NMFS Laboratory Consolidation Study Report

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

NOAA

U.S. DEPARTMENT OF COMMERCE

1997 Update

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
1335 East-West Highway
Silver Spring, MD 20910
THE DIRECTOR

April 7, 1997

UPDATE TO LABORATORY CONSOLIDATION STUDY

In response to guidance from the Congress and the National Oceanic and Atmospheric Administration, NMFS conducted a review of its science programs and its facilities to determine whether it was possible to reduce the costs of maintaining and operating all its existing facilities, and hence put some of those resources into higher priority work. The study was completed in June 1996 and is included in full within the blue bound portion of the package. The study considered a number of options and included a number of recommendations regarding facilities and programs. This study has been a useful management tool for NMFS and NOAA management in their planning for the facilities in support of fisheries programs. In continuing its use of this study as a management tool, NMFS has updated the Executive Summary of the plan to reflect the current internal thinking on the priorities of facilities and programs. A copy of the updated Executive Summary appears at the front of the document. It is highlighted to show the changes from the 1996 Executive Summary with underscoring under additions and with strike throughs on deletions. The significant changes that have been made to the original report are summarized below. The 1997 Updated Executive Summary is neither intended to be a comprehensive current assessment of the costs or savings associated with the recommended consolidations, nor is it intended to represent an approved action plan. Implementation of any of the recommendations will be subject to management decisions with respect to the maintenance of the required laboratory infrastructure supporting priority programs of NMFS.

Conclusions of the Report

The report indicates that a consolidation process offers excellent opportunities to upgrade the organization and execution of NMFS science, while reducing overhead costs associated with maintaining unneeded facilities. It is clear from the report that to realize savings, a substantial investment in completion of facilities and relocation of staff and equipment would need to be made well in advance of achieving program efficiencies. The

total investment over several years could exceed $85 million, of which $15.2 million is included in FY 1998 for Santa Cruz. No other investments are included in the FY 1998 Request. With the investment of $85 million, NMFS estimates that it could be able to direct $11 million annually into higher priority science activities, following the completion of the recommendations.

Changes of Significance in the 1997 Update to the Executive Summary

- **Auke Cape, AK** - Subsequent to the initial report, NMFS received updates on the construction cost estimates for the Auke Cape facility. It should be noted that we anticipated the need for this type of refinement process in our original report. The total project cost is now estimated at $72 million. Construction costs are now estimated at $49 million (versus the original estimate of $48 million). That includes the space to be occupied by the University of Alaska (which will provide reimbursement) and by Regional administrative offices; NMFS science programs' share of the construction cost is $34 million. The detailed estimates for the remainder of the project, which include outfitting and related personnel actions, are now $7 million (with the NMFS science share being around $4 million), while our parametric model had estimated $8 million. As a result, although it is increasing with inflation, the net cost is actually slightly lower than anticipated. (No funds are included for this in the FY 1998 budget.)

- **Salmon Restoration Activities** - Subsequent to the original study, the Administration noted a concern that the process did not reflect the extremely high priority placed on salmon restoration. The scoring system used to evaluate Science programs is accurate but resulted in the submergence of some salmon-related programs. If a salmon-related program did not address endangered species (weighted 8 points out of 10), they were considered supporting lower ranking missions, such as restoration and aquaculture (weighted 5 and 4 points respectively out of 10). As a result, it was decided to retain salmon-related programs at Manchester under NMFS control rather than transferring such programs to the Bonneville Power Administration (BPA). Because BPA currently pays for substantially all of the activities at Manchester, there is no significant change in cost as a result of this decision.

- **Pacific Grove, CA** - NMFS was given the Pacific Grove, CA, facility outright (as opposed to leasing it for an uncertain

period as was the case for the previous report). That eliminated the need to consider relocating those programs, especially in view of the highly-publicized transfer event. NMFS will, therefore, retain the Pacific Grove facility and its programs.

- **Santa Cruz, CA** - The President's Request of $15.2 million in FY 1998 and $4.2 million in FY 1999 for the Santa Cruz laboratory, to replace the Tiburon Laboratory, has been added. This amount was not included with the estimated construction costs ($43 million) stated within the original report or updated Executive Summary.

Status of Recommendations

As noted above, this laboratory review is to be used as a management tool as NMFS makes decisions on research priorities over the coming years. Prior to any submission by the Administration and approval by Congress, any significant move to implement actual consolidation or closure must be preceded by a review of the data and the resulting cost estimates, available space and current programmatic priorities. In the interim, NMFS has made some progress on the west coast recommendations. NMFS focused attention in this area because several decisions on construction projects were imminent and because the report recommendations were more extensive than those affecting the east and Gulf coast. NMFS have taken no action on east and Gulf coast recommendations.

A. Status of the Recommendations Identified in this Report which are included in the FY 1998 Request.

Santa Cruz, CA: Funding has been requested for construction of a new facility. The Presidents request includes $15.2 million for construction in FY 1998, and $4.2 million in FY 1999.

B. Status of Recommendations Identified in the Report which were included in the FY 1997 or Prior Fiscal Year Budgets.

Auke Cape, AK: Funding has been provided for preliminary studies for a new facility in Auke Cape, AK. There can be no actions regarding the Alaska and Northwest Center (NWC) relocations (Montlake and Sand Point) until the decision on the Auke Cape facility is made. NMFS is currently in the evaluation phase and depending on the outcome may seek construction funds in out year budget requests.

Near Island, AK (Kodiak, AK): Funding has been provided for A&E studies. That facility is already under construction by the Borough of Kodiak, AK, and is predicated on an occupancy commitment from NMFS beginning in FY 1997.

C. **Status of Remaining Recommendations.**

Implementation of two recommendations aimed at increasing efficiency have begun. The NMFS Director, Office of Science and Technology was tasked to evaluate the feasibility of consolidation of West Coast groundfish within the NWC and the feasibility of setting up Centers of Expertise. The former is completed and is currently under consideration. A decision in the consolidation of the West Coast groundfish may effect the final location of the staffs at the West Coast laboratories.

Other recommendations will be considered within the context of setting program priorities.

The Executive Summary and the Table of Recommendations have been revised to reflect these changes and are attached.

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NATIONAL MARINE FISHERIES SERVICE:

LABORATORY CONSOLIDATION STUDY REPORT
1997 UPDATE

Executive Summary

The National Marine Fisheries Service (NMFS) operates over two dozen Science Centers, laboratories and field stations in support of its mission. Over time, the focus of the research effort changes. As that occurs, NMFS needs a mechanism for identifying resources being spent on activities that no longer address primary goals, so that these resources can be redirected to higher priority research. In addition, facilities constructed for one purpose may be less appropriate for later activities; those activities should be located in more appropriate facilities. Finally, the NMFS wishes to have a process for identifying and evaluating those cases where the expenses of maintaining a facility are being directed at research that could be carried on more cost-effectively elsewhere either within or outside NMFS.

In response to guidance from Congress and from the National Oceanic and Atmospheric Administration, NMFS conducted a review of its science programs and its facilities to determine whether it was possible to reduce the costs of maintaining and operating all of its existing facilities, and hence to put some of those resources into higher priority work.

It is important that such an evaluation process be open and objective: the research that supports NMFS is critical to accomplishing public purposes, and once eliminated it is difficult to recover. In addition, well-founded adjustments do create adverse impacts on some people, even where those adjustments are in the best interests of the public. For both those reasons, NMFS needed to ensure that the process used to determine the substitution of research activities, elimination of unneeded facilities or transferring facilities or research within or outside NMFS would result in the most cost-effective configuration of facilities to support NMFS science.

To achieve those ends, NMFS emphasized the use of external peer review by disinterested parties from within and outside the Federal science community to ensure that the program and facility evaluation process was well-designed and followed the design. The external panels served as quality control mechanisms to ensure that the process was supportable, credible, adhered to and based on the best information available.

That process resulted in a ranking of all NMFS facilities in terms of their physical aspects and the science programs conducted there, as well as a ranking of programs across NMFS in terms of their mission priority.

In addition to this concern for the integrity of the evaluation process, the NMFS recommendations were developed by a task force that did not include either NOAA senior management or facility directors, in order to ensure the study outcome would be as objective and credible as the process. Given the results of the evaluation process, the NMFS management task force developed several alternative scenarios to assess their cost-effectiveness. Those general scenarios consisted of:

- constructing proposed new facilities
- closing and/or consolidating existing facilities
- establishing Centers of Expertise, and
- combinations of the above.

The recommendations in this report are based on the best available data and information, which has been collected, processed and evaluated in a relatively short period of time. *Before ~~In the process of implementing~~ the recommendations for new actions are implemented, additional work will be required to improve the precision of those data and the resulting cost estimates.*

After evaluating the relative costs and subjective benefits of the alternatives, NMFS recommends a combined package of closures, construction and relocations that will save approximately $~~6~~ 11 million over the first five years and approximately $~~9~~ 11 million annually thereafter. These funds could then be used for outsourcing, or shifted to higher priority research within NMFS. The savings in the early years appear lower than they actually are, because included in those net savings are one-time costs for major

construction projects that would otherwise represent significant costs to NOAA without the consolidation actions.

The principal features of this recommended package are listed below. The numbers in parentheses refer to the entries in the attached summary table. The proposed changes include:

- Construct new facilities at Auke Cape, AK (1) and relocate a portion of the Alaska Science Center from Seattle, WA (9), to Auke Cape, AK. This move would be executed over a period of several years and is dependent on the construction of the new Auke Cape facility.
- Relocate activities from the current facility in Kodiak, AK (2), to an adjacent new facility (Near Island) to be leased from the State of Alaska. That facility is already under construction and was predicated on an occupancy commitment from NMFS.
- Relocate all or a portion of the North West Science Center within Seattle from Montlake (3) to Sand Point (9), assuming that a portion of the Alaska Science Center moves to the new facility in Auke Cape, AK (1). The property transfer would include a provision permitting continued access to critical laboratories at Montlake if detailed analysis indicates that the cost of replicating those facilities at Sand Point would be prohibitive.
- ~~Transfer~~ Continue to operate the NMFS facilities at Manchester, WA (8), as a field station of the North West Center (9)~~to another Federal agency, state, academic institution, or other interested party. This action would be taken unless a second level of review indicates that the work is critical to salmon recovery and must be done by NMFS.~~ The Manchester science activities and personnel are now, and are expected to continue to be, largely funded by the Bonneville Power Administration.
- Relocate several programs at La Jolla, CA (10) to other facilities that are more geographically suitable.
- Close facilities in Tiburon (4)~~ and Pacific Grove~~, CA ~~(5)~~; Hammond, OR (7); Sitka, AK (6); and Panama City, FL (17), and relocate staff and programs.
- Retain the newly-acquired facility in Pacific Grove, CA (5).
- Move appropriate programs to a proposed new facility in Santa Cruz, CA, if that facility is constructed. The Presidential request includes $19.4 million for construction in FY98-99.

- Cease NMFS participation in the multi-agency facility at the Stennis Space Center in Bay St. Louis, MS (16), relocating the personnel and programs largely to Pascagoula, MS (20).
- Relocate several programs at Beaufort, NC (18) (approximately 15% of current program) to more appropriate research facilities.
- Provide limited ~~or no~~ participation in the operation of new multi-agency facilities in Lafayette, LA.
- Provide limited or no participation in the operation of new multi-agency facilities in Charleston, SC (19); continue to operate existing programs in the existing Charleston facility.
- Transfer the NMFS lab at Oxford, MD (15), to the State, which is already the principal tenant. Some Federal personnel and programs would continue to operate ~~on detail~~ in Oxford to execute projects of the Beaufort laboratory focused on the Chesapeake Bay and mid-Atlantic region.
- Outsource ~~over~~ nearly $2~~.5~~ million of scientific work, assuming there is interest in the academic or private community, and transfer another $6.7 ~~2.5~~ million of work to other responsible agencies[1].
- Reprogram approximately $~~9~~ 11 million annually into higher priority science efforts conducted internally or through external competitive processes.

If the recommended consolidation plan is implemented, NMFS can accomplish the required construction at remaining facilities and upgrade its science at the same time. *This would require~~be~~ an initial investment of approximately $23 ~~20~~ million*, and the recommended alternative may even engender some savings in the short term. In the long term, the devolution of some science activities would create savings that can be re-invested into higher priority science, whether that be through competitive outsourcing and grants, or through realignment of the efforts of NMFS scientists.

[1] In our June 1996 report we assessed $2.5 million of transferred work. During that study, we used the words "terminate" and "transfer" in the detailed cost assessments to provide a distinction that became unnecessary; unfortunately, as a result the "terminated" work was omitted from the summary figures. For this update we have used only the word "transferred" to indicate all work that NMFS believes to be more appropriately performed by other parties, if at all. Using that term, the total reported last year would have been $8.8 million. The adjustment from $8.8 million to the $6.7 million reported above reflects the decision to retain the Manchester facility and its programs.

The most significant initiative under this consolidation plan is the proposed relocation of portions of the Alaska science to Alaska. That initiative depends upon the construction of the Auke Cape (1) facility. Without that, there could be no move to Auke Cape, no consolidation from Montlake (3) into Sand Point (9), and no revenue from Montlake to offset the implementation costs.

These recommendations include no change for the Northeast Region. NMFS does have excess capacity in the Northeast, at its state-of-the-art facility in Sandy Hook, NJ, which was also the lowest rated Northeastern facility in the study because it is not precisely matched to the specific programs under way in the region. Other NMFS laboratories that are aging and overcrowded received higher scores because they are well suited for their present missions (having been designed specifically for those purposes). The Sandy Hook facility is the most advanced in the NMFS inventory and should be retained for that reason; additionally, its construction was based on a NMFS long-term lease agreement and thus it would be difficult to abandon. It would not be cost-effective to relocate programs to New Jersey simply to relieve congestion. Therefore, NMFS has decided to retain all of its Northeastern facilities, with the intent to add appropriate science activities to the New Jersey facility as they are identified.

The start year and timing for these proposed consolidations is not of great consequence, and phasing is anticipated. NMFS ~~has~~ prepared the analysis on a consistent basis assuming decisions in FY 1996 and implementation in FY 1997 in order to provide fair comparisons. The net costs and savings would be the same, no matter when they occur. Perhaps the important point is that most of the costs of implementation must be borne before any of the savings are realized.

In summary, the Laboratory Consolidation Study recommends the ~~closure~~ discontinuance of NMFS activities at ~~of seven~~ six existing laboratories~~; the transfer of two facilities to states;~~ and the construction of two proposed facilities[2]. This will result in an overall reduction of 65 FTEs. In order to achieve these improvements, NMFS would require one-time funding of approximately $23 ~~20~~ million to pay for personnel actions, moves of people and equipment, facilities upgrade work and other administrative costs, in ad-

[2] The Auke Cape and Kodiak (Near Island) facilities. Other facilities that are under discussion for possible future construction are not addressed by this consolidation study. If such facilities are eventually built and it is prudent to place science activities in them, such decisions can be made at that time using the methods institutionalized here.

dition to the ~~construction~~ costs for the new facilities at Auke Bay and Near Island (estimated at $43 million) ~~that have already been programmed~~[3]. These costs, less real estate sales, are amortized in the first five years with a net savings of $11 ~~6~~ million. Thereafter, the agency anticipates a savings of $~~9~~ 11 million per year[4]. These funds could be used for outsourcing or shifted to higher priority research within NMFS.

Without the one-time funding of $23 ~~20~~ million, the closures and consolidations would be impossible. Under such conditions, NMFS would be compelled to continue its science in the facilities it has today: the same facilities that all parties agree need to be upgraded or consolidated.

[3] The NMFS science share of construction and rehabilitation activities at Auke Cape and Auke Bay, as well as minor upgrades and expansions at other facilities to accommodate recommended moves.

[4] Although the Manchester facility was retained, savings actually *increase* because it has no market value (it is an NPL site) and the work is reimbursable.

NMFS LABORATORY CONSOLIDATION STUDY: UPDATE 1997
RECOMMENDED CONSOLIDATION PACKAGE

Scenario Title	Action #	Facility	Disposition	Program Affected	Decision	Moved To/From	Remarks
Recommended Package							
West Coast Sub-package Move AK science to AK, move North West Science Center to Sand Point. Close small facilities, concentrating West Coast Groundfish programs at Newport.	1	Auke Cape	BUILD	RACE Assessment RE Economics Arctic CA Current	Add Add Add Add	Fr: Sand Point	Outsource Auke Bay habitat work, terminate marine salmon investigations. Terminate Sand Point ecosytem ecology, outsource Antarctic work from Sand Point and La Jolla. Retain Auke Bay as Field Station.
	2	Kodiak (new)	REPLACE	All programs	Keep	Fr: old Kodiak	Move to new Near Island facility
	3	Montlake	SELL: relocate programs	Habitat Quality Salmon Ecology Grndfish Ecology Seafood Safety	Relocate Relocate Relocate Transfer[1]	To: Sand Point To: Sand Point To: Newport To: Pvt sector	Sell. Two Centers in Seattle is duplicative and Sand Point is larger. May need to retain access to specialized laboratories if replication at Sand Point is cost-prohibitive.
	4	Tiburon	SELL	Prot Species Groundfish	Relocate Relocate	To: Newport To: Newport	Delapidated facility, very high repair cost. Given that the construction costs have been budgeted for the Santa Cruz facility, there is a need to conduct a review which programs should be relocated there.
	5	Pacific Grove	RETAIN	All programs	Keep	n/a	Small facility has easily relocated program but recently donated by Defense Department in high-visibility action

[1] "Transfer": NMFS' intention is to reprogram the funds that supported transferred programs into higher-priority science programs.

NMFS LABORATORY CONSOLIDATION STUDY: UPDATE 1997
RECOMMENDED CONSOLIDATION PACKAGE (continued)

Scenario Title	Action #	Facility	Disposition	Program Affected	Decision	Moved To/From	Remarks
West Coast - Continued	6	Sitka (Little Port Walter)	SELL	Salmon	Transfer	To: State	Very high operating cost, addressing a single salmon stock that is primarily a State responsibility.
	7	Hammond (Pt. Adams)	SELL	Salmon ecology Habitat quality	Transfer Relocate	To: State To: Newport	Limited capability facility, largely addressing riverine and coastal aspects of salmon
	8	Manchester	RETAIN as Field Station of NWC	Salmon	Keep	n/a	Most operations funded by Bonneville Power
	9	Sand Point	RETAIN	Marine Mammal RACE Assessment RE Economics Ecosystem Ecology Antarctic Arctic CA Current Salmon Ecology Habitat Quality	Keep Relocate Relocate Transfer Outsource Relocate Relocate Add Add	Keep To: Auke Cape To: Auke Cape To: Universities To: Outsource To: Auke Cape To: Auke Cape From: NWC Montlake From: NWC Montlake	All remaining work except core Marine Mammal work relocated to Auke Cape new facility. Becomes NW Center, receives bulk of Montlake prior work. Mukilteo to serve as field station (wet lab).
	10	LaJolla	RETAIN	Groundfish Antarctic Genetics Prot Species Coastal Fisheries Large Pelagics	Relocate Outsource Keep Keep Keep Relocate	To: Newport To: Outsource To: Honolulu	

NMFS LABORATORY CONSOLIDATION STUDY: UPDATE 1997
RECOMMENDED CONSOLIDATION PACKAGE (continued)

Scenario Title	Action #	Facility	Disposition	Program Affected	Decision	Moved To/From	Remarks
	11	Auke Bay	UPGRADE	Marine Salmon Interaction Habitat Invest Stock ID High Seas C Mar Fish Assess	Transfer Outsource Keep Keep Keep	To: State To: Outsource	Retain as Field Station of Auke Cape. Perform required rehabilitation work.
	12	Newport, OR	EXPAND PROGRAMS (has available space)	Fish Behavior Groundfish Salmon Ecology Salmon Prot Speci Groundfish Groundfish Habitat Quality Groundfish	Keep Keep Keep Add Add Add Add Add	From: Tiburon From: Tiburon From: LaJolla From: Hammond From: Montlake	Gains several smaller programs, making use of excess space and making Groundfish Center more effective resource
	13	Pasco,WA	RETAIN	All	Keep	No change	No change
	14	Honolulu	RETAIN	Large Pelagics	Add	From: LaJolla	Join LaJolla pelagics program to existing $4.5 m program in Honolulu
Southeast Sub-package	15	Oxford	TRANSFER FACILITY TO STATE	Oyster disease	Transfer	To: State	Transfer facility and some programs to State. NMFS will retain a presence in the Oxford laboratory through work on marine mammal, sea turtle and habitat restoration research.
	16	Bay St. Louis	RETURN SPACE TO NASA	Coast watch Resource survey	Relocate Relocate	To: Galveston To: Pascagoula	Terminate small presence on major Federal facility

NMFS LABORATORY CONSOLIDATION STUDY: UPDATE 1997
RECOMMENDED CONSOLIDATION PACKAGE (continued)

Scenario Title	Action #	Facility	Disposition	Program Affected	Decision	Moved To/From	Remarks
	17	Panama City	SELL	Fish & ecosystems	Relocate	To: Galveston	Small facility has high value, science similar to Galveston effort but no critical mass
	18	Beaufort	RETAIN	Marine Mammal Habitat Restoration Protected Species Statistics Atl Coast Resource Coast Watch	Keep Keep Keep Keep Transfer Relocate	 To: State To: Galveston	 Menhaden is a State responsibility Most of Coast Watch based out of Galveston now
	19	Charleston	RETAIN	All	Keep	No change	
	20	Pascagoula	RETAIN	Resource Survey	Add	From: Bay St. Louis	Gains Bay St. Louis program
	21	Miami	RETAIN	All	Keep	No change	
	22	Galveston	RETAIN	Coast Watch Coast Watch Fish & Eco R	Add Add Add	From: Beaufort From: Bay St. Louis From: Panama City	Gains several small programs
Northeast Sub-package		**NO CHANGE**					

NMFS Laboratory Consolidation Study Report

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

NOAA

U.S. DEPARTMENT OF COMMERCE

June 1996

FINDINGS OF THE EXTERNAL REVIEW PANEL

The Undersigned members of the NMFS Laboratory Consolidation Review Panel have reached the following findings:

- The recommendations developed by NMFS management are consistent with the rankings that resulted from the study process, and exceptions are noted and reasonable.
- The rankings are based on the available data, and the treatment of the data conforms to the evaluation process that we established (with agreed exceptions as noted in the report).
- The overall study process, and the separate evaluation processes used for the facilities and science review, were those concurred with by the panel.
- All of ;our input was cooperatively considered by NMFS and was incorporated into the study where appropriate; in all cases where our input was not incorporated, it was because we agreed after receiving additional explanation that the issue was being properly addressed.

The panel wishes to emphasize the short time-frame in which the study was conducted. The data are acknowledged by NMFS to have been subjected to limited on-site review and to management experience. The data should be further validated in the course of developing detailed implementation plans.

Overall, the study was conducted in an open, cooperative manner that met or exceeded our expectations.

Dr. Robert Huggett

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United States Environmental Protection Agency.

Prof. John Magnuson

Director, Center for Limnology
University of Wisconsin

Dr. Hratch Semerjian

Director, Chemical Science and Technology Laboratory,
National Institute of Standards and Technology

The fourth member of the panel, Dr. Craig Dorman, received an overseas assignment during the course of the study and was able to attend only the initial meeting.

Findings of the external panel for the science evaluation are located within the team's report of Appendix II of this NMFS report.

NATIONAL MARINE FISHERIES SERVICE:

LABORATORY CONSOLIDATION STUDY REPORT

EXECUTIVE SUMMARY

The National Marine Fisheries Service (NMFS) operates over two dozen Science Centers, laboratories and field stations in support of its mission. Over time, the focus of the research effort changes. As that occurs, NMFS needs a mechanism for identifying resources being spent on activities that no longer address primary goals, so that these resources can be redirected to higher priority research. In addition, facilities constructed for one purpose may be less appropriate for later activities; those activities should be located in more appropriate facilities. Finally, the NMFS wishes to have a process for identifying and evaluating those cases where the expenses of maintaining a facility are being directed at research that could be carried on more cost-effectively elsewhere either within or outside NMFS.

In response to guidance from Congress and from the National Oceanic and Atmospheric Administration, NMFS conducted a review of its science programs and its facilities to determine whether it was possible to reduce the costs of maintaining and operating all of its existing facilities, and hence to put some of those resources into higher priority work.

It is important that such an evaluation process be open and objective: the research that supports NMFS is critical to accomplishing public purposes, and once eliminated it is difficult to recover. In addition, well-founded adjustments do create adverse impacts on some people, even where those adjustments are in the best interests of the public. For both those reasons, NMFS needed to ensure that the process used to determine the substitution of research activities, elimination of unneeded facilities or transferring facilities or research within or outside NMFS would result in the most cost-effective configuration of facilities to support NMFS science.

To achieve those ends, NMFS emphasized the use of external peer review by disinterested parties from within and outside the Federal

science community to ensure that the program and facility evaluation process was well-designed and followed the design. The external panels served as quality control mechanisms to ensure that the process was supportable, credible, adhered to and based on the best information available.

