


Management of Brine Discharges to Coastal Waters

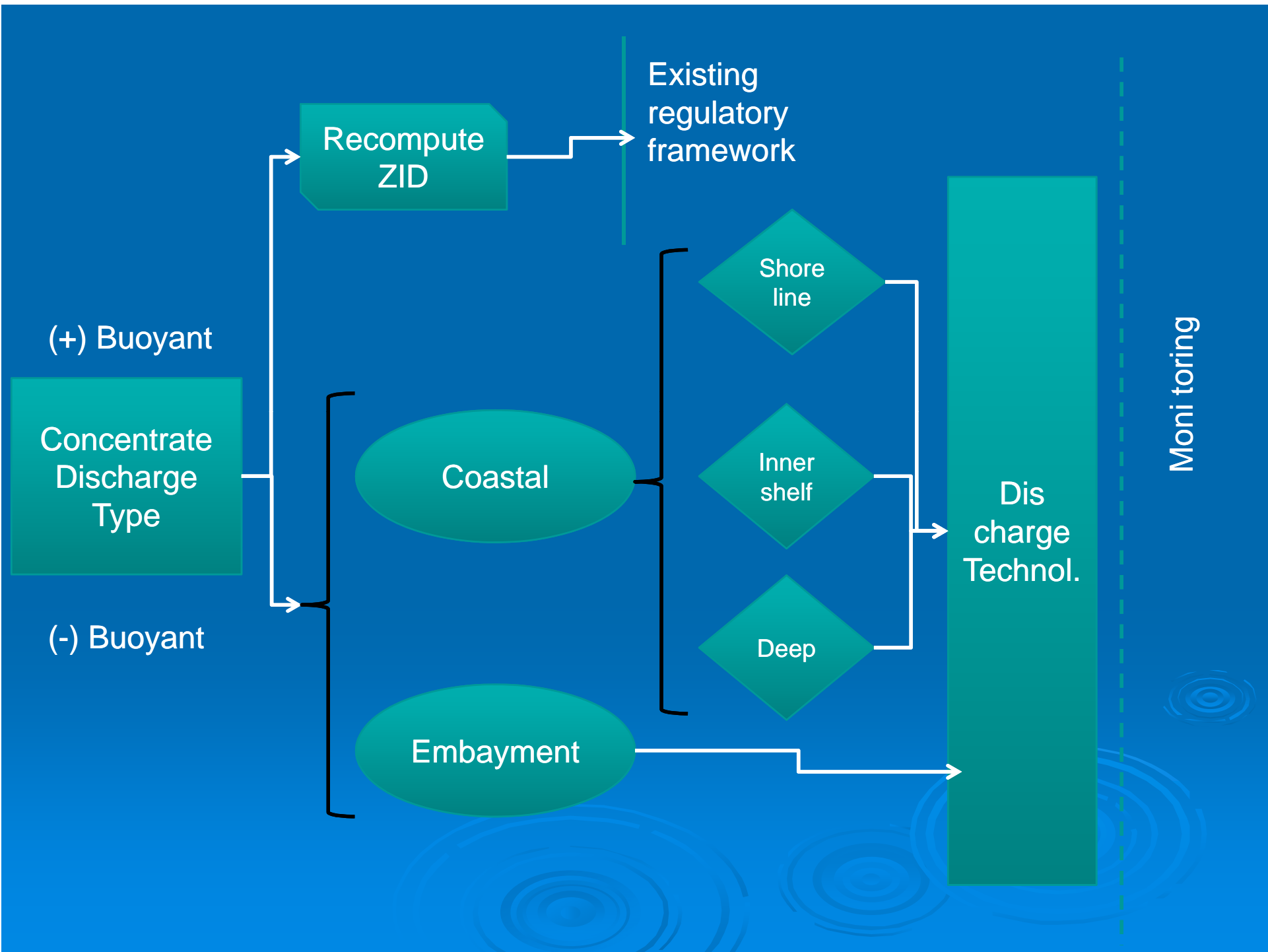
Science Advisory Panel Report Out

Dec. 9, 2011 discussion



Brine Discharge Questions

- **How can the effects of these discharges be minimized through proper disposal strategies?**
 - **What models should be applied in order to predict how these plumes will behave?**
 - **Can cumulative water quality effects associated with multiple plumes be evaluated with models?**
 - **What are appropriate monitoring strategies for these discharges?**
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(+) Buoyant

Concentrate Discharge Type

(-) Buoyant

Recompute ZID

Existing regulatory framework

Coastal

Shore line

Inner shelf

Deep

Embayment

Dis charge Technol.

Monitoring

Disposal Strategies

- Dense plume
 - Multiport diffuser
- Buoyant plume
 - Existing technology is adequate
 - Multiport diffuser



