

From: [Latimer, Jim](#)
To: [Arsenault, Dan](#); [Cobb, Michael](#)
Subject: FW: Narragansett Bay conditions
Date: Monday, August 20, 2018 11:40:28 AM
Attachments: [Oviatt 2017.pdf](#)
[Quahog Landings.png](#)
[1-s2.0-S1568988317301154-main.pdf](#)

Greetings,

I wanted to pass on Candace's comments to my questions to her.

Summary, (b) (5).

(b) (5)

Jim

-----Original Message-----

From: Candace Oviatt <coviatt@uri.edu>
Sent: Friday, August 17, 2018 11:04 AM
To: Latimer, Jim <Latimer.Jim@epa.gov>
Subject: Re: Narragansett Bay conditions

Hi Jim,

Long time no see. Hope all is well with you.

The answer to your question is probably long and complicated but I will try to give you the broad outlines. Yes, nutrients are down by 50 to 60% except in problem areas like Greenwich Bay (see attached paper). Yes, primary production has decreased by 30 to 40% particularly in the mid to upper Bay. Chlorophyll is significantly reduced as well, summer and winter. I have been concerned about the nutrient reduction impact on the winter-spring diatom bloom. In recent years the bloom has been minimal and winter nutrients have been low. Last winter however, after a large October rainfall and a cold snap, we had the biggest winter-spring bloom of my career. So the winter bloom can still happen, depending on the weather. Summer hypoxia is a more complicated story. The trend is a 30% reduction but with high variability, the trend is not significant. We have had only one rainy summer 2013 since the nutrient reduction was accomplished in 2012. In that summer of 2013 hypoxia was as bad as it ever gets. We anxiously await another wet summer. I have looked to see if fish biomass has been reduced and this is another complicated issue. After the 1990s decapods like crabs and lobsters decreased in the bay and this was a large biomass decrease in the Bay. Fish apparently then increased in the Bay particularly summer migrants like Scup. A comparison of during, to after, nutrient reduction, after the decapod decrease, indicated a 10% decline of fish in the Bay, mainly the lower Bay according to DEM survey data. Not sure that had anything to do with nutrients. Aquaculture folks say oyster growth rates have not declined with the nutrient reduction. Autumn in your lab, is working with colleagues on quahog growth rates and they apparently have not changed with nutrient reduction. I have been chasing down fishermen concerns. They say intertidal rockweed has decreased in the lower Bay. I took a quick look, comparing our observations to an earlier survey by Rines and Harlin, and it looks like they are correct. I believe this could be a temperature impact and not a nutrient impact, however. Long Island Sound has always been the southern limit to kelp. They are concerned that shellfish in the Bay have decreased but I do not see any such trend in quahog landings, for example (see attached). They say menhaden in the Bay have decreased and I do not have any new information on this species. For a long time menhaden have been caught in the mid Atlantic before they ever get here. RI Marine Fisheries may have more up to date information. Fishermen say fouling has been decreased on their pots and lines and we agree, fouling has decreased on our network of buoy gear in the Bay. I have also attached a paper by Thornber and colleagues which seems not to show any change in drift macroalgae in the Bay but they are mostly in Greenwich Bay which is still

DOVER 003052

very eutrophic. We are doing some experiments to try and figure out the decline of decapods in the Bay. The two hypotheses do not have anything to do with nutrients and include increased temperatures in nursery areas and/or increased predation from summer migrant fish like Scup and Black Sea Bass. I sort of favor the predation hypotheses; we are currently in the middle of a temperature experiment and do not have results yet. So the answer to your question is a cautious lack of negative effects due to the nutrient reduction.

Currently I am in the process of re-doing a bay-wide estimate of primary production on an area basis. Looks like rates are staying lower, consistent with the paper attached below. Let me know if I can help you further on any of these issues.

All the best, Candace

On Thu, Aug 16, 2018 at 4:34 PM, Latimer, Jim <Latimer.Jim@epa.gov> wrote:

> Dear Candace,

>

>

>

> I hope that this email finds you in good health and spirits!

>

>

>

> I am in need of your help. I am trying to make the case that the
> condition of Narragansett Bay (whole or in part) is in better shape
> since the reductions in nitrogen inputs due to improved treatment at
> wastewater treatment plants. While I have read the information from
> the 2017 State of NB report, I'm wondering if you are aware of any
> additional evidence that NB is responding positively to the N load
> reductions (e.g., chl_a, DO, SAV, benthos).

>

>

>

> Thanks,

>

> Jim

>

>

>

> -----

>

> James S. Latimer, Ph.D.

>

> U.S. Environmental Protection Agency, Office of Research and
> Development

>

> National Health and Environmental Effects Research Laboratory

>

> Atlantic Ecology Division

>

> 27 Tarzwell Drive, Narragansett, RI 02882

>

>

>

> U.S. Chair - EcoSystem Indicator Partnership: Information on Change in
> the Gulf of Maine

>

>

>
> Phone: 401-782-3167 / 401-486-9749
>
> <http://www.epa.gov/aed/>
>
> <http://www.gulfofmaine.org/2/esip-homepage>
>
> latimer.jim@epa.gov
>
>
>
> "All men by nature desire to know" Aristotle
>
> -----
>
>
>
>
>
>
>

--
Candace Oviatt
Professor
Graduate School of Oceanography
University of Rhode Island
Narragansett, RI 02882

Tel 401-874-6661
Note: new email address