

NOAA, Society, and the Economy:

An Assessment of NOAA'S Social Science Capability and Needs

**July 18, 2013
Silver Spring, MD**

Contributing Authors:
Peter C. Wiley
Linwood Pendleton
Tracy Rouleau
Brent Ache
Nancy Beller-Simms
Rita Curtis
Cecile Daniels
John Gaynor
Charlie Morris
Toni Parham
Avery Sen
Jennifer Sprague
Ariana Sutton-Grier

NOAA, Society, and the Economy:

**An Assessment of NOAA'S
Social Science Capability and Needs**

APPENDIX

**July 18, 2013
Silver Spring, MD**

Contributing Authors:
Peter C. Wiley
Linwood Pendleton
Tracy Rouleau
Brent Ache
Nancy Beller-Simms
Rita Curtis
Cecile Daniels
John Gaynor
Charlie Morris
Toni Parham
Avery Sen
Jennifer Sprague
Ariana Sutton-Grier

1080

1081

1082

1083

1084 **NOAA Fisheries Service**

1085

1086 Social Science Mandates and Drivers

1087 Legal Mandates

1088 In 2011, the Department of Commerce issued 327 Final Rules (Rules). Notably, NOAA Fisheries
1089 accounted for 282 (86%) of these Rules, with other DOC sub-agencies (Bureau of Industry & Security, 32
1090 Rules; Patent Office, 8 Rules; International Trade Administration, 3 Rules; Bureau of Economic Analysis,
1091 2 Rules) comprising the remainder.³ Accordingly, key drivers for NOAA Fisheries Economics & Human
1092 Dimensions Program (Program) are those Executive and legislative mandates governing the economic
1093 and socio-cultural analyses required for rulemakings including:

- 1094 • *Magnuson-Stevens Fishery Conservation & Management Act (MSA, 2007)* –requires extensive
1095 economic and social data collections and assessments be conducted (additional details below);
- 1096 • *Executive Order 12866*: conducting cost-benefits analyses of each management option proposed
1097 under every regulatory action;
- 1098 • *Regulatory Flexibility Act*: assessing the economic impact of the Proposed and Final Rule on small
1099 entities and identifying steps the Agency has taken to minimize impacts on these entities;
- 1100 • *National Environmental Policy Act*: assessing direct and cumulative economic and social impacts of
1101 regulatory options;
- 1102 • *Executive Order 12898*: Agencies must make Environmental Justice part of its mission by
1103 identifying and addressing regulations that disproportionately impact minority or low income
1104 populations
- 1105 • *Endangered Species Act*: requires economic assessment of critical habitat designations.

1106 The MSA places extensive economic and social data collection and assessment requirements on NOAA
1107 Fisheries. A key MSA driver is National Standard 8, which requires NMFS to take into account the
1108 importance of fishery resources to fishing communities by utilizing economic and social data to both
1109 provide for the sustained participation of fishing communities and to minimize to the extent practicable
1110 adverse economic impacts on these communities. In addition, for each of the 47 federal fishery
1111 management plans (FMPs) and associated amendments, NMFS must assess, specify, and analyze the
1112 likely *cumulative* economic, and social effects of the conservation and management measures on, and
1113 possible mitigation measures for, participants in the fisheries and fishing communities; participants in the
1114 fisheries conducted in adjacent areas; and the safety of human life at sea. Further, NMFS must also collect
1115 economic data on commercial harvest fleets, processors and for-hire operations; conduct economic impact
1116 assessments on recreational anglers, harvest and for-hire operations; and assess the economic impacts of
1117 rebuilding plans on fishery participants.

1118 Implementation of limited access privilege programs, now commonly referred to as catch share programs,
1119 also have substantial socioeconomic requirements. For example, participation criteria must consider the
1120 cultural and social framework relevant to the fishery; economic barriers to access to fishery; and the
1121 social and economic impacts on harvesters, captains, crew, processors, and other firms substantially
1122 dependent upon the fishery in the region or sub-region. More generally, NMFS must monitor and assess
1123 that limited access privilege programs do not result in excessive market share, are mindful of potential
1124 harmful effects on fishing communities, and ensure fair and equitable initial allocations of harvest
1125 privileges.

