Science, Service, Stewardship

Groundfish Science Report

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Overview

- Seabird workshop
- California fishery risk assessment
- Science updates

Seabird Cable Strike Bycatch Mitigation Workshop

- Workshop was well attended by all groups (fishers, scientists and managers)
- 5 mitigation designs were vetted, showing good potential for field testing
- Data gaps were identified for further research

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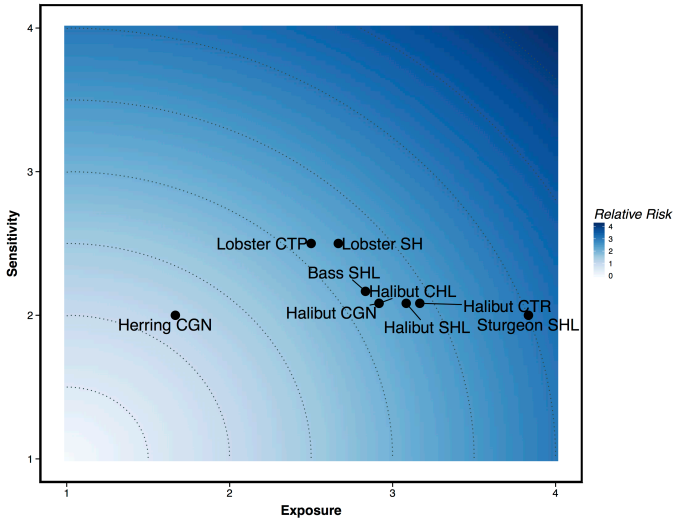
Ecological Risk Assessment for California Fisheries

Fishery Key

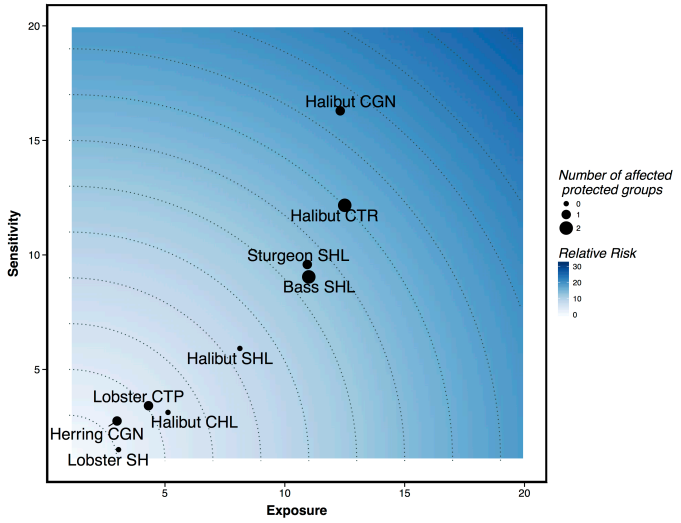
CGN - commercial, gill net
CHL - commercial, hook & line
CTP - commercial, trap
CTR - commercial, trawl
SH - sport, hoop net
SHL - sport, hook & line

- co-developed with CDFW, fishermen, eNGOS
- included in Marine Life Management Act Draft Master Plan Amendment
– can inform prioritization of which fisheries are in need of management attention

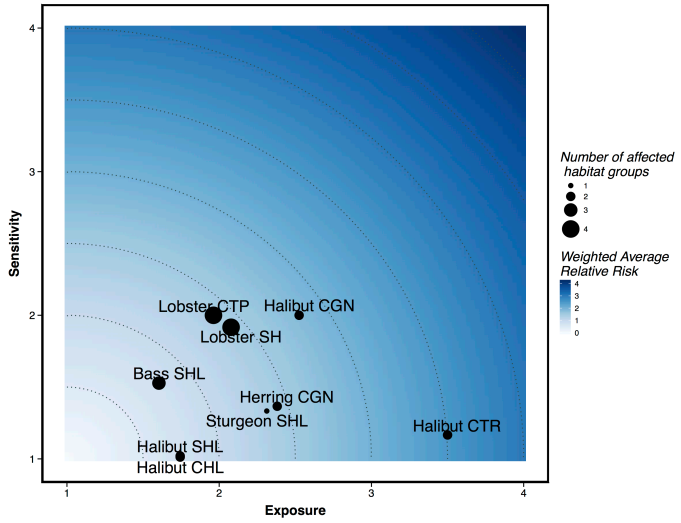
Risk to target species



Risk to bycatch



Risk to habitats



http://www.oceansciencetrust.org/projects/era/

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Science Updates

Data needs and spatial structure considerations in stock assessments with regional differences in recruitment and exploitation

