

Update Report

Period: 2/1/2014 - 1/31/2015

Project: R/COCC/SS-1 - Social and economic effects of ITQs on the West Coast Groundfish fishery: solving the weak stock/bycatch problem

STUDENTS SUPPORTED

Kuriyama, Peter, ptrkrym@uw.edu, University of Washington, School of Aquatic and Fishery Sciences, status: cont, field of study: Fisheries, advisor: Trevor Branch, degree type: PhD, degree date: 2018-07-01, degree completed this period: No
Student Project Title:

West Coast Groundfish: Effects of Management and Potential for Alternative Data Sources in Stock Assessments

Involvement with Sea Grant This Period:

Graduate student

Post-Graduation Plans:

Intends to obtain a bypass to the PhD program and continue with the same project.

CONFERENCES / PRESENTATIONS

Kuriyama PT, Hicks A, Johnson KF, Taylor IG, Anderson SC, Hurtado-Ferro F, Licandeo R, Monnahan CC, Ono K, Rudd MB, Stawitz C, Valero JL (2014) An investigation of using empirical weight-at-age instead of modeling parametric growth in statistical age-structured population models. Oral presentation at CAPAM Growth Workshop, La Jolla, CA, November 3-7, public/profession presentation, 100 attendees, 2014-11-05

Kuriyama PT, Branch TA (2014) Incentivizing selectivity under catch shares in the US West Coast Groundfish fishery. Oral Presentation at International Marine Conservation Conference, Glasgow, Scotland, August 14-18, public/profession presentation, 300 attendees, 2014-08-15

Peter Kuriyama. Should we measure or estimate growth in stock assessments? Quantitative Seminar, School of Aquatic and Fishery Sciences, University of Washington, Seattle, WA, February 27 2015, public/profession presentation, 30 attendees, 2014-02-27

ADDITIONAL METRICS

P-12 Students Reached:	0	P-12 Educators Trained:	0
Participants in Informal Education Programs:	0	Volunteer Hours:	0
Acres of coastal habitat protected, enhanced or restored:	0	Resource Managers who use Ecosystem-Based Approaches to Management:	0

Annual Clean Marina Program - certifications: 0

HACCP - Number of people with new certifications: 0

ECONOMIC IMPACTS

Description	Patents	Market Impacts (\$)	Non-Market Impacts (\$)	Businesses Created	Businesses Retained	Jobs Created	Jobs Retained
None directly measurable.	0	0	0	0	0	0	0

SEA GRANT PRODUCTS

Description	Developed?	Used?	ELWD?	Number of Managers	Names of Managers
Very active social media outreach. About 8000 tweets written on Twitter (@TrevorABranch), to 2950 followers. Total tweet impressions (views) over year: 4.2 million.	Yes	No	Yes	100	Very hard to enumerate and count.
Assisted (co-PI) in development of public website to measure the effects of catch share websites: catchshareindicators.org	Yes	No	Yes	0	Public website metrics not immediately available.

HAZARD RESILIENCE IN COASTAL COMMUNITIES

Name of coastal community	County	Number of resiliency trainings / technical assistance services provided	Was community hazard resiliency improved (e.g., via changes in
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	0	zoning ordinances) ? Yes
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ADDITIONAL MEASURES

Number of stakeholders modifying practices: Sustainable Coastal Development
0

of coastal communities: 0

Very hard to enumerate how many have used our results and changed their practices directly. Some probably have. None

PARTNERS

Partner Name: Fisheries and Oceans Canada (DFO)

Partner Name: Gordon and Betty Moore Foundation

Partner Name: MRAG USA Ltd

Partner Name: Northwest Fisheries Science Center (US DOC, NOAA, NMFS, NWFSC)

Partner Name: University of California, Santa Barbara (UCSB)

IMPACTS AND ACCOMPLISHMENTS

Title: **Less waste, higher revenues: Washington and California Sea Grant researchers measure catch share effects on West Coast groundfish fisheries**

Type: impact

Relevance, Response, Results:

Relevance: The West Coast groundfish fishery is vast, valuable, complex, and overfished. Revenues rose after the Pacific Fishery Management Council implemented individual fishing quotas (IFQs). But questions about effects on fish stocks and fishing communities can only be answered by objective, authoritative data on IFQ ecological and social impacts and return on investment.

