- How to balance new science, new sensors, more sensors with processing effort
- Maximize analysis of data that are currently available
- Efficiency
- How much is management of a sensor per year
- Different approaches to data collections
    - Smarter sensor networks
        - Higher frequency during interesting events
        - Power conservation
        - sending only necessary data
        - turning sensors on and off according to measurements of other sensors
    - computing power closer to the sensor (android sensors)
    - research on optimization of sensor placements
        - experimental design
        - spatial variability
            - moving sensors (terrestrial – train, trolley)
            - profiling instruments (lake or ocean)
- new types of sensors
    - genomic, taxonomic
- collaboration with computer science
    - problems
        - CS is interested in the research and prototype not in the production stage
        - Science needs are frequently not interesting CS problems
        - Communicating needs
    - Maybe not CS is needed but software engineering
- Different research groups' approaches and what to learn from them
    - Possible overlap in methods between groups (IOOS, NERR, LTER ….)
    - Centralized – comparable methods at all sites (IOOS, NERR)
    - Distributed (LTER)
- Compare to bio-informatics pipelines of data processing
    - Genomics data are more standardized than ecological data
- Make sensors more comparable by standardized comparisons – like chemical analysis lab certifications
    - Knowledgebase of recommended QA/QC procedures
    - have reference sensors travel to different sites
    - knowledgebase for protocols for classes for sensors
    - how often to calibrate
    - how to install