LaTreese S. Denson[1], David B. Sampson[2], and Andi Stephens[3]

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[2]Coastal Oregon Marine Experiment Station and Department of Fisheries and Wildlife, Oregon State University

[3]Fisheries Resource and Monitoring Division, Northwest Fisheries Science Center, National Marine Fisheries Service, National Oceanic and Atmospheric Administration

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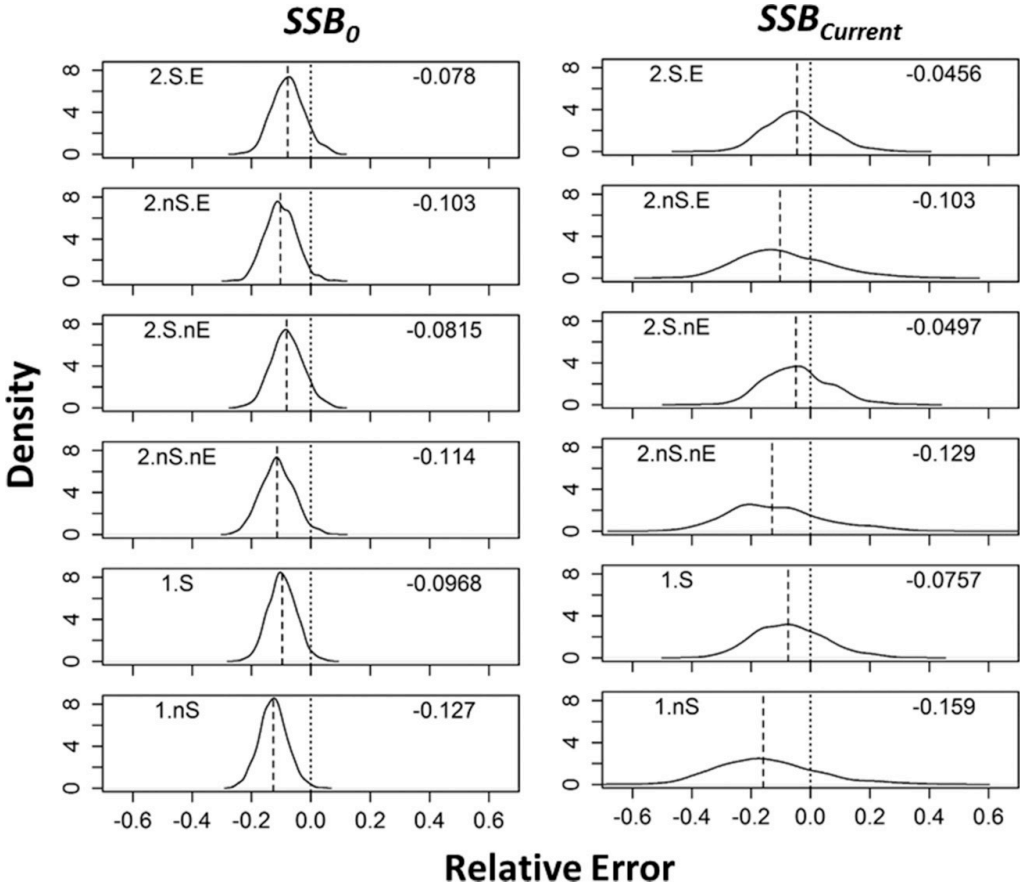
Simulation Analysis – Accuracy and Bias of Biomass estimates when Spatial Structure Exists

- Models with mis-matched spatial assumptions resulted in substantial negative bias
- Survey data reduces estimation bias in all scenarios
- Spatial fishing patterns can have a greater effect than environmentally-driven recruitment
- Modeling distinct spatial populations when they can be distinguished generally improves estimation



