ecotrust canada

Fisheries Diversification Model

Introduction / The fishing industry is notoriously unpredictable. Declining fish populations, changing regulations, and poor market prices can all have major impacts on profitability — and are daunting challenges for small communities trying to plan a reliable source of income. Our goal is to help guide these important discussions by making the science and economics of fisheries a little more accessible.

At its core, the Fisheries Diversification Model is a decision-support tool for planning resilient fisheries. It allows users to explore historical fisheries data and current costs of business with an eye to the future.

Fishing communities in British Columbia are suffering and at risk of dying out due to a tangled net of interconnected challenges. Recognizing this, Ecotrust Canada has designed a new tool to help fishing communities figure out how to be more resilient. The model helps a community define and prioritize its objectives in pursuing fishery investments. Are they trying to maintain cultural ties to traditional livelihoods? Do they want to increase employment within the community? Are they trying to build a more sustainable source of income? Or, with more established fisheries, do they simply want to evaluate their current risk exposure to overfishing and climate change and adapt accordingly?

Using the Fisheries Diversification Model, a community can create a series of fishery

ABOVE / *Freshly caught Yelloweye rockfish. Declining populations have landed this species on COSEWIC's list of Species of Special Concern, making their ecological and economic future uncertain.*

RIGHT / The model offers a number of tools to organize ideas and measure success. Shown here are reports on fisheries seasons and fleet profitability by boat.

scenarios and receive feedback on each scenario's economic, social, and environmental performance. The model can highlight which fishery combinations may result in higher profits and employment with less vulnerability to environmental conditions. Through these scenarios, communities can better evaluate how well their decisions meet their short and long term objectives.

How it works /

We introduce the Fisheries Diversification Model to communities that have recognized an opportunity for change and wish to design an individualized vision of a fishery suitable to their needs. Our tool incorporates a community's own fisheries information with typically hard-to-find federal data and offers support in building on that vision.

Reflecting on the past

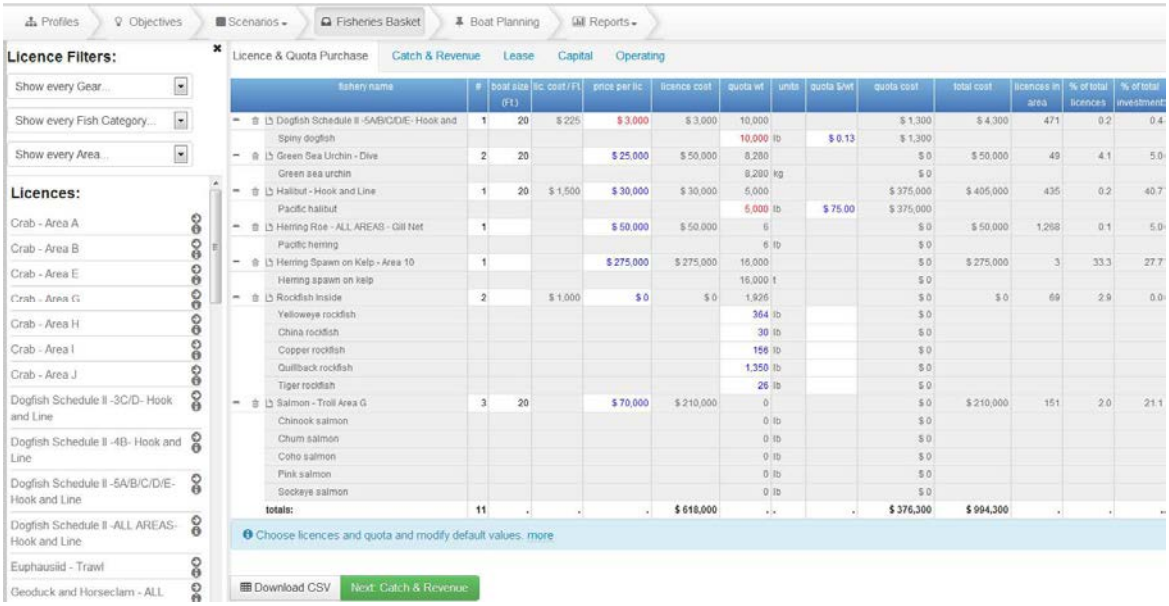
The model is built on a solid foundation of fisheries data — possibly the most comprehensive Canadian fisheries database in the world. Ecotrust Canada undertook a monumental data gathering project, assembling more than 15 years of DFO catch records across all west coast fisheries. This database is accessed throughout the model and users can explore the changes in harvested weights and earnings in each fishery over time, using these historical trends to inform their understanding of current fisheries.

