

WATER QUALITY MONITORING ALONG THE NEW JERSEY SHORE: LINKING A SUSTAINED OCEAN OBSERVATORY WITH STATE AND LOCAL MONITORING PROGRAMS

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Water quality at New Jersey beaches is monitored through the New Jersey Department of Environmental Protection's (NJDEP) Cooperative Coastal Monitoring Program (CCMP) from mid-May through mid-September each year. Weekly in situ water samples are collected at 256 ocean and bay stations throughout the state. In Monmouth County, the Monmouth County Health Department samples 62 recreational and environmental monitoring stations. Water quality sampling is performed for enterococcus bacteria, which is used to determine whether beaches meet state standards for swimming. If bacteria concentrations exceed the standard of 104 colony forming units per 100 milliliters of water, which represents about a 2 in 100 risk of swimming related illness (19 cases per 1000 people) beaches are closed until levels are again within the standard. In addition to the bacterial sampling, rainfall in excess of 0.1 inches will preemptively close four ocean beaches located near the ocean outfall of one coastal lake and one bay beach located near a storm drain without in situ testing. This rain provisional policy is based on empirical results linking stormwater runoff into the coastal waterways with potentially unhealthy concentrations of enterococcus bacteria.

The Rutgers University Coastal Ocean Observation Lab operates a sustained ocean observing presence in the New York Bight. RUCOOL utilizes satellite, HF radar, and glider AUV technologies to provide sustained measurements of oceanic and atmospheric variables along the New Jersey Coast and beyond. In collaboration with NJDEP and the Monmouth County Health Department, an investigation was carried out focusing on the utility of observatory datasets to beach closure decision making based on high bacterial concentrations. In addition to rainfall, surface winds, surface ocean currents and sea surface temperatures are correlated to the weekly CCMP sampling. The goal of this collaborative effort is to determine which RUCOOL observations relate to bacterial concentrations and how to efficiently bring these observations into the decision making process.

KEYWORDS

Bacterial Concentrations, Ocean Observing, Monitoring