³ Only the Department of Homeland Security (1,233 Rules), Department of Transportation (563 Rules), and the Environmental Protection Agency (457 Rules) issued more Rules than NOAA Fisheries or DOC.

1127

1128 The Endangered Species Act places additional requirements on the federal trust agencies. Marine
1129 protected species do not only interact with fisheries but with other human uses, as well. Some of these
1130 interactions are positive (e.g., whale watching) while others are negative (e.g., ship strikes on whales,
1131 pinnipeds ‘occupying’ private property such as pleasure boats and docks). The economic analyses
1132 underpinning regulations to protect and rebuild these stocks must take into account the full suite of
1133 benefits (use and non-use) as well as the potential costs to private businesses and households, which
1134 results in a very different suite of data requirements and analyses. Similarly, the effects of habitat
1135 restoration activities extend well beyond fisheries. For instance, salmon habitat restoration activities can
1136 affect activities such as farming, mining, non-fishing recreation, hydropower, and municipal water use.
1137 The economic analyses underpinning salmon restoration decisions must often address multiple user
1138 groups and almost always require coordination with multiple agencies.
1139 Taken in their entirety, the high number of regulatory actions coupled with economic and socio-cultural
1140 data collection program design and management duties, modeling activities, and decision support tool
1141 development responsibilities results in a heavy workload for the NMFS economists and social scientists.

1142 **Strategic Documents**

1143 NOAA Fisheries need for an economic and social sciences capability is strongly reflected in a number of
1144 key Agency documents. In particular, the Next Generation Strategic Plan (NGSP) and the Annual
1145 Guidance Memorandum (AGM), which establishes the priorities for implementing the NGSP, clearly
1146 identify the need for a strong economic and social sciences capability to inform resource management
1147 decisions. The AGM, for example, provides clear links between the NMFS’ stewardship mission to
1148 improved economic opportunities, “*NOAA will sustain efforts to end overfishing and rebuild and*
1149 *maintain fish stocks at sustainable levels to optimize fishing opportunities, jobs, and ecosystem services.*”
1150 Accordingly, the AGM identifies NOAA Fisheries’ top deliverable as “*Complete implementation of*
1151 *annual catch limits and continue to assess economic and community impacts of these new management*
1152 *regimes.*” In the out years, FY14-FY18, NMFS is directed to “*Incorporate socio-economic information*
1153 *into EBM to provide LMR managers with information on the impacts, trade-offs, and distributional*
1154 *effects of management actions for the sustainability of marine resources and the coastal communities that*
1155 *depend on them.*” In addition, NOAA Fisheries leadership is relying upon its Economics &
1156 Human Dimensions Program to implement new comprehensive performance measures to evaluate the
1157 success of catch share programs, a major initiative for the Program that was initiated in FY11.
1158

1159 **FY11 Snapshot of NMFS Social Science** 1160 **Capability**

1161 **In-house capability & its Geographic Distribution**

1162 In addition to designing and managing over two dozen economic and socio-cultural surveys and data
1163 collection programs each year and conducting assessments in support of almost 300 Rules, NMFS
1164 economists and social scientists conduct world class research in support of living marine resource
1165 management. On average, staff publish roughly 1.5 peer reviewed scholarly journal articles each year in
1166 leading resource economics, fisheries, ecology, human dimensions and general science journals. These
1167 articles demonstrate the depth of the NMFS Economics and Human Dimensions Program, with journal
1168 articles covering such diverse research topics as catch share program analyses and evaluation; marine
1169 spatial planning / fishing ground closures; recreational fishing valuation; adaptive management; effects

of climate change on fisheries; protected species valuation and valuation of actions to improve protection for threatened and endangered species; evaluation of habitat restoration strategies; regional economic impact analysis, seafood markets and trade; ecolabeling; aquaculture economics; integrated ecosystem modeling; disaster assessments; and ethnographic studies and socio-cultural research. Further, the journal publication process provides transparency and external peer review to the Agency's economic and socio-cultural research, ensuring that the "best available science" required under MSA for fisheries management is, indeed, the best science available anywhere.

