



NOAA
FISHERIES

Northwest Fisheries
Science Center

Science Supporting Fishery Management

Aug. 7-10, 2017

Summary of Science Support

- Advisory body participation
- Contribution to management documents
 - Environmental impact statements
 - Council analytical documents
- Peer reviewed research that informs the Council about the effects of prospective or prior decisions

Advisory Body Participation

- Groundfish Management Team
 - Comprised by staff from three state fishery management agencies (Washington, Oregon, and California), NMFS, and a representative for the tribes.
 - The GMT monitors catch rates, recommends harvest regulations and annual limits, and analyzes the impacts of various management measures.
- Scientific and Statistical Committee
 - Comprised of scientists from state and federal agencies, academic institutions, and other sources.
 - The SSC reviews fishery management plans (FMPs), stock assessments, rebuilding plans, and other documents to ensure the Council is basing their decisions on the best available science.

Contribution to Management Documents

- Extensive input and leadership in five-year catch shares review
- Contribute to Council analytical documents
 - Gear-change package to allow greater operational flexibility in trawl sector
 - Effect of various exempted fishing permits
- Biennial groundfish harvest specifications
 - Council input
 - Forecasts of landings weight by port and fishery
 - Forecasts of revenue by port and fishery
 - NWFSC output
 - Impact estimates
 - Net revenue estimates

Contribution to Management Documents

- Biennial Groundfish Harvest Specifications

Table 4-147. Change in groundfish accounting net revenue impacts by shoreside commercial fishery sector from No Action under the commercial fishery alternatives (\$1,000).

Alternatives:	<i>No Action</i>	2015 PA	2015 PPA	2015 A1	2015 A2	2016 PA	2016 PPA	2016 A1	2016 A2
Whiting	9,979	+642	+642	+522	+237	+599	+599	+479	+209
Non-whiting trawl IFQ	6,685	+6,662	+6,662	+1,962	-272	+6,577	+6,577	+1,861	-251
Non-whiting non-trawl IFQ	415	+372	+372	+209	-40	+491	+491	+338	+51
Limited entry fixed gear	1,761	+401	+401	+598	-218	+808	+808	+1,013	+171
Open access nearshore	406	+534	+534	+534	+284	+534	+534	+534	+284
Open access non-nearshore	488	+202	+202	+300	-112	+406	+406	+511	+85
TOTAL SHORESIDE SECTOR CHANGE (\$,000)	<i>19,733</i>	+8,813	+8,813	+4,124	-120	+9,416	+9,416	+4,736	+549

Table 4-148. Change in groundfish accounting net revenue impacts by shoreside commercial fishery sector from the No Action Alternative under the commercial fishery alternatives (percent).

Alternatives:	<i>No Action (\$,000)</i>	2015 PA	2015 PPA	2015 A1	2015 A2	2016 PA	2016 PPA	2016 A1	2016 A2
Whiting	9,979	+6.4%	+6.4%	+5.2%	+2.4%	+6.0%	+6.0%	+4.8%	+2.1%
Non-whiting trawl IFQ	6,685	+99.7%	+99.7%	+29.3%	-4.1%	+98.4%	+98.4%	+27.8%	-3.7%
Non-whiting non-trawl IFQ	415	+89.7%	+89.7%	+50.4%	-9.5%	+118.5%	+118.5%	+81.6%	+12.4%
Limited entry fixed gear	1,761	+22.8%	+22.8%	+34.0%	-12.4%	+45.9%	+45.9%	+57.6%	+9.7%
Open access nearshore	406	+131.5%	+131.5%	+131.5%	+70.0%	+131.5%	+131.5%	+131.5%	+70.0%
Open access non-nearshore	488	+41.5%	+41.5%	+61.4%	-22.9%	+83.2%	+83.2%	+104.7%	+17.5%
TOTAL SHORESIDE SECTOR CHANGE (%)	<i>19,733</i>	+44.7%	+44.7%	+20.9%	-0.6%	+47.7%	+47.7%	+24.0%	+2.8%

Contribution to Management Documents

Table 4-156. Change in commercial fishery income impacts (from No Action Alternative) under the action alternatives by community group (\$1,000).

Community Groups	No Action Alt (\$,000)	2015 Pref Alt	2015 Prelim Pref Alt	2015 A1	2015 A2	2016 Pref Alt	2016 Prelim Pref Alt	2016 A1	2016 A2
Puget Sound	2,987	+850	+850	+559	-64	+1,013	+1,013	+725	+92
Washington Coast	16,084	+1,507	+1,507	+1,149	-79	+1,807	+1,807	+1,482	+211
Astoria-Tillamook	29,943	+7,850	+7,850	+3,644	+99	+8,104	+8,104	+3,890	+273
Newport	22,331	+1,571	+1,571	+820	-167	+1,909	+1,909	+1,163	+110
Coos Bay-Brookings	11,964	+4,168	+4,168	+1,648	-455	+4,703	+4,703	+2,183	-33
Crescent City-Eureka	5,772	+3,275	+3,275	+806	-40	+3,438	+3,438	+968	+77
Fort Bragg – Bodega Bay	6,226	+1,691	+1,691	+1,000	-161	+2,042	+2,042	+1,355	+134
San Francisco Area	2,250	+1,431	+1,431	+345	-58	+1,496	+1,496	+413	-3
SC – Mo – MB	7,705	+1,485	+1,485	+1,302	+19	+1,971	+1,971	+1,797	+481
SB – LA – SD	5,987	+524	+524	+737	-197	+975	+975	+1,204	+239
Coastwide Total	111,249	+24,351	+24,351	+12,010	-1,104	+27,458	+27,458	+15,179	+1,581

Note: SC – Mo – MB: Santa Cruz – Monterey – Morro Bay; SB – LA – SD: Santa Barbara – Los Angeles – San Diego.

