Making the Pieces Fit
How to Streamline a Massive Sampling Program

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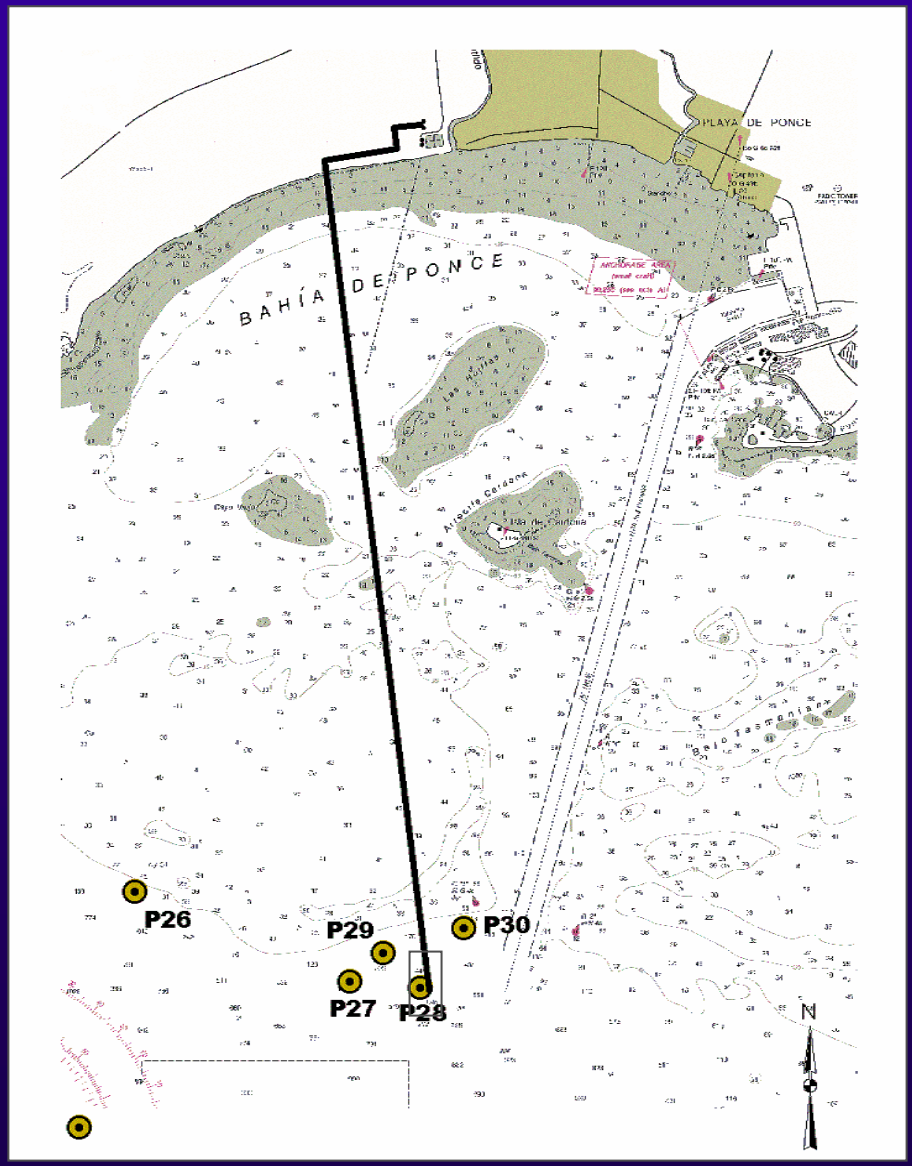
The Ponce Regional Wastewater Treatment Plant (Ponce RWWTP) 301(h) Waiver Program

