



PROJECT TITLE: Biological Effects of OA on Coastal Species in Atlantic Canada

Investigator: Dr. Andrew Cooper and Tammy Blair

Research Team: Dr. Andrew Cooper, Tammy Blair, Marc Blanchard, Steve Neil, Vicky Merritt-Carr (Fisheries and Oceans Canada, St Andrews Biological Station, St Andrews, NB)

Objective: Lab-based research to assess the biological effects of OA (and other stressors) on species of commercial interest in the Atlantic coastal zone. Priority species include American Lobster, Sea Scallop, Sea Urchin, Blue Mussel, Soft-shell Clam and Atlantic Cod.

Strategy: Use new 2900 m² wet laboratory (capacity includes 32 channels for pH control, multiple temperature regimes, 10-channel oxygen control system) at the St Andrews Biological Station, and our existing expertise to assess the effects of OA on key endpoints (e.g. behavioural responses, shell hardness, growth, molting, etc.). Link with field observations. Generate predictive models for impacts on productivity, stock assessment. We plan to gradually add partners and assessment of additional stressors to our research program as we get rolling.



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Challenges: Original principle investigator, Dr. Ed Trippel, is on extended leave. Picking up where Dr. Trippel left off. Lack of funding for federal research on biological effects of OA is a significant issue.

Deliverables: Technical report for resource science and management/ stakeholders on risks for the Gulf of Maine (down-scaled from DFO Atlantic Basin risk assessment in 2013), including research and monitoring priorities. Risk assessment has been recently completed by Maine researchers for US Gulf of Maine ecosystem.

Stakeholder Engagement: presentation at Aquaculture Canada 2014; articles on DFO website and in local media. Meeting planned with DFO stock assessment scientists in April (American Lobster is a priority).

Future Outlook: we have world-class facilities and expertise for animal husbandry and live-holding. Capable of multi-stressor and multi-generational lab-based research. Need to integrate lab-based results with field observations (biological, chemical and physical) for accurate risk assessment and adaptive responses. Lack of funding is a significant constraint.

St. Andrews Biological Station— Aerial Photo (courtesy of Tim Foulkes)



Boat
launch and
wharf

Water intake

Filter
building

Offices and
Dry Labs

Wet Lab

Biocontainment
Lab

Brandy Cove

Greenhouse