Accounting for spatio-temporal variation and fisher targeting when estimating abundance from multispecies fishery data

James T. Thorson[1,*], Robert Fonner[2], Melissa A. Haltuch[1], Kotaro Ono[3], Henning Winker[4,5]

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[2] Conservation Biology Division, Northwest Fisheries Science Center, National Marine Fisheries Service, NOAA, Seattle, WA, USA

[3] School of Aquatic and Fishery Sciences. Box 355020, University of Washington, Seattle, WA98195-5020, USA

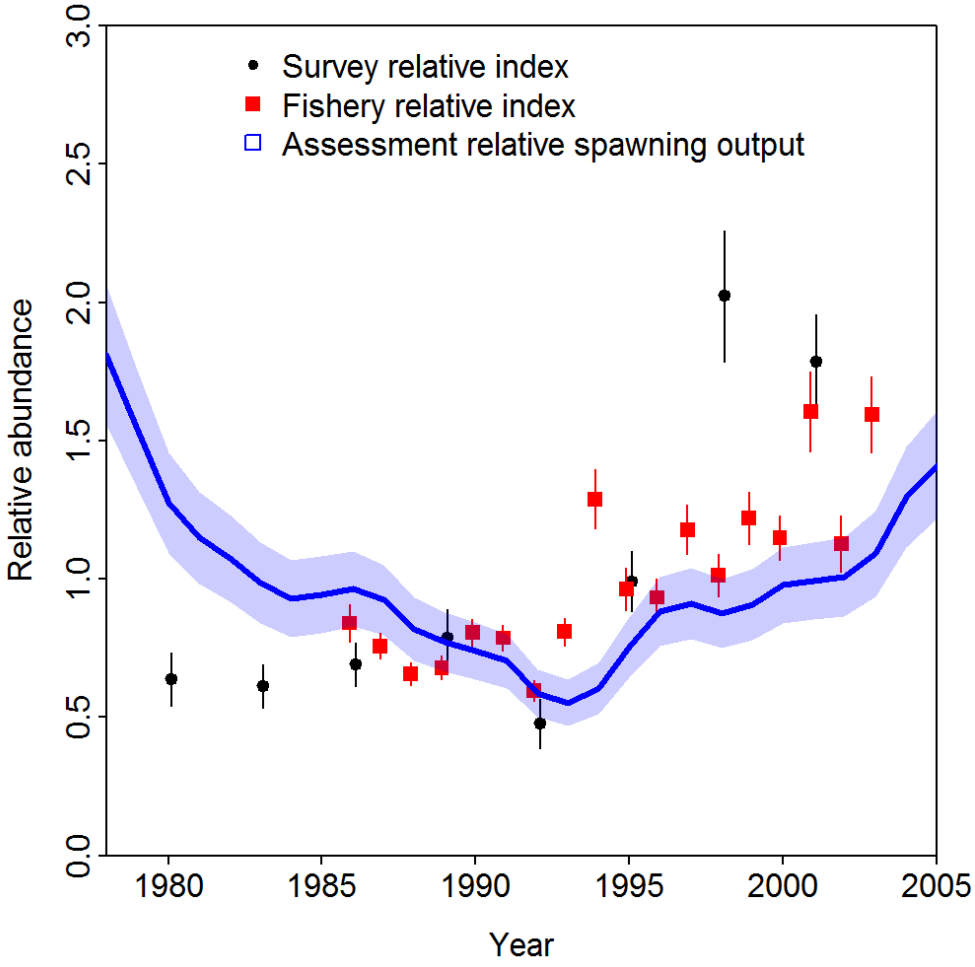
[4] South African National Biodiversity Institute (SANBI), Kirstenbosch Research Centre, Claremont 7735, South Africa

[5] Centre for Statistics in Ecology, Environment and Conservation (SEEC), Department of Statistical Sciences, University of Cape Town, Private Bag X3, Rondebosch, 7701, South Africa

Canadian Journal of Fisheries and Aquatic Sciences (online)

