

MESM 2009 Group Project Proposal:

Tracing seafood sources: a pressing technical challenge for the seafood industry

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Client: Monterey Bay Aquarium (Sustainable Seafood Initiative)

Faculty Sponsor: Christopher Costello

Problem statement:

Tools to help consumers identify sustainable seafood, such as the Monterey Bay Aquarium's Seafood Watch® Pocket Guides, are growing in popularity and recognition.¹ However, there is often little accountability by seafood providers to ensure that products are accurately labeled, and it is often difficult or impossible to trace a piece of seafood's transport through the chain of supply to identify where, how and by whom it was captured or grown. For instance, the percentage of Chilean Sea Bass available in US markets with illegal origins is thought to be 50% and growing.² The rampant black market for illegally caught fish and challenges of monitoring are also clearly a problem for fisheries management worldwide.³ Without accountability and traceability, the current pressure from governments to follow regulations and from market-based approaches to improve the sustainability of seafood provide limited incentive for reform and innovation in the fishing and aquaculture industries. To be effective, demand-side efforts to spur fisheries sustainability will require seafood tracing systems, yet these systems do not currently exist for the vast majority of seafood sold.⁴

There are several existing, nascent efforts to create a system to trace seafood from its source to its endpoint. However, there are unsolved challenges such as how to streamline a single process to work for wild caught, farm raised and sea ranches sources of seafood.⁵ There is potential for multiple systems to be adopted by different sectors of retail, with potentially negative (i.e., too much complexity and discord) or positive (i.e., flexibility and choice) outcomes for industry.⁶ A comprehensive analysis of the trade-offs among systems and outstanding needs particular to the seafood industry has yet to be done.

Objectives:

This Bren Group Project proposal aims to tackle the following broad questions: 1) what would a successful seafood tracing system look like, 2) how could it be efficiently adopted by the

industry and 3) how could widespread adoption be catalyzed by new policies, with the following associated objectives:

- 1) evaluate existing seafood tracing systems and their trade-offs,
- 2) identify remaining gaps and pitfalls to tracing technology,
- 3) distill lessons from models of implementing tracing in other arenas (e.g. forestry and agriculture),
- 4) outline pathways to widespread implementation of tracing systems by seafood purveyors that are attractive, affordable and efficient for the industry,
- 5) investigate ways in which existing fisheries policies allow for active support of tracing systems,
- 6) develop rationale and recommendations for federal legislation mandating a traceability system for all seafood products sold in the U.S.

Project Significance

A comprehensive analysis of the state of seafood tracing systems and a set of recommendations for widespread adoption would provide:

- NGOs with the information and strategies they will need to target partnerships in the seafood industry and catalyze the development and adoption of seafood tracing,
- the field of seafood tracing systems with new directions and new vision on how to make the adoption of tracing systems attractive to the seafood industry,
- specific language for future federal legislation on seafood traceability.

Background Information

Only a few technologies and systems exist to trace seafood through the supply chain. The Marine Stewardship Council has a detailed chain of custody program, but only intended for wild fisheries that have attained MSC certification (~4% of seafood supply as of 2008 – Richard Boot, pers. comm.). Trace Registrar's tracking technology is approved by the Aquaculture Certification Councils certification process but the sustainable seafood NGOs have yet to determine if the system can be used for their needs. Other product tracking systems exist for seafood that could be harnessed for environmental accountability (Trace Tracker, Fair Factories Clearinghouse) and other similar industries such as organic food and forestry. To date, NGOs that rank seafood products for environmental standards and NGOs working on fishery improvement projects do not have an adequate system to turn to for accurately tracing the products to end consumers.