Understanding the present

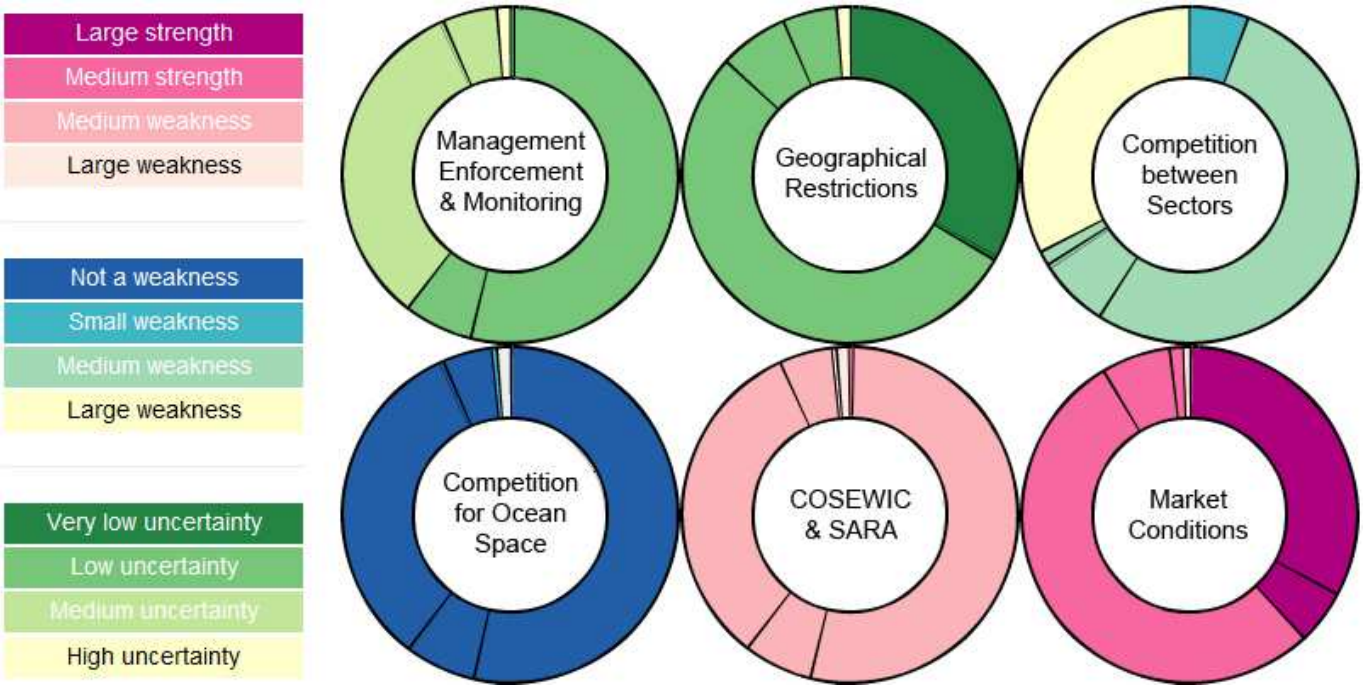
Fishing is an expensive business. But which fisheries incur which costs? To find out, we held a series of interviews with commercial fishers across the industry, learned about the specific costs of participating in each fishery, and verified the numbers against published reports. These operational costs are woven into the model and further inform users' understandings of each fishery.