NMFS has taken a phased and distributed growth approach to building its Economics & Human Dimensions Program. Since NMFS began to ramp up its social science capability in 2001, the number of positions in the Headquarters Offices have increased from eight FTEs in 2000 to 13 FTEs but filled positions have returned to 2000 levels at eight FTEs (see Table 5). In contrast, the number of economists and social scientists in NMFS' regional offices has more than doubled (increasing from 29 FTEs in 2000 to 64 FTEs onboard and eight vacancies). In FY11, NMFS had 86 economist and social scientist FTE positions, including 14 vacant positions. Due to the decrease in funding for this program in FY12, those positions will remain vacant indefinitely.

Internal partnerships are also critical to running a cost-effective but high impact economic research and data collection program. Economic data collection costs are held down by adding economic questions to logbook programs, observer programs, permit programs and the Marine Recreational Information Program angler intercept survey. Integrated, interdisciplinary research conducted by the program relies upon other NMFS scientists and managers, especially those in stock assessment, protected resources, and habitat. The program also directly supports the NMFS National Environmental Policy Act Program Office and the Aquaculture Office. NMFS also partners with OAR Sea Grant on the NMFS-Sea Grant Marine Resource Economics Fellowships, workshops (e.g., upcoming National Community Supported Fisheries Workshop) and research (recent examples include oral histories in fishing communities at risk to sea level rise as well as industry research, e.g., for-hire economic data collection and assessment, a seafood dealer survey, and seafood market research.

Table 5: In-house NMFS capability & its Geographic Distribution⁴

	HQ ⁵	NEC	SEC	AFSC	NWC	SWC	PIC	SERO	AKR	NWR	SWR	PIRO	Sub-Total
STAFF (84 positions; 72 FTEs)													
Economists	11	10	8	8	8	9	5	5	3	1		1	
Vacancy	(3)	(2)	(2)		(1)	(1)	(2)				(1)		
Social Scientists	2	5	1	2	2		2	2					
Vacancy	(2)												
<i>Total Positions</i>	13	15	9	10	10	9	7	7	3	1	1	1	86
<i>Staff On-board</i>	8	13	7	10	9	8	5	7	3	1	0	1	72
TERM FTES													
Economists				1									

⁴ HQ: Headquarters, NEC: Northeast Fisheries Science Center, SEC: Southeast Fisheries Science Center, AFSC: Alaska Fisheries Science Center, NWC: Northwest Fisheries Science Center, SWC: Southwest Fisheries Science Center, PIC: Pacific Islands Fisheries Science Center, SERO: Southeast Regional Office, AKR: Alaska Regional Office, NWR: Northwest Regional Office, SWR: Southwest Regional Office, PIRO: Pacific Islands Regional Office

⁵ In FY11, Headquarters (HQ) economists and social scientists worked for the Office of Science & Technology, the Office of Sustainable Fisheries, the Office of Habitat Conservation and the Office of Protected Resources.

Social Scientists													
<i>Total</i>				1									1
CONTRACTORS													
Economists	1	1	1	1		.25	2				1		
Social Scientists		1		3	2.5	.25	3						
Data Management		2	1	2		0.5							
<i>Total</i>	1	4	2	6	2.5	1.0	5				1		22.5

1200

1201

1202 **External Capability.** The NMFS Economics & Human Dimensions Program primarily contracts for data collection, economic and socio-cultural research, IT support services for data management and data access tools, GIS support, and academic services (see Table 6). Some of these services are also conducted under grants or cooperative agreements with the Marine Fishing Commissions, to which NMFS can issue sole source grants, or through Sea Grant. Headquarters and field offices both award contracts and grants, with Headquarters providing additional contract support to the field offices through an IDIQ contract that is centrally managed by the Office of Science & Technology.

