DesWave – Investigating the direct coupling of a wave energy converter with a reverse osmosis desalination plant

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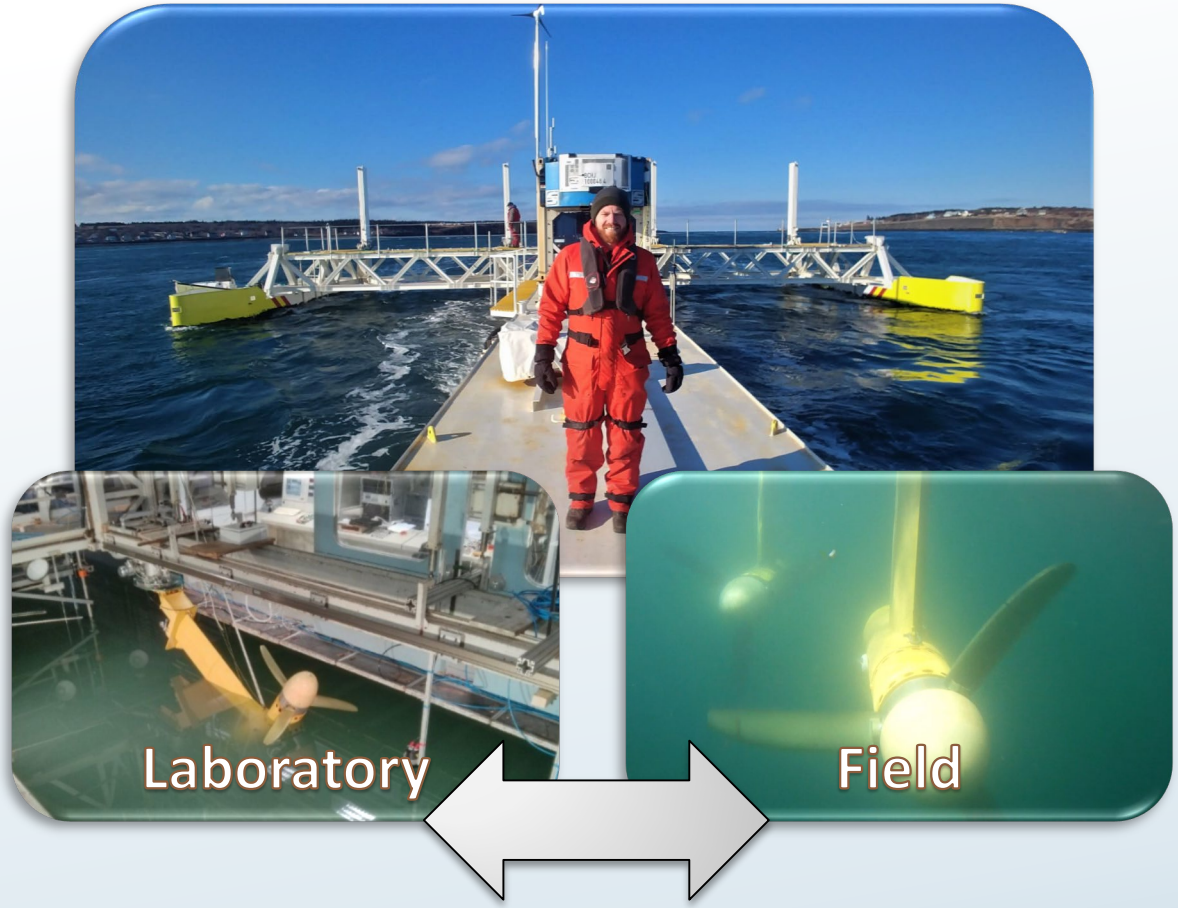
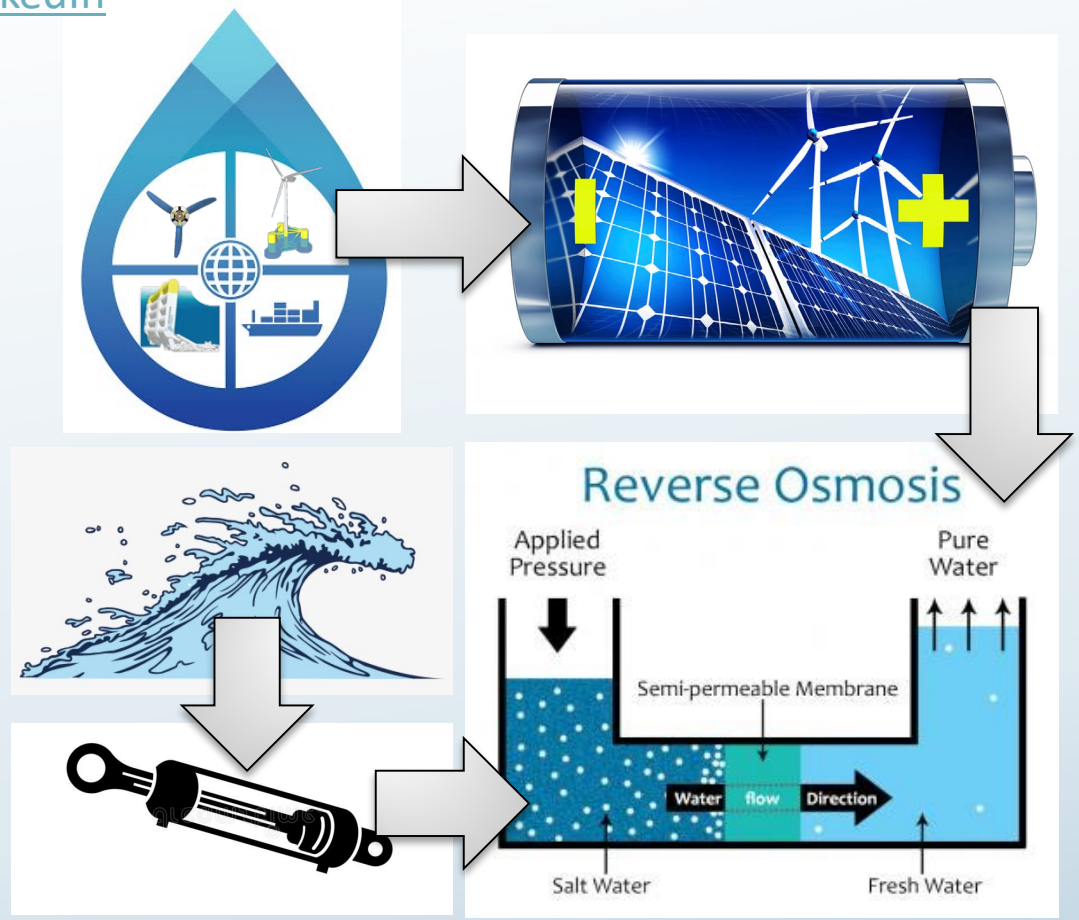
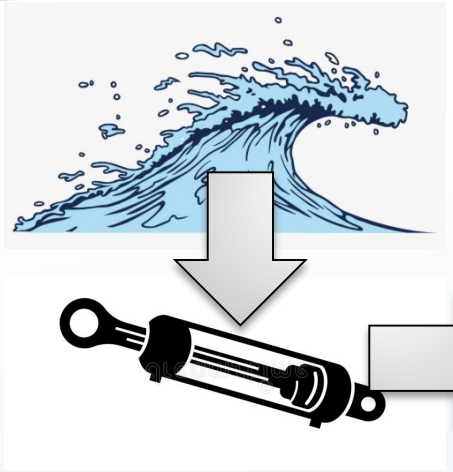
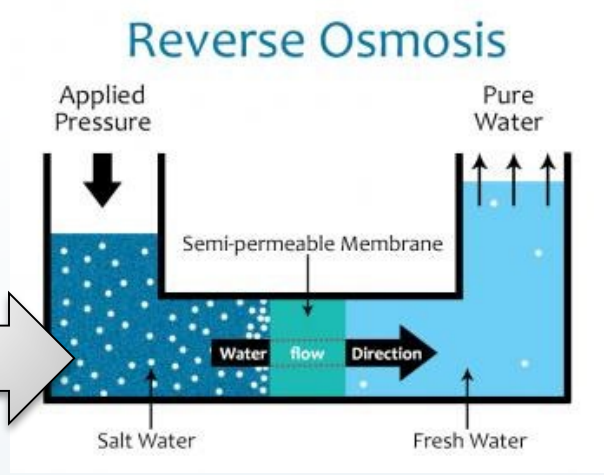