Response: Washington Sea Grant partnered with California Sea Grant to examine IFQ impacts on the groundfish fishery. Research focused primarily on fleet-wide catches, the status of fish stocks, and discard practices. Resources are being leveraged from the Moore Foundation and a Sea Grant-NMFS Fellowship to compare Northeast and West Coast IFQ experiences, assemble the best science about catch-share performance, and help guide future catch-share decisions. Analysis will continue through 2016.

Results: Findings to date are surprising because researchers and managers expected fleets to come much closer to filling their fishing quotas. However, except for highly valued sablefish harvests, total catches have changed little. West Coast groundfish fisheries discarded less bycatch than at any time in the previous decade but caught only small portions of their quotas of target species, averaging about 30 percent versus 67 percent in nearby Canadian fisheries. The apparent reason: U.S. fleets fish

more cautiously to avoid costly problems like exceeding quotas for overfished stocks or taking protected species.

Recap:

Recap: Regional researchers are tracking ecological and economic effects of a new catch–share system on West Coast groundfish fisheries, including surprisingly low harvest levels, to provide insight into developing more effective quota systems.

Comments:

Primary Focus Area – LME (SSSS)

Secondary Focus Area – COCC (SCD)

Associated Goals: Support conservation and sustainable use of living marine resources through effective and responsible approaches, tools, models, and information for harvesting wild and cultured stocks and preserving protected species. (SSSS Industry)

Assist coastal communities and marine-dependent businesses in planning and making decisions that provide local and regional economic benefits, increase resilience, and foster stewardship of social, economic, and natural resources. (SCD Efficiency)

Partners:

Fisheries and Oceans Canada (DFO)

Gordon and Betty More Foundation

MRAG Americas

Northwest Fisheries Science Center (US DOC, NOAA, NMFS, NWFSC)

University of California, Santa Barbara (UCSB)

Related Partners: *none*

PUBLICATIONS

Title: **Issues at the fore in the land of Magnuson and Stevens: A summary of the 14th Bevan Series on Sustainable Fisheries**

Type: Reprints from Peer-Reviewed Journals, Books, Proceedings and Other Documents Publication Year: 2015

Uploaded File: [Kuriyama_etal_2015_Iss....s.pdf](#)

URL: <http://www.sciencedirect.com/science/article/pii/S0308597X14003492>

Abstract:

The Magnuson–Stevens Act is the United States' premier law governing fisheries conservation and management. Congress has revisited the Act multiple times since its inception in 1976—most recently in 1996 with the Sustainable Fisheries Act and in 2006 with the Magnuson Stevens Act—and is currently in the process of reauthorizing the Act. The University of Washington focused the 14th annual Bevan Series on Sustainable Fisheries on issues surrounding reauthorization. The symposium featured a diversity of stakeholders, including fisheries scientists, managers, policy analysts, students, non-governmental organizations, Tribes, and industry. The symposium explored the Act's history, means of ending overfishing and ensuring accountability, lessons from U.S. West Coast and North Pacific fisheries, and challenges and solutions to ecosystem-based fisheries management.

Citation:

Kuriyama PT, Siple MC, Hodgson EE, Phillips EM, Burden M, Fluharty D, Punt AE,

Essington TE, Henderschedt J, Armstrong DA (2015) Issues at the fore in the land of Magnuson and Stevens: a summary of the 14th Bevan Series on Sustainable Fisheries. Mar Pol 54: 118-121

Copyright Restrictions + Other Notes:

Journal Title: Marine Policy

Title: **A Guide for Bayesian Analysis in AD Model Builder**

Type: Handbooks, Manuals, Guides/Aids Publication Year: 2014

Uploaded File: [admb_mcmc_guide.pdf](#)

URL: <http://www.admb-project.org/developers/mcmc/mcmc-guide-for-admb/view>

Abstract:

The goal of this guide is to outline and describe the steps needed to conduct a Bayesian analysis in AD Model Builder. Included are general descriptions of Bayesian inference, priors, work how and two built-in MCMC algorithms. We hope that the guide will enable users to take full advantage of the features of ADMB that are built-in, but not well-documented.

