PIR Data Needs for Stock Assessments

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NOAA Fisheries
Presentation Topics

- The Landscape
- PIFSC Stock Assessment Program
- Stock Assessments – Process and Complexity
- Data Collection Programs
- Bottlenecks
The Landscape:
Geographic Area of Responsibility

Characteristics
- Vast Area
- Multiple Jurisdictions
- Tropical, Sub-tropical and Temperate Ecosystems
- Pelagic and Insular Fisheries
PIFSC Stock Assessment Program Goals

- Provide scientific advice to resource managers on the current status and future trends in abundance and productivity of exploited marine resources in the Central and Western Pacific Ocean.

- Provide the technical basis for setting annual catch limits and other fishery management measures that achieve optimum yield from the fishery while avoiding overfishing and ecosystem harm.

- Provide scientific and quantitative support to RFMOs and RFOs

- Overarching Mandate -- Magnuson-Stevens Act (MSFCMA)
PIFSC Stock Assessment Program Responsibilities

To Support Goals, the PIFSC Stock Assessment Program:

- Conducts Resource Evaluations and Assessments
- Develops Improved Quantitative Techniques (Model Development)
- Develops Science and Decision Support Tools (control rules) to Support Implementation of Ecosystem Approaches to Fisheries Management in PIR
- Quantifies Fishery Interactions (Bycatch Estimation)
- Provides Scientific and Quantitative Expertise to PIFSC, PIRO, WPRFMC, State of HI, WCPFC, ISC, IATTC, and other emerging RFMOs (NPFC)
Scientific and Management Mosaic
Insular Fisheries

Constituents/Partners
• WPRFMC
• State of HI
• Territories
• Other US Gov’t Agencies (NOS)
Species of Interest – Insular Fisheries

- **Bottomfish (Data Poor Stocks)**
  - Snappers, groupers, jacks (BMUS = 14)
    - Deep 7 focus
  - Seamount groundfish (GMUS = 3)
- **Coral Reef Fish (Data Poorer Stocks)**
  - > 200 species
- **Crustaceans (Data Poor Stocks)**
  - Spiny and slipper lobster; crabs; shrimp (CMUS = 10)
- **Precious Corals (Data Poor)**
Stock Assessment Process
Insular Fisheries
# Stock Assessment Data Sources – Insular Fisheries

<table>
<thead>
<tr>
<th>Data Source</th>
<th>Catch</th>
<th>Effort</th>
<th>Size (len/wt)</th>
<th>Life Hist. Parm.</th>
<th>Abund / Density</th>
<th>$$</th>
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<tbody>
<tr>
<td>Comm. Fisherman Rpts. (HI)</td>
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</tbody>
</table>
Model Complexity
Insular Bottomfish Fisheries

NMFS Assessment Tiers
0 = none
1 = index only (commercial or research CPUE)
2 = simple life history equilibrium models
3 = aggregated production models
4 = size/agestage-structured models
5 = add ecosystem (multispecies, environment), Spatial & seasonal analyses
Scientific and Management Mosaic
Pelagic Fisheries

Species of Interest
- Tunas
- Billfish
- Sharks
- Other pelagics

(PMUS = 30)
Scientific and Management Mosaic Pelagic Fisheries

Constituents/Partners

RFMOs
- WCPFC
- IATTC
- NPFC

RFOs
- ISC
- PICES

WPRFMC
Pelagic Fisheries Assessment Framework

U.S. Participates in the Assessment Process

- Data Exchanges
- Assessments (area specific) – collaborative
  - Management area specific
    - WCPO – WCPFC (tunas, billfish, sharks)
    - EPO – IATTC (tunas, billfish, sharks)
  - Stock specific
    - “North” Pacific – ISC (tunas, billfish, sharks)
RFMO Assessment Process (WCPFC and IATTC)

- Commission Identify List of Species
- Science Providers Conduct Assessments
  - WCPFC – SPC
  - IATTC – Staff
- Assessment Reviews
  - WCPFC – SC Meeting (August)
  - IATTC – SAC Meeting (May)
RFO Assessment Process - ISC

- ISC Species Working Groups (WG) Develop Assessment Schedule
- ISC Plenary Reviews / Modifies Assessment Schedule
- WCPFC–SC informed of ISC Assessment Schedule
- WCPFC-NC Reviews / Modifies ISC Assessment Schedule
- ISC WGs Conduct Data Prep and Assessments Workshops
- Assessment Reviewed by ISC Plenary, Assessment Report to WCPFC-SC, External Review of Assessment
Stock Assessment Process
Pelagic Fisheries

Environmental
Oceanography

Catch
Logbook,
Observer, Dealer,
Port Samp., Cannery

Abundance
Fishery CPUE,
Age/Size Data

Biology
Observer,
Dealer,
Port Sampling

Population Model

Reference
Point

Stock Status
Stock Assessment Data Sources
U.S. Pelagic Fisheries

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- “Similar” data from international partners
Model Complexity
Pelagic Fisheries

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Bottlenecks

- Life History Data
  - Relevance and Representativeness
  - Standardization – Data Accessibility
  - Biosampling – Limited in Scope
- Catch
  - Underreporting - All Segments
  - Varying taxonomic detail (complex vs species)
- Environmental Data (Habitat and Oceanography)
  - Limited data and simple models
- Abundance
  - Biased (based on fishery data)
  - Pilot F-I Resource Survey – need to operationalize (show me the $$)