City of San Diego collects mooring data in partnership with Send lab at Scripps

Goals:
- Track treated wastewater plumes from ocean outfalls
- Supplement quarterly monitoring and measure temporal variability in receiving waters
- Share data, such as to validate models

Measure:
- Currents, temperature (T), salinity (S)
- Dissolved oxygen (DO), nitrate (+nitrite), xCO2, chlorophyll a, colored dissolved organic matter (CDOM), pH, turbidity, biological oxygen demand (BOD)

Two sites:
- Near end of Point Loma ocean outfall (PLOO) in 95-m depth
- Near end of South Bay ocean outfall (SBOO) in 30-m depth

Initial Findings

Status of local receiving waters:
- Better understanding of ranges of variability and how they vary with water masses (Fig. 2)
- Improved monitoring of seasonal patterns, such as duration and extent of warm surface waters (Fig. 3)
- Along-coast currents tend to dominate

Tracking wastewater plumes:
- Salinity likely captures plume signal at PLOO; harder to track at shallower SBOO
- CDOM will likely be a good indicator to use

Other applications:
- Captures events such as large 2020 spring red tide and data can help understand bloom dynamics

Challenges
- Improving and automating data QA/QC process
- Data gaps due to instrument failures or calibration delays

Next Steps
- Evaluate frequency of plume detections and associated currents and water masses
- Compare to data from towed vehicle (ScanFish) to produce plume maps
- Better understand local emerging issues like hypoxia, ocean acidification, and algal blooms

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Provisional real-time data here: mooring-dev.ucsd.edu/dev/