

OEER Provides Funding for Three Seismic-Invertebrate Effects Research Projects

In June 2009, Offshore Energy Environmental Research Association (OEER) released a Request for Proposals (RFP) entitled "Assessing the Impacts of Seismic Exploration on Marine Invertebrates." The RFP closed on September 1, 2009.

Proposals underwent an external peer review process. The external peer review evaluations were then considered by the members of the OEER seismic invertebrate area subcommittee (ASC). A formal funding recommendation was made to the OEER Research Advisory Committee and Board in February 2010. OEER selected three projects aimed at increasing scientific knowledge on the potential effects of seismic exploration on marine invertebrates.

OEER will fund projects led by three researchers: Dr. Geoffrey Lee-Dadswell, Cape Breton University; Dr. Chris Purcell, Defence Research and Development Canada (DRDC); and Dr. Mikio Moriyasu, et al., Fisheries and Oceans Canada.

Details on each of the three projects and researchers awarded funding by OEER are as follows:

- **Dr. Geoffrey Lee-Dadswell, Cape Breton University.** *Physics of the Interaction Between a Crab and a Seismic Test Pulse – Stage 3: Continued Development of a Mathematical Model and Testing of Model via Simulation.*

Dr. Lee-Dadswell's project builds on earlier phases of his original research funded by OEER since 2007. This is a multi-phased study looking at how seismic energy interacts with snow crab. (For an account of that previous research, click here:

<http://www.offshoreenergyresearch.ca/OEER/SeismicInvertebrateResearch/ResearchProjects/tabid/352/Default.aspx>)

Dr. Lee-Dadswell is currently completing the third phase of his research project. He is building on his previous work by improving the mathematical model previously developed, and producing a modeling software package for use by other researchers. This phase of the study will make use of computer simulations to validate previous mathematical modeling. The simulations will also be used to guide further development of the mathematical model. The main goal is to remove several assumptions and approximations in order to more accurately model the motion of snow crab tissue of actual snow crab when exposed to seismic energy from an air gun pulse. The project is scheduled to be completed in October 2010.

- **Dr. Chris Purcell, Defence Research and Development Canada (DRDC).** *Feasibility of a Marine Vibroseis System to Minimize Potential Impacts of Seismic Surveying on Commercial Marine Invertebrates.*

Dr. Purcell and his team from DRDC, as well as several consulting firms, are conducting a study to investigate the feasibility of using a marine vibroseis system to conduct seismic testing, and to reduce potential impacts of seismic acoustic energy on the marine environment. The study will focus on forming a hypothesis and designing experiments to determine if the impact of seismic energy is reduced by using a marine vibroseis system with a lower peak intensity and longer pulse duration. The team will develop specifications of a system that could replace conventional air guns, and investigate the feasibility of using the Modular Projector System (MPS) as a marine vibroseis source. The project is scheduled to be completed in May 2011.

- **Dr. Mikio Moriyasu, et al., Fisheries and Oceans Canada.** *Establishment of Baseline Biological Data on Snow Crab (*Chinocetes opilio*) Offshore Cape Breton for Future Assessment of Potential Impacts of Seismic Noise on Snow Crab.*

Dr. Moriyasu leads a team from Fisheries and Oceans Canada, along with Threshold Associates, Atlantic Veterinary College (University of PEI), University of New Brunswick, Dalhousie University, and Gulf Aquarium and Marine Station Cooperative. The team is conducting a study that aims to improve understanding of the fundamental biological characteristics of snow crabs in their natural habitat and the physiological effects of handling. This is a multi-phased research project.

OEER has been focused on supporting leading-edge seismic-invertebrate research since September 2007 when more than 40 stakeholders gathered for a workshop with two goals: to examine existing research and to determine the key priorities for future research initiatives. These three research projects will help realize the goals set in 2007 and provide a clearer picture of the effects of seismic exploration for scientists, offshore exploration companies, the fishing industry, policy makers and the public.