That process resulted in a ranking of all NMFS facilities in terms of their physical aspects and the science programs conducted there, as well as a ranking of programs across NMFS in terms of their mission priority.

In addition to this concern for the integrity of the evaluation process, the NMFS recommendations were developed by a task force that did not include either NOAA senior management or facility directors, in order to ensure the study outcome would be as objective and credible as the process. Given the results of the evaluation process, the NMFS management task force developed several alternative scenarios to assess their cost-effectiveness. Those general scenarios consisted of:

- constructing proposed new facilities
- closing and/or consolidating existing facilities
- establishing Centers of Expertise, and
- combinations of the above.

The recommendations in this report are based on the best available data and information, which has been collected, processed and evaluated in a relatively short period of time. *In the process of implementing the recommendations, additional work will be required to improve the precision of those data and the resulting cost estimates.*

After evaluating the relative costs and subjective benefits of the alternatives, NMFS recommends a combined package of closures, construction and relocations that will save approximately $6 million over the first five years and approximately $9 million annually thereafter. These funds could then be used for outsourcing, or shifted to higher priority research within NMFS. The savings in the early years appear lower than they actually are, because included in those net savings are one-time costs for major construction projects that would otherwise represent significant costs to NOAA without the consolidation actions.

The principal features of this package include:

- Construct new facilities at Auke Cape, AK and relocate a portion of the Alaska Science Center from Seattle, WA, to Auke Cape, AK. This move would be executed over a period of several years and is dependent on the construction of the new Auke Cape facility.
- Relocate activities from the current facility in Kodiak, AK, to an adjacent new facility (Near Island) to be leased from the State of Alaska.
- Relocate all or a portion of the North West Science Center within Seattle from Montlake to Sand Point, assuming that a portion of the Alaska Science Center moves to the new facility in Auke Cape, AK. The property transfer would include a provision permitting continued access to critical laboratories at Montlake if detailed analysis indicates that the cost of replicating those facilities at Sand Point would be prohibitive.
- Transfer the NMFS facilities at Manchester, WA, to another Federal agency, state, academic institution, or other interested party. This action would be taken unless a second level of review indicates that the work is critical to salmon recovery and must be done by NMFS. The Manchester science activities and personnel are now, and are expected to continue to be, funded by the Bonneville Power Administration.
- Relocate several programs at La Jolla, CA to other facilities that are more geographically suitable.
- Close facilities in Tiburon and Pacific Grove, CA; Hammond, OR; Sitka, AK; and Panama City, FL, and relocate staff and programs.
- Move appropriate programs to a proposed new facility in Santa Cruz, CA, if that facility is constructed.
- Cease NMFS participation in the multi-agency facility at the Stennis Space Center in Bay St. Louis, MS, relocating the personnel and programs.
- Relocate several programs at Beaufort, NC to more appropriate research facilities.
- Provide limited or no participation in the operation of new multi-agency facilities in Lafayette, LA.
- Provide limited or no participation in the operation of new multi-agency facilities in Charleston, SC.

- Transfer the NMFS lab at Oxford, MD, to the State, which is already the principal tenant. Some personnel and programs will continue to operate on detail in Oxford to execute projects of the Beaufort laboratory focused on the Chesapeake Bay and mid-Atlantic region.
- Outsource over $2.5 million of scientific work, assuming there is interest in the academic or private community, and transfer another $2.5 million of work to other responsible agencies.
- Reprogram approximately $9 million annually into higher priority science efforts conducted internally or through external competitive processes.

If the recommended consolidation plan is implemented, NMFS can accomplish the required construction at remaining facilities and upgrade its science at the same time. There will be an initial investment of approximately $20 million, and the recommended alternative may even engender some savings in the short term. In the long term, the devolution of some science activities will create savings that can be re-invested into higher priority science, whether that be through competitive outsourcing and grants, or through realignment of the efforts of NMFS scientists.

The most significant initiative under this consolidation plan is the relocation of portions of the Alaska science to Alaska. That initiative depends upon the construction of the Auke Cape facility. Without that, there can be no move to Auke Cape, no consolidation from Montlake into Sand Point, and no revenue from Montlake to offset the implementation costs.

The start year and timing for these consolidations is not of great consequence, and phasing is anticipated. NMFS has prepared the analysis on a consistent basis assuming decisions in FY 1996 and implementation in FY 1997 in order to provide fair comparisons. The costs and savings will be the same, no matter when they occur. Perhaps the important point is that most of the costs of implementation must be borne before any of the savings are realized.

In summary, the Laboratory Consolidation Study recommends the closure of seven existing laboratories; the transfer of two facilities to states; and the construction of two proposed facilities. This will result in an overall reduction of 96 FTEs. In order to achieve these improvements, NMFS will require one-time funding of approximately $20 million to pay for personnel actions, moves of people and equipment, facilities upgrade work and other adminis-

trative costs, in addition to the construction costs for the new facilities (estimated at $43 million). These costs, less real estate sales, are amortized in the first five years with a net savings of $6 million. Thereafter, the agency anticipates a savings of $9 million per year. These funds could be used for outsourcing or shifted to higher priority research within NMFS.

Without the one-time funding of $20 million, the closures and consolidations will be impossible. Under such conditions, NMFS would be compelled to continue its science in the facilities it has today: the same facilities that all parties agree need to be upgraded or consolidated.

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NMFS LABORATORY CONSOLIDATION STUDY REPORT

I. Introduction and Background

The National Marine Fisheries Service (NMFS) is a line office of the National Oceanic and Atmospheric Administration (NOAA) in the U.S. Department of Commerce (DOC). NMFS is the principal line office responsible for advancing the NOAA strategic goals of "Build Sustainable Fisheries" and "Recovering Protected Species", and is a major contributor to the goal of "Sustain Healthy Coasts". The mission of NMFS is stewardship of living marine resources for the benefit of the nation through science-based conservation and management, and promotion of the health of the marine environments. The primary legislative authorities under which NMFS conducts that mission are the Magnuson Fishery Conservation and Management Act, the Marine Mammal Protection Act, the Endangered Species Act, and the Fish and Wildlife Coordination Act.

NMFS accomplishes its mission through the regulatory process using the results of scientific research as a basis for decisions affecting the global community. However, this is a relatively new role for NMFS. The agency began its 125-year existence with a non-regulatory scientific research function only. This dramatic change in mission in the mid-1970s has drastically changed the focus and relationship between the regulatory responsibility and the scientific research supporting management decisions. For example, there is more demand now than when NMFS was created for the results of applied research related to fisheries management. This shift in turn requires routine re-evaluation to ensure that NMFS has adequate physical facilities to support the research needed to carry out its mission.

NMFS conducts periodic internal facilities studies, and recommendations are provided to all levels of leadership within the Department of Commerce. Major initiatives to maintain high-quality and cost-effective facilities to support NMFS science are undertaken continuously. For example, in 1994, a new facility was leased at Sandy Hook, NJ; in 1995, the aging facility at Gloucester, MA,

was turned over to the State of Massachusetts; and there are several facilities-related investments in NMFS future plans.

A comprehensive facilities study conducted in 1990[1] indicated that, although some facilities needed repairs, funding had not been made available and facilities had continued to deteriorate. As there is not much excess capacity in other NMFS facilities to absorb the work conducted in declining laboratories, the option of closing facilities would require the termination of certain mission activities. Despite this trend in facility integrity, NMFS research activities have grown steadily since 1990, reflecting new statutory requirements, increased funds for programs, and a heightened awareness among lawmakers, fishery managers, the fishing industry and the public that declining living marine resources and their habitats must be restored and healthy fisheries must be managed for sustainability. Therefore, there is an increasing need for more and better science to support management decisions.

This laboratory consolidation study has been conducted to address the question of how best to configure current and future NMFS facilities, and the work conducted at those facilities, to accomplish the NMFS mission. In addition to being guided by NMFS internal management and review functions, the study derives impetus from the recently completed NOAA science review and from Congressional direction.

The scope and pace of the study has been driven by those external requirements, and was further constrained by the unusual budget situation in Fiscal Year (FY) 1996. Given these constraints, the study is intended to provide sound options for managerial decisions, and it does so. However, because of the time constraints, it was limited in the extent to which facility data could be collected and audited. The study process included review of the data to ensure that it fell within known limits and reasonableness; but, NMFS wishes to make it clear that a detailed audit has not been conducted and diligent criticism will probably reveal some errors in the data. Some sensitivity analyses have been performed to test the effects of data error, and the potential for error impact was minimized by using overlapping data sources and multiple criteria.

[1] NMFS Report, "EVALUATING OPTIONS: for Consolidating Research Facilities and Improving Fishery Science", J.W. Angelovic, R.J. Williams and J.E. Oliver Jr., October 1990.

Over time, as the data become part of the NMFS management information system, formal data reviews will be possible and future iterations of this process will be even more accurate.

NOAA SCIENCE REVIEW

In 1993, NOAA initiated an examination of its programs and missions, which resulted in the development of the NOAA Strategic Plan. The Strategic Plan defines an overarching framework for NOAA missions and identifies a concise set of goals. Using the Strategic Plan as a basis, NOAA began a comprehensive review of science conducted within the agency.

The Science Review Report (Phases I &II)[2] was completed in May 1995, and includes a series of findings and recommendations addressing NMFS. The review in particular stated that NOAA's scientific laboratories play a critical role in support of its fisheries mission, and overwhelmingly praised the quality of the fishery science, citing it as among the best in the world.

The review assessed the five NMFS research centers and 22 research laboratories, and found that in many cases a regional infrastructure is necessary to conduct the mission of NMFS. It recognized that the overall condition of the field facility infrastructure has deteriorated (the average age of the principal field facilities is 30 years) and that some changes in the infrastructure were probably desirable. The review also recognized that consolidation and closure of some facilities would not result in immediate cost savings, but may save costs in the long term.

The review produced several recommendations for NOAA, including seven specifically directed at NMFS. This consolidation study responds, in part, to three of the NOAA Science Review recommendations:

- Recommendation NMFS-1 addresses proposed facility construction and recommends "Re-evaluate proposed construction of facilities for which planned functions can be performed by existing laboratories."

- Recommendation NMFS-2 focuses on the existing facilities and recommends "Close facilities that are in extremely poor condition and/or have lowest priority suites of program activi-

[2] NOAA Report, "Results of the Review of the NOAA Science Enterprise by the NOAA Chief Scientist", December 1993–May 1995.

ties. Programs affected should be terminated or, on a case-by-case prioritized basis, transferred elsewhere within the region or delegated to states."

- Recommendation NMFS-5 focuses on the consolidation of both facilities and science efforts, recommending "Concentrate effort in specialized scientific capabilities that have broad importance to NOAA in one or two laboratories, rather than having small research efforts dispersed inefficiently among all regions."

CONGRESSIONAL DIRECTION

Even though NOAA had already launched its internal effort, Congress has specifically directed the Department of Commerce and NOAA to review the laboratory system. The FY 1996 Senate authorization bill directs the Secretary of Commerce, and the House appropriations bill directs NOAA, to develop a laboratory consolidation plan for the existing laboratories, including a proposed implementation schedule for consolidation.

The Senate authorization bill directs the Secretary of Commerce, and the House appropriations bill directs NOAA, to consider the following factors during development of the consolidation plan:

- The age and physical condition of the facility, and the costs associated with keeping the facility functioning.
- The relationship of research performed at the facility to core NOAA missions and legislative mandates.
- The geographic proximity of other Federal, state, or private sector facilities that carry out similar research functions.

The House authorization bill directs NOAA to address the following in the consolidation study:

- Potential efficiencies and savings which could be achieved through closing or consolidating laboratory facilities.
- A review of each laboratory's mission and activities and their correlation to the mission priorities of NOAA; physical assets and equipment and their condition; personnel resources; and organization and program management.
- Other issues the Inspector General considers relevant.

II. Purpose of the Consolidation Study

The purpose of this consolidation study is to move NMFS toward a cost-effective network of facilities that effectively support NMFS scientific research, and to provide the best aggregation of science activities. The intent is to direct the maximum possible proportion of funding toward high priority science work.

In addition to the existing program, NMFS has a number of scientific activities that are also important to achieving the NOAA goals but that cannot be funded due to budgeting limitations. One of the outcomes of the study process has been the identification of high-priority work that is nonetheless more properly executed by agencies outside NOAA; the funds used in that work can be re-programmed to address currently unfunded higher priority science.

Any savings generated by proposed consolidations should be re-invested in the science program. Where NMFS can terminate important but lower priority science activities that in most cases can be conducted by the states, then it will be positioned to apply those resources to higher priority work that is within NMFS' legal jurisdiction but is currently unfunded.

Finally, the process of prioritizing science activities should not lead to the assumption that, in the event of consolidations or reductions, lower priority activities would be entirely eliminated. For a given program, it may simply mean lower or level funding. NMFS rankings of its science programs must be viewed from a relative context; most of these activities are required under law and cannot be eliminated. What can be done is to maximize the amount of resources placed on the highest priority activities, and to limit lower priority activities to a threshold that still provides for effectively addressing legal requirements.

III. The Study Process

OVERVIEW

NMFS has an extensive laboratory science capability to support research improving the knowledge of marine ecosystems and ecology that is needed for effective management decisions. Over time, facilities deteriorate or the focus of the research effort changes. As a result, facilities that are not adequately maintained and upgraded, or that are constructed for one purpose, may not be suitable for

future research activities. Furthermore, as research priorities change, resources should be redirected toward activities that support current and future goals and objectives.

The objective of this study was to provide recommendations for the consolidation and closure of NMFS research facilities based on a process that evaluated both the science program priorities and the research facilities. Separate ranking criteria were developed for the quality of the science program and for the quality of the facilities. This two-track ranking process ensured that the review of the physical condition of a particular facility was not affected by any perceptions of the effort under way at that facility. It follows that the two-track ranking process also allowed NMFS to ensure that the assessment of the value of the science being performed at a facility was not influenced by the physical condition of the facility. As a result of this approach, NMFS was able to make decisions that should improve the overall quality of its science programs and facilities.

EXTERNAL AND INTERNAL PARTICIPATION AND REVIEW

In order to ensure an objective and credible process, NMFS leadership convened an external Laboratory Consolidation Review Panel of recognized science program managers. The Panel was responsible for:

- Developing ranking criteria and weights that could be used to rank each NMFS research facility relative to all others.
- Reviewing and approving the overall evaluation process (research facilities and science program review).
- Reviewing the final closure/consolidation recommendations and validating that they are reasonable.

The Panel Charter is included as Appendix I. The Review Panel included the following four individuals:

> **Dr. Craig Dorman**, Senior Scientist, Pennsylvania State University and Office of Naval Research, former Director of the Woods Hole Oceanographic Institute.[3]

[3] Dr. Dorman participated directly at the beginning of the effort and agreed to the evaluation review process but was assigned to a project in Europe and was unavailable for the final panel meetings.

Dr. Robert Huggett, Assistant Administrator for Research and Development, U.S. Environmental Protection Agency.

Prof. John Magnuson, Director, Center for Limnology, University of Wisconsin.

Dr. Hratch Semerjian, Director, Chemical Science and Technology Laboratory, National Institute of Standards and Technology.

In addition to the Laboratory Consolidation Review Panel, external review was solicited through briefings to staff members of Congressional committees, as well as NOAA and DOC management and staff members of the Office of Management and Budget, all of whom were additionally invited to participate in working group meetings at any time.

Senior NMFS field managers were involved in the development of the process and in data collection, as well as in the prioritization of the NMFS missions. To avoid parochialism, these managers were not involved in the development of the NMFS recommendation.

The Department of Commerce, Office of the Inspector General observed the process through the data collection phase, has agreed with the basic soundness of the NMFS approach, and will use the NMFS facilities data and the entire science ranking process in executing the Congressionally-directed review cited earlier.

The Logistics Management Institute (LMI), a non-profit research institute, assisted NMFS in facilitating the development and implementation of the consolidation study. LMI served as the primary technical advisor to all of the Defense Department Base Realignment and Closure Commissions, including development of the overall methodology and evaluation criteria. To take advantage of the lessons learned in the Defense process, NMFS requested LMI to provide support to its consolidation study.

In addition, LMI provided the cost model that was used to estimate the costs and savings associated with the various alternatives considered. That model was based on the model developed for the Defense process and reviewed by the General Accounting Office.

THE EVALUATION PROCESS

Figure 1 identifies the major activities that were conducted during the evaluation process.

Prioritizing NMFS Missions

The NMFS mission stated on page 1 of this report contains multiple sub-divisions, or mission areas. NMFS science programs are developed and executed to support these mission areas.

One of the major criteria developed as an evaluation measure was how well a science program met or supported one or more NMFS missions (the specifics of how that evaluation was done, within the science evaluation process, are found in Appendix II). However, *a priori* it was necessary to determine if all NMFS missions were equally important. Therefore, prior to using mission-relevance as a criterion for evaluating NMFS science programs, NMFS undertook a process to derive relative weights for the importance of various missions. To help identify which missions were relatively more important, a survey questionnaire was administered to the NMFS National Leadership Team (i.e., NMFS Directorate, Regional Administrators, Center Directors, Office Directors) as well as to two senior managers in NOAA's Directorate.

The questionnaire was developed using Expert Choice, a software program that uses the Analytic Hierarchy Process, (AHP). AHP is a multi-criteria or multi-objective decision making process that enables groups to deal with both tangible and intangible factors in decision making. Members can organize data, thoughts, and intuition in a logical, hierarchical structure. Members express their understanding and experience with paired (one-to-one) comparisons about the relative importance, preference or likelihood of all relevant factors. The AHP accommodates uncertainty and allows for revision so that individuals and groups can grapple with all members' concerns. The results of an AHP evaluation are easily tested for sensitivities to changes in assumptions and judgments.

I - Laboratory Consolidation Study Review Panel (12/20 - 21/96)
- validated overall evaluation process
- developed facility evaluation criteria

Date	Science Program Review Process		Facilities Evaluation Process	
2/2	Conference call with RD's, SD's to review process			
2/5-9	**II.**	Prioritize Agency Missions		
2/12-16	**IV.**	Non-NOAA Science Program Team reviewed and validated the draft Decision Model for NOAA Fisheries Science Programs	**III.**	Data Call
2/16-21	**V.**	Science Center Directors forwarded proposed ratings for their programs using validated Model		
2/26-3/15	**VI.**	Science Program Team reviewed, validated, and finalized ratings		
3/15	**VII.**	Science Program Evaluation Completed	**VII.**	Facilities Evaluation Completed
3/18-25	**VIII.**	Comprehensive evaluation resulted in a matrix ranking each facility based on its physical attributes, and science programs		
4/4	**IX.**	Review Panel reviews process to date, data, facility rankings, and proposed alternatives		
4/8-4/15	**X.**	Senior NMFS and NOAA management constructed and analyzed various budget and staffing scenarios		
5/16	**XI.**	Review Panel reconvened to review and validate the results of the overall process		
5/29		**XII. Final Report Submitted to Dr. Baker**		

Figure 1. Study Process and Schedule

This process was simple and efficient, and allowed respondents to the questionnaire to include hard data, background knowledge, and their experience in formulating their response. The complex decision and evaluation process involved in evaluating the priorities or importance of NMFS missions was made into a manageable structure through the use of simple paired comparisons. A synthesis of the decision makers' comparisons results in overall ratios (interpretable as priorities) for all the elements in the decision. Given the time constraint of the science review schedule, the survey was administered by mail rather than being conducted in the more preferred face-to-face group setting where dialogue and information exchange contribute to a shared understanding of the result. Nevertheless the results of the survey showed remarkable consistency.

The first round of the survey's administration employed three levels or hierarchies to formulate the questionnaire. The first level included the three environmental stewardship goals of the NOAA Strategic Plan, the second level addressed the major missions that constitute the NMFS enterprise, and the third level considered the various specific legal mandates to conduct activities supporting those NMFS missions. This structure was used to formulate 32 comparisons assessing the relative importance of each node in the hierarchy.

The individual responses submitted to the first-round mission questionnaire were aggregated into a group model. The group model synthesized the responses by calculating the geometric means of all responses to derive relative weights or scores that express the group's calculated importance for the various missions and sub-missions.

The results of the group modeling process were as follows:

Level 1: Building Sustainable Fisheries (.611) was by far the most important NOAA-level mission, relative to Recover Protected Species (.267) and Sustain Healthy Coasts (.122).

Level 2: Fisheries Management (.472) was significantly more important as a NMFS mission in comparison to the other missions, led by Endangered Species (.162) and Marine Mammals (.105).

Level 3: The Magnuson Act (MFCMA), at 0.253 points, was significantly more important than other statutory programs, led by the Endangered Species Recovery programs (.097).

The combined point scores at each level add to one. Since the responses were calculated as ratios, the scores are comparable; that is, they not only show a difference in importance but the magnitude of the score has meaning. For example, in Level 1, the score for Build Sustainable Fisheries (BSF) was 0.611, while the score for Recover Protected Species (RPS) was 0.267, indicating that the group believed that the BSF mission was over twice as important as RPS.

The scores between levels for a particular node or branch of the hierarchy are additive: thus, at Level 2, the combined scores for the Sustain Healthy Coasts (SHC) components [Conservation (0.066), Restoration (0.036) and Biodiversity (0.020)] equal the score (0.122) for Sustain Healthy Coasts at Level 1 (0.122).

The results of the mission ranking were evaluated by NMFS managers, who determined that the second-level mission elements provided the appropriate level of analysis in assessing the priority level of science programs.

Once that level of detail had been decided upon, the NMFS Transition Board of Directors decided that the influence of the choices made when considering only Level 1 missions resulted in distortion of the relative importance of some Level 2 missions. The Transition Board requested a second round questionnaire focusing only on the eight Level 2 missions, and team members repeated the AHP process for that level only. Given the results, the team determined that the use of a square-root smoothing function best represented their sense of the priorities among missions. (The square root normalization decision is discussed in more detail in Appendix II.) The second-level mission element scores shown in Table 1 were subsequently used to score the science programs.

Table 1. Weighted NMFS Mission Scores

Mission Area	Weight
Fisheries Management	10
Endangered Species	8
Marine Mammals	7
Habitat Conservation	6
Habitat Restoration	5
Aquaculture	4
Biodiversity	4
Seafood Safety	3

Science Program Evaluation Process

The weighted mission scores formed the starting point for prioritizing the science programs. Again, it is most important to note that these mission scores provide relative weights. *NOAA considers all of the rated activities important and most are required by law; thus, complete elimination of the lower ranking missions is not an option.* Additional criteria were used as multipliers to account for issues such as executability and applicability of given research efforts. A more detailed description of these science review process, the mission weighting process, the description of the additional science criteria, the description of the model developed to prioritize the science programs, and the final resulting scores are found in the attached Science Program Team Report (Appendix II).

This report was written by a Science Program Team, separate from the Laboratory Consolidation Review Panel, and also composed of non-NMFS personnel. This separate team was deemed necessary by NOAA, NMFS and the Laboratory Consolidation Review Panel because of the need for specific fisheries science expertise in the science evaluation process; again, non-NMFS personnel were used in order to ensure objectivity.

The Science Program Team consisted of:

Dr. Derek Winstanley, Deputy Chief Scientist, NOAA

Dr. William G. Doubleday, Director General, Fisheries and Oceans Science, Department of Fisheries and Oceans, Government of Canada

Dr. Michael R. Reeve, Head, Ocean Sciences Research Section, National Science Foundation

Dr. Saul B. Saila, Professor Emeritus, University of Rhode Island

The resulting ranking of NMFS science programs is provided in Table 2; a more detailed summary by facility is provided as Table 1 in Appendix II. This ranking was used in order to provide a general view of the quality of science programs at a facility; however, decisions on retention, relocation or termination of programs were done at a program level rather than a facility level.

Table 2. Ranking of Facilities by Science Program Content

Science Score	Laboratory Name
50	Kodiak AK (USCG base)
46	Pasco WA
46	Tiburon CA Laboratory
44	Honolulu HI Laboratory
44	La Jolla CA **(South West Science Center)**
42	Galveston TX Laboratory
42	Miami FL **(South East Science Center)**
42	Beaufort NC Laboratory
42	Pacific Grove CA (PFEG)
41	Panama City FL Laboratory
41	Bay St. Louis, MS
40	Pascagoula MS Laboratory
40	Juneau AK (Auke Bay) Laboratory
40	Seattle WA (7600 Sand Point Way) **(Alaska Science Center)**
40	Woods Hole MA **(North East Fisheries Science Center)**
38	Hammond OR (Point Adams)
37	Narragansett RI Laboratory
37	Newport OR
36	Manchester WA
36	Washington DC National Systematics Laboratory
34	Milford CT Laboratory
34	Seattle WA (2725 Montlake Blvd. East) **(North West Science Center)**
33	Charleston SC Laboratory
33	Highlands, NJ (Sandy Hook) Howard Laboratory
33	Mukilteo WA
32	Sitka AK (Little Port Walter)
28	Oxford MD Laboratory

While the ranking effectively portrays the differences between facilities, the Review Panel noted that differences of one or two points between facilities should not be viewed as significant.