1203

1204 In FY11, the majority of NMFS economic and social science funds were obligated under contracts, with
 1205 the balance (approximately 35%) obligated under grants (see Table 7). The majority of the grants were to
 1206 Marine Fisheries Commissions, regional bodies that include state and federal fisheries partners.

1207

1208

1209

1210

1211

1212

1213

1214

1215

Table 6: National Marine Fisheries Service FY11 Contracts & Grants

NOAA Fisheries Economics & Human Dimensions Program Contracts & Grants	Funding (\$1,000s of dollars)
Grants	\$2,415
Contracts	\$4,265
Total	\$6,680

1216

1217 FY11 contracts and grants issued by the NMFS Economics & Human Dimensions Program by focus area
 1218 is shown below in Table 8.⁶

1219

1220

1221

Table 7: National Marine Fisheries Service External Social Science Capability

Program Area	FY11 Funding (\$1,000s of Dollars)
Commercial Fisheries Economic Data & Research	1,710
--Catch Share Programs	620
--Marine Spatial Planning (FishSET)	500

⁶ Note that due to the hiring delays in Workforce Management that occurred broadly across NMFS in FY10 and FY11, NMFS had considerable “labor lapse” that was directed towards major priorities for the Program including the economic tools being developed recreational fisheries (BLAST) and marine spatial planning (FishSET) and the social indicators and community profiling tool. This funding was not sustainable, i.e., as the programmed hired staff, funding would have declined for these tools. This short burst of funding, however, enabled NMFS to make significant headway on these tools.

Recreational Fisheries Economic Data & Research (BLAST)	1,100
National Standard 8: Communities & Social Impact Assessment	1,200
Protected Species Valuation	740
Habitat Research	280
Other: Seafood Markets (includes Aquaculture)	140
-----Software Licenses, including Econ Lit (NOAA-wide)	130
-----IT support	260
Total	6,680

1222
1223

1224 Partnerships

1225 The NMFS Economics & Human Dimensions Program regularly partners with the state marine fisheries
1226 agencies, generally under the auspices of the regional Marine Fisheries Commissions but also through
1227 direct collaborations, particularly for data collection and data sharing. Academic partnerships occur
1228 beyond contractual relationships, with research collaborations evolving from serving on Fishery
1229 Management Council committees, Marine Fisheries Commission committees as well as through
1230 professional organizations and conferences. The co-location of many of the NMFS Science Centers with
1231 universities or research centers also facilitates collaborative research.
1232

1233 NMFS economists and social scientists participate on a number of fisheries committees sponsored by
1234 NMFS' federal partners:
1235

1236 *Fishery Management Councils* – Committees include the Scientific Statistical Committees, which
1237 provides scientific review of studies; Plan Development Teams and Fishery Management Action
1238 Teams, similar committees that develop fishery management alternatives and assess the effects of
1239 these options on stewardship objectives as well as their socioeconomic implications; and
1240 socioeconomic committees, which address data and modeling issues.
1241

1242 *Marine Fishery Commissions* – Committees include socioeconomic committees, recreational fishing
1243 committees, and data management committees.
1244

1245 Staff professional service includes serving on editorial boards of several journals including Marine
1246 Resource Economics, Coastal Management, and the Australian Journal of Agricultural and Resource
1247 Economics and are also regular reviewers for dozens of natural resource, resource economic and socio-
1248 cultural journals. In addition, staff are also active in the leadership of international professional
1249 organizations including serving leadership roles on the North American Association of Fisheries
1250 Economics and the International Institute for Fisheries Economics & Trade; Society for Human Ecology;
1251 and ICES. Staff also serves as mentors to doctoral students selected under the NMFS-Sea Grant Marine
1252 Resource Economics Fellowship Program, awarded annually to two students, and also routinely serve on
1253 thesis committees at local universities.
1254

1255 NMFS also collaborates with academics and other Agencies and NOAA Line Offices on several NMFS-
1256 led national efforts. FishSET is a spatial econometric modeling toolbox that provides analysts with the
1257 data and modeling tools necessary to rigorously analyze the costs imposed on fishermen from spatial
1258 management actions that restrict access to fishing grounds. Over a dozen leading spatial econometricians
1259 have contributed their regional knowledge and modeling skills to FishSET. NMFS is also collaborating
1260 with academics, other NOAA Line Office and other federal agencies to develop its Social Indicators