Looking to the future

The central purpose of the Fisheries Diversification Model is to guide and enrich important community discussions and decision making. It provides a unique opportunity for communities to interact with fisheries data in real time, allowing them to explore scenarios in detail and



RIGHT / The Fisheries Diversification Model allows users to delve deep into the economics of each fishery and use either default or customized costs in their calcula-



truly test their assumptions about what makes a successful fishery. To that end, the model features a number of tools to aid users in creating a list of objectives and evaluating proposed scenarios based on those objectives.

In crafting each scenario, the user can create a series of diversified fishery combinations which include various species, gear types, and geographic areas, and take into account things like seasonal timing, required equipment, and start-up costs.

Drawing on current financial data, the economic reports outline the costs and revenues associated with each scenario on both a boat-by-boat and fleetwide basis. Users can examine the profitability of their scenarios and judge the financial sustainability of their proposed fisheries.

By merging financial data from the present with harvest data from the past, the Fisheries Diversification Model offers users a methodical approach for anticipating future fishery trends.

The future indicators report outlines the long-term strengths and weaknesses of each fishery on nine different criteria, from environmental risk to economic competition. Although they can't really tell the future, the final indicator scores do give users a sense of each scenario's potential sustainability over the long term and the potential risk associated with their proposed investments.

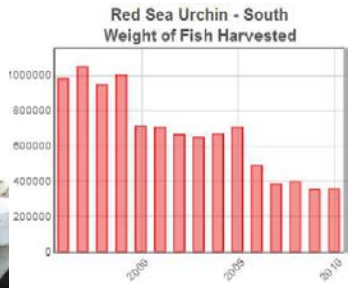
Many fish, many baskets /

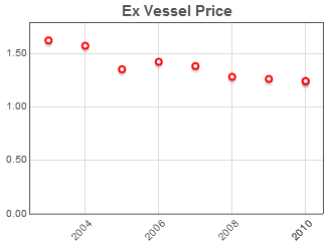
The model's focus on diversification helps communities recognize potential threats and reduce their exposure to risk. If a community is dependent on a single species, that community's fortunes rise and fall with that species. However, a community fishing a more diverse basket of fisheries is more resilient and better able to adapt in shifting environmental and regulatory conditions.

ABOVE / *It's no crystal ball, but the Fisheries Diversification Model's Future Indicators feature does help users plan for challenges ahead. By highlighting the strengths and weaknesses of each fishery across a number of criteria, users can weigh the potential risks and rewards of their planned fisheries.*

"Our goal is to guide communities in crafting economically and culturally sustainable business models that maintain cultural ties to the past and build prosperity for the future ."

RIGHT / *More diversified fisheries may help communities mitigate and ultimately reduce future risk; Graphs of historical DFO data give guidance when choosing fisheries - red urchin, in this case.*





Past projects /

We believe the Fisheries Diversification Model empowers communities to more effectively participate in the stewardship and governance of fishery resources and make informed decisions about their own futures.

In that regard, Ecotrust Canada has begun a series of consultations with BC coastal communities, providing guidance in the use of the model and informing decisions about fishery investments. So far, the model has supported a number of investment consultations and a treaty process for increased access to diversified fisheries.

Moving forward /

The database at the core of this project is itself a powerful resource, one we plan to leverage in this and future projects to deepen our understanding of Canada's west coast fisheries.

We are continuously refining the design and operation of the model, making it more user-friendly and relevant to broader audiences. It is our hope that an eventual public release will enhance public understanding of fisheries science and join communities in important discussions about the future—one that provides meaningful work and good livelihoods, supports vibrant communities and cultures, and conserves and restores the environment.

More information /

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