Facilities Evaluation Process

The Laboratory Consolidation Review Panel developed the criteria and weights used to evaluate facilities as physical platforms from which to conduct research. The criteria were determined without

regard to the ability of NMFS' existing data system to provide the answers. The criteria and weights developed by the Review Panel are shown in Appendix III.

In fact, many of the needed data elements were included in the existing NMFS management information system (MIS). A data call was developed and issued to the facilities in order to obtain the additional data needed for the facilities evaluation. In order to ensure that the data being used in this decision process were as accurate as possible, the relevant data were extracted from the MIS and were provided to the facilities for updating. The data call and validation letter is displayed in Appendix IV.

In addition to this field review, NMFS and LMI staff members conducted on-site visits at four facilities (the North West Science Center, and the laboratories at Manchester, Galveston and Charleston) to validate the information compiled from the NMFS MIS and the data call. It was determined that information on partnerships was inadequately reported, and a second data call was issued with additional explanation of the levels of detail required to substantiate a claim of partnership. As a result, distinguishing between facilities and accepting or rejecting partnership listing became much more credible.

In its initial meeting, the Review Panel defined most of the scoring elements and the method of measuring them very specifically (as shown in Appendix III). As approved by the panel, NMFS used its judgment in applying specific scoring criteria to the five variables included in the facility quality scoring element; because of the very diverse nature of those variables, a score based on ranking was used, and the final score for facility quality is an aggregate ranking, scaled to fit a 10-point weight requirement. A sensitivity test was conducted on these criteria to see whether alternative interpretations would have an impact on the facility scores, and the system was found to be very robust [4]. Because the facilities scored in a wide range on these criteria, small differences in interpretation or ranking have little effect; for instance, *a complete reversal of one of the scoring elements resulted in a maximum of a two point shift in the overall factor score.*

[4] At its final meeting, the panel observed that the use of an interval scale, rather than a ranking, would have been more suitable for the "backlog per square foot" criterion, but determined that no impact on the final rankings resulted.

After the data had been collected, a preliminary ranking of facilities was developed and provided to the Review Panel, along with recommendations for modifications of the criteria to address obvious inconsistencies or unintended consequences. The panel concurred with changes in two of the criteria. (Those changes are reflected in scoring tables in Appendix IV, but the criteria listed in Appendix III are those originally approved.)

The first change was that the expert staff criterion was deleted. NMFS was unable to identify more than a handful of personnel who might have met the original intent of the criterion; this handful would not have significantly affected the facility rankings. The process of making further delineation would have required an extensive peer review process (of training, publications, research record, etc.). The Science Program Team similarly determined that the factor QC (Quality Rating Factor) was too difficult to judge without a detailed peer review, and also deleted it from its review.

Second, the points originally assigned for Fisheries Management Council (FMC) colocation were removed after it was learned that the principal FMC interactions were conducted by the responsible Science Centers regardless of location.

Additionally, the Review Panel concurred that the facilities score should be scaled upwards to reflect a maximum score of 50 points, consistent with the direction taken by the science program evaluation process. Prior to that point, the intent of the facilities ranking criteria had been to create a number of criteria where no score was a default condition, allowing a facility with unusual assets to achieve extra points. However, few facilities were able to achieve those unique distinctions, and the practical range of scores was limited to 24 points. This resulted in a discrepancy between the ranges of scores in the two evaluations and resultant confusion as to whether the intent was that the science score was twice as important as the facility score. The final scoring system, with effective ranges of up to 50 points for both science and facilities components, was determined to reflect the intent of the panel more effectively.

The final rankings for quality of facility are presented in Table 3; additional details are found in Appendix V. As with the science program rankings, the Review Panel noted that the total range of the ranking is important but that differences of one or two points between facilities cannot be considered significant.

Table 3. Facility Ranking by Facility Score

Facility Score	Laboratory Name
50	Kodiak AK (USCG base)
50	Manchester WA
50	Milford CT Laboratory
48	Pasco WA
48	Galveston TX Laboratory
48	Panama City FL Laboratory
48	Washington DC National Systematics Laboratory
46	Bay St. Louis, MS
46	Narragansett RI Laboratory
46	Newport OR
46	Seattle WA (2725 Montlake Blvd. East) **(North West Science Center)**
46	Charleston SC Laboratory
46	Highlands, NJ (Sandy Hook) Howard Laboratory
44	Miami FL **(South East Science Center)**
42	Pascagoula MS Laboratory
40	Beaufort NC Laboratory
40	Juneau AK (Auke Bay) Laboratory
40	Seattle WA (7600 Sand Point Way)**(Alaska Science Center)**
38	Woods Hole MA **(North East Fisheries Science Center)**
38	Hammond OR (Point Adams)
33	Honolulu HI Laboratory
33	Pacific Grove CA (PFEG)
31	La Jolla CA **(South West Science Center)**
31	Sitka AK (Little Port Walter)
31	Oxford MD Laboratory
29	Mukilteo WA
21	Tiburon CA Laboratory

This ranking illustrates the both the utility and complexity of a multi-attribute scoring system. The facilities at the top of the list are generally not those that NMFS would consider to be its largest, newest or best-equipped facilities. With the exception of Galveston, such facilities only make it to the midpoint of the ranking. These top-ranked facilities are, if anything, quite the opposite: somewhat remote, with minimalist construction and amenities. They are, however, very well sized and constructed to achieve the missions that are established there, and what they do there is not generally done elsewhere in NOAA.

The Kodiak facility, for instance, is scheduled for replacement because of its deteriorating condition. The facility is nonetheless ranked high because, although it is not the most desirable facility in the system, it would be impractical to do the work anywhere else within or outside NOAA; a new facility in the same place, however, would be even better.

Another important aspect of the ranking is that it reflects current conditions and approved upgrades through FY 97. Thus, Galveston (presently known across NMFS as needing repair) is already in the process of a renovation costing approximately $8 million; once completed, it will well deserve that high ranking.

Later in this report, NMFS proposes the relocation of activities into some of the lower ranked facilities. *The cost model used for scenario analysis requires that all identified repair backlogs be fully corrected at those facilities that gain new programs; thus, their rankings would be improved over those shown here.*

IV. Cost Model

The cost model (STARFISH) used in this process was developed by LMI to evaluate the costs in dollars and full-time equivalent (FTEs) of different consolidation alternatives. The results of those evaluations are provided in detail in Appendix VI and summarized in the following text section. In order to place those into context, a brief overview of the cost model is needed.

The STARFISH model is an adaptation of LMI's Facilities Consolidation Cost Model© that formed the basis for the successful Defense facility consolidation process. That original model was subjected to extensive review, and was validated, by the General Accounting Office.

Additional detail on the content of the STARFISH model is provided in Appendix VII; however, two important aspects of this model need to be noted here.

First, STARFISH compares beginning and end states only. It has not been developed to deal with complex, multi-year, phased activities. The end point is 5 years from the initiation date. That makes the model very conservative, assessing the net present value of a decision within 5 years after implementation. This is a short payback period (the Defense base closure law, for instance, required 6 years and many such analyses use up to 20 years).

Second, STARFISH is a parametric screening tool. It provides budget-formatted estimates of the costs or savings of a scenario as compared to a determined baseline condition (described below). The use of a parametric approach is essential in developing a tool that is responsive within the time-frame of the study and reasonable data requirements, but it depends upon estimates, standard factors and expert opinion. For these reasons, the model should be supplemented with detailed analyses once a feasible course of action is determined and a decision is made, after which the additional effort of detailed data collection may be justifiable. This is especially true with regard to personnel issues, where decisions that affect individual people will be made.

V. Consolidation Scenarios

DEVELOPMENT OF SCENARIOS

Several alternative facility consolidation scenarios were developed by NMFS leadership within the context of guidance provided by NOAA concerning expected budgetary outlooks.

A "baseline" scenario, guided by the President's 1997-2001 budget request to Congress, formed the basis for comparison of the alternatives. The baseline scenario assumes that all current research facilities will continue to operate, there will be no change in the research activities, no new research facilities will be constructed and costs will increase from 1997 levels only as a result of inflation at an annual rate of 2.8 percent. Personnel levels are considered to be limited to 1995 ceilings, in conformity to the NMFS streamlining plan. The baseline also includes continuation of current patterns of investment in facilities repair and environmental compliance costs, as well as gradual completion of NMFS' limited cleanup responsibilities. However, the baseline does not include the construction of complete new facilities, and it assumes that current exploratory studies can be terminated and written off without significant further expense.

Four alternatives to the baseline were considered in this consolidation study:

- *Alternative I: New construction.* Facilities already being planned (architectural studies either are complete or are funded in 1996) will be constructed and will be populated with transferred existing science programs and employees. Those facili-

ties are: Auke Cape, AK; Kodiak (Near Island), AK; Santa Cruz, CA; Lafayette, LA; and Charleston (Fort Johnson), SC.

- *Alternative II: Consolidation.* No new facilities will be constructed. Science programs will be relocated from the lower ranking facilities to appropriate higher ranking facilities, in order to improve the facility support of the science and reduce costs spent on facilities operation and maintenance. Lower priority science, or science that is no longer consistent with the NMFS mission, will be terminated or transferred to a more appropriate agency, thus making room for dislocated higher priority programs. This scenario is used to established how much savings could hypothetically be obtained by aggressively closing facilities, even at the expense of some mission activities.

- *Alternative III: Centers of Expertise.* In response to NOAA Science Review recommendation # 5 (see page 4), some facilities will be designated as the technical lead for certain types of NMFS research in order to achieve consistency of methodology and standards. A leading candidate for this initiative is the designation of the Northwest Science Center as a pilot Center of Expertise in Marine Contaminant Research. The issues to be investigated through this pilot initiative include whether the process is better managed through matrix management or line authority, and whether related technical programs should be consolidated at the Center of Expertise or left in place with technical oversight by the Center. Other Centers may be designated as the capabilities and limitations of this form of quality-based organization are tested. Because of the small numbers of personnel moves (less than 25) ultimately considered under these alternatives, there was no significant cost impact and no separate cost assessment was performed.

- *Alternative IV: Combination of Construction and Consolidation.* After evaluating the results of the "pure" scenarios above, more integrated consolidation plans were developed that combine desirable elements of several of those earlier efforts. The combination plans strike a balance among addressing new construction requirements, maintaining acceptable threshold levels in each of the statutory mission areas, and taking advantage of cost efficiencies from closures. Several partial consolidation plans were considered in developing the final recommended alternative, but because there are overlapping costs and savings in the various elements of the plan, the final combination plan is presented here as a single "package."

Definition of these alternatives was accomplished by using the facility and science rankings. The details are provided in Appendix VI, which shows all of the scenarios considered in enough detail to develop a cost estimate.

In the case of new construction, science programs that are appropriate to the location and features of the new facility, and of the size needed to fill the NMFS share of that facility, are moved from lower-ranked facilities which, if then empty, are closed.

For consolidation scenarios, each facility was considered in turn, beginning with the lowest-ranked facility. Scenarios were then played out, focusing on moving all of the programs out of the facility. It was necessary to decide for each program whether this move would be done by transfer, termination or outsourcing, based on the priority of the program and the feasibility of executing the work at another location. Transferred programs were moved to higher-ranked facilities that were appropriate for the type of program being moved.

In the case of some of the larger facilities,[5] their work was of high enough priority that it was undesirable to terminate it; yet, because of the size of the facility, transferring all of its work to other existing NMFS facilities was not possible without major additional construction. It was determined by inspection that a scenario that consists of moving programs, not eliminating personnel, and engaging in major construction could not be cost-effective, and so for those facilities it was decided that closure was impractical. In addition, NMFS management determined that a facility in Hawaii was a geographical imperative because of the distance to the Pacific fisheries; although the Kewalo Basin facility is in great need of repair, there are no cost-effective alternatives at present.

The Laboratory Consolidation Review Panel was briefed on the proposed implementation of the scenarios, based on the rankings of the science programs and of the facilities. The panel concurred with the approach taken, observing that NMFS needed to identify the differences between program termination and transfer to more appropriate entities; in addition, the members asked NMFS to be more specific about its decision rules for selecting the gaining facilities (specifically, noting that the selection is based on using a higher-ranked and technically appropriate facility rather than

[5] Woods Hole, either Sand Point or Montlake (i.e., at least one must remain in place), Pascagoula, Miami and Galveston.

automatically beginning from the top of the ranking list). Those rules are shown as Appendix VIII.

COSTING OF THE ALTERNATIVE SCENARIOS

Once the proposed moves were developed, based on the rankings and on management decisions, they were entered into the STARFISH model and a net present value of each alternative was calculated. The recommendations in the following sections show net positive benefits over the period FY97-FY01.

Table 4 shows the cost estimates furnished by STARFISH for each alternative. Many different variations of actions were considered in order to develop cost-effective scenarios; those presented here are the ones that are cost-feasible and most appropriately house the science programs. The costs of the alternatives and disposition of the affected science programs are presented in additional detail in Appendix VI.

Table 4. Costs of Alternatives

Alternative	Five-year Net Present Value of Costs (Savings) in Millions ($)	Construction and Real Property Costs (Savings) in Millions ($)	Assumed Revenue from Property Sale in Millions ($)	Annual Operating Cost (Savings) in Millions ($)	Total FTE Reductions	Scientists FTE Reductions
I. Construct all planned facilities[a]	44	62	(17)	1	0	0
II. Maximize consolidation of existing infrastructure	(130)	1	(39)	(27)	298	192
II-A. Consolidate small facilities (no major change in science)	(19)	0	(11)	(3)	38	25
III. Centers of Expertise	0	0	0	0	0	0
IV. Combination construction and consolidation (Recommended)	**(6)**	**43**	**(29)**	**(9)**	**96**	**69**

[a]NMFS share of costs of multi-agency facility.

Alternative IV, a combination of construction and consolidation actions, is the recommended alternative.

It is important to recall that the assessment of savings does not imply budget reductions. NMFS is attempting to work more effectively within long-term budgets. These savings will allow NMFS to reprogram existing funds into areas of higher priority science instead of spending the money on facilities or administration.

ANALYSIS OF THE ALTERNATIVES

I: Construct All Planned Facilities

The cost findings above indicate that over $44 million would be spent by NMFS to house existing programs in newly constructed facilities. This actually understates the case, as only the pro-rata share of construction costs of buildings has been counted, even though NMFS will pay for all of the construction, which could exceed $100 million if all the construction proposed by various beneficiaries is undertaken, not counting additional costs of implementation. NMFS believes this to be a conservative approach that allows consideration of the impacts on the NMFS science program of undertaking these programs; taking into account the full construction cost of space not used for NMFS science would make the costs seem even higher. In addition, in other scenarios NMFS has not taken as a "savings" the costs of proposed facilities that it does not recommend for use.

II. Maximize Consolidations

The "maximum case" consolidation scenario was constructed primarily as a means of establishing the limits of this study. The management challenge is in the identification of the point at which cost savings from consolidation cause unacceptable degradation of the science program.

II-A. Consolidate Small Facilities

Some consolidation needs no such determination. NMFS can start by saving $5 million over the 5-year period by closing its least desirable facility (Tiburon) and relocating its personnel to Newport. That would require no personnel losses, recover the value of the asset, and avoid numerous associated costs. In a similar manner a number of smaller facilities can be eliminated and their pro-

grams can either be moved (Pacific Grove, Oxford) to facilities with room to absorb them, or transferred to more appropriate agencies (Sitka, Hammond, Manchester). These changes can be made without affecting the science program and would save up to $19 million over five years.

In the event that a decision is made not to construct the new facility at Auke Cape, or not to relocate a significant portion of the Alaskan science program from Seattle to Alaska, this alternative can still be executed and would become the NMFS alternative for the West Coast.

III. Centers of Expertise

As noted earlier, NMFS considered policies and methods for establishing Centers of Expertise to achieve quality control improvements over technical processes carried out in multiple laboratories. After reviewing the subject matter of such Centers and the current size and location of the activities, it was determined that actual moves of programs or personnel would be minimal; the control would largely be exercised through clarification of responsibilities in a matrix management system. Thus, cost and feasibility were determined not to be significant is establishing such Centers.

IV. Combination Alternatives

Several alternatives that combined new construction and consolidation actions were developed, using information generated from the approaches above. The cost and scientific implications of these alternatives were assessed, and the final result is a recommended alternative that is supportable from the science perspective and creates opportunities for overall savings.

The initial scenario alternatives were developed on a regional basis (alternative sets are labeled "West Coast", "Southeast" and "Northeast" in Appendix VI). The final recommendation draws from each of the regional alternative sets, and it is presented as a single "package" rather than discrete alternatives. Because there are an unlimited number of permutations of these alternatives, the discussion here focuses on the reasoning behind, and implementation of, the final recommended package, which is portrayed in detail in Table 5 in this text (a financial summary) and Table 5 of Appendix VI (programmatic decisions). Appendix VI also shows

many other alternatives that were considered prior to making this recommendation.

Table 5. Annual Costs (Savings) of Recommended Alternative

	1997	1998	1999	2000	2001
Personnel	$5,504,200	($6,690,720)	($6,878,060)	($7,070,646)	($7,268,624)
O&M	$3,187,943	($3,234,014)	($3,324,567)	($3,417,654)	($3,513,349)
Construction	$42,910,534	($1,336,009)	($1,373,418)	($1,411,873)	($1,451,406)
Environment	$564,533	($567,387)	($583,274)	($599,606)	($616,395)
Other *	($2,477,200)	($29,352,000)	$0	$0	$0
Reimbursable	$3,382,641	$3,374,555	$3,469,043	$3,566,176	$3,666,029
TOTAL	$53,072,651	($37,805,575)	($8,690,276)	($8,933,603)	($9,183,745)

* Primarily, revenue from real estate sales.

RECOMMENDATION OVERVIEW

Of the eight lowest ranking facilities in the NMFS inventory, this package accomplishes the closure of four facilities (Tiburon, Little Port Walter, Pacific Grove, and Hammond), the transfer of one to the state (Oxford), and the downgrade of one of the others (Mukilteo) to field station status. It also transfers or terminates many of the lower ranking science programs, with the principal exception being the Seafood Safety program, which NMFS management has decided to retain at the current level of funding needed for that mission. The recommended plan also delivers two proposed new facilities (Near Island and Auke Cape), and relocates a significant portion of Alaskan science to Alaska.

All this (including the construction) can be accomplished for a net savings of approximately $6 million dollars over 5 years. Even given a margin of error in the model, this would indicate at worst a slight savings over current plans without the new facilities. In other words, consolidation of NMFS operations will pay for NMFS' share of the planned construction at these new facilities. This occurs within 5 years; NMFS will enjoy continued savings over future years. Although some of these savings do come from devolution of some lower-priority science programs, there are also savings from reduced overhead.

The most significant initiative under this recommendation is the relocation of portions of the Alaska science to Alaska. That initiative depends upon the construction of the Auke Cape facility. Without that, there can be no move to Auke Cape, no consolidation

from Montlake into Sand Point, and no revenue from Montlake to offset the implementation costs.

Table 5 shows the costs (or savings, where figures appear in parentheses) of the recommended package over the five model years. In each subsequent year NMFS would expect the annual savings in operating costs to continue.

The following sections explain regional facility decisions.

West Coast Sub-package

All of the West Coast alternatives include the elimination of the lowest ranking facilities. The most important action is the closure of the Tiburon facility. Its facility score reflects the degree to which it has become a very dilapidated site that would require considerable expense to retain as a laboratory facility. Because of its location it is expected to have some commercial value. The other very low ranking facilities (Sitka and Pacific Grove) are also recommended for program transfer and facility closure.

The Mukilteo facility cannot compete as a self-contained laboratory; however, the facility is rent-free and serves as a salt-water wet laboratory that is much more convenient to the main research Centers in Seattle than the alternative (the Manchester facility, a forty to ninety minute commute that depends on ferry availability). Therefore, all scenarios envision retaining Mukilteo as a defined field station of the Seattle Center with no programs of its own.

The La Jolla facility ranks low because it is not close to the supported fisheries and it is not a very sophisticated facility. It is, however, rent-free, and closure (which would require transfer of La Jolla's high-ranking science programs) would generate additional costs that are not cost-effective in the absence of a gaining facility with excess capacity. NMFS does recommend relocating some of the science programs, and that would make room for other activities that are not location-dependent.

Finally, among the lower-scoring facilities on the West Coast, the Hammond facility was selected for closure because the missions it supports were viewed as executable more appropriately and effectively elsewhere: salmon by other agencies and groundfish by the Newport facility.

Among the moderate scoring facilities, NMFS considered that the low score of the Alaska Center was due principally to the fact that

it was located in Seattle rather than Alaska, thus being distant from its supported fisheries. The recommended alternative therefore addresses moving a significant portion of the Alaskan science up to Alaska, using the planned Auke Cape facility as a home. This action would leave the Seattle area with two large facilities and enough staff for one; given the high-value location of Montlake and the size of the Sand Point facility, it was deemed most practical to move the Montlake activities to Sand Point. Again, such a relocation assumes that NMFS would continue to have access to critical laboratory facilities at Montlake if it proves cost-prohibitive to replicate them at Sand Point.

Construction of the Auke Cape facility also relieves the pressure on the aging Auke Bay laboratory, which is in such poor shape that it scores low even when given remoteness points. However, the existing facilities at Auke Bay have utility, and the space may be needed if other NMFS activities continue to plan relocations to Auke Cape; thus, the scenarios envision retention of Auke Bay as a field station of Auke Cape.

The Northwest had few very high ranking facilities, partially because of the mismatch between location and fisheries stocks. Pasco was not considered as a closure candidate because of its high ranking and because its work is unique.

The anomaly in the scenario is with the Manchester site. As noted earlier, it is not a large or modern facility; it received a high score because it is very well suited to the work being performed there. However, the work there focuses largely on riverine salmon, which makes it at best an extension of the NMFS mission; and this work is largely done on reimbursable funding from the Bonneville Power Administration (BPA), meaning that other entities (such as the University of Washington, which has a similar operation nearby at Big Beef Creek) could and would operate the Manchester facility if the BPA provided the funds, which BPA is likely to continue to do to fulfill regulatory requirements. Manchester is not convenient to the research Centers in Seattle, which can already use Mukilteo as a saltwater laboratory. The facility is actually a Defense Superfund site; that does not affect the work being done but does detract from the need to retain it unnecessarily. As an environmental agency, NMFS does not desire to own a Superfund facility; and, even though there are promises from other agencies not to hold NMFS liable, environmental laws and litigation change often enough that there is no reason for NMFS to maintain exposure to this liability. Finally, it is expected that the programs (and associated staff members) would continue to be funded by the BPA

under the management of the new facility owner. In recognition of this anomaly, NMFS expects a second level of review to determine whether this particular salmon recovery work is essential and must be performed by NMFS.

SOUTHEAST SUB-PACKAGE

The Southeast portion of the combined package includes the transfer of the Oxford laboratory and appropriate programs to the State of Maryland. The current NMFS presence is already being redirected from locally-oriented research (oyster diseases) that are not core NMFS missions to higher-priority programs (marine mammal stranding and health, sea turtles, and habitat restoration). NMFS anticipates that these programs, managed out of the Beaufort laboratory, will retain a core of personnel executing the programs on-site in Oxford.

Additionally recommended is a partial realignment of two (out of five) programs from Beaufort, with one program going to Galveston and another component being terminated.

Although the rest of the facilities in the Southeast are rated in the top half of all NMFS facilities, there are opportunities for consolidation in programs that are separated largely for historical reasons from the facilities where the bulk of the work is taking place. Correcting this deficiency requires a selection from near the top of the facility list, but it is based on the effective relocation of the science programs (and it also generates significant savings). The elimination of the operating costs at Bay St. Louis and Panama City (and sale of resort-area oceanside property in Panama City) generates an additional savings of nearly $8 million over five years. Such transfers are accomplished by the return of the small workspace in Bay St. Louis to NASA, with the work moving to Galveston and Pascagoula; and relocating the work at the small Panama City facility to Galveston.

NMFS has been asked to participate in the construction of a facility in South Carolina near the present laboratory. As presently envisioned, the new facility could not accommodate a number of the science programs in place now. NMFS recommends that the science activities be left in place, with necessary upgrades to the present facility being carried out as needed.

NORTHEAST SUB-PACKAGE

There are no significant changes recommended for facilities in the North East. The only facilities in the region (given the recent transfer of the Oxford laboratory to the South East Center) are Woods Hole, Sandy Hook, Narragansett and Milford. (There is also a very small contingent at the unique Systematic Laboratory in Washington, DC, at the Smithsonian Institute). Based on the present workload, the Northeast Center has four major facilities and there is excess capacity at Sandy Hook to accommodate significant additional work. Although this would appear to offer opportunities for consolidation, it proved impossible because of practical limitations.