1261 Decisions Support Tool. This project will provide key information on coastal communities socioeconomic
1262 status and trends, including community resiliency and vulnerability.
1263

1264 **Interagency Social Science**

1265 Like the other NOAA line offices, NMFS often conducts and applies social science activities in
1266 partnership with other federal agencies. For example, staff participate in or lead a number of interagency
1267 working groups, including the National Science and Technology Council's Joint Subcommittee on Ocean
1268 Science and Technology (JSOST), the National Climate Assessment, the Inter-Agency Task Force for
1269 Development of a National Fish, Plant and Wildlife Climate Adaptation Strategy; and the Klamath River
1270 Economic Assessment Team. Other notable collaborations includes work with the Puget Sound
1271 Partnership and The Natural Capital Project.

1272 **Social Science Needs**

1273 The need is plain – NOAA Fisheries cannot meet legal mandates requiring economic and social impact
1274 assessments with current resources. The fisheries management workload for the NMFS economists and
1275 social scientists is daunting. For example, the range of management options that may be considered for a
1276 *single* amendment affecting the commercial harvest sector may include area closures, seasonal closures,
1277 reduced harvest, reduced bycatch allowances, gear restrictions, and capacity reduction. The range of
1278 management options virtually ensures that more than one type of economic model must be used. Further,
1279 different types of economic analyses are required for each management option. That is, for each
1280 management option, NMFS must assess the cost and benefits to the regulated entities, the direct and
1281 cumulative economic and social impacts, consider the impacts on the “affected human environment”
1282 (e.g., shoreside processors, wholesalers, marinas, bait and tackle shops, marine suppliers, marine repair
1283 and dockyards, etc.), and the financial effects (e.g., profitability and cash flow) on small businesses. A
1284 similar suite of analyses must be conducted for Rules affecting recreational fisheries. In addition, and as
1285 outlined above, the economic analyses underpinning regulations to protect and rebuild marine protected
1286 species and restore habitat must take into account the full suite of benefits (use and non-use) as well as the
1287 potential costs to private businesses and households, which results in a very different suite of data
1288 requirements and analyses. Finally, mandated economic assessments of catastrophic disasters such as
1289 Sandy strain already limited resources.

1290 In sum, with almost 300 Rules implemented in 2011, at least one amendment and sometimes multiple
1291 amendments were implemented in almost all of the 47 highly diverse FMPs managed by NMFS.⁷ Given
1292 the economic and social data collection, modeling and assessment requirements for supporting
1293 Rulemaking, it is clear that current staff is stretched too far and cannot keep pace with these demands.
1294

1295 Further, as the Agency shifts towards ecosystem-based management of fisheries, two truths are quite
1296 evident: 1) most ecosystem models are not integrated with economic models or even adequately grounded
1297 on economic assumptions; and 2) the Agency needs to invest more in economics and socio-cultural data
1298 and modeling if it wants to use these models to value ecosystem services and assess the trade-offs from

⁷ The diversity of federal fisheries (e.g., single vs. multispecies; shellfish vs. finfish; sedentary stocks vs. highly migratory; small boat vs. industrialized fleets; geographically concentrated vs. geographically expansive, with a high number of active ports; etc.) is an added challenge, often limiting the applicability of a model to a small number of fisheries or even a single fishery.

1299 alternative management decisions, including management of major drivers of ecosystem condition such
1300 as energy uses (oil, liquid natural gas, renewable energy) and land use decisions.

1301 **Process, Products and Activities that Require Social Science**

1302 NMFS economic and social science capability is responsible for assessing the economic and social
1303 impacts of all management options of every regulatory action proposed in each of the Nation's federally-
1304 managed fisheries. The goal of this capability is to identify management options that maximize benefits
1305 to society while still achieving conservation goals, thereby resulting in a resource management strategy
1306 that is consistent with both the long-term sustainability of the Nation's fisheries as well as the fishing
1307 communities that depend upon this resource for a livelihood and a way of life.

