

MATRIX OF FINDINGS FROM MANAGING OUR NATIONS FISHERIES 3

<b>Potential Implementation Routes for Conference Findings</b>				
	<b>Legislative/ Statutory</b>	<b>Regulatory/ NS Guidelines</b>	<b>Policy/Best Practices</b>	<b>Comments</b>
Session 1 – Improving Fishery Management Essentials, Topic 1 - Annual Catch Limit Science and Implementation Issues, Including Managing “Data-Limited” Stocks				
Consider multi-year minimum stock size thresholds and Annual Catch Limit (ACL) framework: <ul style="list-style-type: none"> <li>• Phase in ACL changes</li> <li>• Constrain large inter-annual changes in ACLs</li> <li>• Do not base overfished determination on single year estimate</li> </ul>		X		NS 1 Guideline revision
Allow and provide guidance for using the mixed stock exemption		X		NS1 Guideline revision
Use management strategy evaluation to evaluate the performance of harvest control rules		X		NS 1 Guideline revision
Provide better guidance on setting ACLs for transboundary stocks where no international treaty exists and only US removals are known		X		NS1 Guideline revision
Eliminate hard quotas managed in-season for recreational stocks. Adjust pre-season input controls (e.g., bag limits, seasons) to stay within ACL (based on numbers of fish, not poundage)		X	X	Focus on recreational fisheries
Manage with long-term mortality rates for more stability (e.g. eliminate wide fluctuations in catch limits)		X	X	Focus on recreational fisheries
Prioritize assessment of target stocks over non-target stocks			X	
Set minimum data quality standards for stock assessment		X	X	NS 2 Guidelines revision

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Do not require ACLs for data-poor stocks	X	X		MSA Section 302(h)(6), NS 1 Guidelines
Improve data-poor assessment methods			X	
Consider default buffer (e.g., 75 percent maximum fishing mortality threshold)		X	X	NS 1 Guidelines
More than one indicator species in a complex leads to better estimate of stock status		X	X	NS 1 Guidelines
<b>Session 1, Topic 2 Rebuilding Program Requirements and Timelines</b>				
Revise rebuilding time requirements: <ul style="list-style-type: none"> <li>Always set <math>T_{MAX}</math> equal to <math>T_{MIN}</math> plus one mean generation</li> <li>Set exploitation rates less than <math>F_{MSY}</math> and rebuilding will occur naturally over time</li> </ul>	X			MSA Section 304
Refine and include the mixed stock exception in MSA; harvest of one species at its optimal level may result in overfishing another stock, only if strict criteria are met	X			Several MSA Sections
Stocks later determined to have never been overfished should no longer be subject to rebuilding requirements	X			MSA Section 304
Establish a standardized process for reviewing rebuilding progress: <ul style="list-style-type: none"> <li>Maintain an existing rebuilding plan when minor changes occur in estimated <math>T_{TARGET}</math></li> </ul>	X			MSA Section 304
Address social and economic issues (e.g., “possible” to “practicable”)	X			MSA Section 304(e)(4)(A)(i)
Extend annual species exemption to short-lived species	X			Similar to the ACL exemption, MSA Section 302(h)(6)
Allow a transboundary exemption when a significant proportion of the stock is outside U.S. jurisdiction	X			MSA Section 304

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Increase the frequency and quality of stock assessments and rebuilding analyses and incorporate ecosystem dynamics; recognize limitations of science			X	
Don't chase noise: Assessments and projections will always be uncertain; develop smoothing strategies to provide stability			X	
Utilize management strategy evaluation tools to evaluate stock rebuilding approaches			X	
Develop harvest control rules that incorporate rebuilding provisions; early investments increase the probability of success		X		
<b>Session 1, Topic 3 - International Fisheries Management: Leveling the Playing Field</b>				
Help developing countries build fishery management and enforcement capacity			X	May require Federal legislation
Support immediate adoption of appropriate target and limit reference points by RFMOs			X	
E-NGOs should continue to leverage compliance with RFMO conservation measures (e.g. through supply chains)			X	
Increase support for at-sea and in port monitoring and enforcement	X		X	
Broaden trade sanctions domestically and within RFMOs to address non-compliance	X			
Implement stricter imported seafood labeling requirements in the US market	X			MSA revision as well as new legislation
Ratify Port State Measures Agreement	X			
Amend MSA to change "vessels" to "vessel" in the IUU certification section	X			HSDFMMSA Section 609(c)