(number of jobs).

Community Groups	No Action Alt	2015 Pref Alt	2015 Prelim Pref Alt	2015 A1	2015 A2	2016 Pref Alt	2016 Prelim Pref Alt	2016 A1	2016 A2
Puget Sound	44	+11	+11	+8	-1	+14	+14	+11	+1
Washington Coast	308	+26	+26	+21	-2	+33	+33	+28	+4
Astoria-Tillamook	478	+114	+114	+55	+3	+118	+118	+60	+7
Newport	394	+27	+27	+16	-3	+33	+33	+22	+3
Coos Bay-Brookings	299	+84	+84	+39	-15	+94	+94	+50	-6
Crescent City-Eureka	131	+61	+61	+19	+2	+65	+65	+22	+4
Fort Bragg – Bodega Bay	190	+45	+45	+35	-1	+58	+58	+48	+10
San Francisco Area	55	+29	+29	+8	+0	+30	+30	+9	+1
SC – Mo – MB	274	+58	+58	+58	+23	+70	+70	+70	+34
SB – LA – SD	169	+16	+16	+20	-1	+25	+25	+30	+8
Coastwide Total	2,341	+472	+472	+278	+5	+542	+542	+350	+67

Note: SC – Mo – MB: Santa Cruz – Monterey – Morro Bay; SB – LA – SD: Santa Barbara – Los Angeles – San Diego.

Contribution to Management Documents

Table 4-161. Change in income impacts from No Action under the recreational fishery alternatives and season options, by community group (\$1,000).

Community Groups	No Action Alt (\$,000)	Pref Alt	Prelim Pref Alt Op1	Prelim Pref Alt Op2	Alt1 Op1	Alt1 Op2	Alt2 Op1	Alt2 Op2	Op3 (All Alts)
Puget Sound	-	-	-	-	-	-	-	-	-
Washington Coast	5,606	-	-	-	-	-	-	-	-
Astoria-Tillamook	1,023	-	-	-	-	-	-	-	-
Newport	4,722	-	-	-	-	-	-	-	-
Coos Bay-Brookings	2,465	-	-	-	-	-	-	-	-
Crescent City-Eureka	1,498	-	+327	+200	+327	+200	+73	+73	-452
Fort Bragg – Bodega Bay	714	+141	+335	+262	+335	+262	+189	+189	-112
San Francisco Area	8,034	+895	+1,428	+1,073	+1,428	+1,073	+718	+718	-5,045
SC – Mo – MB*	10,711	+435	+870	+435	+870	+435	-2,645	-2,645	-6,212
SB – LA – SD*	110,778	-	-	-	-	-	-	-	-61,813
Coastwide Total	145,552	+1,471	+2,960	+1,969	+2,960	+1,969	-1,666	-1,666	-73,635

Note: SC – Mo – MB: Santa Cruz – Monterey – Morro Bay; SB – LA – SD: Santa Barbara – Los Angeles – San Diego.

- Similar work also done for salmon in the Stock Assessment and Fishery Evaluation (SAFE) Documents

Peer Reviewed Research

- Likely effects of trawl likely West Coast Groundfish Trawl Catch Share Program
- Economic impacts of trawl rationalization
- Safety research (risk taking behavior)
- Evaluating industry buy-back program
- Development of the trawl IFQ market
- Community vulnerability indices
- Social change in West Coast communities

Ensuring Best Available Science

- Research is published in peer reviewed journals when possible as well as Tech Memos and reports
- Multi-level internal peer review for publications
- Review to ensure science quality – not to restrict or modify communication of research
- SSC reviews economics and social science research going to Council
- SSC has three economists but lacks non-economist social science expertize

Strengths

- Extensive primary data and secondary data to provide advice on economic and social questions related to fishery and protected resource management
- Broad expertise and experience on staff
- Cross-disciplinary collaboration
- Supportive Council and generally cooperative and supportive stakeholders
- Responsible, progressive and forward-looking Council willing to balance short-term and long-term objectives, consider broader ecosystem implications in decision making, and support data collection

Challenges

- Isolation from managers and stakeholders
- Economics and social data are often an add-on rather than an integrated part of decision making and analysis
- Regulatory system and fisheries are very complex (e.g. groundfish has 90+ species, multiple sectors, a mix of catch shares and command and control regulations)
- Industry is highly heterogeneous - most fishers participate in both state and federal fisheries and many rely on non-fishery income
- Predictive modeling of behavior and bioeconomic outcomes is daunting given this complexity and heterogeneity and a highly dynamic ecosystem and regulatory system
- Data confidentiality limits data sharing and presentation

Opportunities and Strategies

- Web-served data and interactive tools for presenting data and modeling increase demand and use for data and analysis
- Multiple avenues to introduce socio-economic analysis to management (e.g. ecosystem plans, IEA, five-year review, etc.)
- Involve stakeholders and managers in research design and planning to better meet needs and create buy-in and demand for research products
- Use management strategy evaluations
 - to introduce social and economic objectives into strategic and tactical management decisions
 - to involve stakeholders directly in setting objectives and choosing management approaches that balance ecological and social risks

Questions?