# Hutchings named Young Innovator

## Biologist wins prestigious PetroCanada Award

**By Catherine Young**

Jeff Hutchings, Biology, is the 1999 winner of the PetroCanada Young Innovator Award at Dalhousie. The award consists of a research grant of $25,000 to conduct innovative research in an area of general interest.

PetroCanada's National Community Investment Manager Hazel Gillespie saluted the win. "We're delighted to be able to congratulate Dr. Hutchings and welcome him to an alumni of young innovators who are really making a difference across our country."

In general, Hutchings' research investigates the ecology and evolution of fish life histories and fish reproductive strategies. In particular, Hutchings investigates Atlantic cod and individual variation on spawning behaviour.

Despite its immense importance to Atlantic Canada, there had been little research done on cod reproduction. Out of two publications on cod spawning behaviour written worldwide one was co-authored by Hutchings and his Dalhousie colleague, Ransom Myers.

Hutchings explains the cod's reproduction strategies. "We're dealing with a fish that releases its eggs directly into the ocean environment, provides no parental care for its offspring, doesn't construct a nest so the eggs are...simply dispersed and their fate is left entirely up to the environment.

"So the question is — what kind of spawning behaviours do you expect to find in such a species? Many people have assumed that the randomness associated with the release of eggs is also associated with a willy-nilly attitude...when it comes to reproduction....Yet our research actually found just the opposite. In fact, they appear to have highly structured behavioural repertoires." Females are choosy about their mates, while males communicate with the females through sound (by using their air bladders).

As part of his work, Hutchings will examine which males are the most successful — what factors are most important to breeding success and whether size of the male fish does matter.

To Hutchings, intensive study of mating behaviour has real-life implications. "From a commercial importance side, to what degree might fishing or other human-related activities affect the reproductive success of cod when we...fish or do other things in the vicinity of spawning cod?"

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The PetroCanada Award will allow him to monitor, describe and observe cod spawning in the Aquatron, the 600 cubic-metre tank located in the Life Sciences Centre. It will allow him to do genetic analyses on which fish win the spawning sweepstakes — and whether comparatively few males or most males win.

Once an idea of individual differences in spawning behaviour is obtained, and those differences can be related to reproductive success, then a disturbance such as a lound sound – can be introduced. Once that is done, Hutchings can monitor how the cod respond to the sonic interference. Hutchings says that the sound generated might be similar to trawlers or drilling in the area.

The award also enables him to obtain a school of 120 cod, 70 from George's Bank and 50 from nearer Halifax. Spawning behaviour will be recorded on videotape and sophisticated genetic analyses will be conducted in the Marine Gene Probe Lab at Dalhousie.

Research started this fall and should be completed by the end of next year. It follows the fish's spawning cycle, which typically lasts from December to February.

### Where inquiry leads

Those hoping that the research leads to resurging Atlantic cod stocks would be disappointed. Hutchings says, "It would be a pretty long stretch to have any success of refertilizing the ocean."

But those who are interested in breeding cod in fish farms need that spawning information. In a commercial aquaculture operation, it is important that more than one male fertilize the eggs. Otherwise, inbreeding could threaten the stocks. (Cod farming has assumed economic importance in parts of Atlantic Canada.)

The petroleum industry is also interested in his results. Next year, Hutchings will submit a final report to PetroCanada.

PetroCanada official Hazel Gillespie declines to say whether the company sees any applications of Hutching's investigations to offshore oil and gas activities. But she states that the research "...has the potential to generate significant insight for the East Coast and beyond."

Hutchings admits that his investigations may have unforeseen results. "It's the kind of work that's exciting to perform from a basic ecological perspective, but it may have other benefits."

# Unique Greater Halifax-Medical School partnership formed

IN RESPONSE TO A RECENT KPMG study identifying Halifax as the number one location in the world for doing business in the life sciences sector, the Greater Halifax Partnership and Dalhousie Medical School signed a Memorandum of Understanding to develop the life sciences industry in the region. The initiative will be funded jointly through Industry Canada's Canadian Community Investment Plan (CCIP), which focuses on bringing investors and entrepreneurs together, the Partnership and the Medical School.

"There is tremendous untapped potential in the life sciences sector in Halifax," said Michael MacDonald, President and CEO of the Partnership. "Our goal with this program is to work with Dalhousie to investigate the commercial viability of the research projects being conducted at the Medical School, identify those with business potential, and help bring these projects to commercialization."

Noni MacDonald, Dean of Dalhousie Medical School, agrees that there is tremendous opportunity within the local life sciences community. "There are more than three hundred research projects currently under way at Dalhousie Medical School, many of which have the potential to become successful commercial ventures," said Dean MacDonald. "Historically, there have been challenges in securing financing that fits with the highly specialized nature of the industry. We hope to address this challenge through this co-operative venture with the Partnership."

A Memorandum of Understanding signed by the Greater Halifax Partnership and the Dalhousie Medical School forms the basis for this co-operative venture. Under this agreement, the Partnership and the Business Development Office at Dalhousie Medical School will work together by sharing resources and expertise to overcome the challenges in commercializing research projects in the Medical School. Projects currently under way will be analyzed and cataloged to evaluate their potential for commercialization.

In addition, a mechanism for accessing investors and capital will be developed to match the financing needs of each viable project with the type of financing required. Increasing the business skills of the scientists will also be addressed through training and education programs. Both the Partnership and the Business Development Office will nominate members to sit on an advisory board to provide strategic direction and guidance for this project.

Halifax is one of 22 Canadian communities supported by Industry Canada to implement a demonstration project under the CCIP program. Its goal is to find innovative approaches to bring equity financing to growth-oriented small- and medium-sized enterprises.