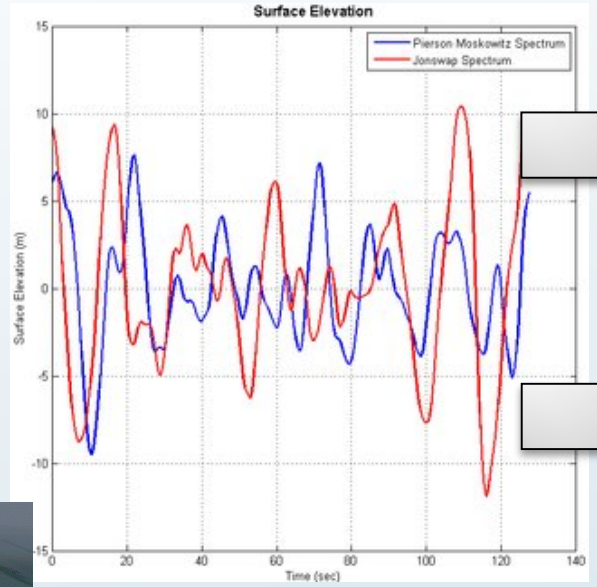


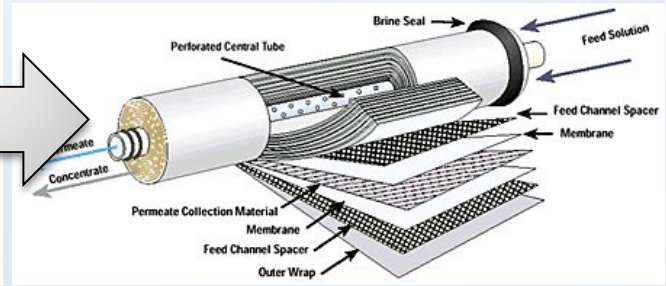
DesWave – Challenges

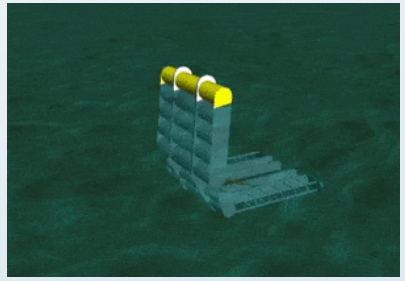
- **Direct-coupling results in variable flow and back-pressure**
  - Impact on performance (ie quality and energy consumption of process)
  - Impact on membrane life expectancy
- **WEC device performance is coupled to the dampening response of the PTO**
  - Suitability assessment of WEC for direct coupling to RO plant
  - Impact of RO process on WEC performance

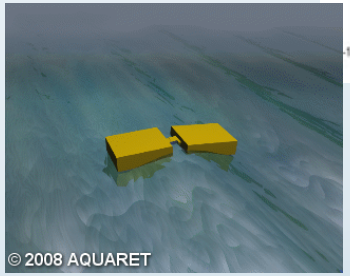






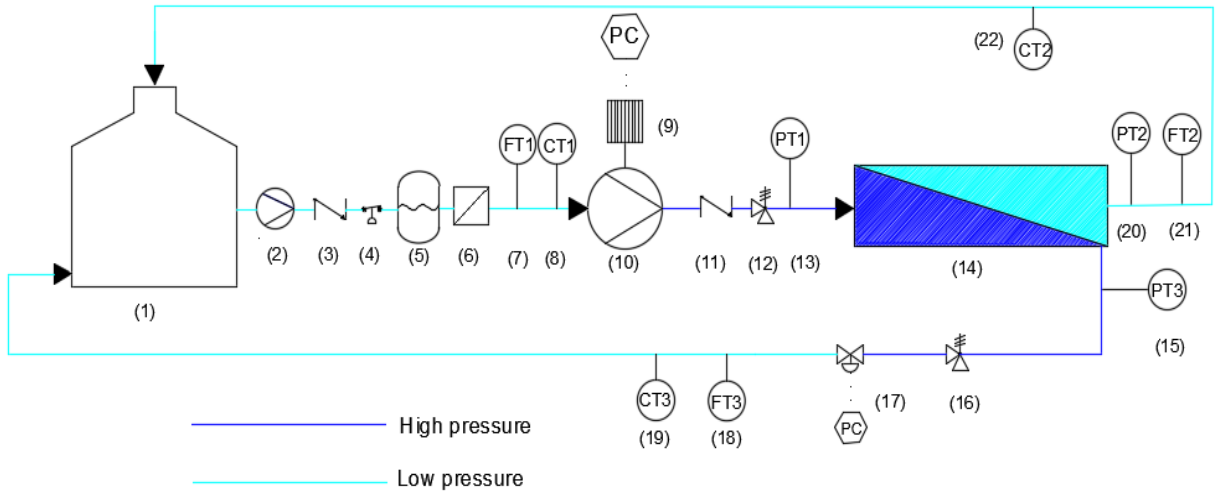






DesWave – Research Plan

- **Experimental**
  - Regular and Irregular Scenarios
  - Input will be informed from range of known deployments (scaled appropriately).
- **Numerical**
  - Further understanding of lab experiments
  - Validation and scale up considerations
- **Commercial Pathway**
  - Guidelines for variable flow/pressure RO desalinisation operation
  - Suitability and scalability for WEC technology



Key Components:

(9) Motor Drive
(10) High Pressure Pump
(14) RO Membrane
(17 Pressure Control Valve