

Project details

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Project number: E/I-23

Project title:

Population and Ecosystem Dynamics - Integrating hook and line survey data and ecological observations to improve stock assessments of key rockfish species in untrawlable habitats

Project update:

My work since June 2015 falls into three categories: (1) updating the petrale sole stock assessment for 2015, (2) simulation studies testing assumptions in stock assessments, and (3) creating a simulation study identifying conditions in which hook-and-line survey methods are most informative.

Petrale sole stock assessment update

I was a part of the group that worked on the petrale sole stock assessment as part of the FISH 600, Applied Stock Assessment course taught by Melissa Haltuch and Owen Hamel from the Northwest Fisheries Science Center. We participated in every aspect of the process from formatting and analyzing data from different agencies to creating figures that are included in the assessment documents. We identified a best model and explored sensitivities that were presented at the Pacific Fishery Management Council meeting in June 2015 in Spokane, WA. The assessment was accepted by the Council as the best available science and will be used to set total allowable catches for petrale sole in the future. The course and experience will be extremely valuable in my future career. I am now comfortable using Stock Synthesis and have experience resolving the issues that commonly arise in stock assessment work.

Simulation project

I participated in a set of three simulation studies that test commonly made assumptions about growth in stock assessments. This work was done in collaboration with Juan Valero of CAPAM (Center for the Advancement of Population Assessment and Methodology), Ian Taylor, and Allan Hicks from NOAA. I am first author on one of the studies titled, "A comparison between using empirical weight-at-age vs. modeling parametric growth in integrated, statistical stock assessment models." I am a co-author on the other two papers that focus on investigating the effect of binning fish into different size groups and estimating growth internally and externally to stock assessments. My paper was accepted and published in the special issue of Fisheries Research related to the CAPAM growth workshop. I was a co-author on another studying the effect of bin width size on key assessment outputs and derived quantities. I uploaded both papers to the document.

I presented my empirical weight-at-age simulation study in the reporting period. The first was at the Wakefield Symposium focused on data limited assessment methods in Anchorage, AK. Scientists from all over the world like South Africa, Japan, and Australia were in attendance. Use

of empirical weight-at-age information to account for growth is a common method in Europe and South America, highlighting the relevance of my research to stock assessment methods. I also presented this research at the Population Dynamics Fellows meeting held in Miami, FL at the Southeast Fisheries Science Center and the Annual American Fisheries Society Meeting in Portland, OR.

Sensitivities of abundance estimates from hook-and-line data

I have been working on a spatial simulation study that identifies conditions in which indices of abundance estimate from hook-and-line data are best. Hook-and-line data are collected from areas that are difficult to sample with trawl survey gear. Assessments of rebuilding species like yelloweye rockfish and bocaccio are particularly important as their rebuilding efforts constrain fishing activity. Additionally, many overfished species have their highest abundances in untrawlable habitat.

The simulation study contains a number of variables that may inform survey design in the future. The number of hooks, number of vessels, and number of sampling sites can all be adjusted. The number of fish, distributions of fish, and movements of fish can also be controlled. The hypothesis is that sampling in spots expected to have high densities of fish will lead to the truest data that represent the population. Similarly, there are tradeoffs around the survey design (e.g. we cannot sample in every location) that will identify survey variables that may result in the most cost-effective survey. Also, the study will illustrate under which conditions of fish movement and migration will be best characterized by the hook-and-line survey.

I was fortunate to also have the opportunity to participate in the hook-and-line-survey in September, 2015. We left out of Long Beach, CA and were at sea for six nights. Overall, I think we sampled 3,000 fish and spent a lot of time on deck. The experience strongly informed the simulation study and gave me a much better sense of the methods used to collect the hook-and-line data. Hopefully, I will have the chance to go back out in September, 2016.

REPORT
E/I-23
03/01/2015 - 02/29/2016
Submitted On: 03/23/2016 11:02:50 PM

METRICS & MEASURES

Acres of coastal habitat

Metric/Measure	Value	Note
Acres of coastal habitat	0	

Fishermen and seafood industry personnel

Metric/Measure	Value	Note
Fishermen and seafood industry personnel	0	

Communities - economic and environmental development

Metric/Measure	Value	Note
Communities - economic and environmental development	0	

Stakeholders - sustainable approaches

Metric/Measure	Value	Note
Stakeholders - sustainable approaches	0	

Informal education programs

Metric/Measure	Value	Note
Informal education programs	0	

Stakeholders who receive information

Metric/Measure	Value	Note
Stakeholders who receive information	0	

Volunteer hours

Metric/Measure	Value	Note
Volunteer hours	0	

P-12 students reached

Metric/Measure	Value	Note
P-12 students reached	0	

P-12 educators

Metric/Measure	Value	Note
P-12 educators	0	

REQUESTED INFORMATION

Publications

An empirical weight-at-age approach reduces estimation bias compared to modeling parametric growth in integrated, statistical st

