



Contribution ID : 90

Type : **Oral**

Controls on Coastal Hypoxia: A global Synthesis

Thursday, 6 September 2018 14:30 (15)

Aquatic environments experiencing low-oxygen conditions have been described as hypoxic, suboxic or anoxic zones, oxygen minimum zones, and, in the popular media, the misnomer “dead zones.” This review aims to elucidate important aspects underlying oxygen depletion in diverse coastal systems, and provides a synthesis of general relationships between hypoxia and its controlling factors. After presenting a generic overview of the first-order processes, we review system-specific characteristics for selected estuaries where adjacent human settlements contribute to high nutrient loads, river-dominated shelves that receive large inputs of freshwater and anthropogenic nutrients, and upwelling regions where supply of nutrient-rich, low-oxygen waters generates oxygen minimum zones without direct anthropogenic influence. We propose a non-dimensional number that relates the hypoxia timescale and water residence time to guide the cross-system comparison. Our analysis reveals the basic principles underlying hypoxia generation in coastal systems and provides a framework for discussing future changes.

Position

Professor

Affiliation

Dalhousie University

Email Address

katja.fennel@dal.ca

Are you a SFB 754 / Future Ocean member?

No

Primary author(s) : Prof. FENNEL, Katja (Department of Oceanography, Dalhousie University)

Co-author(s) : Prof. TESTA, Jeremy (Chesapeake Biological Laboratory, University of Maryland)

Presenter(s) : Prof. FENNEL, Katja (Department of Oceanography, Dalhousie University)

Session Classification : 08 Coastal Systems: From Understanding to Management

Track Classification : 08 Coastal Systems: From Understanding to Management