

## NEWS

# Vancouver researchers examine IMTA economics

Study examines willingness to pay for environmental benefits

BY MATT JONES

**A** research project underway at the Simon Fraser University (SFU) School of Resource and Environmental Management is examining the economics and marketing of integrated multi-trophic aquaculture (IMTA). The study has shown encouraging results, which will provide a foundation for future research looking at how to promote the adoption of IMTA techniques by the industry.

IMTA is a process of combining the culture of a fed species (i.e. salmon) with other, extractive species such as shellfish and seaweed, or invertebrates such as sea cucumbers. By creating a situation that mirrors a natural ecosystem, the process leaves a smaller ecological footprint; excess feed and waste products from the fed species are consumed by the extractive species instead of remaining in the marine environment. Historically, the primary challenge in promoting IMTA adoption is how to effectively convey what IMTA is and what its benefits are to the average consumer. While IMTA mitigates environmental and ecological concerns, techniques such as closed-containment aquaculture (CCA) tend to be more easily understood by consumers in terms of how they address such concerns.

The study is based upon a master's research project by a now-graduated SFU student, Winnie Yip, which was funded through a grant from the Natural Sciences and Engineering Research Council of Canada. Dr. Duncan Knowler, an associate professor at the School of Resource and Environmental Management, was one of several SFU faculty members who helped shape the project.

"The main bones of it, the survey and the basic analysis, was carried out by the student, but a master's student isn't capable of doing all the work that's included in this paper to bring it to fully publishable standards," says Knowler. "There was a fair bit of augmented or supplementary work that was done involving myself and [late SFU professor]

Wolfgang Haider and our graduate student Ryan Thenholm, who's a PhD student and a specialist in choice experiments, who helped with the statistical analysis."

## STUDY PROCESS

The basic process for the study involved conducting consumer surveys in the three US cities that import the most of British Columbia's farmed salmon – Seattle, Portland and San Francisco. Survey respondents were provided with basic information about IMTA and CCA, and asked a detailed series of questions about their attitudes and opinions regarding wild salmon and farmed salmon and the various production techniques. The responses were then plugged into standard marketing formulas that are used to determine willingness to pay

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Seattle's famous Pike Place Fish Market. IMTA research from SFU surveyed potential customers from Seattle as well as San Francisco and Portland. Credit: Duncan Knowler

(WTP), which is a measure of a consumer's interest in switching from one thing to another.

"Let's say you'd like to buy a car," explains Knowler. "Standard model has vinyl seats and costs \$10,000. You want the model with leather seats and the market study says you'd be willing to pay \$2,000 for leather seats. The total amount you're willing to pay is \$10,000 without leather seats or \$12,000 with them – the difference between the two being the marginal willingness to pay for upping it to leather from vinyl. That relationship is quite important."

Some of the analysis could seem surprising, as in the case of a group of survey respondents categorized as "wild-salmon lovers" who the survey showed did have a strong marginal WTP for the benefits of IMTA while also intending to never actually purchase farmed salmon at all.

"What you're capturing here isn't intended purchasing behaviour," says Knowler. "They're not going to suddenly go out and fork down an extra five bucks a pound for salmon just because it's IMTA when they don't even like farmed salmon. What it's saying is they like the idea that, if there's going to be farmed salmon, that it's produced with more of a sustainable technology."

## ENCOURAGING RESULTS

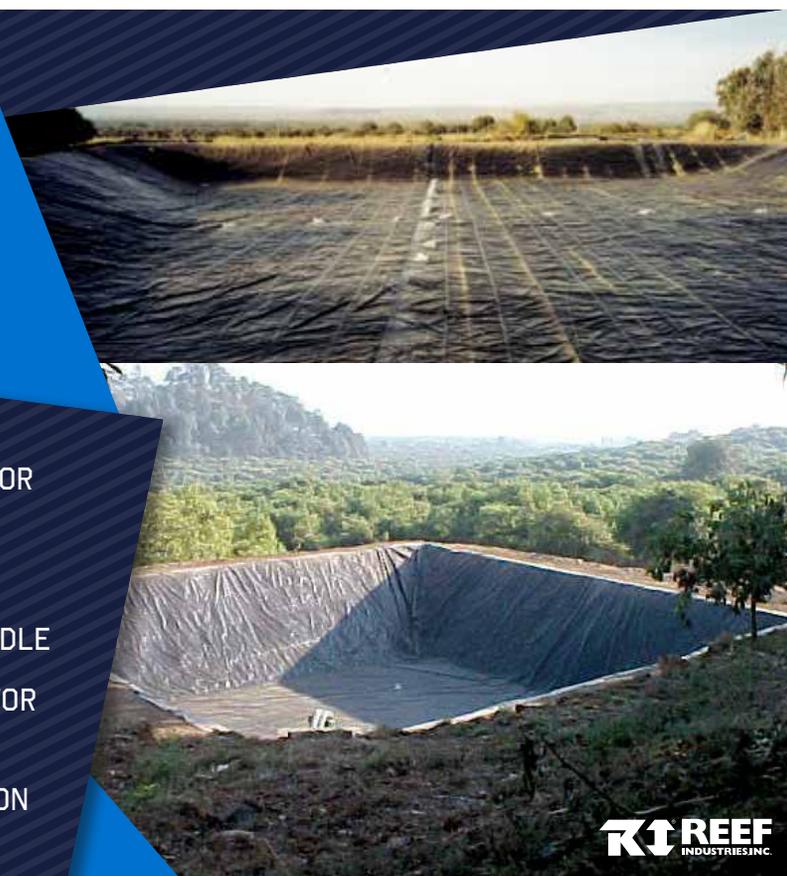
Overall, the results of the study show that many consumers from a variety of sectors are willing to pay a premium for the environmental benefits of IMTA. This does not necessarily mean that any aquaculture producer in North America can adopt IMTA techniques and expect consumers to pay a higher price in order to cover that cost. But the results are encouraging and will be used in concert with other research efforts to examine how best to promote and market the technique.

"This paper is a very good contribution to the understanding of the value of IMTA," said Dr Thierry Chopin, the Scientific Director of the Canadian IMTA Network (CIMTAN). "Consumers are reacting positively to the adoption of IMTA; interestingly, even more positively to IMTA than to the development of closed containment facilities, for several reasons. Consumers are willing to pay a price premium and we have already seen it with the WiseSource™ Salmon from Loblaw. We need to further develop the awareness of IMTA by the industry and consumers so that this practice gets full recognition, its economic potential is fully realized, and we implement it at a larger scale. The so-called 'intangible societal benefits' of IMTA are becoming clearer and clearer and they could be substantial."

IMTA research continues at SFU. Knowler is working with a PhD student and a masters student on projects using different models to compare conventional aquaculture with IMTA techniques. In the meantime, he continues to complete papers related to the research with former students and colleagues.

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