1308
1309 Underpinning this capability are the economic and socio-cultural data collection programs and surveys
1310 that provide the information base for meeting statutory mandates for cost-benefit analysis of regulatory
1311 actions, small business impacts, and social impact assessments. To meet these mandates, NMFS must
1312 collect economic data from commercial fishermen, processors, for-hire operations and must conduct
1313 economic assessments of commercial, for-hire and anglers, and fishing communities. Assessments
1314 include (but are not limited to) monitoring the economic performance of catch share fisheries and non-
1315 catch share fisheries; evaluating quota allocation strategies; analyzing the cost and benefits as well as
1316 distributional effects of rebuilding plans; predicting catch and effort; assessing the short- and long-run
1317 economic effects of marine protected areas; and estimating the economic contribution of fishing to the
1318 local, state and national economies; and assessing the economic and socio-cultural impacts of regulations
1319 on shoreside industry and fishing-dependent communities.

1320
1321 Protected species and habitat are also part of NMFS' mandate. NMFS has established a rigorous, state-of-
1322 the-art non-market valuation program for assessing the public's value for recovering threatened and
1323 endangered marine protected species and protecting or restoring marine habitats. These values can and
1324 should be included in NMFS' cost-benefit analyses, which tend to be more focused on the "cost"
1325 implications of conservation measures.⁸ These values may also be used to assess the benefits obtained
1326 from NOAA's conservation and recovery efforts, thus providing a useful benchmark for valuing stock
1327 rebuilding programs, protected species recovery efforts and habitat restoration and recovery efforts.

1328

1329 **Social Science Gaps based on immediate risks**

1330 In FY12, the NMFS Economics & Social Science Research budget line was cut 30% from \$10.7M in
1331 FY11 to \$7.4M in FY12. This decrease was roughly equivalent to the Program's increase in FY10.
1332 Accordingly, the Program's budget priorities identified below and the rationale behind them are much the
1333 same as those identified in the FY10 President's Request: 10 FTEs and funding for data collection and the
1334 development of social and economic decision support tools. While the funding went away, the need for
1335 these resources did not; in particular, the number of Rules issued by NMFS has not declined and the
1336 number of catch share programs, a market-based approach to management that requires substantially
1337 more economic assessments, increased.

1338

1339 **Decision Support Tools:** NMFS currently has two economic decision support tools available in all NMFS
1340 regions – a commercial fisheries economic impact tool and a recreational fisheries economic impact tool,
1341 both of which can be used to assess the effect of a fishing regulation on the local and state economy.
1342 Increased development of decision support tools will enable the Agency to work "smarter", i.e., more

⁸ NOAA General Counsel has directed NMFS to provide broader societal benefit estimates in its economic analyses of management options.

1343 cost-effectively. The three national-in-scope decision support tools NMFS currently has underway
1344 support marine spatial planning or, more specifically, fishing ground closures (FishSET); a recreational
1345 fisheries economic decision support tool for evaluating management options (BLAST); and a social
1346 indicator / community profiling web-based tool that support social impact assessments. These three tools
1347 are described briefly below:
1348

1349 FishSET –this ecosystem modeling tool uniquely includes both data management tools and predictive
1350 behavioral models that are needed to rigorously assess the trade-offs from marine spatial management
1351 strategies that restrict fishermen’s access to fishing grounds. The model includes predicting the
1352 fishermen’s response to fishing ground closures and does so in a risk framework. NMFS is currently
1353 piloting FishSET in Alaska; none of the other regions have this capability.
1354

