Example for complete workflow: workflow estuarine filter function

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This workflow is a more concrete example of the high level workflows that were discussed in the breakout groups.

Steps:

1) get data
    a) bathymetry: measured every few years
    b) concentrations of key chemical species along the estuary: obtained laboratory analysis of bottle samples
    c) wind speed: meterological stations of government
    d) river discharge: state operated river gauges
    e) temperature, salinity: sensor network

2) clean/convert data

3) domain expert: select posible numerical simulation type (physical transport descriptions, biogeochemistry descriptions, air-sea exchange of certain gases: and all parameters for those processes)

4) numerical simulation: run and get as output concentrations of key chemical species: compare to measured data

5) iterate 3) and 4) until simulated and modeled data is close enough (i.e. one trusts the hypothesis that is assumed in form of the numerical simulation (i.e. "model") selected)

6) derive system wide elemental process rates and budgets (C, N,..) on an integrated basis per year from the model (including amount of N removed from estuary, amount of nitrate converted per year, etc. pp.)

Result: "now"cast of system wide integrated process rates and budgets from spatially explicit concentration data and supplemental data