Strict adherence to the facility ranking would indicate that the Woods Hole and Sandy Hook facilities are the lowest ranking (based on the information available). Both are expensive to operate, and both received low partnership scores. However, the Woods Hole work cannot be transferred because of the sheer size of the work force, which cannot be accommodated elsewhere; in addition, the work (which is in NMFS' highest mission priority category) is very specifically focused on fisheries in the Northern New England area and cannot be credibly transferred to the next nearest large facilities with capacity (Beaufort or Charleston).

The New Jersey facility poses the opposite dilemma. It houses lower priority work and, being presently under-utilized, its very high per-capita operating costs leave it with only a moderate facility quality ranking. However, the facility was built with a bond issue based on NMFS occupancy and is actually a state of the art laboratory facility. Its low partnership score is partly due to its relative newness.

The Narragansett program is well-supported by its facility and by its adjacent partners, the University of Rhode Island and the U.S. EPA laboratory. The Milford facility is also well-suited to its program (indeed, was designed as an aquaculture facility, although there are others within NMFS).

As a result, in seeking to address the expensive excess capacity in the Northeast Center's facilities, the only options for NMFS were to retain the Sandy Hook facility and plan to establish more intense utilization and the upgrading of the science program at Sandy Hook, or to deliberately close down high quality science programs and facilities at Narragansett and Milford in order to populate Sandy Hook now.

The Facilities Consolidation Study Review Panel placed special emphasis on this situation. They noted that the principal problem appeared to be a past decision on Sandy Hook that is no longer supported by current NMFS priorities, and that the potential alternative of closing one of the other facilities appeared to be a compounding of the problem rather than a solution.

The Review Panel also raised the desirability of an exception to the rankings if NMFS finds itself required to undertake consolidations in the Northeast for budgetary reasons. Although the Milford facility rates slightly higher than Narragansett, it was noted by the Review Panel that in the specific context of a move to Sandy Hook, the Milford facility might be given more consideration. The Sandy Hook facility does in fact have better laboratory space of the type that Milford needs for its aquaculture work, and such a move would represent an upgrade. In addition, because there is some question of whether the aquaculture work will remain a NMFS priority, loss of the Narragansett facility would be unwise, while retention of the Milford facility could be speculative, especially as other laboratories with that capability exist. Finally, the panel noted that the only reason for such a closure would be to reap the financial gain from the sale of the property, and the panel was highly skeptical that such a sale would in fact transpire given the alternative dispositions that might occur.

VI. Recommendations

NMFS is committed to delivering a strong program of the highest quality science within available resources. Consolidation alternatives that result in a net cost over today's operations but eliminate the need for future construction should be considered as a positive step. *Yet, long-term solutions must effectively balance cost savings from consolidation with unacceptable impacts on the science program and personnel.*

The result of this consolidation study will be to direct the maximum possible proportion of funding toward priority science activities. Measuring changes in terms of cost savings allows NMFS to identify and roll over funds that are presently encumbered by inefficiencies in the laboratory and program structure. Funds that potentially can be saved through facility closures and consolidations, and through program terminations and transfers, will be applied to high-priority research needs that are presently unfunded. Although realigned or new work may be accomplished using NMFS facilities and personnel, the consolidation effort also opens the door to ex-

panding partnerships with external science providers such as universities, institutes, and other State and Federal science agencies. Increasing the overall percentage of science conducted externally through competitive processes should help to hold the line on costs and personnel, ensure quality, and enhance the pool of talent available to conduct research now and for future NMFS recruitment.

The principal features of the recommended package are summarized below and in Table 5 of Appendix VI. (Also, see the section on Implementation). Those features include:

- Construct new facilities at Auke Cape, AK and relocate a portion of the Alaska Science Center from Seattle, WA, to Auke Cape, AK. This move would be executed over a period of several years and is dependent on the construction of the new Auke Cape facility.

- Relocate activities from the current facility in Kodiak, AK, to an adjacent new facility (Near Island) to be leased from the State of Alaska.

- Relocate all or a portion of the North West Science Center within Seattle from Montlake to Sand Point, assuming that a portion of the Alaska Science Center moves to the new facility in Auke Cape, AK. The property transfer would include a provision permitting continued access to critical laboratories at Montlake if detailed analysis indicates that the cost of replicating those facilities at Sand Point would be prohibitive.

- Transfer the NMFS facilities at Manchester, WA, to another Federal agency, state, academic institution, or other interested party, unless a second level of review indicates that the work is critical to salmon recovery and must be performed by NMFS. The Manchester science activities and personnel are, and are expected to continue to be, funded by the Bonneville Power Administration.

- Relocate several programs at La Jolla, CA to other facilities that are more geographically suitable.

- Close facilities in Tiburon and Pacific Grove, CA; Hammond, OR; Sitka, AK; and Panama City, FL, and relocate staff and programs.

- Move appropriate programs to a proposed new facility in Santa Cruz, CA, if that facility is constructed.

- Cease NMFS participation in the multi-agency facility at the Stennis Space Center in Bay St. Louis, MS, relocating the personnel and programs.

- Relocate several programs at Beaufort, NC to more appropriate research facilities.

- Provide limited or no participation in the operation of new multi-agency facilities in Lafayette, LA.

- Provide limited or no participation in the operation of new multi-agency facilities in Charleston, SC.

- Transfer the NMFS lab at Oxford, MD, to the State, which is already the principal tenant. Some personnel and programs will continue to operate on detail in Oxford to execute projects of the Beaufort laboratory focused on the Chesapeake Bay and mid-Atlantic region.

- Outsource over $2.5 million of scientific work, assuming there is interest in the academic or private community, and transfer another $2.5 million of work to other responsible agencies.

- Reprogram approximately $9 million annually into higher priority science efforts conducted internally or through external competitive processes.

It must be re-emphasized that the implementation of the entire package is principally dependent on the construction of the Auke Cape facility, without which the Alaskan science cannot be moved to Alaska from Sand Point, the North West Center cannot be relocated to Sand Point from Montlake, and the revenue from the sale of Montlake cannot be realized. However, even without the Auke Cape facility, a number of significant program-improving and cost-saving actions can be accomplished; but these too are linked, and one or two actions cannot be effectively singled out of the package for execution. The proposed facility alternatives were developed as a result of a complex process that balanced a number of objectives, and the transfer of programs is based on improving the quality of the science as well as financial feasibility. Partial implementation of the recommendations pertaining to Auke Cape, Sand Point and Montlake will be counter-productive.

The relocation of programs cannot be accomplished without the prior investment of the funds needed to realize the out-year savings (discussed in the following section).

At this point, NMFS is unable to make effective recommendations with regard to the establishment of science programs in a proposed facility in Santa Cruz, CA, the details of which are still unclear. If such a facility were to become a reality, then NMFS would transfer appropriate programs and personnel to it.

NMFS also recommends not using any new facilities in Lafayette, LA, or Charleston, SC, for its science programs. NMFS recognizes that these multi-agency facilities create economies of scale and other advantages for the proposed tenants; yet they do not meet any particular need of the NMFS science programs (and, in the case of Lafayette with its inland location, significant expense would be incurred simply to manufacture a marine environment that minimally meets NMFS science needs).

For Lafayette and Charleston, NMFS will execute construction programs if so provided for in the relevant appropriations Acts, but would prefer upon completion of the construction to turn the buildings over to one of the tenants or to the General Services Administration to manage. At Santa Cruz, which if constructed would be solely occupied by NMFS, personnel and programs would be transferred as appropriate if the facility were constructed.

In the event that a decision is made not to continue with the Auke Cape facility, or not to relocate a significant portion of the Alaskan science program from Seattle to Alaska, then the "small facilities" portion of the West Coast sub-package would still be feasible and should be undertaken along with the recommendations for the South East. However, NMFS does not offer this as its recommendation because it foregoes a tremendous opportunity to make major improvements in the quality and management of over one-half of the NMFS science program.

VII. Proposed Implementation Plan

TIMING

The calculations in this study assume that decisions on facilities can be reached during FY96 and that the implementation plan can be initiated and completed during FY97. However, this was done primarily to ensure a fair basis for comparison. Because all actions

are being compared to a stable baseline, the findings on scientific merit and financial feasibility will not change even if the decision dates are delayed. It is expected that complex moves, such as the opening of Auke Cape, will actually be phased over several years.

Regardless of the timing, however, almost all of the implementation costs must be paid before any of the savings can be realized; therefore, it would be better to complete the process as rapidly as possible.

FUNDING

Even though it ultimately results in savings, the recommended package will require one-time funding to accomplish. Estimated funding of $20.4 million will be required to pay for the implementation costs inherent to the movement and closure process. Funds for this purpose must be requested and evaluated in the context of the President's annual budget submission to the Congress. Table 6 shows the activities and accounts affected. Some of these expenses would not be borne directly by the NMFS science program; nonetheless they are real costs to the government of making the consolidation decision.

Table 6. Implementation Costs

Fund Purpose	Amount ($ millions)
Personnel	
Early retirement, severance, etc.	7.3
Moving costs	4.6
Operations and maintenance	
Maintenance upgrades	1.1
Equipment movement and damage	1.3
Implementation activities	5.0
Environmental compliance	1.1
Total	20.4

Note 1: Facility construction costs are not included in the table above, because they are already under discussion as line items regardless of NMFS operating costs.

Note 2: Early retirement costs include buyouts, three years of partial pay, or other benefits. Severance assumes normal Reduction in Force (RIF) procedures.

Note 3: Implementation activities are estimated at 10 percent of the costs of the affected programs. This is based on the figure used for the Defense base closure process.

Specific remarks on the implementation costs include:

- Personnel costs: these are costs over and above the normally-expected rotations. They include buyouts, early retirement pay, severance or Reduction in Force pay, etc. However, some proportion of the affected personnel are expected to seek other employment in advance of the closure, and costs are reduced accordingly.

- Maintenance upgrades: Facilities in need of repair that are planned to receive additional personnel must receive funding to increase the scope of the planned upgrades and to accelerate upgrades if needed.

- Equipment movement and damage: NMFS expects to move reasonably mobile equipment between its facilities, both to accompany transferring programs and as salvaged items from closing facilities. There are costs to such moves, and some losses are expected.

- Implementation activities: The process of transition will be complex. A large number of meetings and other non-mission activities will be required to prepare for and effect an orderly transition from one facility to another. For those employees affected by the changes, there will also be increased levels of lost time for administrative reasons. This is an often overlooked but nonetheless real cost of making the consolidation decisions (the cost to NMFS in total managerial time and various expenses on this study alone probably exceeds $200,000). It is estimated as 10 percent of the cost of the affected programs, an algorithm established by the Defense base closure cost model and generally accepted as viable if perhaps conservative.

- Environmental compliance: It is assumed that all actions needed to bring NMFS facilities into environmental compliance would have to be completed prior to transfer.

- Construction: The Auke Cape and Near Island projects are already under discussion regardless of NMFS program changes and have not been included in Table 6 as a request for additional implementation funds. Nor have savings been taken to account for not building the proposed facilities that NMFS does not require for its science program.

Continued funding for the selected new facilities construction projects is essential to provide the improved facilities into which the science programs would move. *These funds should not come at the expense of existing programmed upgrade and rehabilitation work; those funds are essential to maintaining the condition of the remaining facilities.* The consolidation cost model already incorporates savings on the order of $2.7 million in maintenance and repair projects that will be terminated at the facilities to be closed.

The cost-benefit assessments assume that the government will use the real estate value of its property to help pay for the transition costs. In the recommended scenario, real estate sales amount to over $20 million, principally devolving from the sale of the Montlake property, a high-value waterfront property with many potential uses. Failure to capture the revenue from such sales would increase the cost of the consolidation to the government. Nonetheless, NMFS expects to reduce its operating costs by nearly $9 million annually by carrying out this program[6].

FACILITY DISPOSITION

In this section we provide additional details of how NMFS proposes to dispose of the facilities that will be closed. Table 5 in Appendix VI provides a condensed one-source summary of the proposed actions in the consolidation plan; however, it should not be used alone, because it does not contain all the explanatory material found in the text.

- *Kodiak existing facilities: Return the U.S. Coast Guard compound to the Coast Guard.* Retain the use of the sub-port. All activities will relocate to the Near Island complex.

- *Montlake: Sell.* This is valuable real estate, and has many potential uses consistent with reasonable requirements and preferences of the City of Seattle. (For instance, in past years the University of Washington has expressed interest in acquiring the site). Most activities relocate to the Sand Point complex, which will have available space due to the relocation of a por-

[6] Failure to recapture real estate costs is not a fatal weakness in the consolidation plan. Given annual savings on the order of $10 million, the real impact is that it would take two or three years longer to recapture the initial investment Given the initial investment, this loss would fall to the Federal government rather than to NMFS.

tion of the Alaskan science activities from Seattle to Juneau, AK.

- *Tiburon: Sell.* The real estate value may be minimal due to the need to complete environmental compliance and restoration projects. Relocate the science activities to Newport, OR.

- *Pacific Grove: Sell.* This real estate has high potential value. Relocate the science activities to Newport, OR.

- *Sitka (Little Port Walter): Terminate operations.* The remoteness of this facility limits the pool of interested buyers, and it may be necessary to transfer it to another research entity at no cost. The science conducted there is considered to be more of a State concern and responsibility will be transferred if the State is interested.

- *Hammond, OR (Point Adams): Sell.* Transfer responsibility for the science program to the State.

- *Manchester: Close and transfer to the University of Washington or to neighboring Federal agencies (U.S. EPA or U.S. Navy),* unless a second level of review indicates that the work is critical to salmon recovery and must be done by NMFS. In the long term the site is of high value because of its scenic location; however, in the near term it is a Superfund site and has no practical cash value. Because Defense has accepted responsibility under the Formerly Used Defense Sites (FUDS) program, NMFS would be able to transfer ownership despite the Superfund designation, although probably only a public entity would accept such a site. The programs are largely reimbursable efforts sponsored by the Bonneville Power Administration, which could pay others (e.g., the University of Washington, which already operates the Big Beef Creek station nearby) to conduct salmon restoration work at the Manchester facility. In retaining the Mukilteo field station, the Sand Point Center will have access to salt water laboratory spaces that are much more convenient than those at Manchester.

- *Oxford: Transfer to the State of Maryland (which already occupies much of the space).* Those present science programs that do not fall within NMFS responsibilities will be transferred to the State; the remainder will be integrated into the programs of the South East Fisheries Science Center (to be executed through the programs at the Beaufort laboratory). NMFS will retain a presence in the Oxford laboratory by detail-

ing a core group of scientists to work on marine mammal, sea turtle, and habitat restoration research.

- *Stennis (Bay Saint Louis): Withdraw from the Federal agency complex in the Stennis Space Center.* The science programs will be relocated to Galveston and Pascagoula. Both facilities already have components of the same programs now executed at Stennis. NMFS is a small tenant at the Stennis Center.

- *Panama City: Close and sell.* The programs would be relocated to Galveston, which has room to accept them. The property has revenue potential, considering its location.

VII. Enhancing Partnerships

The facilities criteria place heavy emphasis on the degree to which facilities are able to interact with other members of the scientific community. The NOAA science review also placed great emphasis on the need to expand NMFS scientific efforts to extramural partners and take advantage of competitive research award programs. The actions recommended here offer an excellent opportunity for just such an expansion.

The NMFS recommendation includes proposals for the transfer of responsibility for over $2 million in research to more directly cognizant entities, thereby broadening the scope of organizations involved in NMFS-related science. The proposal includes shedding an additional $15 million of important work that in most likelihood will be sponsored by the current beneficiaries, i.e., fishing industries, utilities, etc..

More direct involvement of external organizations with NMFS funding is provided through the outsourcing opportunities offered by facilities closures. Some important science must be done in a generally-defined region and cannot be transferred to another geographically distant NMFS facility; that work will have to be done by other organizations for NMFS. The package envisions over $2.5 million in new contract science opportunities.

Not directly stated in the package plan, but alluded to in this report several times already, is that the projected savings will be returned to the science program in the form of additional work. Those savings, on the order of $9 million annually, represent an opportunity to reprogram an equivalent amount of science. A conservative estimate would be that such a figure would permit the reprogram-

ming of the work of at least 60 scientists (in full-time equivalents). Much of that work could be awarded to entities outside NMFS.

NMFS will continue to pursue opportunities to expand partnerships and to outsource work where appropriate. NMFS currently conducts a large degree of its science externally, and about 20 percent of its payroll is funded through external reimbursable arrangements. The process of this facilities and science review has served to re-emphasize the need to have strong relationships with the external marine science community.

IX. Conclusion

This Laboratory Consolidation Study reflects a structured consolidation process that has been subject to external validation and to NOAA internal management review. It represents the best effort of NOAA to develop practical alternatives that will allow it to improve the quality of its facilities and upgrade the overall priority of the science that is executed. Trade-offs between facilities maintenance and high priority science needs must be made, and there are additional trade-offs to be explored between maintaining current levels of Federal employment and inviting other participants to execute some portions of NMFS science. In the recommended decisions on science program disposition at NMFS facilities, several options are used to reflect this trade-off: termination, program relocation, outsourcing and transferring of responsibility to more appropriate agencies.

If the recommended consolidation plan is implemented, NMFS can accomplish the required construction and upgrade its science at the same time. The recommended alternative may even engender some savings in the short term. In the long term, the devolution of some science activities will create savings that can be re-invested into higher priority science, whether that be through competitive outsourcing and grants, or through realignment of the efforts of NMFS scientists.

In order to achieve these improvements, NMFS will require one-time funding of approximately $20 million in addition to the construction costs for the new facilities (estimated at $43 million). The Federal government should also seek to retain the proceeds of real estate sales in order to offset those initial implementation costs.

Planned implementation actions will be considered as part of the President's deliberations on the FY 98 budget. NMFS will work closely with the Administration and the Congress to identify any conflicts between existing law and the implementation of the report recommendations, and any requirements for new legislative authorities.

Without that one-time funding, NMFS will be unable to implement these recommendations and would continue its science in the facilities it has today: the same facilities that all parties agree need to be upgraded or consolidated.

Appendix I

REVIEW PANEL CHARTER

CHARTER

OF THE
NATIONAL MARINE FISHERIES SERVICE (NMFS)
LABORATORY CONSOLIDATION STUDY
REVIEW PANEL

PURPOSES OF THE PEER REVIEW PANEL:

1. To develop and implement an evaluation of the NMFS research facilities (criteria and evaluation);

2. To review the program evaluation process conducted by the NMFS of its scientific activities

3. To ensure that the process:

   a. includes the relevant considerations

   b. uses reasonable measures of those factors considered

   c. evaluates activities and facilities in a consistent manner that follows the plan

   d. develops reasonable facility recommendations based on the evaluation findings

BACKGROUND:

The NMFS has an extensive laboratory science capability that provides information essential to NMFS operating needs as well as longer-term research aimed at improving the knowledge of marine ecosystems needed for effective policy decisions.

Over time, the focus of the research effort changes. As that occurs, NMFS needs a mechanism for identifying resources being spent on activities that no longer address primary goals, so that these resources can be redirected to higher priority research. In addition, facilities constructed for one purpose may be less appropriate for later activities; those activities should be located in more appropriate facilities. Finally, the NMFS wishes to have a process for identifying and evaluating those cases where the expenses of maintaining a facility are being directed at research that could be carried on more cost-effectively elsewhere either within or outside NMFS.

It is important that such an evaluation process be objective and based on accurate information: the science that supports NMFS is critical to accomplishing public purposes, and once eliminated it is difficult to recover. In addition, well-founded adjustments do create adverse impacts on some people, even where those adjustments are in the best interests of the public. For

both those reasons, NMFS must ensure that the process it uses to determine the substitution of research activities, elimination of unneeded facilities or transferring facilities or research within or outside NMFS is sound and results in the most cost-effective configuration of supporting NMFS science.

To achieve those ends, NMFS has solicited an external peer review by disinterested parties from within and outside the Federal science community to ensure that the program and facility evaluation process is well-designed, follows the design, and can withstand external scrutiny.

COMPOSITION:

The panel consists of the following individuals:

- Dr. John Magnuson, Director, Center for Limnology, University of Wisconsin
- Dr. Hratch Semerjian, Director, Chemical Science and Technology Laboratory, NIST
- Dr. Robert Huggett, Assistant Administrator for Research and Development, USEPA
- Dr. Craig Dorman, Office of Naval Research and Professor, Pennsylvania State University

Data support and organizational perspectives on the facilitie and science program will be provided to the panel by the staff of NMFS. Analytic support to the panel process will be provided by the Logistics Management Institute, a non-profit research center. NMFS and LMI staff members will attend and participate as appropriate but will not be formal or voting members of the panel.

SCOPE AND APPROACH:

The review panel will convene at critical points in the program evaluation design and execution phases (see Attachment B). The review panel will meet twice during the process: once to validate the evaluation design and criteria, and once to determine that the analyses were performed in accordance with the design and that the final recommendations are consistent with the evaluation findings.

The first meeting will last for up to two working days. During that time, the panel will receive a briefing from NMFS personnel on the structure and key activities of the NMFS laboratory system, within the context of NOAA and NMFS goals and NMFS operational and research programs. The panel will then be briefed on the general design and criteria established by NMFS to evaluate its science and research activities. The panel will then engage in detailed discussion of the methodology needed to establish relative rankings among the laboratory facilities and will determine appropriate methods of measuring the criteria.

Panel members are invited to participate in the site visits that will be used to validate the data that are collected in support of the evaluation. Funding for such travel will be provided by NMFS.

In the second meeting, the panel will receive a briefing on the results achieved in the collection and analysis of the research activity and facilities data furnished by NMFS. It will satisfy itself that the methods used generally match those that were approved in the previous meeting, that these agreed methods were used to rate all facilities, and that the facility ranking is appropriate to and based on the agreed methodology.

The panel will render a concise report at the conclusion (and prior to adjournment) of each meeting. The report must cite whether the sense of the panel is full concurrence, or concurrence with prescribed modifications, to the material presented. The report will then become a guidance document for the remainder of the process.

SPECIFIC TASKS

First meeting: Approve (with modifications) the general program evaluation design and criteria established by NMFS for the evaluation of its research activities. Determine facilities ranking methodology and measurement.

Second meeting: Concur in the initial rankings and facility identifications.

Appendix II

REPORT OF THE NMFS SCIENCE PROGRAM TEAM

April 18, 1996

REPORT

of the

NMFS SCIENCE PROGRAM TEAM

This report contains the results of the deliberations by the non-NMFS members of the Science Program Team (SPT) on the science programs of the National Marine Fisheries Service (NMFS). The contents are as follows:

1. Purpose

2. Process

3. Ratings by program and facility

4. Concluding remarks

Appendices:

A. The Decision Model for NOAA Fisheries Science Programs

B. Resumes of the non-NMFS SPT members.

C. NMFS ex-officio members of the SPT.

1. Purpose

One component of the NMFS Laboratory Consolidation Study Process is to develop, validate and apply a **Decision Model for NOAA Fisheries Science Programs.** It has been the purpose of the SPT to review and validate this model and the information used by the Science Centers in proposing ratings for the science programs. The outcome of the exercise is a set of final program ratings by facility.

2. Process

i. Four non-NMFS experts with broad scientific knowledge and expertise in NMFS science areas served as members of the SPT (see Appendix B for resumes). Derek Winstanley, Deputy Chief Scientist in NOAA, served as Chairman of the SPT. The SPT met for a total of 10 days in February and March 1996.

ii. A senior representative from each NMFS Science Center participated as an ex-officio member of the SPT (Appendix C). The ex-officio members asked questions and brought their knowledge, insight and expertise to bear in the deliberations.