Calculate index of abundance from multispecies fishery catch rates

- Uses spatio-temporal modeling to calculate density for both target and bycatch species
- Bycatch rates are used to account for fishery targeting
- Simulation shows improved performance from spatio-temporal model
- Case-study for winter Petrale-sole fishery off Oregon-Washington (on right) shows good match to survey index



Predicting life history parameters for all fishes worldwide

James Thorson[1], Steve Munch[2], Jason Cope[1], and Jin Gao[3]

1 FRAM , NWFSC
2 SWFSC
3 JISAO, University of Washington

Ecological Applications (2017) – available online

- Predicted life history parameters for >33,000 fishes worldwide
  - Growth
  - Size
  - Mortality
  - Maturity
- Incorporates two sources of information
  - Phylogeny (related fishes are similar)
  - Life history theory (parameters are correlated)

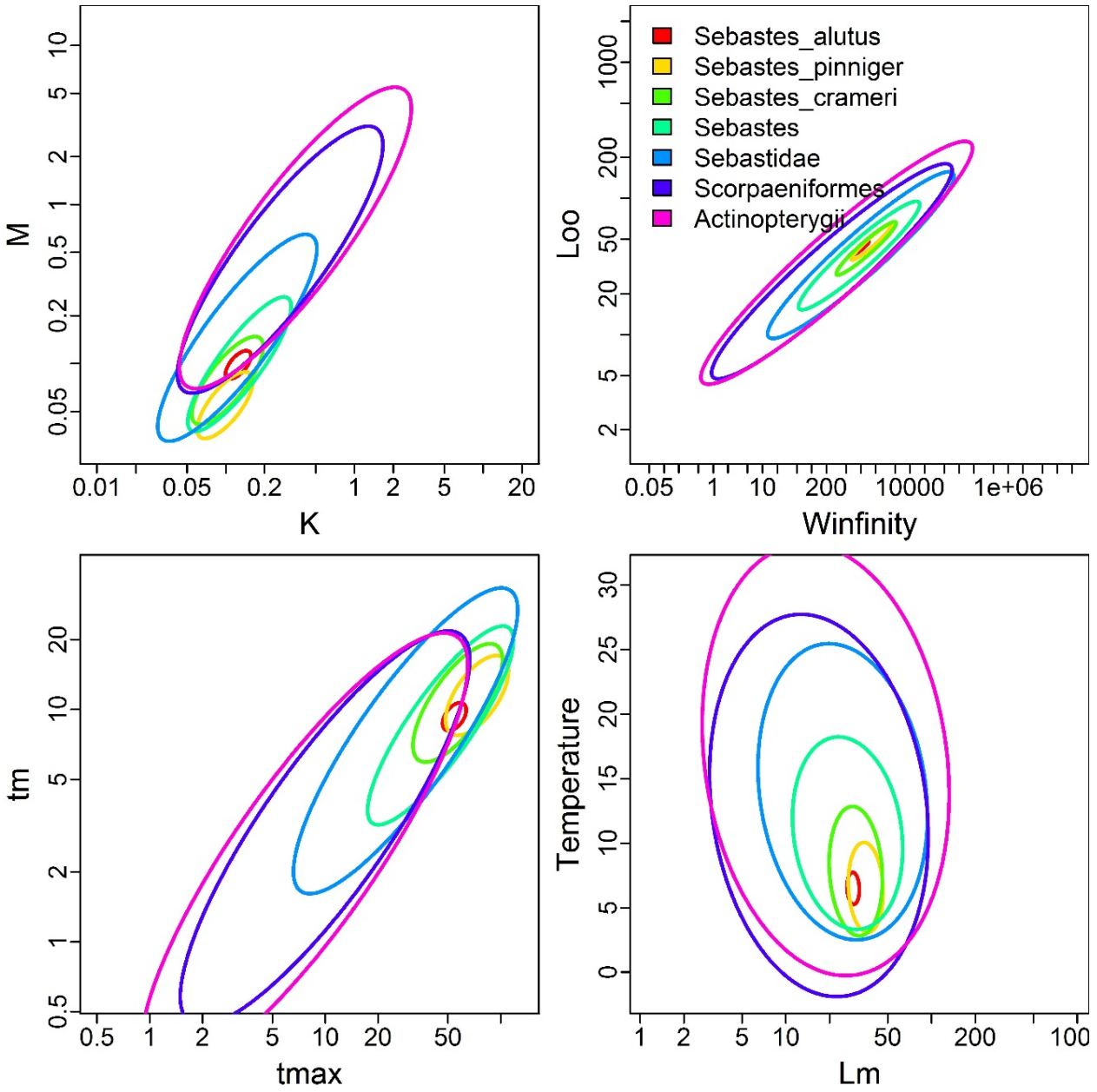
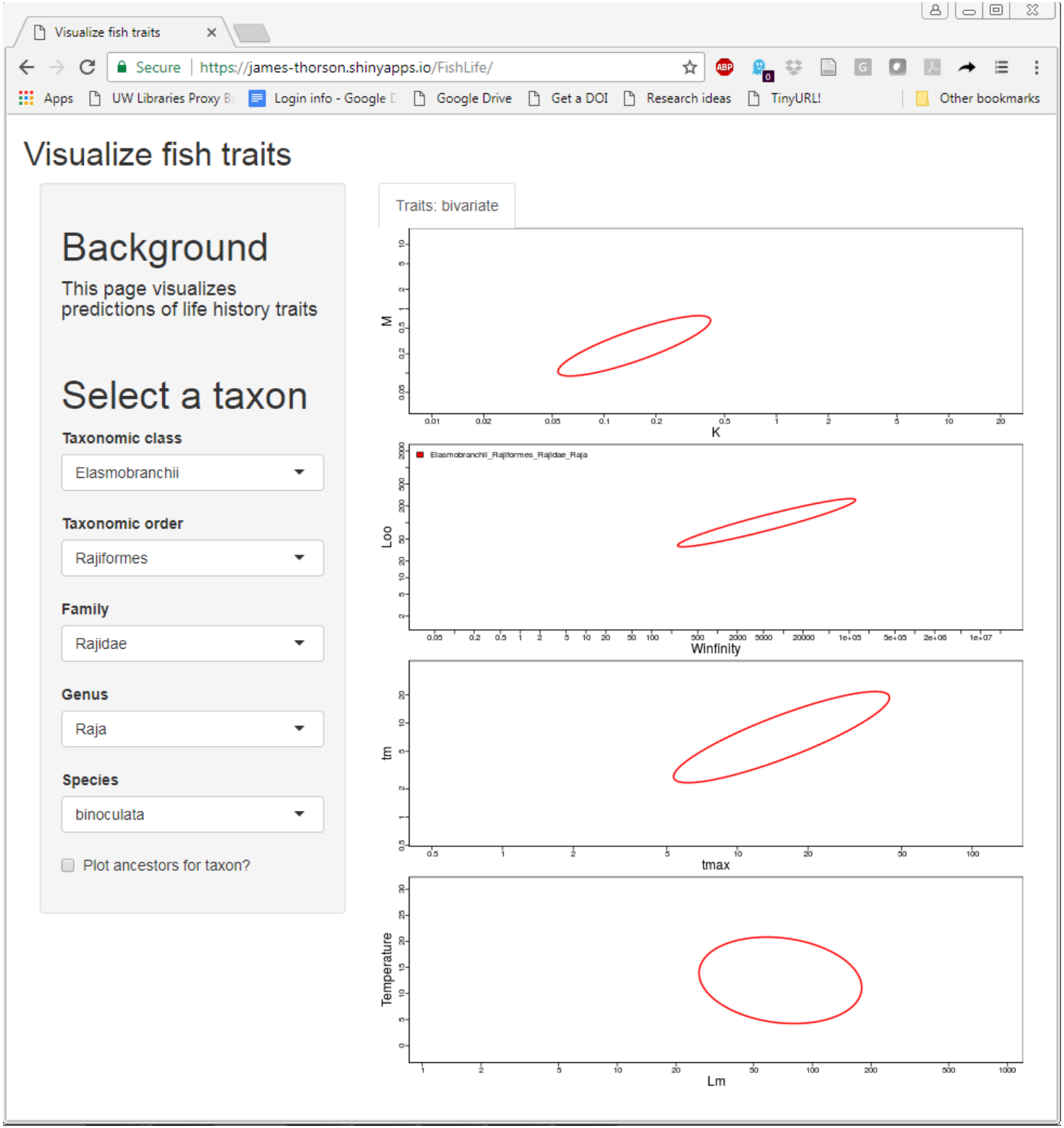