Publication Type: Peer-reviewed: Journals (incl. articles), Books, Proceedings, and Other Documents

Publication Year: 2015

Publication Authors:

Publisher Info:

Notes:

Related URLs:

Keywords:

Publication URLs:

Abstract:

Citation: Kuriyama, P.T., et al., An empirical weight-at-age approach reduces estimation bias compared to modeling parametric growth in integrated, statistical stock assessment models when growth is time varying. Fish. Res. (2015)

Citation for Coverage:

SG can post PDF online?:

Uploaded File:

The effect of length bin width on growth estimation in integrated age-structured stock assessments

Publication Type: Peer-reviewed: Journals (incl. articles), Books, Proceedings, and Other Documents

Publication Year: 2015

Publication Authors:

Publisher Info:

Notes:

Related URLs:

Keywords:

Publication URLs:

Abstract:

Citation: Monnahan, C.C., Ono, K., Anderson, S.C., Rudd, M.B., Hicks, A.C., Hurtado-Ferro, K.,

Johnson, K.F., Kuriyama, P.T., Licandeo, R.L., Stawitz, C.C., Taylor, I.G., Valero, J.L., 2015. The effect of length bin structures on growth estimation in integrated age-structured stock assessments. Fish. Res., this issue.

Citation for Coverage:

SG can post PDF online?:

Uploaded File: [44BB2BC0-C887-4BE0-BFF0-B32DFFCD8F2F.pdf](#)

Stock Assessment Update: Status of the U.S. petrale sole resource in 2014

Publication Type: Technical Reports (peer-reviewed)

Publication Year: 2015

Publication Authors:

Publisher Info:

Notes:

Related URLs:

Keywords:

Publication URLs:

Abstract:

Citation: CC Stawitz, F Hurtado-Ferro, PT Kuriyama, JT Trochta, KF Johnson, MA Haltuch, OS Hamel. Updated status of petrale sole resource in 2014. Pacific Fishery Management Council.

Citation for Coverage:

SG can post PDF online?:

Uploaded File: [Petrale2015Update_30Jun20159.pdf](#)

Students Supported

No **Students Supported** information reported

Narratives

Peter Kuriyama Narrative 2016

Uploaded File: [kuriyama_narrative_2016.docx](#)

Partners This Period

No **Partners This Period** information reported

STANDARD QUESTIONS

Economic Impacts

(1)

**For each economic impact:
(provide a description and
numbers in all relevant categories)**

Description	None
Market Impacts (\$)	0
Non-market Impacts (\$)	0
Businesses Created	0
Businesses Sustained	00
Jobs Created	0

Jobs Sustained	0
Patents	0

Tools, Technologies, Information Services / Sea Grant Products

(1)

Description	NA
Developed (in the reporting period)?	No
Used (in the reporting period)?	No
Used for EBM?	No
ELWD product?	No
Number of managers	0
Description/Names of managers	

Community Hazard Resilience

No **Community Hazard Resilience** information reported

Meetings, Workshops, Presentations

(1)

Type of Event	Public or professional presentation
Description	NMFS Population Dynamics Fellows Meeting, Miami, FL
Event Date	06-10-2015
Number of Attendees	35

(2)

Type of Event	Public or professional presentation
Description	Oral Presentation at Wakefield Symposium on Data Limited Assessment Methods - Anchorage, AK
Event Date	05-14-2015
Number of Attendees	120

(3)

Type of Event	Public or professional presentation
Description	Oral Presentation at American Fisheries Society Annual Meeting - Portland, OR

Event Date	08-18-2015
Number of Attendees	70

(4)

Type of Event	Public or professional presentation
Description	Oral Presentation at Western Groundfish Conference, Newport, OR
Event Date	02-10-2016
Number of Attendees	100

Leveraged Funds

(1)

Purpose	ADMB Student travel award for conference attendance, Western Groundfish Conference
Source	ADMB Foundation
Amount	300
Start Date	02-08-2016
End Date	03-11-2016

(2)

Purpose	Student travel award for conference attendance, Wakefield Symposium - Anchorage, AK
Source	Alaska Sea Grant
Amount	500
Start Date	05-11-2015
End Date	05-15-2015

Impacts and Accomplishments

No **Impacts and Accomplishments** information reported