They also served a liaison role with the Science Centers. The ex-officio members did not rate the programs.

iii. NMFS senior managers prepared a draft Decision Model For NOAA Fisheries Science Programs and the SPT reviewed and modified the model (Appendix A).

iv. Each science center director identified programs to be rated. In most cases, the programs were a composite of several tasks or projects. The size of the programs ranged from 1 to 46 FTEs. There was a total of 86 programs at 27 facilities.

v. Each science center director (with the assistance of the laboratory directors and other staff members) prepared data and information to be used in the ratings, proposed ratings for their programs using the Model, and justified their ratings. These materials were distributed to the SPT members prior to the visits to the science centers.

vi. The SPT visited each of the five NMFS science centers in Seattle (Alaska and Northwest Fisheries Science Centers); La Jolla (Southwest Fisheries Science Center); Miami (Southeast Fisheries Science Center); and Woods Hole (Northeast Fisheries Science Center). [Note: Dr. Doubleday was unable to attend part of the site visit to the Northwest Center, or the visit to the Southwest Center.] At each center, the SPT members listened to presentations by the center director, laboratory directors and/or program managers on the missions, structure, organization and work of the center and each facility. The SPT members asked questions and engaged in discussions with the center director, laboratory directors and program managers in order to more fully understand the programs and to validate the data and information. The SPT members also discussed the programs among themselves. The SPT did not visit any of the laboratories or satellite facilities. The SPT also listened to a presentation on the National Seafood Safety Inspection Laboratory (NSSIL)in Pascagula, but did not provide scores for this laboratory as it does not conduct research. The SPT notes that any decision on moving the Pascagula Laboratory could have ramifications for the NSSIL. At those centers where support activities (e.g., statistics and computer operations) were identified as separate programs, the SPT recognized their essential contributions but did not rate them as separate science programs. The SPT did not review the administration or management functions of the centers.

vii. In executive sessions, the non-NMFS members of the SPT considered carefully all the data and information made available to them and either validated or changed the ratings proposed by the science center directors. The final ratings are provided in Section 3, Table 1. [Note: In order to comply with the Federal Advisory Committee Act, the Chairman solicited the views and ratings from each non-NMFS member, rather than seeking consensus,

but the Chairman had the final voice in resolving any differences in ratings and making the final score. In over 95 percent of the cases, there was consistency of views and scores by SPT members. One member of the SPT (SS) does not endorse any score change which reduces the science center directors' score by more than 20 percent for any factor, while accepting all positive changes.]

viii. The SPT was presented with information on the proposed construction of a number of new facilities and the science programs to be conducted in these facilities. The proposed new facilities are in varying stages of planning. In order to assist NMFS in evaluating the merit of the science programs to be conducted in these facilities, if they are constructed, the SPT provides information in Table 1 (f).

ix. One or two representatives from the Office of the Inspector General (OIG) in the Department of Commerce participated in the data and information gathering sections of the visits to each science center. The OIG is conducting an independent evaluation of the NOAA laboratories and the OIG and senior NOAA management agreed to share data collection activities in order to minimize duplication of efforts. The SPT Chairman encouraged the OIG representatives to participate actively in the data gathering and validation exercises and to identify additional relevant issues to be addressed. The representatives from the OIG did not identify additional issues to be addresses. During the site visits, the OIG had not presented an independent plan of study and the representatives did not participate in the executive sessions.

3. Ratings by Program and Facility

The Decision Model (Appendix A) contains a Program Element and a Relocation Potential Element. The Program Element contains five factors, or criteria. The Relocation Potential Element contains three factors.

Program Elements

M factor: mission element supported by the science program.

NMFS has identified eight mission areas for its science programs, and ranked them as follows (10 high):

- Fisheries management — 10
  Manage fisheries to achieve the goal
- Endangered species — 8
  Protect and recover endangered & threatened species
- Marine mammals — 7
  Protect and conserve marine mammals

- Conserve 6
  Conserve coastal ecosystems

- Restore 5
  Restore coastal ecosystems

- Aquaculture 4
  Develop aquaculture technology to support the goal

- Biodiversity 4
  Maintain biodiversity, use as indicator of ecosystem health

- Fish utilization 3
  Improve safety, quality & value of US seafood products

The SPT had no role in setting these mission priorities, but did spend much time validating the apportionment of science programs to the mission areas.

The SPT used as one basis for apportionment the data contained in the NMFS/MIS data base. For the 1994-1995 NOAA Science Review, all NMFS tasks had been apportioned to the then current set of NOAA strategic objectives. Taking into consideration the data contained in the 1995 version of the MIS, and after extensive discussions with the science center directors, program and data-base managers and the ex-officio members of SPT, the non-NMFS members of SPT apportioned each of the 86 programs to the above mission areas and provided M-factor scores for each program and facility. Where a program contained multiple tasks, the mission score for the program was calculated by considering the contribution of the tasks to one or more mission areas. For example, for a program where 40 percent of the effort was directed towards fisheries management (40% x 10 = 4.0), 40 percent to marine mammals (40% x 7 = 2.8), and 20 percent to conserve coastal ecosystems (20% x 6.0 = 1.2), the program score would be 4.0 + 2.8 + 1.2 = 8.0.

The SPT applauds NMFS for taking the bold step of prioritizing its mission areas. While the scores in Table 1 are based on the best effort by the SPT in apportioning programs to mission areas, the apportionment of some programs to appropriate mission areas is subject to a degree of interpretation of both the scope and objectives of the programs and the objectives of the mission areas. Whereas the identification of most fisheries management programs was straight forward, the apportionment of some projects to mission areas was more difficult and challenging: for example, the apportionment of i) NW salmon research to rebuilding commercial fisheries or the protection and recovery of endangered species ii) contaminant work to seafood utilization, fisheries management or coastal ecosystem missions, and iii) coastal

ecosystem work to the conservation and restoration of ecosystems or to fisheries management. Overall, the SPT places a somewhat higher level of confidence on the M-factor scores than some of the others.

B factor: expected benefit/cost ratio of the activity relative to the mission it supports.

The B factor is an important factor, one that carries considerable weight in the model and one that the SPT discussed in considerable detail. On the one hand, it is relatively easy to conduct a first-order, macro analyses of the potential benefits of R&D in commercial fisheries, conservation of threatened and endangered species, habitat conservation and restoration, seafood safety and utilization, and aquaculture. However, the SPT concluded that a detailed program-by-program cost-benefit analysis would require much more time than was available in this exercise and would require the involvement of economists and resource managers as well as scientists. Such analysis would necessitate consideration of many complex factors including use and non-use values, sustainable yields, species interactions, state versus federal responsibilities, and the total cost of surveys, assessments and research [noting, for example, that the considerable cost of surveys performed by the NOAA Corps using NOAA vessels is not included in the expenditures of the science centers].

The SPT made some changes to the proposed scores, particularly in programs that are new, are ambitious or have recently been critically peer reviewed.

The August, 1995, report on the "West Coast Groundfish Assessments" and the NMFS response to the report were not made available to the SPT, but the Chair of the SPT had attended the July, 1995, review meeting and was familiar with the report and NMFS' response to it. The SPT took into consideration the report and NMFS' response in finalizing the scores for the West coast groundfish work. In particular, the SPT noted such key findings and recommendations as the following:

"we recommend against using any data from the 1993 slope trawl survey in west coast groundfish stock assessments."

"slope surveys do not provide reliable estimates of absolute abundance nor do they provide a reliable time series of indices or relative abundance.

The SPT also noted NMFS' acknowledgement of the need to improve the assessment's information base and clarity of presentation. NMFS is working aggressively to remedy the problems.

New programs, such as the coordination of West coast groundfish

assessments, represent important developments in improving the efficiency and effectiveness of the science programs and the SPT enthusiastically applauds these efforts. Other new programs, such as GLOBEC, are entering new territories for fisheries and oceans science and resource management. The lower scores given to new programs should not be interpreted as an indication of lower priority, but rather as an indication of the SPT's inability to evaluate adequately the use of products or the potential for scientific breakthroughs in embryonic programs. Also, somewhat lower ratings given to some high-seas recruitment and macro-ecosystem programs, especially those focusing on lower trophic levels and early life stages, reflect the ambitious and difficult nature of the programs, rather than their potential importance. All research programs, by their very nature, have a degree of risk and some of the most ambitious and risky programs have the highest potential for scientific breakthroughs and major benefits for the management of U.S. and international resources.

A particular challenge for NMFS is to continue conducting resource surveys and building long time series that are important in today's resource management decisions, and at the same time develop new cost-effective methods for conducting the surveys and gathering and analyzing additional biological, environmental and socio-economic data and information needed for making tomorrow's resource management decisions. This is a particularly difficult position in times of increasing information demands, changing social, economic and physical environments, a vast array of biological species and location-specific ecosystems, and budgetary constraints.

The SPT notes many developments within NMFS that are addressing these challenges, including the following:

- the establishment of a NMFS Transition Board, leading to the establishment of a NMFS Executive Board;

- the establishment of Coastal Boards to improve the coordination and management of science and management programs, including the coordination of West coast groundfish and salmon research and assessments;

- the preparation of a NMFS strategic plan;

- the development of a draft NMFS National Habitat Research Plan;
- the assignment of a rank of importance to each of the 145 mammal stocks present in U.S. waters (the rankings provide a sound and rational basis for setting priorities for new initiatives);

- the development of 5-year implementation plans for Build Sustainable Fisheries, Recover Protected Species, and Sustain Healthy Ecosystems;

- the emerging categorization of science programs into i) surveys and monitoring; ii) assessments; and iii) strategic R&D, which, when completed, will provide an additional useful basis for evaluating the NMFS science programs.

The SPT views these as important developments that are expected to lead to improved efficiencies and effectiveness in the design and conduct of science programs.

The SPT concludes that additional efforts in the following areas could lead to further improvements in efficiency and effectiveness of science programs:

i) the coordination of diverse efforts in contaminant work, perhaps moving towards national protocols for quality control and assurance and national standards;

ii) strengthening the coordination of and priority setting for marine mammal programs within base funds, to complement the priority setting process for new initiatives; and

iii) developing a basis for setting national priorities and allocating the use of limited resources to address fish surveys and stock assessments; and

iv) clarification and rationalization of program responsibilities among West coast centers.

Currently, the contaminant work and marine mammal programs, especially those conducted with base funds, do not appear to be well coordinated: for example, there was little evidence that the contaminant work at Charleston, Sandy Hook and Montlake is adequately coordinated, or that The National Marine Mammal Laboratory in the Alaska Center provides national leadership and coordination of marine mammal research.

With fish stock surveys and assessments, there appears to be inadequate national priority setting to the allocation of resources and the level of survey activity and corresponding research vessel support seems to vary widely among regions. For example, it is the view of the SPT that the surveys of the highly valuable Pacific stocks, especially the groundfish, are underfunded, while NMFS is expending considerable resources in surveying and assessing fish species and conducting habitat and contaminant work in coastal waters where the states have more responsibility for the resources. The SPT finds that jurisdictional responsibilities between the federal and state governments and the value of stocks need to be considered more explicitly in setting NMFS mission and science program priorities.

Among the three Pacific coast centers, there appears to be considerable geographic overlap of survey work, especially for groundfish; for example, the Alaska Center conducts surveys off the coasts of Washington, Oregon and California, as well as Alaska. The Alaska Center also retains a small group of scientists in Newport, Oregon.

The SPT was somewhat surprised that the Alaska Center does not place greater emphasis on Alaska mammal species, such as Stellar sea lions and fur seals. Despite many years of work, a clear cause(s) of the decline in numbers of the Stellar sea lion has not been identified.

QN factor: takes account of the amount of scientific activity of a particular type.

The Model calls for this factor to be usually rated neutral. In fact, the SPT judged that it did not have an adequate basis for rating the programs anything but neutral, and so provided neutral scores for this factor. To judge programs to be subcritical or excessive would require detailed information on the qualifications, experience, and productivity of the researchers and their linkages with other researchers, in addition to the information on program funds and FTEs provided.

LV factor: takes account of the advantage to the Agency of attracting non-Agency resources to address a scientific problem important to the Agency - excluding reimbursable work.

The SPT questioned and changed some of the scores, but did not conduct a rigorous validation of all the partnerships and leverages. The SPT notes that in the facilities part of the laboratory study there is a factor addressing partnerships and concludes that it would be appropriate to also consider this score in any final evaluation. The SPT does not have as much confidence in the LV-factor scores as, for example, the M-factor or B-factor scores.

OS factor: takes account of options for outsourcing.

Determining whether or not an activity can be outsourced depends on many factors, including knowledge of suitably qualified and experienced researchers outside of NMFS, the nature of the internal research capability needed for the Agency to oversee and guide outsourced activities, the importance of many years of internal experience, and the identification of extramural partners who are reliable and trustworthy. The SPT did not have all this information available and the OS scores probably are conservative in identifying the potential for outsourcing. As is noted in the Model description (Appendix A), virtually any activity could be outsourced in the long-term.

Relocation Potential Element

This element is separate from the program ratings. The three factors in this element (F, LG and CR) are intended to reflect the dependency of the research programs on a particular facility and location.

The SPT recognizes that accurate scoring for the three factors requires information and knowledge that transcends that of a small group of scientists. For example, it requires information on facilities and nearby research institutions and the SPT did not visit most of the NMFS facilities. It also requires judgement by constituency groups (e.g., the fishing industry) on the credibility of the programs at specific locations.

The SPT modified some scores, but overall the confidence on the scores is not high. The SPT encourages NMFS to apply additional insight and information in evaluating the potential for relocation, including the data and information available in the facilities part of the laboratory consolidation exercise.

4. Concluding remarks.

Towards the conclusion of the exercise, the SPT reviewed the program scores, by element, across all the science centers. There a are a number of key points which the SPT commends that senior NMFS and NOAA managers consider as they analyze options and formulate recommendations.

i) A high degree of subjectivity has been applied by the science center directors in proposing scores for their programs and by non-NMFS SPT members in finalizing the scores.

ii) The Model contains both additive and multiplicative components. The M and B factors (which are multiplicative) have, in most cases, the greatest influence on the ratings produced by the model. Thus, the NMFS prioritization of the mission areas has a major effect on the overall ratings in favor of the stock assessment programs. The scores for the additive components in most cases only moderate the initial weightings for the M and B factors.

iii) The science program scores are believed to have been influenced by a number of factors that are important to recognize when using and interpreting the scores. These factors include partial information on the programs, program interlinkages and a lack of clear definition of program boundaries. Hence, the numerical scores try to measure things which, in many cases, are not clearly defined. Such measures can only be approximations. These approximations and the propagation of uncertainty (particularly in the multiplicative inputs) should be recognized when considering numerical scores which are represented as crisp

numbers (i.e., without error bounds.) It should also be recognized that error propagation in multiplicative applications is larger than in additive operations.

In the Relocation Potential Element the factors are all additive and the effects of errors in the inputs are expected to be smaller. However, it should still be recognized that although the output seems to be precise, it is not necessarily accurate.

iv) The SPT suggests that NMFS and NOAA senior managers also consider the multidisciplinary, interlinked and in some cases integrated nature of the science programs in developing and evaluating recommendations for closure and consolidation. The science programs address a continuum from stock surveys and assessments, through understanding how natural and man-made variations of the environment affect population dynamics and the seafood industry, to promoting seafood safety and utilization for the consumer. The programs also span, appropriately, a wide range of goals from resource conservation to economic growth. In many cases, program changes in one mission area can have repercussions in other mission areas.

v) Although it is outside of the SPT mandate to question the NMFS mission priorities, the SPT does wish to express its concern about the basis for setting mission priorities. NMFS has given the highest ratings to mission areas that have clear and strong legal mandates. In setting mission priorities, the SPT urges NMFS and NOAA to consider explicitly future trends and opportunities, in addition to existing legal mandates.

The future needs of the public for an adequate supply of quality seafood at reasonable prices and the future information needs of resource managers to both conserve resources and promote economic growth imply that it would be appropriate to take a visionary approach to identifying a science strategy, in addition to considering existing legal mandates. The SPT is aware that, globally, aquaculture is growing faster than mariculture and that many countries are beginning to integrate aquaculture with mariculture. It may well be in the best interest of the United States for NMFS to enhance its leadership role in this direction.

The SPT concludes that decisions on facility closure and consolidation and program changes, in aquaculture and other areas, would benefit from the exposition of a more visionary pathway of program development - a clear science strategy - to complement the consideration of legal mandates.

In summary, the SPT considers that it would be appropriate for program managers to combine the results of this exercise with additional information when making important decisions.

NORTHEAST CENTER | Science Review Program Decison Model Ranking form | 4/15/96

	NORTHEAST CENTER		Science Review Program Decison Model Ranking form									4/15/96						
			Substitute parameter values to calculate the scores in the left-hand column															
FTE'S	Facility/Activity		PROGR=(M*B-QN+LV-OS+C1)C2 Range is 0 to 50									Facility/A	RLPR = (10-F-LG-CR+C3)C4 Range is 0 - 10					
		Wt. Score	Score:	M	B	QN	LV	OS	C1	C2		Score:	10	F	LG	CR	C3	C4
	NEC-Woods Hole										NEC-Woods Hole-A1							
31	NEC-WHPopDynamics	11.16	41.76	10	1	0	0	0	5.2	2.75	NEC-WHPopD	7.50	10	0	0	5	10	0.5
21	NEC-WHPopBiology	7.56	41.76	10	1	0	0	0	5.2	2.75	NEC-WHPopBI	7.50	10	0	0	5	10	0.5
26	NEC-WHSurvey/Sampl	8.74	39.01	9	1	0	0	0	5.2	2.75	NEC-WHSurve	2.50	10	5	5	5	10	0.5
17	NEC-WHSocialScience	5.31	36.26	10	1	0	0	2	5.2	2.75	NEC-SocialSci	10.00	10	0	0	0	10	0.5
10	NEC-WHProtectedSp	2.89	33.52	7	1	0	0	0	5.2	2.75	NEC-WHPotec	10.00	10	0	0	0	10	0.5
11	NEC-WHEarlyLifeStage	4.22	44.51	10	0.8	0	3	0	5.2	2.75	NEC-WHEarly	5.00	10	0	5	5	10	0.5
	NEC-WHDataManagemt																	
116	TOTAL	39.89																
	NEC-Naragansett Lab																	
21	NEC-NargEcosyMon/As	14.56	29.12	8	0.8	0	0	1	5.2	2.75	NEC-NargEcos	8.50	10	0	3	0	10	0.5
6	NEC-NargApexPredRes	6.36	44.51	10	0.8	0	3	0	5.2	2.75	NEC-NargApe	8.50	10	0	3	0	10	0.5
15	NEC-NargEarlyLifeStag	15.89	44.51	10	0.8	0	3	0	5.2	2.75	NEC-NargEarl	4.00	10	7	5	0	10	0.5
42	TOTAL	36.81																
	NEC-Milford Lab																	
16	NEC-MilAquaculture	19.86	33.52	4	1	0	3	0	5.2	2.75	NEC-MilAquac	0.00	10	10	5	5	10	0.5
11	NEC-MilHabitatEval/Stoc	13.65	33.52	5	0.8	0	3	0	5.2	2.75	NEC-MilHabita	5.00	10	0	5	5	10	0.5
27	TOTAL	33.52																
	NEC-Sandy Hook Lab																	
23	NEC-SanHookFishEcoH	16.25	29.67	7	0.8	0	0	0	5.2	2.75	NEC-SanHook	3.50	10	5	5	3	10	0.5
9	NEC-SanHookEnvirQual	5.89	27.47	6	0.8	0	0	0	5.2	2.75	NEC-SanHook	3.50	10	5	5	3	10	0.5
10	NEC-SanHookEarlyLife	10.60	44.51	10	0.8	0	3	0	5.2	2.75	NEC-SanHook	10.00	10	0	0	0	10	0.5
42	TOTAL	32.73																
	NEC-NtlSystematicsLab																	
7	NEC-NtlSystematicsLab	36.26	36.26	8	1	0	0	0	5.2	2.75	NEC-NtlSyste	0.00	10	10	5	5	10	0.5
7	TOTAL	36.26																

TABLE 1 (b)

NORTHWEST FISHERIES CENTER

	NORTHWEST CENTER		Science Review Program Decison Model Ranking formu								4/15/96							
			Substitute parameter values to calculate the scores in the left-hand column															
FTE's	Facility/Activity	Wt. Score	PROGR=(M*B-QN+LV-OS+C1)C2 Range is 0 to 50 Score:	M	B	QN	LV	OS	C1	C2		Facility/Acti Score:	RLPR = (10-F-LG-CR+C3)C4 Range is 0 - 10 10	F	LG	CR	C3	C4
	NWC-Montlake										NWC-Montlake							
13	NWC-MontGroundfishEc	3.91	32.14	10	0.85	0	0	2	5.2	2.75	NWC-MontGroundfish	2.50	10	5	5	5	10	0.5
24	NWC-MontSeafoodSafety	5.48	24.45	3.7	1	0	0	0	5.2	2.75	NWC-MontSeafoodsaf	2.50	10	10	5	0	10	0.5
45	NWC-MontSalmonEco&Re	16.98	40.38	8.5	1	0	3	2	5.2	2.75	NWC-MontSalmonEc	0.00	10	10	5	5	10	0.5
25	NWC-MontHabitat Quality	7.83	33.52	7	1	0	0	0	5.2	2.75	NWC-MontHabitatQua	2.50	10	10	5	0	10	0.5
107	TOTAL	34.20																
	NWC-Newport																	
6	NWC-NewportGroundfish	12.55	37.64	10	0.85	0	0	0	5.2	2.75	NWC-NewportGround	2.50	10	5	5	5	10	0.5
5	NWC-NewportSalmonEco	8.93	32.14	8.5	1	0	0	2	5.2	2.75	NWC-NewportSalmon	5.00	10	5	5	0	10	0.5
7	AKCRA06-NewFisBehav	15.17	39.01	10	0.9	0	0	0	5.2	2.75	AKCRA06	2.50	10	10	5	0	10	0.5
18	TOTAL	36.65																
	NWC-Pt.Adams																	
10	NWC-Pt.AdamsSalmonEc	32.12	41.76	9	1	0	3	2	5.2	2.75	NWC-Pt.AdamsSalmo	2.50	10	5	5	5	10	0.5
3	NWC-Pt.AdamsHabitatQ	6.09	26.37	5.5	0.8	0	0	0	5.2	2.75	NWC-Pt.AdamsHabita	2.50	10	5	5	5	10	0.5
13	TOTAL	38.21																
	NWC-Mukilteo																	
4	NWC-MukilteoGroundfish	33.08	33.08	7.2	0.95	0	0	0	5.2	2.75	NWC-MukilteoGround	5.00	10	5	5	0	10	0.5
4	TOTAL																	
	NWC-Pasco																	
27	NWC-PascoSalmonEco	45.88	45.88	8.5	1	0	3	0	5.2	2.75	NWC-PascoSalmonE	2.50	10	10	5	0	10	0.5
27	TOTAL	45.88																
	NWC-Manchester																	
21	NWC-ManSalmonEco	36.26	36.26	5	1	0	3	0	5.2	2.75	NWC-ManchesterSal	0.00	10	10	5	5	10	0.5
21	TOTAL	36.26																

SOUTHEAST CENTER

Science Review Program Decision Model Review

Substitute parameter values to calculate the scores in the left-hand column

PROGR=(M*B-QN+LV-OS+C1)C2 Range is 0 to 50

RLPR = (10-F-LG-CR+C3)C4 Range is 0 - 10

FTE'S	Facility/Activity	Wt. Score	Score:	M	B	QN	LV	OS	C1	C2		Facility/Activity Score:	10	F	LG	CR	C3	C4
	SEC_MIAMI																	
6	SEC-MiamiProtResouRe	3.71	44.51	8	1	0	3	0	5.2	2.75	SEC-MiamiProtR	0.00	10	10	5	5	10	0.5
5	SEC-MiamiMMammProg	2.52	36.26	7	1	0	3	2	5.2	2.75	SEC-MiamiMMa	2.50	10	5	5	5	10	0.5
16	SEC-MiamiStatDataCol	9.89	44.51	10	1	0	3	2	5.2	2.75	SEC-MiamiStatD	2.50	10	5	5	5	10	0.5
24	SEC-MiamiOceanFisRes	13.92	41.76	10	1	0	0	0	5.2	2.75	SEC-MiamiOcea	2.50	10	5	5	5	10	0.5
21	SEC-MiamiCoastFisRes	12.18	41.76	10	1	0	0	0	5.2	2.75	SEC-MiamiCoast	2.50	10	5	5	5	10	0.5
72	TOTAL	42.22																
	SEC-Pascagoula																	
32	SEC-PasResourceSurvs	28.48	40.93	9.7	1	0	0	0	5.2	2.75	SEC-PasResourc	0.00	10	10	5	5	10	0.5
14	SEC-PasHarvesting	11.87	39.01	9	1	0	0	0	5.2	2.75	SEC-PasHarvesti	2.50	10	5	5	5	10	0.5
46	TOTAL	40.35																
	SEC-Stennis																	
3	SEC-StennisCOASTWA	11.61	42.58	7.3	1	0	3	0	5.2	2.75	SEC-StennisCOA	2.50	10	10	5	0	10	0.5
8	SEC-StennisResourceS	29.77	40.93	9.7	1	0	0	0	5.2	2.75								
11	TOTAL	41.38																
	SEC-PanamaCity																	
17	SEC-PanCFish&EcoRes	40.93	40.93	9.7	1	0	0	0	5.2	2.75	SEC-PanaCFish	5.00	10	0	5	5	10	0.5
	SEC-Galveston																	
10	SEC-GalProtSpsRes	6.45	44.51	8	1	0	3	0	5.2	2.75	SEC-GalvProtSp	0.00	10	10	5	5	10	0.5
41	SEC-GalvShrimpRes	24.81	41.76	10	1	0	0	0	5.2	2.75	SEC-GalvShrimp	2.50	10	5	5	5	10	0.5
18	SEC-GalvHabitatRes	11.11	42.58	7.3	1	0	3	0	5.2	2.75	SEC-GalvHabitat	0.00	10	10	5	5	10	0.5
	SEC-GalvStatistics/Shrimp																	
69	TOTAL	42.37																
	SEC-Charleston																	
9	SEC-CharlSeafoodSaf	3.73	24.45	3.7	1	0	0	0	5.2	2.75	SEC-CharlSeafo	0.00	10	10	5	5	10	0.5
11	SEC-CharlMarineBiotox	4.81	25.82	4.2	1	0	0	0	5.2	2.75	SEC-CharlMarine	2.50	10	10	5	0	10	0.5
23	SEC-CharlMarineBiotec	14.78	37.91	8.6	1	0	0	0	5.2	2.75	SEC-CharlMarine	0.00	10	10	5	5	10	0.5
16	SEC-CharlMarineEcotox	9.98	36.81	5.2	1	0	3	0	5.2	2.75	SEC-CharlMarine	0.00	10	10	5	5	10	0.5
59	TOTAL	33.31																
	SEC-Beaufort																	
23	SEC-BeauAtlCoastRes	12.01	41.76	10	1	0	0	0	5.2	2.75	SEC-BeauAtlCoa	2.50	10	5	5	5	10	0.5
2	SEC-BeauMMProgram	0.91	36.26	7	1	0	3	2	5.2	2.75	SEC-BeauMMProgram2							
2	SEC-BeauProtSps	1.11	44.51	8	1	0	3	0	5.2	2.75	SEC-BeauProtSps-2							
6	SEC-BeauStatistics	3.34	44.51	10	1	0	3	2	5.2	2.75	SEC-BeauStatistics-6							
46	SEC-BeauHabitatRes	24.17	42.03	7.1	1	0	3	0	5.2	2.75	SEC-BeauHabita	0.00	10	10	5	5	10	0.5
1	SEC-BeauCOASTWAT	0.53	42.58	7.3	1	0	3	0	5.2	2.75	SEC-BeauCOAS	5.00	10	5	5	0	10	0.5
80	TOTAL	42.06																
	SEC-Oxford																	
7	SEC-OxfordMarineDisR	27.47	27.47	6	0.8	0	0	0	5.2	2.75	SEC-OxfordMarin	5.00	10	5	5	0	10	0.5

