Research Priorities

Michelle McClure, FRAM Division
Northwest Fisheries Science Center

September 13, 2013
FRAM Assessment-related “Off-year” Research Priorities

- Inputs to Assessment Models
- Modeling Improvements
- Management and Agency Priorities
Data Inputs to Assessment Models

1,2,5. Length- and age-composition data:
   • Improve methods for calculating/using catch proportions-at-length/age
     > Promote use of standardized, more-accurate methods

3. Survey GLMM code:
   • Improve the calculation of survey indices and associated uncertainty
     > Create more accurate indices and characterizations of uncertainty

4. Catch uncertainty and historical reconstructions:
   • Advance historical reconstructions for all FMP species
   • Improve ways of modeling historical catch uncertainty
     > Reduce ad hoc decisions about historical catches
     > Better understand possible implications of catch uncertainty

6. Ageing error and bias: determination and modeling:
   • Improve methods for determining/specifying ageing error and bias outside and within stock assessment models.
     > Improve recruitment estimation
9. Treatment of stock-recruitment steepness
   • Review meta-analytical and other approaches for determining stock-recruit steepness \((h)\).
   > Reduce uncertainty in stock assessment outcomes due to unknown steepness

10. Maturity: Incorporating error and uncertainty
    • Develop methods for estimating and incorporating uncertainty and inter-annual variability in maturity and fecundity-at-age in stock assessments
    > Improve understanding of historical changes in spawning output
    > Model historical and future changes in spawning output more realistically
Modeling Improvements

7. Refining data-limited assessments:
   • Improve the inputs and assumptions for Tier-2 and Tier-3 stock assessments
   • Improve estimation of uncertainty in data-moderate assessments
     > Increase precision of Tier-2/3 assessments
     > Better understand relationships between data-limited and benchmark results

8. Rebuilding improvements and projections:
   • Increase the range of rebuilding model options
     > Increased range of rebuilding options
     > Improved understanding of rebuilding-alternative trade-offs

13. Recruitment: Autocorrelation and climate considerations:
   • Improve ability to model inter-annual and climate-related recruitment patterns
     > Improve model estimates, through accounting for such correlations
     > Improve forecasts, through better understanding of the recruitment processes

14. Develop penalties for changes in time varying parameters:
   • Investigate methods to estimate inter-annual variability in time-varying parameters (e.g., growth and selectivity)
     > Improve the specification of time-varying parameters in models
Management and Agency Priorities

11. Stock assessment prioritization:
   • Evaluate FMP species using general approach proposed by the NMFS Stock Assessment Prioritization Working Group
   > More systematic inventory of factors relevant to prioritizing 2015 stock assessments

12. Programmatic reviews: Assessment & peer-review:
   • Prepare and present materials for independent review of PFMC groundfish assessment and review processes
   > Agency-required review that may identify ways to improve

15. Update IEA groundfish status indicators:
   • Update groundfish indicators using most recent assessment results
   > Up-to-date IEA indicators for use by Council