Vitellaro, Chandra

From: Tom Madsen <tommadsen15@gmail.com>
Sent: Friday, June 02, 2017 10:15 AM
To: Bachman, Brenda; Anderson-Carnahan, Linda
Cc: Walker, Michelle CIV USARMY CENWS (US)
Subject: Discovery Bay Toxicity to Pacific Oyster larvae spring 2017
Attachments: 5-16-17 larval test.JPG; Pacific oyster seed, exposed to DB water 5-30-17.JPG; Pacific oyster seed after 9 days in Discovery Bay 5-30-17.JPG

During this spring we have performed a series of tests using Pacific Oyster larvae and seed to test the suitability of the waters of Discovery Bay to support that animal. The tests have involved larvae at setting and juveniles. The tests have involved systems as small as a dished slide to 20 liter recirculating upwell systems. A photo of a slide test is provided. The larvae on the left are in water from Hood Canal and those on the right have been placed in water from Discovery Bay near our water intake. This is after 16 hours. Under the microscope it was evident that the larvae in Hood Canal water were normal in every way and that the larvae in Discovery bay water were dead. If you look close notice that on the Hood Canal slide the larvae are dispersed (swimming) and on the Discovery Bay slide they have settled to the bottom of the slide depression. I have a video of the swimming and inactive larvae, it is too large to attach. This test has been repeated numerous times with similar results: in one the larvae exposed to Bay water immediately went into metamorphose, in all of the test the larvae first became highly active and then lethargic.

In an interesting note we did a side by side comparison to water collected from Port Angeles Harbor, a known contaminated site and found survival in Port Angeles Harbor water no better than in water from Discovery Bay.

We also placed juvenile pacific oysters directly into Discovery Bay. The juveniles developed the same characteristics (deformity) as the juvenile oysters exposed to the plume from the USACE approved dredging of the Snow Creek Delta in 2015.

The last photo is not very clear: the white ring around the juvenile oyster looks to a calcium deposit which would be triggered by an irritant to the oyster.

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