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Promote measures to reduce overcapacity: <ul style="list-style-type: none"> <li>• Fishery rationalization (e.g., catch shares)</li> <li>• Restrict national subsidies for fuel and vessel construction</li> <li>• Limit vessel numbers by RFMO member states</li> </ul>			X X X	
Consider a national sustainable seafood certification program	X			
RFMOs should consider transfer effects when developing conservation and management measures			X	
RFMOs should adopt measures that reward compliance (e.g. quota allocations)			X	
Improve communication among US delegations across tuna RFMOs (e.g. WCPFC, IATTC, ICCAT)			X	
Maximize participation of fishermen and other stakeholders in US RFMO delegations			X	
<b>Session 2 – Advancing Ecosystem-Based Management, Overarching Findings</b>				
Evaluate ecosystem productivity change			X	Prioritize for IEA effort
Evaluate effectiveness and utility of closed/fixed areas			X	
Engage across disciplines and increase coordination between NMFS, Councils, Science Centers, stakeholders, other governmental agencies			X	
Increase reliance on industry while shifting councils' role in evaluating effectiveness			X	
Consider broad range of ecosystem services			X	Prioritize for IEA effort
Build capacity throughout the fishery management system to use new tools to advance ecosystem-based decision-making		X	X	
Establish ecosystem SSC at the council level.			X	MSA Section 302(g)

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Invest in ecosystem-based management (i.e., advancing scientific models, training staff ) and identify and remove impediments to the transition from single species to ecosystem based management			X	
<b>Session 2, Topic 1 – Assessing Ecosystem Effects and Integrating to Climate Change</b>				
Address the root causes of climate change as MSA is a limited tool and addresses mainly symptoms			X	
Increase coordination between and across jurisdictions to address changing species distribution and ecosystem change (regional councils, states, and international)			X	
Flexibility to respond to spatial, allocative and distributional effects of climate change			X	
Address rebuilding requirements when environmental conditions may be a predominate factor in a stock’s decline	X	X		MSA Section 304(e)
Utilize a precautionary approach for developing/emerging fisheries	X	X	X	MSA Section 305(a) and Federal regulations at 50 CFR 600.725(v)
Assess barriers to adaptation (fishing communities and fish stocks)			X	
Recognize and manage in response to ecosystem productivity change		X	X	NS Guidelines re: ecological considerations in setting optimum yield
Develop a comprehensive national plan and tools which facilitate development of regional management strategies		X		
Incorporate environmental trigger mechanism to initiate management action/measure		X	X	NS 1 guidelines revision

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Evaluate effectiveness and utility of closed/fixed areas			X	
Modify reference points as climate changes (precautionary vs. recalibrating MSY)		X		NS 1 guidelines revision
ESA: Base listings on actual trends rather than projected trends of climate change	X			Would not require modification of ESA but speaks to agency determination of status.
Assess the efficacy of the National Ocean Policy as a vehicle to address climate change			X	
Integrate IEAs and all component models into management process		X	X	
Derive less data and resource intensive tools for use in management process			X	
Develop ecosystem models, tools and assessments at a regional level that: <ul style="list-style-type: none"> <li>• Synthesize existing data from non-fishing sources and incorporate socio-economic as well as ecosystem parameters</li> <li>• Respond to changing parameters</li> <li>• Predict future ecosystem states</li> <li>• Provide short-and long-term guidance</li> <li>• Account for cumulative impacts of climate change</li> </ul>			X	
Develop decision support tools that allow councils to develop responses to a wide range of uncertainty (such as MSE)			X	