Fig. 2 – predictive interval for bony fishes (purple), Scorpionfish (blue), rockfish-family (light-blue), Pacific rockfishes (green), and three rockfish species (green/yellow/red), for eight life-history parameters

- Can be used for data-poor species
- E.g.,
  - Big skate to the right



Testing of Two Selective Flatfish Sorting-Grid Bycatch Reduction Devices in the U.S. West Coast Groundfish Bottom Trawl Fishery

Mark J.M. Lomeli[1], W. Waldo Wakefield[2], Bent Herrmann[3]

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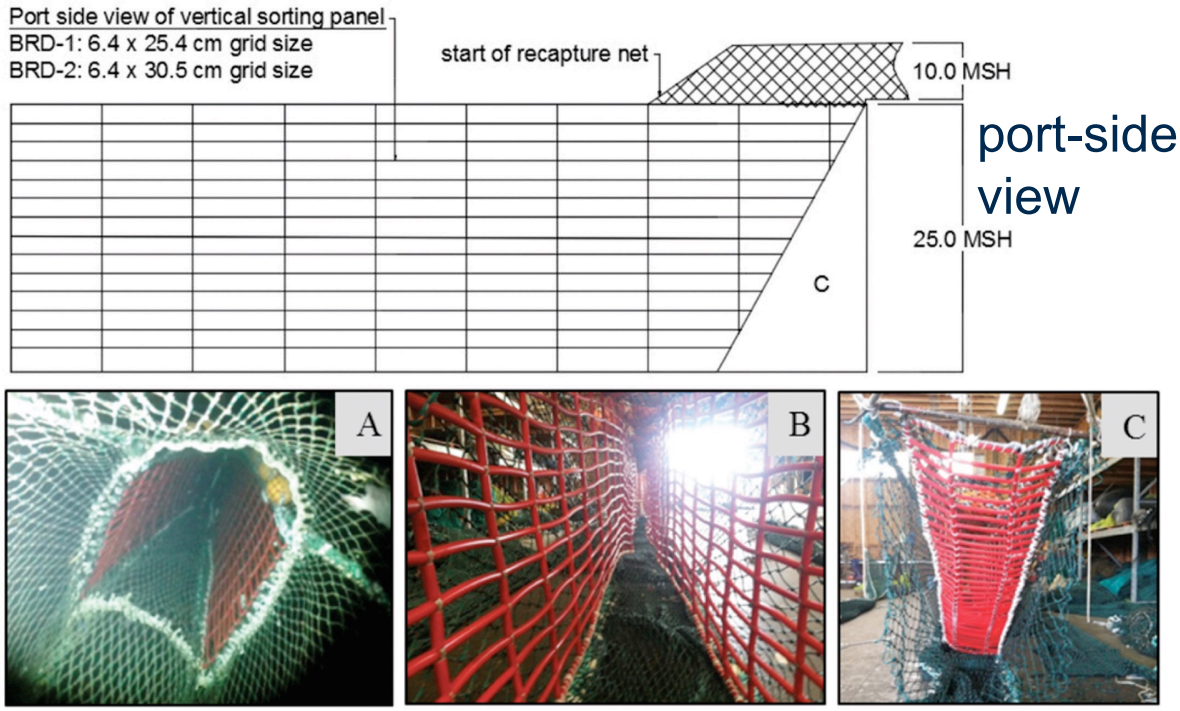
[3]SINTEF Fisheries and Aquaculture, Hirtshals, Denmark