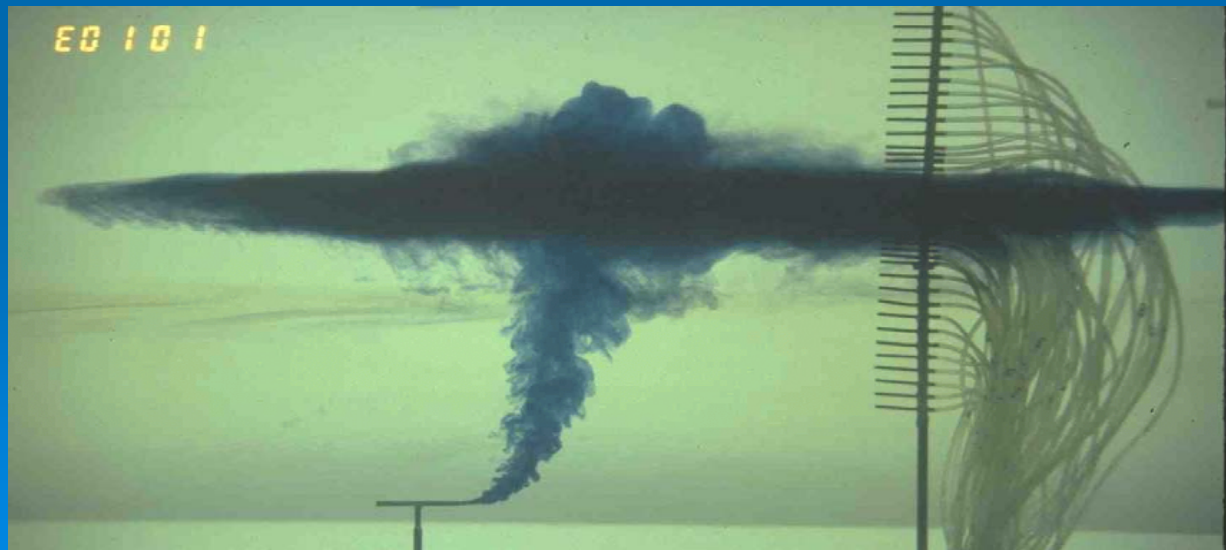
What is ZID??

Ocean Plan

INITIAL DILUTION is the process which results in the rapid and irreversible turbulent mixing of wastewater with ocean water around the point of discharge.

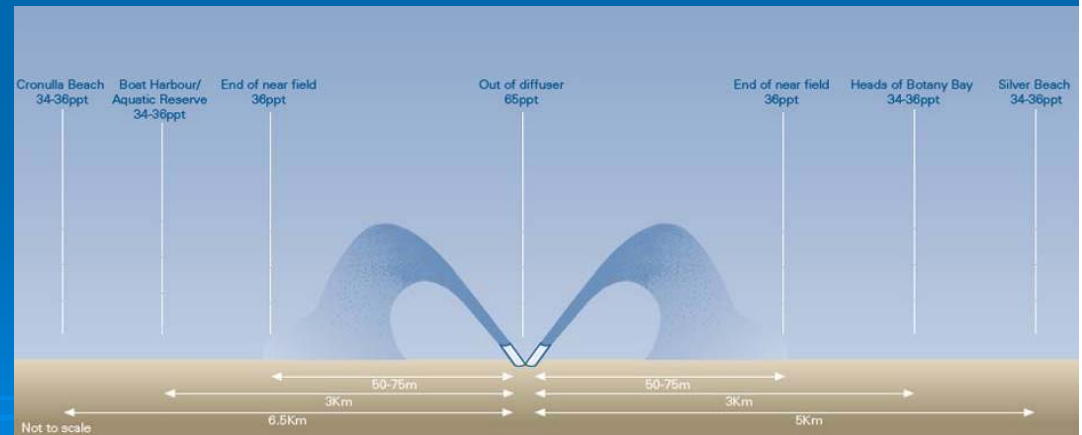
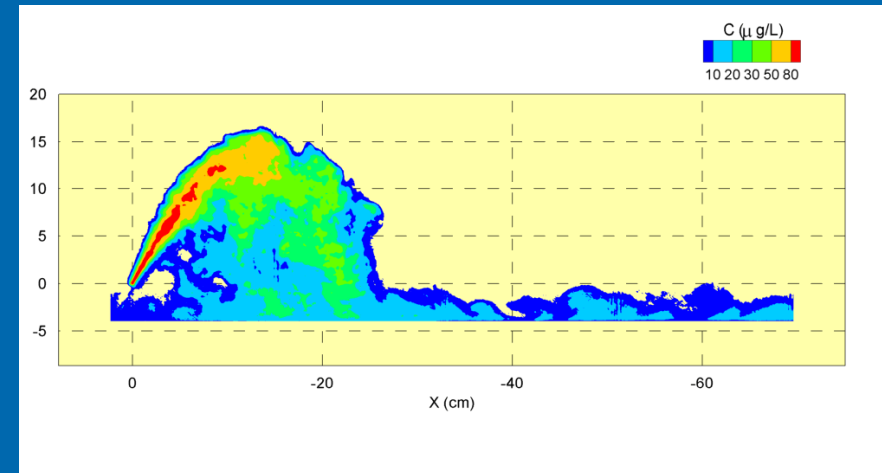
For a submerged buoyant discharge, characteristic of most municipal and industrial wastes that are released from submarine outfalls, the momentum of the discharge and its initial buoyancy act together to produce turbulent mixing.

Initial dilution in this case is completed when the diluting wastewater ceases to rise in the water column and first begins to spread horizontally.



ZID Description

- Buoyant plume
 - Existing zid definition is adequate
- Dense Plume
 - Need different definition
 - Based on typical extents of nearfield




Plume Models

- Existing models are appropriate
- Depending on scenario
 - Surface discharge
 - Submerged dense jet



Monitoring

- Multiple components needed to address compliance and environmental impacts
 - Discharge effluent monitoring in lab
 - Toxicity
 - Salinity
 - Other constituents
 - Field monitoring (multiple sites)
 - Verification of nearfield dilution
 - Farfield impacts
 - Reference sites/gradient to interpret results
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Next Steps

- Refine recommendations regarding charge questions
 - Conceptual site scenarios
 - Background and context
 - Review international regulations
 - Justification for recommendations
 - Details
 - Teleconference
 - Draft report by late February 2012
 - Public comment period
 - Final report by end of March
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