



PROJECT TITLE: Submersible DIC Sensor Development
Investigator: Pro-Oceanus Systems Inc.



Research Team:

Pro-Oceanus Systems Researchers including:

**Dr. Bruce Johnson, Dr. Mark Barry, Mr. Bryan Schofield, Dr. Craig McNeil,
Mr. Blair MacDonald and PSI support staff**

Objective:

to develop a DIC sensor with features that include:

- **submersible to 4000 meters**
- **capacity of 700 samples/ deployment**
- **accuracy to $\pm 5 \mu\text{mole/ kg}$**

Strategy:

various including:

- **dual detector**
- **single detector with dual calibration ranges**
- **self calibrating sample loop**



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- Challenges:**
- sample/ acid volume
 - accuracy/ stability
 - metering in situ sample/ acid

Stakeholder Engagement:

50% of PSI profit goes to R&D; currently 3 projects including:

- submersible DIC sensor
- low cost/ accurate pH sensor
- CO2-Pro Atm. with underway standards calibration

Deliverables:

submersible DIC sensor:

- fully integrated with CO2-Pro series
- retrofittable to CO2-Pro series instruments
- continuous mode or up to 700 discrete samples/ deployment

Future Outlook:

fully integrated DIC, pH, pCO2 and CTD sensor package



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