TABLE 1 (d)

SOUTHWEST FISHERIES CENTER

	SOUTHWEST CENTER		Science Review Program Decison Model Ranking fo								4/15/96								
			Substitute parameter values to calculate the scores in the left-hand column																
FTE's	Facility/Activity		PROGR=(M*B-QN+LV-OS=C1)C2 Range is 0 to 50									Facility/	RLPR = (10-F-LG-CR+C3)C4 Range is 0 - 10						
		Wt. Score	Score:	M	B	QN	LV	OS	C1	C2		Score:	10	F	LG	CR	C3	C4	
	SWC-La Jolla										SWC-La Jolla-A1								
18	SWC-LJ-Coastal	11.39	50.00	10	1	0	3	0	5.2	2.75	SWC-LJ-Coastal	3.50	10	8	5	0	10	0.5	
9	SWC-LJGroundfish	5.23	45.88	10	0.85	0	3	0	5.2	2.75	SWC-LJGrounbdfish	7.00	10	0	5	1	10	0.5	
9	SWC-LJLargePelagics	5.07	44.51	10	1	0	3	2	5.2	2.75	SWC-LJLargePelagi	2.50	10	5	5	5	10	0.5	
26	SWC-LJProtectedSps	13.74	41.76	7	1	0	3	0	5.2	2.75	SWC-LJProtectedSp	1.00	10	8	5	5	10	0.5	
10	SWC-LJGenetics	5.81	45.88	9	1	0	3	0.5	5.2	2.75	SWC-LJGenetics	1.25	10	7.5	5	5	10	0.5	
7	SWC-LJAntarctic	3.09	34.89	7.5	1	0	2	2	5.2	2.75	SWC-LJAntarctic	6.25	10	5	2.5	0	10	0.5	
79	TOTAL	44.33																	
	SWC-Honolulu																		
23	SWC-HOLargePelagics	23.26	44.51	10	1	0	3	2	5.2	2.75	SWC-HOLargePelag	0.00	10	10	5	5	10	0.5	
11	SWC-HOInsular	11.47	45.88	10	1	0	1.5	0	5.2	2.75	SWC-HOInsular	0.00	10	10	5	5	10	0.5	
10	SWC-HOProtectedSps	8.87	39.01	8	1	0	1	0	5.2	2.75	SWC-HOProtectedS	0.00	10	10	5	5	10	0.5	
44	TOTAL	43.60																	
	SWC-Tiburon																		
4	SWC-TiProtectedSps	8.09	44.51	8	1	0	3	0	5.2	2.75	SWC-TiProtectedSp	2.50	10	5	5	5	10	0.5	
18	SWC-TiGroundfish	37.54	45.88	10	0.85	0	3	0	5.2	2.75	SWC-TiGroundfish	2.50	10	5	5	5	10	0.5	
22	TOTAL	45.63																	
9	SWC-PFEG	41.76	41.76	9	1	0	3	2	5.2	2.75	PMEL	4.50	10	5	5	1	10	0.5	

FTE's		Wt. Score	Score:	M	B	QN	LV	OS	C1	C2	Score:						
	AKC- RACE																
	AKCRA01-Prog Managmt																
13	AKCRA02-Midwater Ass	9.05	41.76	10	1	0	0	0	5.2	2.75	2.50	10	5	5	5	10	0.5

FISHERIES CENTER

	AKC- RACE																
	AKCRA01-Prog Managmt																
13	AKCRA02-Midwater Ass	8.05	41.76	10	1	0	0	0	5.2	2.75	2.50	10	5	5	5	10	0.5
2	AKCRA03-Shellfish Ass	1.67	50.00	10	1	0	3	0	5.2	2.75	2.50	10	5	5	5	10	0.5
24	AKCRA04-Groundfish As	13.41	33.52	10	0.7	0	0	0	5.2	2.75	2.50	10	5	5	5	10	0.5
21	AKCRA05-RecruitFOCI	15.58	44.51	10	0.8	0	3	0	5.2	2.75	5.00	10	5	5	0	10	0.5
	AKCRA07-Survey Gear	0.00														10	0.5
60	TOTAL	39.70															
	AKC-REFM																
27	AKCRE02-Fish Observer	18.24	50.00	10	1	0	3	0	5.2	2.75	0.00	10	10	5	5	10	0.5
10	AKCRE03-Age&Growth	5.27	39.01	10	1	0	0	1	5.2	2.75	2.50	10	10	5	0	10	0.5
24	AKCRE04-StatusStocks	13.54	41.76	10	1	0	0	0	5.2	2.75	0.00	10	10	5	5	10	0.5
6	AKCRE05-Ecology&Model	3.16	39.01	10	0.9	0	0	0	5.2	2.75	0.00	10	10	5	5	10	0.5
7	AKCRE06-Socio Assess	3.43	36.26	10	1	0	0	2	5.2	2.75	0.00	10	5	5	5	10	0.5
74	TOTAL	43.85															
	AKC-Marine Mammal Lab																
	AKCNM01-Program Man																
15	AKCNM02-AK Ecosys	10.26	30.77	7.5	0.8	0	0	0	5.2	2.75	5.00	10	5	5	0	10	0.5
7	AKCNM03-Antarc Ecosyst	4.91	31.59	7	0.9	0	0	0	5.2	2.75	7.50	10	5	0	0	10	0.5
11	AKCNM04-Arctic Ecosyst	8.53	34.89	7.5	1	0	0	0	5.2	2.75	5.00	10	5	5	0	10	0.5
9	AKCNM05-CA Curr Ecosys	6.70	33.52	7	1	0	0	0	5.2	2.75	7.50	10	5	0	0	10	0.5
3	AKCNM06EcosysEcol	1.98	29.67	7	0.8	0	0	0	5.2	2.75	5.00	10	5	5	0	10	0.5
45	TOTAL	32.38															
179	AKC - Sand Point Total	39.49															
	KODIAK																
14	K-ShellfishAss	46.67	50.00	10	1	0	3	0	5.2	2.75	2.50	10	5	5	5	10	0.5
1	K-Fish Observer	3.33	50.00	10	1	0	3	0	5.2	2.75	0.00	10	10	5	5	10	0.5
15	TOTAL	50.00															
	AKC43-Lit Port Walter																
5	AKC-LTPtWalMarineSalInte	17.51	28.02	5	1	0	0	0	5.2	2.75	2.50	10	10	5	0	10	0.5
3	AKC-LTPtWalHabitatInvest	14.63	39.01	7	1	0	2	0	5.2	2.75	2.50	10	10	5	0	10	0.5
8	TOTAL	32.14															
	AKC-Auke Bay Lab-ABL																
5	AKC-MarineSalmonInter	2.86	28.02	5	1	0	0	0	5.2	2.75	0.00	10	10	5	5	10	0.5
7	AKC-ABL-Stock ID	5.57	39.01	10	1	0	0	1	5.2	2.75	2.50	10	5	5	5	10	0.5
11	AKC-ABL-Mar Fish Ass	9.99	44.51	10	1	0	1	0	5.2	2.75	1.00	10	8	5	5	10	0.5
7	AKC-HiSeas Carry Cap	6.16	43.13	10	0.85	0	2	0	5.2	2.75	3.50	10	8	5	0	10	0.5
19	AKC-Habitat Investigate	15.13	39.01	7	1	0	2	0	5.2	2.75	0.00	10	10	5	5	10	0.5
49	TOTAL	39.71															

FISHERIES CENTER

Table 1 (f): Information on the proposed science programs that may be conducted in the proposed new facilities.

KODIAK, AK. The SPT was presented with information that the shellfish and observer programs of the existing Kodiak Laboratory would be continued, and perhaps expanded, in a new marine research facility on Near Island. The scores for these two programs are provided in Table 1(e).

AUKE CAPE, AK. The final concept design report for the proposed new facility in Auke Cape is not yet available. The SPT understands that one option is to conduct the science programs of the Auke Bay Laboratory in the new facility. The scores for these programs are provided in Table 1(e). As there are no docks at Auke Cape, NMFS would probably need to ensure the continuation of docking facilities at Auke Bay. NMFS may also need to consider the continuing need for and availability of suitable water supplies and field facilities.

SANTA CRUZ, CA. The proposed new facility at Santa Cruz would incorporate the existing science programs conducted the old Tiburon Laboratory. The SPT was informed that the new facility will contain wet and dry laboratories, a seawater circulation system, laboratory support areas, offices and storage. Seawater will be delivered via a seawater intake station to be built and owned by NOAA, but operated by the University of California, Santa Cruz Campus in parallel with the existing seawater intake system. The scores for the science programs at Tiburon are provided in Table 1(d).

LAFAYETTE, LA. Specific program plans for the proposed new multi-tenant facility were not presented to the SPT. The SPT understands that NOAA is contemplating moving 8-10 FTEs from existing programs in the South East Fisheries Center into the new facility. The specific programs were not identified, although the main thrusts were stated to be habitat restoration, contaminants and ecotoxicology. The NMFS mission scores for the conservation and restoration of coastal ecosystems are 6 and 5 respectively.

FORT JOHNSON, SC. It is proposed that the NMFS research at this proposed new facility will complement ongoing programs of four participating institutions and will be directed toward achieving a better understanding of the health of marine organisms, populations, and habitats and their relationship to human health. These components are intended to be interrelated and important facets of increasing the Nation's fishery resources, preserving marine biodiversity, maintaining the health of coastal ecosystems, and managing natural resources for long-term productivity and sustained use. The NMFS mission score for the conservation of coastal ecosystems is 6, for the restoration of coastal ecosystems 5, for biodiversity 4, and seafood safety 3.

APPENDIX A

DECISION MODEL FOR NOAA FISHERIES PROGRAMS

PROPOSED DECISION MODEL FOR NOAA FISHERIES SCIENCE PROGRAMS

INTRODUCTION

NOAA Fisheries is conducting a review of fishery research facilities to consider options for reconfiguring the number and location of facilities. The importance of the science conducted in the NOAA fisheries research facilities will be a major factor in determining the overall facility priority. This review of NOAA Fisheries Science Programs will be used as input to facility priorities.

NOAA Fisheries science programs are intended to support the Agency's stewardship and resource management mission. Ultimately, the priority of NOAA Fisheries science programs depends on the priority of the elements of the Agency mission they support and the contribution of the science to that mission.

In general, three types of scientific activity are required to support Agency mission priorities, in both the short and long term. They are: (1) a core program to monitor marine fisheries and ecosystems; (2) specialized studies or assessments designed to support resource management decisions; and (3) strategic research investments in future assessments and monitoring. The balance between the three types of activity (i.e., core monitoring, assessments, research investments) depends on the scientific requirements of the mission element.

OBJECTIVES

The objectives of the NOAA Fisheries Science Program Review are to:

1. Numerically score scientific programs;

2. Identify high priority programs that must be continued;

3. Identify low priority programs; and

4. Determine the potential for relocating programs to another facility.

SCOPE

The review will consider all of the scientific facilities of the five Fisheries Science Centers. The study will include some facilities that are currently planned.

The scientific programs to be considered during the review will be the primary scientific thrust of each facility, not individual research projects. The rating is to reflect the importance of the facility in the long term, which is appropriate for decisions about the overall configuration of the Agency scientific facilities. Also, the time requirement of the study makes a more detailed review impractical and prone to misinterpretations that will jeopardize the overall credibility of the review.

Most facilities will have a number of scientific programs for the purpose of this review. These will typically correspond to the first organizational unit below Divisions (for the NEFSC, NWFSC, La Jolla Laboratory, Sand Point facility) or laboratories (for SEFSC and some Laboratories of the SWFSC and AFSC).

MODELS FOR RATING SCIENCE PROGRAMS AND RELOCATION POTENTIAL

Program Ratings: As a mission oriented Agency, the rating of science programs should generally be determined by the priorities of the elements of the Agency mission it supports. There are several factors that will modify this rating. These factors include expected net benefits, quality, quantity, leveraging effect, and outsourcing potential. There are many ways to express the relationship between these factors, and scoring them is inherently subjective. Nevertheless, a quantitative model, based on these factors, is a useful tool for rating research programs in order to enhance consistency and completeness.

The following model will be used:

PROGR = (M x B + QL-QN + LV - OS + C1) C2

where

PROGR is the overall rating of the science program, ranging from 0 to 50.

M is the rating for the mission element supported by the science program. This is not a scientific determination. It depends on the Agency leadership's vision of the future and translation of this vision into goal and objective priorities. The Agency's Board of Directors has already determined that legal mandates are the most important consideration in determining mission priorities. The Agency's senior management (i.e. Office, Science, and Regional Directors and F) will provide more specific mission priorities which will be used to determine M for science programs. The range of M will be 0 to 10.

B is the expected benefit/cost ratio of the activity relative to the mission it supports. It is understood by the Science Review Panel that B could be decomposed into a "benefit/cost ratio" term times an "expectation of success" term. (The data request to the field did not request this additional information, but the panel will structure its deliberations to consider these subelements of "B".) This is a complex factor that combines three elements. These elements are: (1) the likelihood that the scientific activity will be successful; (2) value of

the results if it is successful; and (3) cost. These elements of B will be highly variable between different types of scientific activity. For example, assessments will generally have a higher likelihood of success than research investments, but if successful the latter should produce more valuable results. Therefore it is more appropriate to make comparisons between scientific activity within types (core monitoring, assessments, research investments). The balance between types can be addressed through the QN factor. Expected net benefits can be scored as follows;

> B = 1.0 for cost effective programs that are routinely used to support important resource management decisions (e.g. commercially or recreationally valuable fisheries, endangered species, public interest, ecological function, human health risk), continues an important time-series (e.g. used in assessments or as data inputs to research), or has a realistic potential for producing an important scientific breakthrough.
>
> B = 0.6 for programs that are more expensive relative to potential benefits, applied to less important resource management decisions, start time series or continue time series of unproven value (e.g. unclear application of data), or have a lower probability of success, relative to B = 1.0.
>
> B = 0.3 when several of the characteristics that correspond to B = 0.6 apply simultaneously (e.g. expensive, risky and supporting a management decision of lesser importance).

While the above discrete B levels with their descriptions are useful guidelines, the Science Review Panel will treat B as a continuous variable (0-1) and may score anywhere in the range.

QL is the quality rating factor. Since this factor is difficult to judge without a detailed peer review (which is not practical), it will usually be rated 0.0 (i.e. neutral), but higher ratings may be assigned for extreme situations.

> QL = 3.0 for a scientific activity that is nationally and/or internationally recognized as a world leader in the discipline.
>
> QL = 0.0 for most science programs.

QN is the rating for a factor that takes account of the amount of scientific activity of a particular type. It will usually be rated 0.0 (neutral), but it may have a negative effect on the overall PROGR if the judgement is that the research program is too small (subcritical mass) to be worthwhile, or if the total amount of activity of a type (e.g. research investments) is excessive (redundant).

QN = 0.0 for most research activities

QN = 3.0 for subcritical mass or excessive activities of a particular type

LV is the score for the factor that takes account of the advantage to the Agency of attracting non-Agency resources to address a scientific problem important to the Agency. LV does not apply to direct reimbursement for services. It applies to research partnerships where NMFS leverages non-Agency partners to be involved and contribute to achievement of NMFS's mission such that the partner's contribution and involvement is equal to or greater than NMFS' role.

LV = 0.0 for most research activity

LV = 3.0 for activities that leverage at least 100% (i.e. non Agency involvement greater than or equal to Agency involvement).

OS is the score for the factor that takes account of options for outsourcing. It should be recognized that virtually any activity could be outsourced in the long term (external capability will develop if there is Agency funding and a demand for such activity). But an internal research capability allows the Agency to authoritatively oversee and guide outsourced activities and it provides a pool of scientific thinking(analytical) personnel to advise on resource management decisions.

OS = 0.0 for activities for which the Agency has unique capability (minimal current outsourcing options) and the Agency's expertise directly support mission requirements (e.g. resource management decisions).

OS = 2.0 if there is some external capability to conduct an activity, but some internal research capability provides valuable internal expertise.

OS = 5.0 if external capability to conduct an activity is readily available, and a reduction in internal capability would not jeopardize Agency resource management decision or its ability to oversee outsourced research.

C1 and C2 are scaling coefficients to set the range of PROGR as 0 to 50.

<u>Relocation Potential Rating</u> (RLPR): **This rating reflects the dependency of a research program on a particular facility and location.** For science programs with a high enough PROGR to be retained, the RLPR rating will be used to determine if the program can be moved if its current facility is closed. **A high PROGR and <u>LOW</u> RLPR rating for a science program means that closing the facility that contains the program is not an option.**

The RLPR depends on the match between the requirements for the scientific activity and its facility, logistic advantages of the current location, and importance of the location to the credibility of the science program with the Agency's constituency. A high RLPR indicates a high priority for relocating the program.

RLPR = (10 - F - LG - CR + C3) C4

where

F is the score for dependence of the program on the facility.

F = 10 if the science program requires the capability of its current facility, which is impractical to provide in other facilities.

F = 5 if the current facility is well suited to the research program, but not unique.

F = 0 if the research program could be conducted in most facilities.

LG is the score for the logistical advantage of the facility to the science program.

LG = 5 if there is a substantial logistical advantage of conducting a research program in its current location, relative to the other facility locations. This includes the advantage of synergism with nearby research institutions.

LG = 0 if there is not a substantial logistical advantage

CR is the score for the importance of the current location for the credibility of the program with its constituency.

CR = 5 if a regulated constituency group (i.e. fishing industry) considers research results used to support a management decision, substantially more credible because of its current location.

CR = 0 otherwise

C3 and C4 are scaling coefficient to adjust the range of RLPR to 0 to 10.

NOTE: During the review, the Science Program Team, with the consent of the External Panel, deleted the QL factor from the model. It was recognized by NMFS when the model was formulated that this factor is difficult to judge without a detailed peer review, which was not practical as part of this exercise. The Science Program Team fully recognizes the importance of the quality of science activities, and the sensitivities associated with evaluating quality. After much discussion, the Team decided that indeed it was not practical to conduct a detailed peer review of 86 programs in the time allocated and with the expertise available. There are several instances in applying the B factor where quality, directly or indirectly, is alluded to.

APPENDIX B

RESUMES OF THE NON-NMFS SPT MEMBERS

Non-NMFS SPT Members

Dr. Derek Winstanley (Chair)
Deputy Chief Scientist
National Oceanic and Atmospheric Administration
U.S. Department of Commerce,
14th & Constitution (5224)
Washington, D.C. 20230

Dr. William G. Doubleday
Director General
Fisheries and Ocean Sciences Directorate
Department of Fisheries and Oceans
200 Kent Street (1256)
Ottawa, Ontario,
Canada, KIA OE6

Dr. Michael R. Reeve
Head, Ocean Sciences Research Section
Ocean Science Division
National Science Foundation
4201 Wilson Blvd.
Arlington, VA 22230

Professor Saul B. Saila
Professor Emeritus
Graduate School of Oceanography
University of Rhode Island
Narragansett
RI 02882

RESUMÉ
Derek Winstanley

QUALIFICATIONS: D. Phil. in Climatology, Oxford University, 1970
M.A. Oxford University, 1970
B.A. (Honors) in Geography, Oxford University, 1966

EXPERIENCE: Twenty seven years of international experience in environmental research and assessments.

- Leader of international teams in Saudi Arabia and Africa using ground-based radar and an instrumented aircraft to predict the buildup and migration of swarms of the Desert Locust.
- International consultant on long-term regional and global environmental issues and energy development: water supply, hydroelectricity development, and inland fisheries in Africa; world food situation; environmental impact assessment; climate change.
- Research coordinator to develop for a private sector/university/government consortium a multidisciplinary plan for research on the environmental impacts of oil-shale development in the West.
- Director of the U.S. National Acid Precipitation Assessment Program. Focus on the effect of pollutants on water chemistry and fish stocks.
- Representative of the United States on an International Energy Agency project to analyze technology options and costs for reducing the emissions of greenhouse gases.
- Member of the Expert Group on Emissions Scenarios of the Intergovernmental Panel on Climate Change of the United Nations.
- Representative of the United States in international negotiations to develop a Sulfur Dioxide Protocol.
- Currently Deputy Chief Scientist in the National Oceanic and Atmospheric Administration (NOAA) of the U.S. Department of Commerce.

EMPLOYED BY:

National Oceanic and Atmospheric Administration (since 1992)
U.S. Department of Energy
National Center for Atmospheric Research
The Gambian Ministry of Agriculture and Natural Resources
Environment Canada
U.K. Ministry for Overseas Development

Dr. William G. Doubleday

Dept. of Fisheries and Oceans
200 Kent Street 1256
Ottawa, Ontario
Canada
K1A 0E6

990-0271 (W)

Education

Ph.D., 1973
University of Sheffield
Probability and Statistics
Thesis : Stochastic Population Models

M.Sc., 1971
University of Sheffield
Probability and Statistics
Thesis: Competition Models in Ecology

Honours B.Sc. 1969
Queen's University at Kingston
Medal in Mathematics

Professional experience

1. March 1995 to present : Director General, Fisheries and Oceans Science, Department of Fisheries and Oceans

Functionally responsible nationally for all fisheries research, aquaculture science and oceanography in the Department and for salmon enhancement in the Atlantic Zone. This position arose from a reorganization of the sector which reduced the number of director generals by one by combining habitat science, environmental sciences and habitat management in one directorate and fisheries research and physical and chemical oceanography in another.

2. June 1994 to March 1995 : Director General, Biological Science, Department of Fisheries and Oceans

Functionally responsible for fisheries research, aquaculture science, and fish habitat science nationally and for salmon enhancement in the Atlantic Zone.

3. January 1992 - June 1994, Acting Assistant Deputy Minister Science, Department of Fisheries and Oceans.

The Science Sector program included fisheries research, oceanography, hydrography, environmental sciences and salmon enhancement in the Atlantic Zone.

4. March 1990- December 1991 : Director General Policy and Strategy, Science, Department of Fisheries and Oceans

This position coordinates policy and program management for the Science Sector. During this period, the Ocean development Branch was added to the directorate.

5. May 1988- February 1990 : Acting Assistant Deputy Minister, Science, Department of Fisheries and Oceans

6. 1986- May 1988 : Director, Policy and Program Coordination, Science, Department of Fisheries and Oceans

7. 1981- 1986 : Director Resource Research Branch, Department of Fisheries and Oceans

Functionally responsible for fisheries research nationally.

8. 1973- 1981 : Various positions in the Department of the Environment and the Department of Fisheries and Oceans

Publications

Dr. Doubleday is author or co-author of over 53 scientific papers and editor or co-editor of three volumes.