1355 BLAST – NMFS recreational fisheries economic decision support tool is underpinned by an
1356 integrated, dynamic bioeconomic model that may be used to analyze the effects of size and possession
1357 limits in a recreational fishery as well as the economic benefit streams associated with alternative
1358 rebuilding scenarios. BLAST will also provide essential information for making allocation decisions.
1359 Importantly, not only will BLAST improve assessment quality, it reduces the time required to run an
1360 assessment 20-fold, dramatically reducing labor costs. NMFS is currently piloting BLAST in the
1361 Northeast. The model will be reviewed by the New England Fishery Management Councils and Mid-
1362 Atlantic Fishery Management Council in September 2012 and is anticipated to be fully operationalized
1363 in these regions for selected fisheries by December 2012. No other regions, including the South
1364 Atlantic and Gulf of Mexico where recreational fishing is greatest, have a comparable capability.
1365
1366

1367 Social Indicators / Community Profiling Tools – this tool will provide analysts with key demographic
1368 and community economic and socio-cultural data necessary to assess the potential social impacts of a
1369 regulatory action. Beyond data, the Toolbox will provide metrics for community resiliency,
1370 community vulnerability, gentrification, as well as a mapping tool, which will make it easier to
1371 identify agglomeration effects, i.e., groups of less resilient or vulnerable communities, which may
1372 compound the initial impacts on any individual community. NMFS has provided seed funding to this
1373 project for the Atlantic Coast and Gulf of Mexico. Prior to the FY12 funding cut, NMFS anticipated
1374 delivering a fully-operational decision support tool for fishery managers in New England, the Mid-
1375 Atlantic, South Atlantic and Gulf in FY13. Depending upon FY13 funding decisions, it may be
1376 possible to implement the Gulf Toolbox; the other three regions will not be ready until FY14, at the
1377 earliest. The other NMFS regions and their associated Fishery Management Councils do not have this
1378 capability.
1379

1380 **Data:** Currently, the Agency is only meeting 55% of its commercial fisheries economic data collection
1381 requirements and roughly 30% of its recreational fisheries economic data collection requirements.
1382 Closing these gaps is a priority for the Program.

1383 **Staff:** The FY10 President’s Request included 10 FTEs for this Program. The distribution of these 10
1384 FTEs by region and focus area is provided below:
1385

- 2 FTEs, Southeast Fisheries Science Center (recreational economist, spatial econometrician);
- 2 FTEs, Northeast Fisheries Science Center (recreational economist, spatial econometrician);
- 2 FTEs, Pacific Islands Fisheries Science Center (recreational economist, spatial econometrician);
- 1 FTE, Alaska Fisheries Science Center (social scientist)
- 1 FTE, Northwest Fisheries Science Center (commercial fisheries /catch shares economist)
- 1 FTE, Southwest Fisheries Science Center (bioeconomic modeler)
- 1 FTE, HQ Office of Science & Technology (social scientist)

1394 **Recreational Economists**: One recreational economist is needed in the Southeast because currently there
1395 is only one recreational economist at this Center despite the large number of recreational fisheries in this
1396 region. Northeast and Pacific Island also each need a recreational economist. Neither Center has a
1397 dedicated recreational economist nor staff with expertise in designing stated preference choice
1398 experiments, the state of the art survey method for assessing the costs and benefits of proposed
1399 management options.
1400

1401 **Spatial Econometricians**: One spatial econometrician is needed in the Northeast because the previous
1402 spatial model was built prior to catch shares and ACLs and different modeling skills are now required.
1403 The Southeast and Pacific Islands Centers entirely lack this capability.
1404

1405 **Social Scientists** – one social scientist (anthropologist or sociologist) is needed in Alaska, which has a
1406 significant Native American population as well as a high number of fishing communities with poverty
1407 rates and unemployment rates well above the national average. One social scientist is needed in the
1408 NMFS HQ Office of Science & Technology to oversee the national social science program and to support
1409 the NMFS HQ Office of Sustainable Fisheries and the NMFS HQ NEPA Office, neither which have a
1410 social scientist on staff.
1411

1412 **Commercial Fisheries / Catch Shares Economist**: the Northwest Center requires an economist to support
1413 its recently implemented catch shares program in the Pacific trawl fishery. This program was
1414 implemented with significant mandatory economic data reporting requirements, which were originally
1415 intended to be supported by the position funded originally in FY10 but no longer exists due to the budget
1416 cut in FY12.
1417

