



## **Building Environmental Intelligence 2013-2014 Global Seminar Series: Panel 4**

### **Case Study: Ireland EPA Transitional and Coastal Waters Monitoring Program (TraC)**

April 7, 2014

*Event Webpage:*

<http://www.chesapeakebay.net/calendar/event/21626>

#### **Overview:**

The Scientific, Technical Assessment, and Reporting Team is hosting a Global Seminar Series to gain insights on unique and innovative approaches to monitoring, including but not limited to: network design, funding, interactions with stakeholders, technology, and analysis techniques. This case studies are monitoring networks from across the United States, Australia, and Ireland. The insights gathered during this Global Seminar Series will inform the next steps of Building Environmental Intelligence, leading the future of water quality monitoring in the Chesapeake Bay. The presenter was asked the following questions:

- What are the objectives of the monitoring network(s) and supporting network design?
- What is the operational model of how the sample collection, lab analysis, and data management are conducted?
- What is the business model of how the network is funded?
- What is the governance structure of the restoration effort and how do they oversee the monitoring program?
- List the three biggest successes and challenges in sustaining the network(s).

#### **Ireland EPA Transitional and Coastal Waters Monitoring Program**

**Presenter:** Dr. Shane, O'Boyle, Aquatic Environment Division, Environmental Protection Agency, Ireland

**Link to:** [Presentation](#)

**Case Study Location:** Ireland

#### **Case Studies Monitoring Priorities:**

- To respond to the Europe-wide Water Framework Directive (WFD) and to inform decision making.

### **Monitoring Program Design:**

- A map is available in the presentation.
  - 2, 180 river water bodies
  - 224 lakes
  - 80 transitional waters
  - 41 coastal waters
  - 260 groundwater sites
  - 140 quantitative sites
  - 4 laboratories are involved in analysing samples.
  
- Program works with inland fishing authorities for boat usage.
  
- Academic partners do benthic analysis.
  
- Ireland TraC reports towards the WFD every 6 years. Other reports produced intermittently.

### **Innovative Operations of Monitoring Networks/ Technology:**

- The design of the monitoring program is based on the outcome of Article 5 Characterisation (i.e. physical typology) and Risk Assessment (risk of failing to meet environmental objective). Three monitoring programs emerged:
  - The surveillance programme:
    - Detection of long-term trends
    - Water bodies that (per WFD):
      - the rate of water flow is significant within the river basin district as a whole; including points on large rivers where the catchment area is greater than 2500 km<sup>2</sup>
      - the volume of water present is significant within the river basin district, including large lakes and reservoirs
  
  - The operational programme:
    - Monitoring to assess whether the measures aimed at improving the impact of individual and combined point sources are successful.
    - To monitor species and habitat protected areas that are at risk
  
  - The investigative programme:
    - Where surveillance monitoring indicates that the environmental objectives for a body of water are not likely to be achieved and operational monitoring has not already been established.

- Shall inform the establishment of a program of measures for the achievement of the environmental objectives and specific measures necessary to remedy the effects of accidental pollution.
- Risk assessments are the basis of the monitoring program, they help to designate which program a water body falls under. This helps to determine what monitoring, where, and how.
- Pollution Impact Potential Maps are developed, they also help to inform the monitoring program design. Maps help to explain pollution sources, pathway, impacts, and relationships between pressure and receptor.
- For seagrass mapping, staff use a hovercraft during low tide to identify and detect distribution, abundance, and species diversity.
- PARCOM Source Apportionment (PSA)-estimates of Nitrogen & Phosphorus loading from various sources such as agriculture, urban waste water treatment, industry, unsewered populations, and forestry.
- Citizen Science:
  - An active citizen science groups is: [Coast Watch Ireland](#)
  - EPA is actively trying to get a secchi depth citizen science program, with the use of a secchi depth app. EPA determined that citizen-made secchi disks are not suitable for measurements, and therefore may purchase secchi disks for citizen science group.

#### **Innovative Business Models and Leveraging Resources:**

- The current funding model is pretty stable.
- Environment fund (€65.7 (\$90.0) million in 2012) is derived from levies on plastic bags (€13.9 million) and the land-filling of waste (€51.8 million).
- Opportunistic Microalgae on mudflats and sandflats: farmers take use the microalgae on their fields because it is full of nutrients and salt.

#### **How the Monitoring is incorporated into the Governance Structure:**

- The comparison of ecological status in Ireland with other countries helps to leverage funding.
- Trends in phosphorus found a reduction due to the reduction of inorganic fertilizer application. Farmers have to be in compliance with regulatory programs in order to get their subsidies. Also a result of a huge reduction in the number of sheep in a particular catchment, due to another farm management policy.
- Historically, local authorities were doing river monitoring, lake monitoring, and nutrient monitoring/tracking. EPA was responsible for the biological assessments. Some of the

local authorities collecting samples have their own laboratories, though some send their samples to the EPA labs for analysis.

**More information on the:** [Ireland Water Framework Directive Monitoring Program](#)