Join us for our C-CAN Roundtable discussion on Wednesday, July 17, 2019 at 1pm PST (4pm EST)

Genetics of Larval Fitness in the Pacific Oyster: Responses to Acidified Seawater and Temporally Dynamic Selection Processes

Presented by Dr. Evan Durland, Tjärnö - Sven Lovén Centre for Marine Sciences, University of Gothenburg, Sweden and hosted by Teri King, Washington Sea Grant.

Abstract:
The Pacific oyster is the most widely farmed shellfish species worldwide and represents the backbone of a $250M/year shellfish industry in the Pacific Northwest United States (PNW). Oysters are highly fecund, capable of producing tens of millions of offspring per spawning event but larvae routinely suffer low rates of survival to juvenile stage. Over the past decade in the PNW, ocean acidification (OA) has additionally reduced survival of larval oysters, both for those spawned in commercial hatcheries for aquaculture operations and, likely, in naturalized oyster populations in this region. A considerable amount of research has focused on the physiological impacts of low pH/high *p*CO2 seawater on shell formation and the early development of oyster larvae but relatively little, by contrast, is known about the chronic effects of acidified seawater on larval development and survival through to settled juvenile 'spat'. Furthermore, the effect that larval development and survival in acidified seawater has on the genetic composition of oyster larvae is largely unknown.

This webinar will focus on recent work investigating the genetic components of larval oyster survival, both in 'normal' and OA seawater conditions. This work combines broad, stock-based, comparisons of larval fitness through settlement stage from domesticated and 'wild' stocks of oysters in the PNW, along with highly resolved temporal patterns of genetic change during larval development. By integrating the results from several scopes of investigation, we can begin to gain a more comprehensive view of the prominent role that genetics play in determining not only the overall survival rates of oyster larvae but how complex mechanisms of genetic selection also may accommodate an increased adaptive potential for this species to persist in challenging aquatic environments.

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