Languages

English and French

MICHAEL R. REEVE

Head, Ocean Sciences Research Section
National Science Foundation

B.S. University of southampton, U.K., 1958
Ph.D. University of Southampton, U.K., 1962

Work Experience

1962-64: Post-doctoral associate, RSMAS, University of Miami
1964: Post-doctoral fellow, Marine biological Association of the U.K.
1964-66: Scientific Officer, Ministry of Agriculture, Fisheries and Food
1966-85: Assistant, Associate and Full Professor (with tenure), Rosenstiel School of Marine and Atmospheric Science, University of Miami. At various times chairman of the School Council, Academic Committee and member of the Faculty Senate.
1979-85: (concurrently) CIMAS (NOAA Cooperative Institute) Fellow
1981-83: (concurrently) on leave of absence as Program Director, Biological Oceanography; Ocean Sciences Division, National Science Foundation
1986 - : Head, Ocean Sciences Research Section, National Science Foundation

Other Responsibilities
U.S. national Delegate to ICES (International Council for the Exploration of the Sea)
NSF representative to IOC (Intergovernmental Oceanographic Commission)
NSF member of the Interagency GOOS (Global Ocean Observing System) Committee

Other Attributes
More than 50 publications in the field of biological oceanography

Name: **Saul B. Saila** - Oceanography and Zoology (Population Dynamics)

Home Address: **317 Switch Road**
Hope Valley, RI 02832-3313
401-364-7403

Office Address: Office of Marine Programs
Graduate School of Oceanography
University of Rhode Island
Narragansett, RI 02882-1197
401-874-6211
401-874-6486 (fax)

Birth: May 23, 1924, Providence, Rhode Island

Education: Ph.D. Cornell University, 1952
M.S. Cornell University, 1950
B.S. University of Rhode Island, 1949

Also attended Purdue University and The Citadel, Charleston, South Carolina

Honors:

Recipient, first annual award of the American Fisheries Society for most significant contribution to the Transactions, 1959. Member, FAO panel of Experts in Fisheries Science. Recipient, Civilian Service Award, U.S. Army Corps of Engineers, 1975. Fellow, American Institute of Fishery Research Biologists, 1984. Recipient, Teaching Excellence Award from the University of Rhode Island, 1986. Recipient, Outstanding Educator Award, American Fisheries Society, 1989; Recipient, Oscar E. Sette Award for Outstanding Marine Fisheries Biologist, 1994.

Professional Societies:

Alpha, Zeta, Phi Kapa Phi, Phi Sigma, Sigma Xi, American Institute of Fishery Research Biologists, American Fisheries Society, American Society of Limnology and Oceanography, International Association of Documentalists, Marine Technology Society, National Shellfisheries Association.

Professional Activities:

Member, (ICES) International Council for the Exploration of the Sea Committee on Demersal Fisheries (Northern); member, U.S. Outer Continental Shelf Advisory Committee; member, Advisory Committee to the U.S. Section of the International Commission for the Conservation of Atlantic Tunas; Former Chairman, Governor's (Rhode Island) Natural Resources Advisory Council; Reviewer, American Association of Computing Machinery; Reviewer, Transactions of the American Fisheries Society and Canadian Journal of Fisheries and Aquatic Sciences; member, International Center for Marine Environmental Research; Associate Editor, Estuaries; member, Advisory Board, Marine Environmental Research; member, Rhode Island Marine Fisheries Council; member, National Sea Grant Review Panel. Member, National Research Council Member, National Research Council Committee on Bluefin Tuna Assessment.

Publications:

More than 90 publications in the fields of oceanography and biology.

Employment:

1988 to date	Professor Emeritus and Consultant
1977-1988	Professor of Oceanography and Chief Scientist, Office of Marine Programs, University of Rhode Island
July 1984-Dec 1985	Sabbatical - University of Tokyo, Japan
1977-1978	Sabbatical - Senior Research Fellow, New Zealand Ministry of Agriculture and Fisheries
1976-1977	Professor of Oceanography and Chief Scientist of Marine Resources, URI
1970-1971	Sabbatical - Marine Sciences Officer at UNESCO, Paris, France
1967-1975	Professor of Oceanography and Zoology, URI
1961-1967	Associate Professor of Oceanography, and Director, Computer Lab, URI
1956-1960	Assistant Professor, Marine Biology, URI
1954-1956	Fisheries Biologist, Rhode Island Division of Fish and Game
1952-1954	Research Associate, Indiana University, Zoology Department
1951-1952	Biologist, New York State Conservation Department
1942-1946	U.S. Army - Intelligence and Reconnaissance Platoon, 100th Infantry

Teaching Experience:

Limnology, Fishery Biology

APPENDIX C

NMFS EX-OFFICIO MEMBERS OF THE SCIENCE PROGRAM TEAM

Ex-officio Members

Norris Jeffrey
Planning and Program Manager
NMFS Alaska Science Center
7600 Sand Point Way BIN C15700
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Planning Officer
NMFS Southwest Science Center
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Mike Sissenwine
Science Director
NMFS Northeast Science Center
166 Water Street
Woods Hole, MA 02543-1026

Appendix III

FACILITIES EVALUATION CRITERIA

REVISED FACILITY CRITERIA

WEIGHT	PRIMARY CRITERIA	SECONDARY CRITERIA Description	Weight	TERTIARY CRITERIA Description	Weight	METRIC	DEFINITION
50	WHAT						Determined by Science Board; to include relevance, quality, success of program weighted for cost of program.
32	WHERE	Geographic	7	Unique location	7		Research can only be carried out in this location
		Environmental	5	Permits	2	No costly or time-consuming permits are required.	
				Remediation	3	No environmental cleanup is required.	
		Equipment	5	Unique major capital items	5	1 point per equipment item type, up to 5	Non-transportable equipment (give list)
		Facilities	15	Cost to operate	2	2 = least expensive quartile; 1 = middle half; 0 = most expensive quartile	Overhead rate, in percentile of NMFS facilities
				Quality	10		Composite indicator to include age, overall condition, maintenance backlog in dollars per square foot, replacement cost, state of the art and "quality of life" assets.

WEIGHT	PRIMARY CRITERIA	SECONDARY CRITERIA Description	Weight	TERTIARY CRITERIA Description	Weight	METRIC	DEFINITION
				Alternate space available	3		There is available space of equal or better quality within commuting distance to which some activities could be relocated and thereby improve the quality and capability of the overall facility.
8	WHO	Unique staff expertise	5			Identify key, mission-critical individuals and teams	Qualitative explanation including degree level, field, publication record and unique significance to the NMFS research program of cited individuals or teams.
		Alternate provider	3				There are no other facilities within commuting distance that have the staff capability to execute the research. program if funded.
10	SYNERGY	Local partnerships		Existing and potential		2 points per existing partner up to 8 points; 1 point per potential partner (science-capable facility within the commuting area) up to 5; 5 points for having a Fisheries Council within the commuting area; MAXIMUM of 10 points	Partners include universities, industry laboratories and other government laboratories.

Appendix IV

DATA CALL LETTER (LESS ILLUSTRATIONS)

NMFS LABORATORY CONSOLIDATION STUDY

DATA CALL

INSTRUCTIONS AND DEFINITIONS

This booklet consists of three parts. The first is a set of instructions and examples that will guide you in completing your facility data call. The second part contains the data pages for your facility. The third part is for the completion of the science program evaluation.

In developing the study process that this data call supports, we have tried to make use of the data collected in previous studies. That data was entered into the NMFS MIS, but it does not address all the issues of this study; the answers to any new questions will be included in the updated version of the NMFS MIS when it is fielded so you will not have to answer the same questions again. For the existing data, we want to give you an opportunity to correct it before decisions are made using it. We have already filled the data spaces to the extent we can with data presently available to NMFS HQ in existing reports; you should correct it as appropriate.

The data are presented in the form of input pages. Please make corrections just as you would want the data input person to enter the data to the MIS. In some cases, as when adding partner or equipment lists, you will need to attach extra pages.

In this instruction booklet, our illustrations are taken from the data base entries for the Gloucester Laboratory because, having already closed, that data is non-controversial. (It was also a fairly complete data set and may give you an idea of what is needed). Facing each page we have provided definitions of each space, in terms of the kinds of data that are expected, any interpretational comments, and what (within the context of the study) the information will be used for, which may help to develop an answer that meets the intent.

Please remember when developing your responses that you will have to live with the results of your submittals in much larger scopes than this study, as the MIS will be used for a wide range of decisions. Also, there will be on-site data validations and there is a very high level of interest in this process, so outside audits can be anticipated; therefore, it would be save time in the long run to be able to locate source data supporting all entries.

We apologize for the large amount of information requested, and the short time available for response. Please be assured that we have done as much as we can, using both the formal MIS and responses provided for prior studies, to gather as much of the data as was possible. The length of time required to collect data and complete this data call will vary with each Science Center group, because of differing data management practices.

Thank you for your time and trouble.

PART 1: General Data

STATUS:

Planned
Active
Closed

CLASS:

Major (over 20 FTE)
Minor (20 or less FTE)
Satellite (very small actual science effort ongoing, if any)

OWNERSHIP:

NMFS-owned
Federally-owned
Leased from non-Federal entity (cost irrelevant)

TOTAL FEDERAL FTE: Total number of Federal FTEs at the facility (i.e., including but not limited to NMFS presence)

TOTAL PER DIEM RATE: Total Federal rate, including both lodging and daily expense components. This is to be used in the cost assessment as a surrogate for a local cost factor.

OTHER PARTNERS IN AREA: It is a portrayal of major partners within the commuting area that form a research symbiosis with the facility. It should be a sub-set of the partners represented in the detailed listing below. Entries here should consider only partners and customers, not contractors (as defined below).

CO-TENANTS AT FACILITY: What other relevant organizations are co-located either in the facility or immediately adjacent? They do not have to be partners in the science effort .

POLITICAL SENSITIVITY LEVEL: [Determined by NMFS HQ]

SPECIAL STATUS OR LOCATION: Is there some special role that your facility plays, or recognition that it enjoys, that is unique in NMFS and would be lost if the facility closes (hypothetical example: the sole Federally-designated Center of Excellence for Fish Biology Research) ? Alternately, is your facility in a location that is geographically unique and essential for performing specified marine research?

SIMILAR SCIENCE FACILITIES IN AREA: Are there other facilities within the commuting area that have similar capabilities to those of your facility that either add to the research symbiosis or (given funding) could house the work presently performed at your facility?

LOCAL ECONOMIC IMPACT OF CLOSURE: (be prepared to defend your assessment of High or Moderate impact with discussion of the scope of the affected "community")

High: The facility employs over 2 percent of the people in the community
Moderate: The facility employs less than 2 percent of the people in the community
Low: The facility employment is trivial as a proportion of the community (less than 1/2 percent, or less than 21 people [i.e., minor facility] no matter what percent that is)

PUBLISHED LONGTERM PLANS: [Determined by NMFS HQ]

RE-USE OPTIONS IF FACILITY CLOSES: Are there known viable re-use options (i.e., somebody already wants it)? If so, indicate who and/or what for. Otherwise, the choices are "SELL", or "NO SALE POTENTIAL" (in which case, explain why).

REMARKS: Use this boxes for whatever comments you wish to make about your facility seen as a whole.

NATIONALLY-RECOGNIZED STAFF MEMBERS

This space is provided to allow the facility to identify individuals and/or teams who would truly be considered nationally-recognized experts in their field. You will need to identify specifically who is being so designated and what their expertise is. The default condition is "None" and the review panel will scrutinize these claims closely. If valid, however, it is a component of defining the quality of the facility and its science program.

PARTNERS AND CONTRACTORS:

Each line on the partners and contractors form can be filled out to identify linkages. For location, "on site" means on your facility or at sea on NOAA ships; "local" means within the commuting area; "off site" means outside the commuting area. There are several sub-formats depending how you classify the linkage. In each case, identify the partner name. Then, use the following table:

If the relationship is...	Enter the following partner type...	Indicate under Total Value ...	Indicate under work location...	Use of information...
Your staff serve on boards, councils, etc. to discuss issues but the group does not "do science"	MEMBER, unless you are the lead facility for a Fisheries Mgmt Council (enter FMC LEAD)	$0	Local or Off Site, depending where the meetings are held	Gives idea of the degree of visibility of the facility
Both your facility and the linkage entity do science, collaboratively, more at less with their own resources	PARTNER	Estimated value of partner's effort	On site, Local or Off site, to indicate where partner does the work	Determine scope and location impact of real partnerships (vs contracts, below)
The linkage entity's work with you is funded by your facility, either directly or on a pass-through	CONTRACT, even if this is a grant, agreement, etc. The idea is you are giving them money to do things.	Value of all disbursements to that contractor.	On site, Local or Off site, to indicate where contractor does the work	Determine scope of non-internal science and location impact
Your facility is paid by a non-NMFS entity to do work (that you do not pass through to someone else)	CUSTOMER	Value of receipts from that customer	On Site (even if it is not physically on site, the idea is that it is your facility's work)	Determine degree to which science program may be self-supportable

PART 2: Financial Data

A. REGIONAL FINANCE CENTER INSTRUCTIONS:

Because the definitions of the data collected for the FY 94 datacall was changed by consensus in August 95, the data presently contained in the NMFS MIS cannot be used. All financial data will have to be provided from the field.

The first step is for the Regional Financial Centers to allocate funding to the facilities. We have provided a pair of sheets that indicate the totals for each Center. We have provided the total funding provided to each Center for FY 94 and FY 95, and projected total funding for FY 96 and FY 97. You need to break these total funding amounts into the categories noted on the form (explained on this instruction sheet) and then break that down across each of the facilities. You should provide correct data for FY 94 and FY 95, since you have actual historical data for these elements; however, because the bottom-line figures were obtained from the official financial MIS, you will have to make a strong case for an adjustment to the totals.

For the purposes of this study, the NMFS facility database recognizes several of the Centers and the colocated laboratories as a single entity. You may develop the costs for those facilities as two entities or one, whichever meets your Center's preference, and where necessary we will aggregate them and enter in the MIS. Please note that Region-wide activities listed at the Center level will be attributed to the Center unless you break out the costs to the benefiting laboratories; failure to make this breakout could result in a detrimental evaluation as it will greatly reduce the apparent per-capita productivity of your laboratory staff.

B. LABORATORY INSTRUCTIONS

Laboratories need to be furnished with the financial determinations of the Center so that they can properly prepare for the later discussions with the science review panel.

C. FORM EXPLANATION

FINANCIAL CATEGORIES

The financial categories, agreed to in August 1995 for inclusion in the NMFS MIS, are described below:

APPROPRIATED FUNDS: Funds appropriated to NMFS and allocated to the facility directly or indirectly (NMFS-level or Center-level programs).

REIMBURSABLE FUNDS: Funds received from other organizations outside NMFS to conduct specified activities.

Each of these fund types is divided into four categories of application: In each, we need the allocation in personnel assigned, personnel costs and other costs.

PERSONNEL ASSIGNED: Indicate the number of full-time equivalents of permanent staff and of part-time workers assigned to each financial category.

PERSONNEL COSTS: Indicate the total of all personnel-related costs applied to each financial category. This would include all wages, benefits, etc. that would be paid regardless of what project or duties a person performs.

OTHER COSTS: All other costs directly attributable to the financial category.

SHEET 1: SCIENCE PROGRAM BUDGETS

This sheet is to be used to record funds applied directly to the execution of science, research or operational activities. These costs include science project specific costs. Do NOT include the cost of operating those technical spaces that would be found at most NMFS laboratories (wet labs, tanks, etc.), such costs are included under "Non-Science: Facility Management". For your reference we have also provided the 1994 program costs in the NMFS MIS, after screening out all those "program management costs" that were attributed to the program costs.

The Program activity sheets are divided into several sectors, each to allow recording of costs attributed to the THRUST GROUPS (defined in the science review instructions in part 3 of this package). We have provided enough blank forms to allow two to be developed for each facility. The Regional Finance Center may wish to use the top section of the form to make the allocation of funds to the facilities and allow them to add their specific Thrust Area data below and on the second page.

SHEET 2: NON-SCIENCE BUDGETS

The top three sections break out annual non-science costs into three categories:

Program Management and Planning: includes facility directorate and staff activities, strategic planning and budget formulation staff and activities, and administrative oversight staff and activities, and their associated clerical and support staff. These personnel would remain in place at the laboratories and probably not grow or shrink significantly if the science programs varied over time

Program Support (includes facility-wide support activities library, computer support, administrative execution [e.g. central payroll, purchasing]

Facility Management, activities and staff supporting the physical plant operation and maintenance.

The fourth section contains other funding information necessary to get a true picture of the faciities' expenses.

RENT/LEASE COSTS: Please indicate costs paid for leasing of the facility. This cost IS also included in the amount shown above (don't subtract it out, just show it again, separately). It will be used in order to take account of known events that will change rent levels in the outyears.

CAPITAL IMPROVEMENTS: The amount of construction or upgrade authorized in each FY by the CIP. This information is used to address the possibility that facility conditions will improve between 1994 and 1997 (as reflected in the "condition" ratings given in Part 4). This amount should conform to the detailed breakout provided in the "CONSTRUCTION PROGRAM" section of the facilities pages (part 4), and if details are unknown then the facility should make a generic entry in part 4 to achieve balance.

ENVIRONMENTAL COMPLIANCE: Actual compliance funds received in addition to operating budgets.

ONE-TIME COSTS: Any other extraordinary one-time costs that occur in a specified FY.

The sum of all these amounts above (except for the double entry of rent) should be the total of all funds actually allocated to the facility for each FY.

D. FINANCIAL DATA IN PART 4

For your information, other cost elements are addressed in part 4 (facilities) of this data call packet.

OPER PERMITS: Annualized cost of obtaining operating permits
COMPLIANCE COSTS: Total of anticipated costs to achieve environmental compliance
CLEANUP COSTS: Estimate of costs required to complete environmental cleanup
TOTAL BACKLOG: The total of all identified construction upgrade requirements at the facility.

PART 4: FACILITIES OVERVIEW

ACRES: Total acreage of the facility site ("inside the fence")

IMPROVED ACRES: Total acreage covered by improvements (i.e., outside construction such as parking lots etc.). This includes the building footprints (not the same as building square footage, unless all are single story above ground!). This, as well as the total acreage, is used to determine whether the facility could be expanded.

TOTAL BUILT SF: The square footage of principal buildings, not including buildings that are really just housing for waterfront handling structures, water tanks, utilities, etc.

NMFS USED SF: The portion of the total facility square footage that is used by NMFS (i.e., if there are other co-tenannts). This data was provided in the FY 94 data call; correct as needed to reflect FY 97 footage. NMFS believes that most construction funding prior to FY 97 will result in upgrade or replacement rather than added space; please indicate in the remarks blocks if this is not the case. Notice that on the following page of the printout, we have indicated the inforamation available on the general types of facilities making up this square footage: the total should (but seldom does) equal the total NMFS square footage.

CAPACITY IN FTE: Enter the number of personnel that the facility can accommodate in space that is not rated inadequate (poor or better). This study assumes that there are no substantive new facilities on line prior to 1997, so the total capacity should not change over that period.

ESTIMATED REPLACEMENT COST: Sometimes referred to as "plant value". The estimated value of the buildings and contents; i.e., if you had to rebuild the facility from scratch, what would it cost? Account for the fact that the structures are usually not new (i.e., don't cost out a state-of-the-art replacement for a Quonset hut).

ESTIMATED FAIR MARKET VALUE: The estimated value of the property to a buyer, assuming a fair sale (i.e., just because you know the State will take the property over and somehow get out of paying for it, do not just enter $0.) If you have no idea, use the current sales price of a family house or commercial property in the local area, use 80 percent of that price to get a per square foot cost and use that for the square footoage of occupiable buildings (Admin and Tech). Use the other 20 percent of the price to get a per acre cost for land and use that for the land you have. Adjust according to your perceptions of reality, the degree to which subdivision is likely, the utility of the buildings, etc. This is obviously a very important component of the consolidation study analysis and will be validated intensively.

AVERAGE BUILD DATE: Give a weighted average of the construction dates of the building. A heavily-renovated building should be considered as dating from the renovation.

CONDITION SURVEY CONDUCTED:

Was a formal condition survey conducted (enter "YES"), or is the condition code a subjective assessment of the facility director (enter "NO")?

CONDITION CODE (FY 94 and FY 97):

An overall assessment of the condition of the facilities in FY 94, and your estimate of the condition in FY 97 if approved CIP projects are executed::

Good: Ranging from new or like-new to no significant repair work needed

Fair: Some repair work is needed. Does not impede either work requirements or reasonable quality of life expectations

Poor Extensive repair work required, and quality of life a source of minor discontent to most employees, but technical work can continue.

Inadequate Facility impedes accomplishment of the science activities or is unsafe.

SPECIAL PURPOSE STRUCTURES: Use the table below for special structures that contribute directly to the science mission and are not listed above. You may add your own designations; some initial and common ones are shown below. Indicate units of measure in the size boxes.

If the structure is:	Unit of measure	Code it as:
Library included in other office space above. Freestanding libraries should be added to the office space total and remarked on here.	square feet	Library
Seawater tanks, rearing facilities etc.	gallons	Seawater tanks
Aquarium (public access)	gallons	Aquarium

SPECIAL STRUCTURES UNIQUE TO NMFS: Cite here any structures that are a unique NMFS asset. These will be highlighted in the consideration of the facility's overall qualities.

BETTER ALTERNATE FACILITIES AVAILABLE? Check the box, and use the following space for description, if there are facilities within the commuting area that are, or can reasonably be expected to become, vacant that the laboratory could (if funded) acquire and use. Such space should only be considered if it would support some portion of the science effort better than the present facilities. Where used, the remarks should indicate which facilities are available, what portion of the science effort would be better served and how. This information will contribute to a subjective upgrade of the current condition code in developing facilities alternatives scenarios in which those choices and the associated costs are considered.

STANDARD BUILDING TYPES: We have entered the principal building types as place-holders; usually, there was not enough information in the database to assign more detail. These figures are required because they would be used to determine how much more such space would be needed if the science program were to be increased in size. With the exception of waterfront handling facilities ("Docks", measured in linear feet), all structures are measured in square feet. In general, the standard building type sizes (not counting the docks, but including free-standing special structures, see below) should add up to the total square feet figure provided in the database.

If the structure is:	Code it as:
General use space, including offices, normal bench laboratories, etc. Typical building you might find in an office park (or NMFS). This is regardless of construction type (wood, brick, metal, whatever) as long as it is not a temporary-use building	Admin
Specialized laboratory space that would be unusual in a typical research park but not simply tanks etc.	Technical
Largely uninhabited building, limited heat and light.	Storage
Housed in a structure designed to be temporary (i.e., not full featured), whatever its function and even if it has become permanent in fact	Trailer
Some other major structural type that you feel should be included here (place an explanation in the remarks boxes)	Other

ENVIRONMENTAL PROGRAM INFORMATION

PHASE I REQUIRED: Is there a need to conduct a Phase I site investigation into possible environmental contamination? This information is used to assess the quality of the environmental cleanup cost estimate. Choices are: Not Needed, Needed (but not done), Contamination Present, or Clean.

ENVIR AUDIT COMPLETED: Has the facility completed an environmental audit? Choices are N/A, YES and NO. The audit must have occurred within the past 3 years (i.e., in or after FY 94) to be a valid yes. "N/A" will be used at those facilities where the facility is owned and operated by another agency, NMFS activities are less than 60 percent of the total (measured by FTE levels) on the facility, AND there is no reason to believe that NMFS activities pose any environmental liability exposure. This information will be used to assess the quality of the environmental cleanup and compliance cost estimates.

COST OF OPERATING PERMITS: Indicate the average annual cost of acquiring and/or maintaining those permits required by State and local governments for the facility to operate legally. These would include all environmental, health and safety permits (others if applicable). Annualize the costs of all these permits to reflect an annual average, rather than adding together

all the one-time periodic costs. This figure is required for the facilities assessment panel and is additionally needed for cost analysis.

COMPLIANCE COSTS: These costs are provided from the NMFS HQ database. They should reflect the total value of unfunded activities required to achieve environmental compliance.

CLEANUP COSTS: The total estimated cost of all cleanup activity that is believed to be necessary. This does not include routine operating cleanup of spills etc that would be covered under annual operating costs.

CONSTRUCTION PROGRAM: All programmed construction activities that are anticipated at the facility. This information has been entered from NMFS approved Capital Improvement Program listings.

MAJOR MAINTENACE REQUIREMENTS: Enter all unfunded maintenance or upgrade projects that are based on a formal external survey. Intial data has been entered based on the NMFS database. Where identified projects do not add up to the total backlog figures recorded, a generic entry has been added.

PART 5: EQUIPMENT

This page is a listing of significant equipment items other than capital structures at the laboratory. It should represent those items that are not commonly found at NMFS laboratories, and serves as a measure of the degree of sophistication of the facility as a research platform. Indicate the value of the items and check the box if they can be transported by truck (most should be able to).

