional Studies in Marine Science*

Received date: 23 January 2017

Revised date: 29 March 2017

Accepted date: 30 March 2017

Please cite this article as: Santos, R.V.S., Ramos, S., Bonecker, A.C.T., Environmental control on larval stages of fish subject to specific salinity range in tropical estuaries. *Regional Studies in Marine Science* (2017), <http://dx.doi.org/10.1016/j.rsma.2017.03.010>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



Environmental control on larval stages of fish subject to specific salinity range in tropical estuaries

Régis Vinícius Souza Santos^{a*}, Sandra Ramos^{b,c}, Ana Cristina Teixeira Bonecker^a

^a Universidade Federal do Rio de Janeiro, Instituto de Biologia, Departamento de Zoologia, Laboratório Integrado de Zooplâncton e Ictioplâncton, Av. Carlos Chagas Filho, 373, 21.941-902, Rio de Janeiro, RJ, Brazil.

^b CIIMAR - Interdisciplinary Centre of Marine and Environmental Research, ECOBIOTEC, Avenida General Norton de Matos, S/N, 4450-208 Matosinhos, Portugal

^c Institute of Estuarine and Coastal Studies, University of Hull, Hull HU6 7RX, UK

* corresponding author: regisvinicius@gmail.com

Abstract

In this study, we used a comparative cross-system analysis and a standardized methodological approach to understand which abiotic parameters, in addition to salinity, can play an important role in determining larval fish assemblages in tropical estuaries. Surveys were performed by using surface trawls in the same water mass (salinity ranging from 15 to 25) in four Brazilian estuaries (Macaé, São João, Bracuí and Perequê-Açu) from May 2013 to March 2015. Water temperature, oxygen saturation, pH, chlorophyll-*a*, nitrate, nitrite, ammonia, phosphate and total particulate matter were obtained at each sampling area. Comparative analysis of structural attributes of larval fish assemblages, showed inter-estuarine differences in terms of total abundance and diversity. Perequê-Açu Estuary registered the highest abundance levels and was highly dominated by a typical anadromous species *Anchoviella lepidentostole*. Macaé Estuary presented the most diverse larval fish assemblage, which was comprised by several marine species. Temperature and precipitation, in addition to salinity, were the main environmental variables regulating the larval fish assemblages. Temperature has played an important role in determining anadromous species abundance, since the greatest abundances were associated with high water temperatures recorded mainly in Perequê-Açu Estuary. Precipitation was responsible for episodic events of runoff in Bracuí, São João and Perequê-Açu estuaries, where the high precipitation collaborated to carry anadromous larvae from the spawning habitat to the estuarine zone. Conversely, the low precipitation in Macaé Estuary favored the immigration of marine species due to the decrease of the river flow. Oxygen saturation and nutrient load could have operated in an indirect way, through their effect on food supply, but further studies are necessary to investigate this question. Our study highlighted that fish larvae are highly sensitive to environmental variations and emphasized that conservation of estuarine habitats is essential to ensure success in the fish recruitment.

Download English Version:

<https://daneshyari.com/en/article/5758074>

Download Persian Version:

<https://daneshyari.com/article/5758074>

[Daneshyari.com](https://daneshyari.com)