1418 **Bioeconomic Modeler**: the Southwest Center intends to implement the recreational fisheries decision
1419 support tool and then apply the same approach to a commercial fishery.
1420

1421 **Ideal structure of the NMFS Economics & Human Dimensions Program**

1422 NMFS' ideal structure for its economics and social science program was identified in FY07 budget
1423 documents as 140 FTEs. As the nascent program grew and began to develop increased tools for meeting
1424 management needs, the projected number of FTEs required to fully meet NMFS' economic and socio-
1425 cultural assessment requirement was adjusted downward in FY09 budget documents to 120 FTEs and a
1426 budget of \$27.2 million (inclusive of FTEs).
1427

1428 **Table 8: NMFS Ideal Structure of Social Science Capability**

Program Area	Average Annual Funding
120 FTEs	\$18,000
Commercial Fisheries Economic Data & Research	2,300
--Catch Share Programs	1,200
--Marine Spatial Planning (FishSET)	600
Recreational Fisheries Economic Data & Research	900
--Recreational fisheries economic evaluation tool (BLAST)	1,100
National Standard 8: Communities & Social Impact Assessment	1,200
Protected Species Valuation	600
Habitat Research	700

Other: Climate Impacts on Fisheries / Fishing Communities; Seafood Markets, Software Licenses; Trade;	600
Total	\$27,200

1429 Implications in FY 13 and Beyond

1430
1431 The budget was cut 30% in FY12. There were no budget offsets for these cuts. This has precluded the
1432 program from backfilling vacancies (20% of the Program's FTEs). In addition, without additional funding
1433 in FY13, NMFS will have to let go an estimated 50-70% of the 23 contractors currently employed by the
1434 Economics & Human Dimensions Program. Additional implications for this cut include cutting funding
1435 for FishSET, an economic spatial modeling decision support tool that predicts fishers response to
1436 management strategies and assesses the cost-benefits of those options in a risk framework, by 60%,
1437 delaying the roll out of this tool in the Alaska region one year and two years (2015) in the Gulf of Mexico
1438 and will not be expanded to any other region. In addition, all funding for BLAST, the Agency's new
1439 integrated recreational economic model currently being piloted in the Northeast and planned for
1440 expansion on the West Coast, Mid Atlantic and Gulf was eliminated. **In fact, funding for recreational**
1441 **fisheries economic data collection program will be at a near 20 year low despite the Agency's**
1442 **priority for improving the science and management of recreational fisheries.**⁹ Funding for NMFS
1443 Social Indicator Toolbox, which was intended to fulfill the Agency's NEPA Social Impact Assessment
1444 requirement, was also cut 50%.

1445
1446 Restoring the funding to FY10 levels would generate major returns to the Agency. The once nascent
1447 Economics Program was poised to deliver major decision support tools for both commercial and
1448 recreational fisheries. The integrated recreational economics decision support tool is already operational
1449 on a pilot basis in the Northeast and is poised for expansion in three other regions, with remaining regions
1450 to follow shortly after. This tool will allow NMFS to assess a range of management strategies, including
1451 allocation, rebuilding plans, and bag limits, literally at the push of a button. Likewise, FishSET could
1452 provide this same operational capability – modeling the cost-benefits from fishing ground closures, the
1453 creation of MPAs, or other coastal and marine spatial management strategies driven by the needs of other
1454 user groups (energy, aquaculture, etc.) – at the push of a button.

1455
1456 At current funding levels, these capabilities will not be achieved. Further, not only do these cuts place the
1457 Agency at risk for increased court challenges from both stakeholders and environmental organizations, at
1458 these reduced funding levels, NMFS may actually lose these lawsuits.

1459

1460

⁹ See "Recreational Saltwater Fisheries Action Agenda" p. 6. Department of Commerce, NOAA, NOAA Fisheries. October 2010. <http://www.nmfs.noaa.gov/sfa/PartnershipsCommunications/recfish/2010RecfishActionAgenda.pdf>