Stac Meeting Notes:

11/21/14 Meeting, Stony Brook NY

New Member Introductions: The resume for Dr. John Connolly who requested to join the STAC was circulated. Many positive comments were received and it was generally agreed that he would be a good fit. The membership committee agreed, and Dr. Connolly has been invited to join the STAC

LISRC Next Steps: Sue Macnamera, who has run the Long Island Sound Research Conference for many years, is no longer able to do so, and if the conference is to continue, somebody will need to take it over. Sea Grant was recommended as an option. The potential budget to do this was discussed. Budget from past conferences is unclear, because Sue did not keep track of her time, but Sea Grant would have to have some funds for staff time to undertake the effort. Estimates were on the order of $10K. Further discussion of this will be necessary as budget details for FY15 solidify.

Water Quality Symposium:

Fitzpatrick/O'Donnell (presented by Krumholz): The presentation centered around present status and next steps for SWEM. Changes to algal kinetics and restoration of vertical mixing have improved the performance of the model, and steps are underway to make the model more available. But it is still not reliably predicting dissolved oxygen levels in the western sound. Some evidence points to this being a problem of physics (e.g. inaccurate stratification) while some evidence suggests the biology is not right (e.g. unrealistic carbon:chlorophyll ratios). Next steps might include fitting a higher resolution physical model (e.g. ECOM/FVCOM) or further work on plankton dynamics.

Discussion centered around the use of more recent years for ground truthing of the model (current ground truthing datasets are more than a decade old, and may not reflect present conditions in LIS), and perhaps moving away from using potentially anomalous years for the calibration of the model, as this may be setting the exercise up to fail.

Vaudrey (EcoGem): Model results from the EcoGem model suggest that a 50% reduction in nutrient load to Narragansett Bay would not have a substantial impact on dissolved oxygen. This is corroborated by limited field data from that system since major reductions occurred in 2012 which suggest that hypoxia remains highly interannually variable. The model suggests that a measurable reduction in hypoxia would be observed in the upper (most impacted) portions of the bay with a 75% reduction in anthropogenic nutrient load.

Discussion centered around the impact of sediment memory on response time in systems. EcoGEM model corroroborates older mesocosm experimental results from Narragansett Bay that sediment has less than a 1 year "memory", but data from other systems suggests much longer (5-10 years) time period where nitrogen coming out of the sediments can mask reductions before the system reaches equilibrium

Lwiza: Presentation focused on modeling needs moving forward. Key areas were implementation of microbal loop dynamics into modeling efforts, and longer "lead time" which reduces the amplification of

initial parameterization errors. An ensemble approach was recommended, with the possibility of funding 3-4 models to generate comparisons.

Wilson: Wind stirring in summer is correlated to duration of hypoxia. Frequency and direction of wind are correlated to spatial extent of hypoxia. Trends in physical factors may confuse/impact trends in nutrient loading. This may also highlight the need for higher resolution wind data in order to better calibrate model performance in embayments?

Tedesco: WWTP's are on track to meet 58.5% reduction by 2017. Have achieved approximately 88% of that goal at this time. Atmospheric and agricultural N loadings are also substantially down, but storm water, septic, and turf grass N loadings have increased slightly. Septic loading in Suffolk county groundwater has increased substantially (residence time?). We need to take a step back and look at our predictive tools before approaching a new target as we must strengthen our commitment to do so.

Mullaney: Presented on USGS work in measuring flux, flow and loading from rivers. One complication is that most point sources are close to the Sound, but the gaging stations are higher (out of tidal range) so they don't necessarily capture those inputs, but in general, in terms of those gaged sources, there's not much decrease in load, much of which comes from the upper watershed. River flow is creeping upward and therefore, flux is creeping up as well, since concentration is remaining relatively stable. Therefore flow and flux are very strongly correlated. This upward creep should be taken in to consideration in modeling efforts.

Vaudrey(Embayments): Nonpoint source load modeling can highlight the correct sectors on which to focus effort within a given embayment to maximize improvement. This varies highly between different embayments. The research highlights the need to communicate appropriate use of fertilizer, establish better guidelines, and enforce them, as this could make a substantial difference.

CCMP update (Latimer): CCMP is in comment assimilation phase. We are re-scoping to try to accomplish the "Bold Vision" as recommended by the CAC/STAC joint letter. To do this we will focus on ecosystem targets. We will be incorporating comments until mid December and hope to have a final document by mid January.

WQ Workshop review: LISS will be hosting a water quality workshop in the spring. A questionnaire was circulated soliciting STAC opinion on topics, format, and agenda. Extensive discussion centered around the desire to include citizen monitoring, though this was eventually decided to not be a focus of this workshop (although members of these groups are welcome to attend) since there is limited resource and time, and there are many other citizen science workshops. We also discussed whether to include pathogens, or just focus on water quality/oxygen, and decided on the latter. A key aspect of the workshop should be translation of monitoring into modeling. Things like data needs, parameterization, and model comparison.

The STAC was very clear that it is critical to clearly define the goals of the workshop in order to maximize effectiveness, and to decide what regional and national expertise to bring in.

Next meeting/New Business: **The next meeting Is Friday February 13, in Connecticut**
Some topics for the next meeting might include:

- Review of the upcoming water quality workshop (would be imminent @ that time)
- Pathogens symposium (similar to format of this meeting- was well received)
    - Save the Sound user interface for beach closure presentation
    - Webinar on USGS BeachCast
    - STP resiliency discussion (CSO's)
    - Monitoring of Coliforms techniques: distinguishing Human vs. Nonhuman
- Wetlands workshop summary
- Cable fund mapping efforts Phase 1 findings and phase 2 directions
- Election Committee for next meeting (CT election)