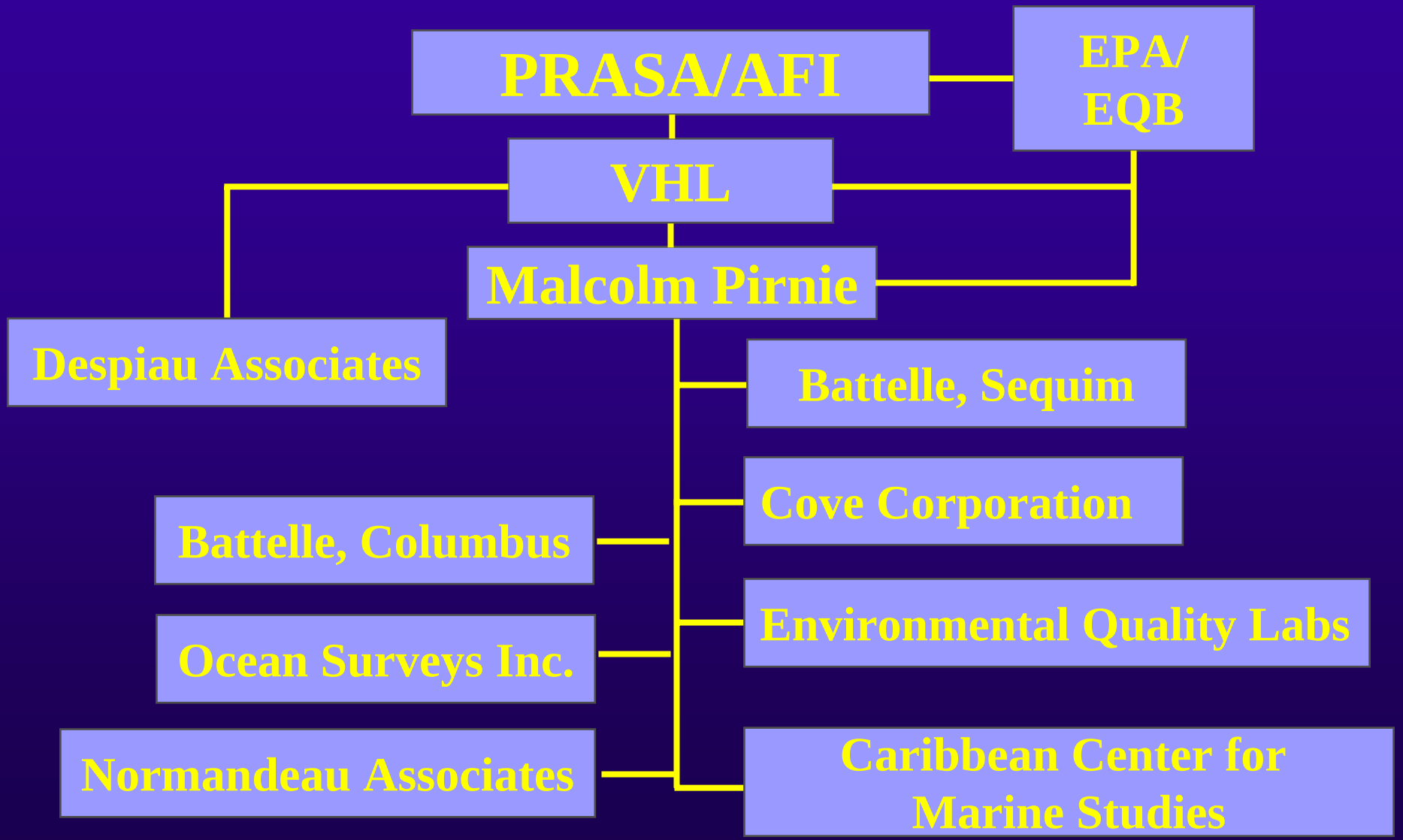
Ponce

Puerto Rico's Second Largest City

Bay of Ponce

Sampling Locations




PRASA/AFI
EPA/
EQB
VHL
Malcolm Pirnie
Despiau Associates
Battelle, Sequim
Cove Corporation
Battelle, Columbus
Environmental Quality Labs
Ocean Surveys Inc.
Normandeau Associates
Caribbean Center for
Marine Studies

Project Objectives

- Obtain Final 301(h) Waiver from EPA
- Satisfy the Rigorous 301(h) and Regulatory Requirements
- Demonstrate that Outfall is Achieving Applicable Water Quality Standards
- Demonstrate no Environmental Impacts on Biota

301(h) Sampling Program

- Quarterly sampling
- Monitoring of:
  - WWTP Influent and Effluent
  - Receiving Water
    - Chemical
    - Physical (CTD-DO, Current Meters)
  - Fish and Epibenthic Invertebrates
  - Fish Bioaccumulation
  - Benthic Invertebrates
  - Phytoplankton
  - Sediments
- Over 160 discrete analyticals are required per sample