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<b>Session 2, Topic 2 Forage Fish Management</b>				
No changes to MSA are necessary to sustainably manage forage fish			X	
Establish a new national standard to ensure adequate forage base	X	X		MSA Section 301
Require explicit consideration of the impact of forage fish to the ecosystem and fishing communities to inform OY and ACL decisions	X	X		MSA Section 303, NS 1 guidelines revision
Prohibit new forage fisheries until scientific and management evaluation are conducted	X			MSA Section 305(a) and Federal regulations at 50 CFR 600.725(v)
Define forage at the regional council level			X	
Use threshold harvest control rules to adopt ecologically-based reference points		X	X	
Implement real time data collection to inform adaptive management			X	
Require scientists to provide managers with an index of key forage species abundance		X	X	
Establish an ecosystem SSC at the council level	X		X	MSA Section 302(g)
Invest in ecosystem-based fisheries management			X	
Improve inter-jurisdictional collaboration and coordination on forage fish management.			X	
Use meta-analysis/global studies and rules of thumb as a starting point in discussions for forage fish management or as a guide in data poor situations			X	

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Advance tools and develop methodologies to: <ul style="list-style-type: none"> <li>• evaluate tradeoffs between uses of forage</li> <li>• account for the needs of predators when doing stock assessments and ACLs;</li> <li>• estimate the varying and complex economic value of forage fish;</li> <li>• measure localized depletion; and</li> <li>• evaluate effects of climate change on forage</li> </ul>		X	X  X  X X	NS1 guidelines revision/emphasis
<b>Session 2, Topic 3 - Integrating Habitat Considerations: Opportunities and Impediments</b>				
Consider a national standard for habitat: “Minimize adverse impacts on essential fish habitat to the extent practicable”	X	X		MSA Section 301
Build partnerships to achieve landscape and ecosystem level habitat improvements			X	
Improve understanding of relationships between habitat and productivity to support identification and evaluation of tradeoffs			X	
Resolve status of artificial substrates with regard to EFH designation		X		Potential for MSA 305(b) revision
Establish a timeline for improving the scientific basis for designation of EFH for key species and habitats	X	X	X	Statutory or regulatory response would add impetus.
Maintain and strengthen the EFH designation process by developing objectives and metrics for successful habitat protection		X		Potential for MSA 305(b) revision
Define “essential” habitat more broadly	X	X		MSA Sections 3 and 305(b)
Shift interpretation of EFH from single-species to multispecies and ecosystem focus		X		

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Set measurable conservation objectives and utilize a “common currency” to evaluate adverse and cumulative impacts		X		
Identify priority habitats that benefit fisheries, focus habitat research			X	
Provide guidance on “minimize to the extent practicable adverse impacts...caused by fishing” and consider relationship to OY	X	X		
Strengthen EFH consultation process and ensure compliance with and effectiveness of existing laws and recommendations	X	X		MSA Section 305(b)
Develop a long-term, standardized process for monitoring and evaluating habitat to establish a baseline, assess long term impacts, and support rapid response to non-fishing habitat impacts		X		
Provide tools other than spatial closures for addressing adverse impacts from fishing			X	
<b>Session 3 – Providing Fishing Community Stability, Topic 1 Recreational and Subsistence Fishery Connections</b>				
Idea to be replicated/expanded: Scientists can learn much more from fishing community via greater use of cooperative research. This promotes buy-in, empowers fishermen, and can be more cost-effective	X		X	MSA Section 318
Fishermen want to be involved with data analysis as well –provides legitimacy to the process and helps build trust			X	SEDAR and STAR Panel process examples
Councils and NMFS need new creative communication strategies & investments to reach, engage, and support underrepresented fishermen's participation in process			X	