Stakeholders

- Fishermen
- Aquaculture industry
- Fisheries managers
- Tracing system companies (e.g., Trace Register, Safe Harbor mercury testing)
- Seafood distributors (e.g. Central Coast Seafood, Kanaloa Seafood)
- Seafood retailers (e.g., Lazy Acres Market, Santa Barbara Seafood)
- Consumers

- Food service providers (e.g., Santa Barbara chef Josh Brown of Sea Grass)
- Sustainable seafood NGOs
- Seafood Industry consortiums and representatives (e.g., Food Marketing Institute)

Approach and Available Data:

The group will work with representatives and materials from all stakeholders/points in the supply chain to gather information and opinions on how to effectively design and implement a tracing system on a widespread scale. We have close contacts with all of the example stakeholders listed above, and many more with which to complete this process. The client, Monterey Bay Aquarium's Sustainable Seafood Initiative, and their affiliates will play a major role in facilitating these connections. Interviews with these stakeholders, perhaps in focus group format, to elicit their ideas and criticisms about trace systems and their implementation will be combined with information in existing reports and publications on the topic. The client and their affiliates are key players in on-going initiatives like the WWF, UN and World Bank joint sponsored "Aquaculture Dialogues,"⁷ which engages representatives of >2,000 people with a stake in the development of new standards for sustainability, guaranteeing access to up-to-date news on the cutting edge developments relevant to tracing technology and policy.

For the development of language on legislation, research into existing management regulations in the US (e.g., the Magnuson-Stevens Reauthorization Act of 2006) and similar efforts for tracing legislation elsewhere can be harnessed to determine potential policy opportunities relevant to the objectives. For instance, British Columbia completed a major analysis on the "State of Readiness" for traceability legislation in the seafood sector there in 2005⁸ that will be a useful resource for this objective. Meetings with the staff of policy-makers such as U.S. Representatives from California Sam Farr and Lois Capps, leading advocates for marine environmental issues, to discuss realistic options and strategies can likely be arranged.

Deliverables

- Quantitative analysis weighing the pros and cons of a suite of seafood tracing systems
- Formal presentation to Conservation Alliance For Seafood Solutions (Sustainable Seafood NGO Consortium supported by Packard Foundation)
- Draft language for a Federal Seafood Traceability Bill

References

1. Jacquet JL and Pauly D (2007) The rise of seafood awareness campaigns in an era of collapsing fisheries. *Marine Policy* 31:308-313.
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3. Pritcher T, Watson R, Forrest R, Þór Valtýsson H and Guénette S (2002) Estimating illegal and unreported catches from marine ecosystems: a basis for change. *Fish and Fisheries* 3:317-339.
4. Iles A (2006) Making the seafood industry more sustainable: creating production chain transparency and accountability. *Journal of Cleaner Production* 15: 577-589.

5. Hastein T, Hill BJ, Berthe F, Lightner DV (2001) Traceability of aquatic animals. *Revue Scientifique et Technique de le Office International des Epizooties* 20:564-583.
6. Jahn G, Schramm M, Spiller A (2004) Differentiation of certification standards: the trade-off between generality and effectiveness in certification systems. 14th Annual WorldFood and Agribusiness Forum, Symposium and Case Conference, Montreux, Switzerland, June 12-15, 2004.
7. World Wildlife Fund (2008) Aquaculture Dialogues: Process Guidance Document. <http://www.worldwildlife.org/what/globalmarkets/aquaculture/aquaculturedialogues.html>
8. Archipelago Marine Research, Ltd. An Analysis of the Requirements, Current Conditions and Opportunities for Traceability in the British Columbia Seafood Sector, June 2005. <http://www.env.gov.bc.ca/omfd/reports/traceability>

Client & Contact Information

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Anticipated Financial Needs and Sources of Support

(see included letter of support from client)

- Internships for one student to dedicate time to the project and/or related needs of the client over the 2009 summer quarter (\$4000)
- Communications costs to interview stakeholders by phone (\$100)
- Travel costs to visit nearby stakeholders by car (\$500)
- Access to contacts and facilitation with engaging stakeholders in sharing information
- Access to prior research on tracing systems and transfer of expertise on the topic