Influent and Effluent

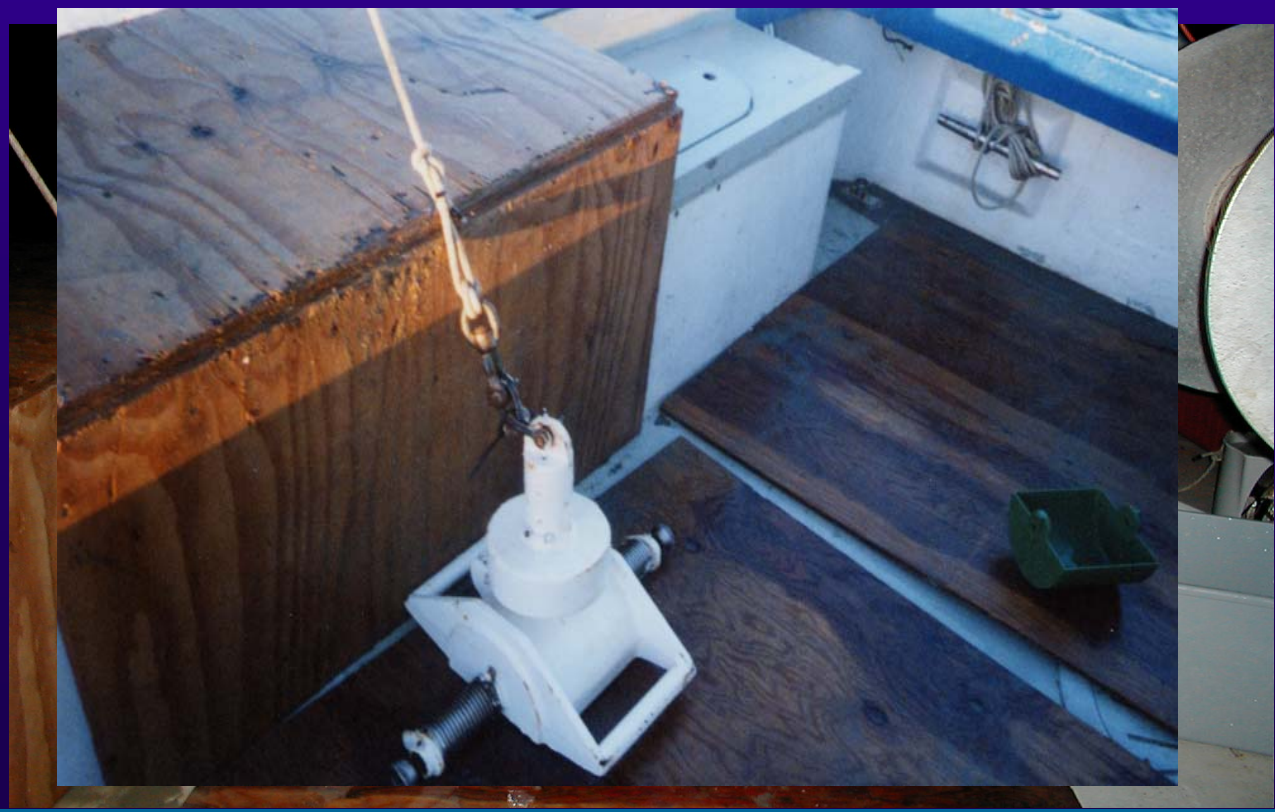
- One 24-hour Composite sample
- Separate Land Based field team
- Sampling occurs in conjunction with receiving water sampling

Receiving Water Sample Collection

- Typically 2 Stations per night for three nights
- Rosette with three 35 liter discrete depth sample bottles
- Conventional sample transfer occurs on board (metals in clean room)
- Approximately 25 – 30 coolers per trip
- Physical Characteristics

Benthic Sampling

- Typically 2 Stations per night for two nights
- Shipeck grab sampler
- Sample transfer occurs on board



Fish Sampling

- Separate Vessel the “Santa Clara” and field team
- Deployment and retrieval of fish cages and drift net
- Operations occur during the day over a 4 day period
- Hook and line performed daily by local fishermen

Project Challenges

- Coordination between numerous players
- Collection of large volumes discrete depth samples from deep waters (~400 feet)
- Positioning to within 30 feet of target location
- Clean Technique Sampling/Processing
- Nighttime operations

Coordination

Prior to Sampling Event

- **Contact oceanographer(s)**
  - Mobilize and ship equipment
  - Charter sampling vessel
  - Identify field team
- **Contact laboratories**
  - Request coolers
  - Request pre-prepared bottles
  - Forward of Chain of Custodies
- **Identify Field Team**
  - Water quality (6 people)
  - Biological (2 people)
- **Contact Ponce RWWTP Supervisor**

Logistics

Prior to Sampling Event

- **Laboratory**
  - Set up on-site mobile laboratory
- **Oceanographer**
  - Verify weather conditions
  - Set up GPS tracking system
  - Deploy Current meters
- **Staging Area set-up**
  - •Build clean room
  - •Verify cooler contents
  - •De-con field equipment
  - •Start influent and effluent automatic samplers

The Staging Area

- At Pump Station
- Cooler Storage (over 125 per round)
- Equipment Storage
- Clean Room
- Sample Processing
- Shipment
- Ice Machine

Positioning

- Maximum distance from a water quality sampling station was 25 feet
- The average distance from a sampling station is 8.2 feet
- Acoustic sounding
- “Pinger” on unit

The Clean Technique sample transfer room

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Better known as the sweat box

Nighttime Work

- Nighttime work initiated due to calmer seas
- Essentially eliminated the use of contingency days

Findings To Date

- No long term adverse impacts of marine environment
- Outfall is operating correctly and achieving the Applicable Water Quality Standards
- PRASA is in process of obtaining 301(h) Waiver from EPA
- The Ponce Team together has addressed the logistical and operational challenges of this Project