Marine and Coastal Fisheries: Dynamics, Management, and Ecosystem Science

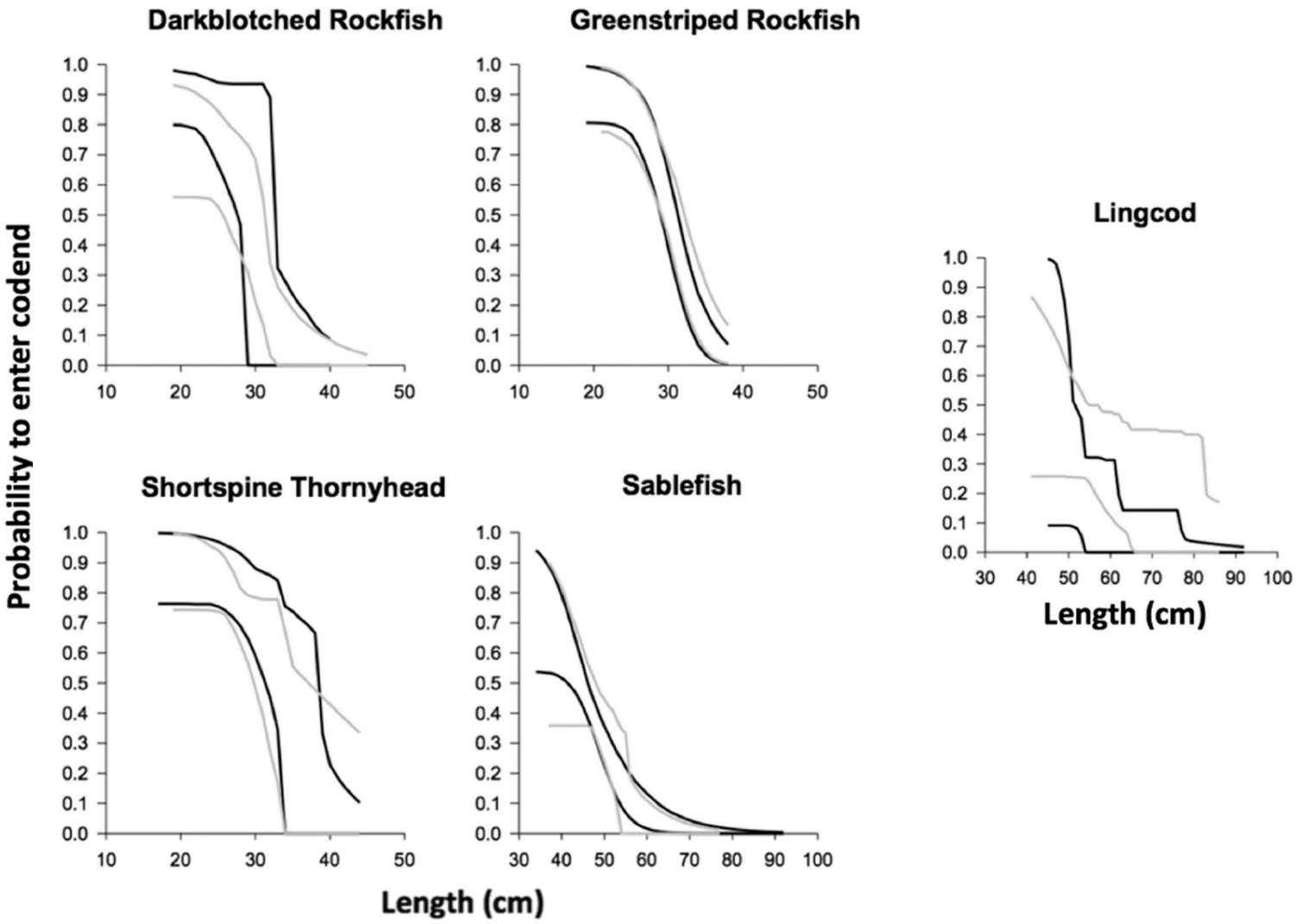
Design of Flexible Sorting Grid BRDs Tested

- Size-selection characteristics of two sorting-grid BRDs
- Mean flatfish retention (weight)
  - 89.3% for BRD-1
  - 81.7% for BRD-2.
- BRD-1 (smaller mesh)
  - improved the retention of flatfishes
  - reduced catches of nontarget and constraining rockfishes, sablefish, and halibut



BRD-1: 2.5 X 10 inch grid size
BRD-2: 2.5 X 12 inch grid size

Size-selection Curves – Probability of Roundfish Retention



Questions?