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Goals specific to each sector and stakeholder group need identification, early in the process, to customize development of a suite of fishery management strategies			X	
Allocations are not 'permanent' -need to be more proactive in routine review and modification as needed. Decisions should be left to the regions, and creative solutions may result from constructive dialog between sectors		X		
Recreational and subsistence considerations need higher priority in fishery management policy choices, and in other policy arenas that affect fisheries (e.g., alt. energy)		X	X	NS 8 guidelines
Define subsistence fishing in the MSA, and expand recognition of tribes and indigenous people engaged in subsistence fishing	X	X		MSA Section 3 and others
Qualitative information vs. quantitative –need more thought/guidance on how to utilize both in fishery management decisions		X		NS 2 guideline revisions
Need better data -Target ledger-type submissions and other data collections as condition of access/use of a public trust resource	X	X		MSA Title IV

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<b>Session 3, Topic 2 Integrating Community Protection, Jobs Emphasis, and Domestic Seafood Quality Assurance</b>				
Create, modify and promote financial tools and training to support small and community-based borrowers (e.g., NOAA Fisheries Finance Program, CA Fisheries Fund)		X		
Resolve institutional impediments to fisheries commerce (e.g., Establish central registry to facilitate lending; Improve aquaculture permitting process)	X	X		National aquaculture legislation
Link ecosystem-based management scales to fisheries management and governance (e.g. Revise National Standard 3 (Management Unit))		X		MSA Section 301
Link fishery participation to stewardship obligation	X	X		
Need policy statement on devolving governance			X	
Preserving the past is not always the best path forward	X	X	X	Broad application
Diversify Council management actions to accommodate differences between small & large-scale operators (e.g., mobility of fleet, business models, supply needs)	X	X		
Anchor quota in communities (Utilize ecosystem-based management, Community Fishing Associations)	X	X		NS 8 Guidelines
Devolve more responsibilities and accountability to communities and industry, engage in science via cooperative research			X	
Elevate and promote best practices; become a learning organization (e.g.)			X	

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Modify Council process to improve participation of small-scale and community sectors	X			MSA Section 302 (h), State examples, Fisheries Improvement Projects, National Fish & Wildlife Foundation funded projects
Cooperative research results needs to be more fully incorporated into management			X	Potential MSA Section 318 revision
Recognize certification of U.S. fisheries that meet the 10 MSA national standards	X			MSA Section 301
Need end-end streamlined regulatory process for aquaculture	X	X		National aquaculture legislation
Wild harvest and aquaculture, more similar than different, both needed to meet supply needs, attain economic objectives			X	
<b>Session 3, Topic 3 - Assessment and Integration of Social and Economic Tradeoffs</b>				
MSA needs to incentivize response to challenges, population growth, climate change, globalization, and budget cuts	X			
MSA needs to complement other ocean users and relevant statutes that affect fisheries management, such as ESA, Clean Water Act	X			
Give full consideration to impacts from other uses/users for marine resources (non-fisheries)			X	
MSA should explicitly promote use of adaptive management approaches, particularly for data-poor species where the precautionary approach limits information on stock performance under higher catch rates	X	X		NS 1 Guidelines revision, MSA Section 303

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Need to define, ID sideboards & metrics of elements of OY; redefine OY/MSY relationship to no longer be one-direction, and social, economic and non-economic values could allow OY to be above MSY	X	X		NS 1 Guidelines revision
Expand socioeconomic analysis requirements to include economic value and non-market value quantification	X	X		NS 8 guidelines
Trade-off analysis requires giving higher priority than other disciplines for acquiring additional capacity in social scientists including anthropologists, sociologists, and economists at Councils, regional offices and/or externally			X	MSA Section 302
Facilitate cooperation and partnerships with states, local governments, and other agencies			X	
Improve engagement with competing sectors in scoping process			X	
Develop mitigation plans to reduce impacts on communities due to management actions		X		
Reform MSA confidentiality provisions, access to data from public trust resource users while protecting sensitive information	X			MSA Section 302 and Section 402(b)
MSA mandate for Councils to consider review of recreational and commercial allocations every {x} years after scoping allocations based on a set of objective guidelines	X			MSA Section 302
NOAA standardized methods on reviewing allocations		X		
Improve NOAA support for allocation reviews (contracted analysts/economists)			X	