Citation:

Monnahan, C C, Muradian, M. L., Kuriyama, P. T. 2014 A guide for Bayesian analysis in AD Model Builder. <http://www.admb-project.org/developers/mcmc/mcmc-guide-for-admb/view>

Copyright Restrictions + Other Notes:

Journal Title: *none*

OTHER DOCUMENTS

No Documents Reported This Period

LEVERAGED FUNDS

Type: influenced Period: 2014-02-01: : 2015-01-31 Amount: \$69643

Purpose:

Large collaboration with multiple PIs on project comparing the impacts of catch share fisheries on the US west coast and US north-east coast. The UW share of the project is worth \$325,000.

Source: Moore Foundation

UPDATE NARRATIVE

Uploaded File: [Costello_8295_update_n....3.pdf](#), 70 kb

Progress report narrative: “Social and economic effects of ITQs on the West Coast groundfish fishery: solving the weak stock/bycatch problem”

Activities carried out

Graduate student Kuriyama

Peter Kuriyama started on the project in Fall 2012, as the 1 February Sea Grant start date did not align with university admission timelines. He has been working on two chapters for his MS. In his first chapter he is comparing the discard rates and catch:TAC (total allowable catch) ratios for a wide range of species in the U.S. west coast groundfish trawl fishery both before and after catch shares were implemented, and before and after catch shares were implemented in British Columbia. This chapter is completed and ready for submission to a journal. He will apply for a bypass to a PhD this quarter, which should be granted.

In his second chapter he is examining spatial patterns in fishing effort before and after catch shares were implemented in the U.S. west coast fishery. We have obtained both logbook data and VMS data for this project.

We have supplemented funding for Peter Kuriyama with one quarter of a TA at the University of Washington for R programming (FISH552 / FISH553), multiple additional quarters from the MRAG/Moore project, which ends in August 2017, allowing us to extend Peter’s funding, and Peter was also awarded the prestigious Sea Grant Population Dynamics Fellowship, allowing him to continue to a PhD.

This project is finishing up with a no-cost extension, and collaboration with the UCSB PIs has been extremely fruitful and forged connections that would not have been possible otherwise.

All milestones have been met and the project has dovetailed perfectly with the larger Moore-funded project.

Broader collaboration

Peter Kuriyama and Trevor Branch attended a joint meeting of the MRAG/Moore project in Boston in March, at which plans were finalized for that project, with multiple papers outlined for submission in 2017 to coincide with the planned end of that project. The website is up and running (catchshareindicators.org).

Participants in 2015

PIs: Trevor Branch and Ray Hilborn

Graduate students: Peter Kuriyama (funded through Sea Grant)

Results

Six related peer-reviewed papers have been published by participants at the UW side of the project, with at least three more core papers planned from Kuriyama's thesis, and five more from the Moore/MRAG project.

Challenges encountered

None.

Changes in project direction

None.

Related projects

PI Branch is funded to work with Prof. Tim Essington on a related project by the Moore Foundation (via MRAG USA) to produce ecological indicators to measure the effects of catch share programs. The two focal systems are the US west coast groundfish fishery, and sector management in the New England groundfish fishery. Some of the indicators are common to both projects (e.g. changes in discard rates over time), and we will use the Moore project money (to December 2016) to continue funding Peter Kuriyama's work after the Sea Grant funding finishes. The two projects are highly complementary.

Outreach note

Extensive social media outreach by Trevor Branch on Twitter, some related to this project, have resulted in about 8000 tweets over the past year to 2900 core followers. Retweets result in total actual tweet impressions (akin to page views of a website) of 4.2 million impressions over the past 12 months, according to analytics.twitter.com.