Appendix V

FACILITY REVIEW SCORES

LABID	LABNAME	SCIENCELOCN	EQP	SIM FAC	ADMCOST	PERMIT	CLEANUP	PARTNERS	FAC QUAL	FACILITY ONLY
NWC41	Manchester WA	36	0	0	0	2	2	3	10	7	50
NEC32	Milford CT Laborator	34	0	0	0	2	2	3	10	7	50
AKC42	Kodiak AK (USCG b	50	7	0	3	1	2	3	4	4	50
NWC42	Pasco WA	46	0	0	3	1	2	3	6	8	48
SEC7	Galveston TX Labor	42	0	0	0	2	2	3	10	6	48
SEC6	Panama City FL La	41	0	0	3	1	2	3	8	6	48
NEC36	Washington DC: Nat	36	0	0	0	2	2	3	10	6	48
NWC00	Seattle WA (2725 M	34	0	0	0	1	2	3	10	6	46
SEC10	Bay St. Louis, MS	41	0	0	0	0	2	3	10	7	46
NEC35	Highlands, NJ (Sand	33	0	0	0	0	2	3	10	7	46
NEC33	Narragansett RI Lab	37	0	0	0	1	2	3	10	6	46
SEC8	Charleston SC Labo	33	0	0	0	0	2	3	10	7	46
NWC43	Newport OR	37	0	0	0	2	2	2	10	6	46
SEC4	Miami FL SESC	42	0	0	0	1	2	3	10	5	44
SEC5	Pascagoula MS Lab	40	0	0	0	1	2	3	8	6	42
AKC4	Juneau AK (Auke B	40	7	0	3	0	2	3	2	2	40
AKC00	Seattle WA (7600 S	40	0	0	0	2	2	3	6	6	40
SEC9	Beaufort NC Laborat	42	0	0	0	1	2	3	8	5	40
NEC37	Woods Hole MA: No	40	0	0	0	0	2	3	8	5	38
NWC44	Hammond OR (Poin	38	0	0	3	1	2	3	4	5	38
SWC2	Honolulu HI Laborat	44	7	0	0	0	2	3	2	2	33
SWC4	Pacific Grove CA (P	42	0	0	0	1	2	3	4	6	33
NEC34	Oxford MD Laborato	28	0	0	0	1	2	3	4	5	31
SWC1	La Jolla CA	44	0	0	0	0	2	3	6	4	31
AKC43	Sitka AK (Little Port	32	0	0	3	0	2	3	4	3	31
NWC45	Mukilteo WA	33	0	0	0	2	2	3	2	5	29
SWC3	Tiburon CA Laborat	46	0	0	0	2	2	0	2	4	21

LABNAME	LABID	BUILDD	AGE	REPL_CO	COST	CONDN	CONDN	QUAL	COMFORT	BACKLOG	BACKLOG	AGGR RAN	FAC QUAL
Pasco WA	NWC42	1978	8	$109.65	3	Good	7	Good	7	$0.00	1	26	8
Milford CT Laboratory	NEC32	1968	12	$179.05	9	Good	7	Good	7	$0.00	1	36	7
Highlands, NJ (Sandy H	NEC35	1993	1	$260.38	23	Good	7	Good	7	$0.00	1	39	7
Charleston SC Laborato	SEC8	1978	8	$193.40	15	Good	7	Good	7	$0.00	1	38	7
Manchester WA	NWC41	1986	3	$130.00	5	Good	7	Good	7	$6.74	17	39	7
Bay St. Louis, MS	SEC10	1980	6	$210.27	16	Good	7	Good	7	$0.00	1	37	7
Narragansett RI Laborat	NEC33	1966	14	$159.86	7	Good	7	Good	7	$1.95	12	47	6
Washington DC System	NEC36	1920	29	$0.00	1	Fair	14	Fair	14	$0.00	1	59	6
Seattle WA (2725 Montl	NWC00	1960	16	$189.00	11	Good	7	Good	7	$4.44	14	55	6
Seattle WA (7600 Sand	AKC00	1946	23	$189.00	11	Good	7	Good	7	$0.00	1	49	6
Newport OR	NWC43	1979	7	$189.03	11	Good	7	Good	7	$12.68	21	53	6
Pacific Grove CA (PFE	SWC4	1989	2	$240.00	21	Fair	14	Fair	14	$0.00	1	52	6
Pascagoula MS Laborat	SEC5	1984	4	$126.94	4	Fair	14	Good	7	$6.75	18	47	6
Panama City FL Labor	SEC6	1984	4	$232.97	18	Good	7	Good	7	$4.74	15	51	6
Galveston TX Laborator	SEC7	1967	13	$235.45	19	Good	7	Good	7	$0.00	1	47	6
Mukilteo WA	NWC45	1942	25	$189.00	11	Good	7	Good	7	$13.81	22	72	5
Miami FL SESC	SEC4	1975	10	$161.00	8	Fair	14	Fair	14	$14.67	23	69	5
Woods Hole MA: North	NEC37	1958	20	$185.49	10	Good	7	Good	7	$19.78	24	68	5
Beaufort NC Laboratory	SEC9	1950	21	$214.25	17	Fair	14	Good	7	$2.49	13	72	5
Oxford MD Laboratory	NEC34	1960	16	$257.73	22	Good	7	Good	7	$7.85	19	71	5
Hammond OR (Point A	NWC44	1939	27	$130.00	5	Good	7	Good	7	$42.56	27	73	5
La Jolla CA	SWC1	1964	15	$380.85	27	Good	7	Good	7	$9.08	20	76	4
Tiburon CA Laboratory	SWC3	1940	26	$80.88	2	Poor	21	Fair	14	$5.96	16	79	4
Kodiak AK (USCG base	AKC42	1970	11	$319.00	24	Inadeq	29	Poor	21	$0.00	1	86	4
Sitka AK (Little Port Wal	AKC43	1936	28	$239.14	20	Fair	14	Good	7	$31.52	25	94	3
Honolulu HI Laboratory	SWC2	1950	21	$328.34	25	Poor	21		14	$35.55	26	107	2
Juneau AK (Auke Bay)	AKC4	1959	19	$372.40	26	Poor	21	Poor	21	$72.78	29	116	2

Appendix VI

DETAILED ANALYSIS OF ALTERNATIVES

ALTERNATIVE SCENARIOS FOR NMFS CONSOLIDATION STUDY

ALTERNATIVE I. NEW CONSTRUCTION
Filled from existing science programs

Scenario Title	Option	Moved To/From	Science Program	Remarks
NEW: Lafayette, LA	**A-1**	Fr: St. Louis Fr: Beaufort Fr: Galveston Fr: Panama City	Coast Watch Coast Watch Habitat-Res Fish & Eco Res	Cost is $18M for construction: $11M + $7M NMFS share of building cost is approx $3m
	A-2			Same as above but reduced construction cost for new bldg by $1.3M; waterfront =0; admin space= 5Ksf, Tech=2Ksf; covered storage= 1Ksf; spec facilities= 0
NEW: Auke Cape	**A** Close Auke Bay and move all FTEs and programs to Auke Cape	Fr: Auke Bay	All programs at Auke Bay	Est. cost of $43M to NOAA for construction; 91.6K sf for 273 FTEs. Assumes sale of Auke Bay facility.
	B Move Auke Bay and Alaska Center to Auke Cape	Fr: Auke Bay Fr: Alaska Center	All programs All programs	Additional construction (total $60M) required to house Auke Bay programs. Costs offset by sale of Sand Point and Auke Bay facilities.
	C Move Alaska Center to Auke Cape	Fr: Alaska Center	All programs	Avoids additional construction need by retaining Auke Bay infrastructure

Scenario Title	Option	Moved To/From	Science Program	Remarks
NEW: Santa Cruz	**A** Close Tiburon and move all	Fr: Tiburon	All programs	Planned for 60 FTEs; total constr cost of $15M. Offset by sale of Tiburon and cost avoidances.
	B Close Tiburon and Pacific Grove, move all to Santa Cruz	Fr: Tiburon Fr: Pacific Grove	All programs All programs	
NEW: Charleston	**A** (Only complete Phase I of construction)	Fr: Charleston old building	Seafood Safety	Costs for 57K sqft @ $11.4M
NEW: Kodiak	**A** Move FTEs from old facility to the new one.	Fr: Existing facility in Kodiak	All programs	

ALTERNATIVE II. CONSOLIDATION
Maximum Savings

Option	Moved To/From	Science Program	Remarks
A Transfer Tiburon	To: Newport To: Newport (can hold 70 FTEs)	-Salmon PS -Groundfish	
B Close Mukilteo	To: Terminate	-All programs	
C Close Oxford	To: Terminate	-All programs	
D Close Sitka, AK (LPW)	To: Terminate	-All programs	
E Transfer Pacific Grove (PFEG)	To: Newport	-All programs	
F Transfer La Jolla	To: Newport To: Honolulu To: Montlake To: Out source To: Sand Point To: Newport	-Groundfish -Lg Pelagic -Genetics -Antartic -Prot Species -Coastal	Save FTEs by closing this facility. Currently have 79 FTEs
Honolulu Keep Open			High priority science;unique location
G Close Point Adams (Hammond), OR	To: TOR To: Newport	- Salmon Ecol - Habitat Qual	
Woods Hole Keep Open			High priority science; too big to relocate in region.

Option	Moved To/From	Science Program	Remarks
H Reprogram AKC Sand Point	To: Out source To: Terminate	-Antarctic -Ecosyst Ecol	Saving only 3 FTE cost
I Close Auke Bay, relocate programs to Seattle	To: Terminate To: Out source To: Montlake To: Sand Point To: Sand Point	-Mar Salmon I -Habitat Invest -Stock ID -High Seas C -Mar Fish Ass	
J Reprogram Beaufort	*To: Keep* *To: Keep* To: Galveston *To: Keep* *To: Keep* To: Partial TOR	-Mar Mammal -Habitat Res -Coastal Wat -Prot Specie -Statistics -Atl Coast Res	Currently have 80 FTEs at facility. Atlantic Coastal Resources: menhaden component transfer of responsibility, retain the rest
Pascagoula Keep Open			High priority science; good facility; too big to house in SE.
Miami Keep Open			High priority science with some location dependency; too big to house elsewhere in SE
Sandy Hook Keep Open			High priority science; cannot move programs
K-1 Close Charleston, partial transfer to Beaufort	To: Terminate To: Terminate To: Beaufort To: Terminate	-Seafood Safe -Mar Ecotox -Mar Biotech -Mar Biotox	These programs, while low on overall science program priority, contribute heavily to NMFS' contaminant excellence program
K-2 Close Charleston, transfer to NJ (Narragansett NOT closed)	To: Terminate To: Terminate To: Sandy Hook To: Terminate	-Seafood Safe -Mar Ecotox -Mar Biotech -Mar Biotox	If only close Charlestn and not Naragn., do not move Charleston to Beaufort - keep at Sandy Hook (59 FTEs)
L Reprogram Montlake, WA	To: Terminate	-Seafood Safety	

Option	Moved To/From	Science Program	Remarks
Newport Keep Open			High priority science; designated center for ground fish; existing capacity.
M Close Narragansett	To: Sandy Hook To: Sandy Hook To: Sandy Hook	-Ecosystems -Apex Pred -Early Life	Total FTE capacity=90; have 47 at Sandy Hook
N Close Bay St. Louis	To: Galveston To: Pascagoula	-Coast Watch -Resrc Survey	
O Close Washington DC	To: Out source	-Systematics L	No savings in outsourcing from a free facility
P Close Panama City, FL	To: Galveston	-Fish & Eco R	
Galveston Keep Open			High priority science; good facility.
Pasco, WA Keep Open			High priority science; good facility.
Kodiak, AK Keep Open			High priority science; good facility.
Q Close Milford	To: Terminate To: Terminate	-Aquaculture -Habitat Eval	
R Close Manchester, WA	To: Terminate	-Salmon	

ALTERNATIVE II-A. CONSOLIDATION
Small facilities

Option	Moved To/From	Science Program	Remarks
A Transfer Tiburon	To: Newport To: Newport (can hold 70 FTEs)	-Salmon PS -Groundfish	
B Close Mukilteo	To: Terminate	-All programs	
C Close Oxford	To: Terminate	-All programs	
D Close Sitka, AK (LPW)	To: Terminate	-All programs	
E Transfer Pacific Grove (PFEG)	To: Newport	-All programs	

ALTERNATIVE III. CENTERS OF EXPERTISE

Minimal relocations required: no significant cost implications

ALTERNATIVE IV. COMBINED CONSTRUCTION AND CONSOLIDATION
to emphasize science priorities AND achieve cost efficiencies

Scenario Title	Option	Moved To/From	Science Program	Remarks
West Coast				
	A			
Move AK science to AK, retain one West Coast Science Center at Sand Point	**Open:**			
	Auke Cape	Fr: AK Center Fr: AK Center Fr: AK Center	-RACE -REFM -Ecosystems	Outsource Auke Bay habitat work, terminate marine salmon investigations. Terminate Sand Point ecosytem ecology, outsource Antarctic work from Sand Point and La Jolla.
	Kodiak (new)	Fr: old Kodiak	-All programs	
	Santa Cruz	(see below)		
	Close:			Mukilteo becomes field station of Sand Point (wet lab of Center of Expertise for Marine Contaminants Research)
	Montlake	To: Sand Point To: Newport	-All but GFE -Grndfish Eco	
	Tiburon	To: Santa Cruz	- All programs	
	Pacific Grove	To: Newport	-All programs	
	La Jolla	To: Newport To: Outsource To: Sand Point To: Santa Cruz To: Santa Cruz To: Honolulu	-Grndfish -Antarctic -Genetics -Prot Species -Coast Wat -Large Pelagics	
	Sitka (LPW)	Terminate	- Salmon	

Scenario Title	Option	Moved To/From	Science Program	Remarks
	Hammond (Pt. Adams)	To: TOR To: Newport	- Salm ecology - Habitat quality	All remaining work except Marine Mammal relocated to Auke Cape new facility. Receive bulk of Montlake prior work. Mukilteo to serve as field station (wet lab).
	Re-Program			
	Sand Point	To: Terminate To: Outsource	- Ecosyst Ecol - Antarctic	
	Auke Bay	To: Terminate To: Outsource	- Mar Salm Int - Habitat Invest	
West Coast: maximum savings	**B** same as above, and close Manchester	To: Terminate	- Salmon all	
West Coast Three Centers: retain La Jolla, do not build Santa Cruz	**C** same as B above, except:			Save money by not having to build Santa Cruz
	Santa Cruz: none			Instead of to Santa Cruz
	Tiburon	To: Newport	All programs	
	La Jolla	To: Newport To: Outsource To: Keep To: Keep To: Keep To: Honolulu	-Grndfish -Antarctic -Genetics -Prot Species -Coast Wat -Large Pelagics	La Jolla keeps appropriate programs instead of relocating to Santa Cruz. Also keeps its Center staffing, proportionate to new program size

Scenario Title	Option	Moved To/From	Science Program	Remarks
Southeast Consolidation	**A** Close Oxford, realign some Beaufort	To: Terminate To: Galveston To: Terminate	- all - Coast Watch - Atlantic Coast Resources	
	B same as above, and transfer Bay. St. Louis, Panama City to Galveston	To: Galveston To: Galveston To: Galveston	- BSL Coast watch - BSL Resource surveys - Fish & ecosystems	
Northeast Consolidation	**A** Close Narragansett	To: Sandy Hook	- all	
	B Close Milford	To: Sandy Hook	- all	

Notes:

a. Table III FTE counts do not match those in Table II because closure plans have interactive components

b. Model costs do not include disruption factor (comes out of NMFS operational funds)

TABLE 5.
RECOMMENDED CONSOLIDATION PACKAGE

Scenario Title	Option	Moved To/From	Science Program	Remarks
Recommended Package				
West Coast Sub-package Move AK science to AK, move North West Science Center to Sand Point. Close small facilities, concentrating West Coast Groundfish programs at Newport.	Auke Cape	Fr: AK Center	-Selected Alaskan-focused programs	Outsource Auke Bay habitat work, terminate marine salmon investigations. Terminate Sand Point ecosytem ecology, outsource Antarctic work from Sand Point and La Jolla. Retain Auke Bay as Field Station.
	Kodiak (new)	Fr: old Kodiak	-All programs	Move to new Near Island facility
	Montlake	To: Sand Point To: Newport	-All but GFE -Grndfish Eco	Sell. Two Centers in Seattle is duplicative and Sand Point is larger. May need to retain access to specialized laboratories is replication at Sand Point is cost-prohibitive.
	Tiburon	To: Newport	- All programs	Delapidated facility, very high repair cost
	Pacific Grove	To: Newport	- All programs	Small facility with very easily relocated program
	Sitka (LPW)	To: Transfer	- Salmon	Very high operating cost, addressing a single salmon stock that is primarily a State responsibility.
	Hammond (Pt. Adams)	To: Transfer To: Newport	- Salm ecology - Habitat quality	Limited capability facility, largely addressing riverine and coastal aspects of salmon
	Manchester	To: Transfer	- Salmon all	Transfer to other agency or UW; work continues to be funded by Bonneville Power

Scenario Title	Option	Moved To/From	Science Program	Remarks
West Coast - Continued	Sand Point	To: Terminate To: Outsource	- Ecosyst Ecol - Antarctic	All remaining work except Marine Mammal relocated to Auke Cape new facility. Becomes NW Center, receives bulk of Montlake prior work. Mukilteo to serve as field station (wet lab).
	LaJolla	To: Newport To: Outsource To: Keep To: Keep To: Keep To: Honolulu	-Grndfish -Antarctic -Genetics -Prot Species -Coast Wat -Large Pelagics	
	Auke Bay	To: Terminate To: Outsource	- Mar Salm Int - Habitat Invest	Retain as Field Station of Auke Cape. Perform required rehabilitation work.
	Newport, OR	No change		Gains several smaller programs, making use of excess space and making Groundfish Center more effective resource
	Pasco,WA	No change		No change
	Honolulu	No change		Gains LaJolla pelagics program
Southeast Sub-package	Oxford	To: Transfer	- all	Transfer facility and some programs to State; some programs supported through Southeast Region
	Bay St. Louis	To: Galveston To: Pascagoula	- Coast watch -Resource srvy	Terminate small presence on major Federal facility
	Panama City	To: Galveston	- Fish & ecosystems	Small facility has high value, science similar to Galveston effort but no critical mass

Scenario Title	Option	Moved To/From	Science Program	Remarks
Southeast Continued	Beaufort	To: Galveston	- Coast Watch	Most of Coast Watch based out of Galveston now
		To: Transfer	- Atlantic Coast Resources	Menhaden program is a State responsibility
	Charleston	No change		
	Pascagoula	No change		Gains Bay St. Louis program
	Miami	No change		
	Galveston	No change		Gains several small programs
Northeast Sub-package	NO CHANGE			

Appendix VII

COST MODEL BRIEFING

FACILITY CONSOLIDATION COST MODEL

Structural Concept

TERMS USED

- Baseline: the situation as presently planned (1997 and beyond)
- Scenario: an arrangement of science program activities and personnel at various facilities
- Alternative: scenario that differs from the baseline case
- Science program: those NMFS activities that directly execute science (i.e., not facilities and administration); defined in terms of budget dollars

TERMS USED, continued

- Facility: a property (location) at which science activities occur
- Structure: capital assets located at a facility (may include very large equipment suites)
- Standard factor: information that is assumed to be consistent across all NMFS activities and facilities

TERMS USED, continued

- Facility options:
  - Close: all NMFS presence removed
  - Drawdown: NMFS science program (and hence personnel presence) reduced
  - Gain: added NMFS science program and associated personnel and facilities (assumes facility upgrade to fair condition)
  - Retain: keep program at same size, repair facilities to fair condition

TERMS USED, continued

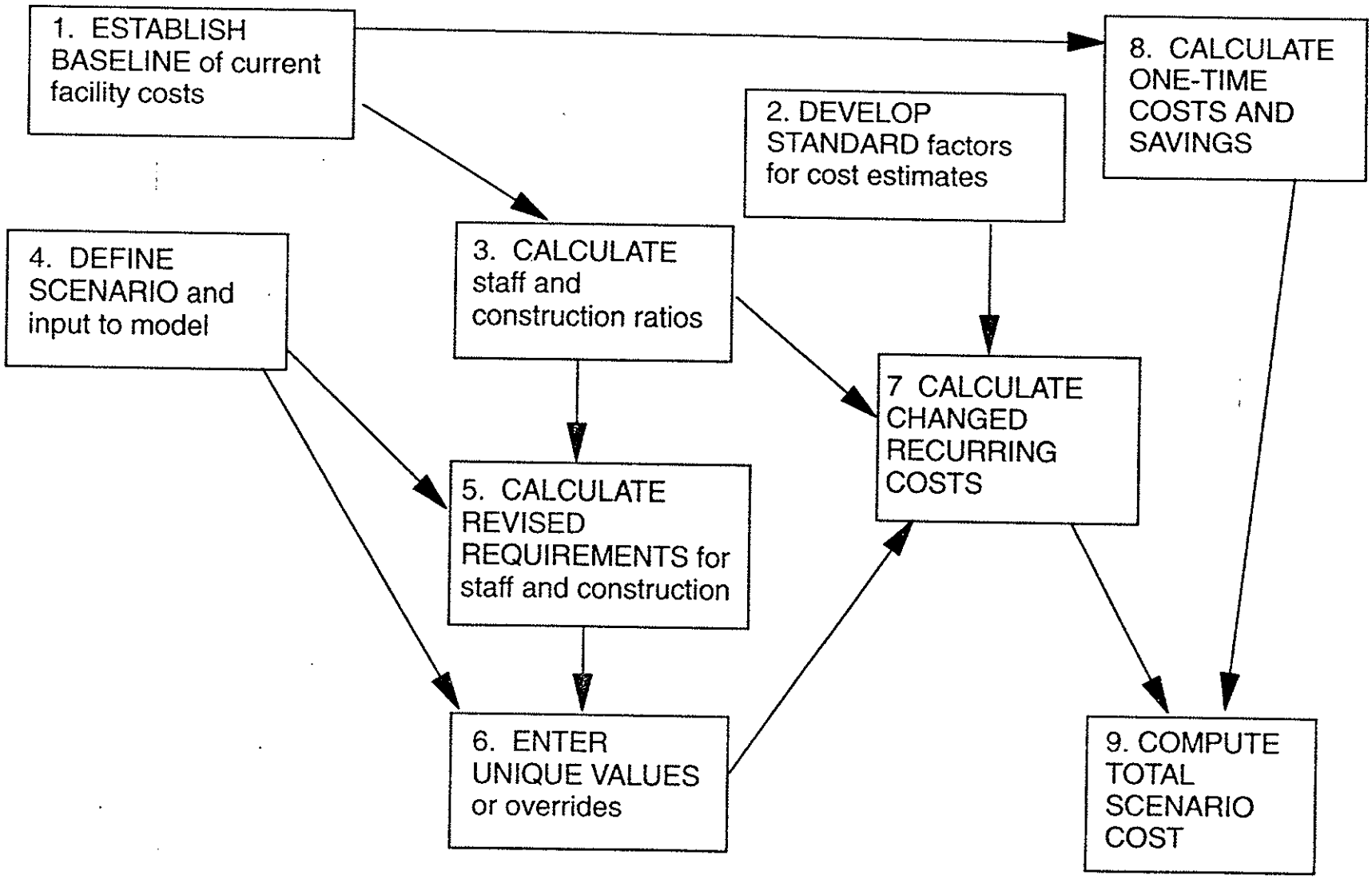
- Personnel categories:
  - Professional/technical: principally engaged in the execution of science activities
  - Managerial: do not directly do the science or administrative work, but oversee it
  - Administrative: clerical or functional support of professionals and managers
  - Wage grade: generally, facilities maintenance personnel
  - Part-time, etc: research assistants, interns, and others working on site (vs off-site contractors)

BACKGROUND

- Models an alternative scenario against the current (baseline) situation
- Based on LMI's existing facility closure cost model (used by DoD)
- Assumes that current cost patterns at a given facility would continue in the future
- Parametric: uses averages, estimates and assumptions to assess many alternatives quickly with limited data availability, within a reasonable range of accuracy

accuracy

MODEL PROCESS



BASELINE DATA

- Workforce (FTE)
  - Managerial
  - Technical/professional
  - Admin/wage grade
  - Part-time
- Facility real property assets (sf, etc)
  - Waterfront structures
  - Administrative and laboratory
  - Technical shops
  - Covered storage
  - Special structures

– Special structures

BASELINE DATA, continued

- Budgets:
  - property operation, maintenance & rent
  - science program
  - administration
  - special requirements
- Construction and procurement plans
- Environmental cleanup
- Local unique data: (esp. property value)

STANDARD FACTORS

- Inflation and discount rates
- Average pay by labor category
- Retirement/RIF rates and terms
- Costs of moving people and items
- Construction costs

FACILITY RATIOS

- Payroll proportion of
  - real property maintenance
  - administration
  - science program
- Real property maintenance cost per sf
- Office and lab space per science $
- Administrative costs per science $
- Part-time staff per science FTE
- Managerial staff per all other FTE

SCENARIO DEFINITION

- Done manually, off-line, not by the model
  - If decision year is year 0, then
  - All moves occur in year 1
  - Facility sales finalized in year 2, unless there is cleanup (one year delay)
- Definition consists of:
  - Revised science program scope ($) at each facility
  - Generic destination of moving activities
  - Equipment requiring shipment
  - Construction requirements at gaining facilities

facilities

CALCULATED REQUIREMENTS

- Revised personnel strengths to support science program size at each facility
- Additional administrative and laboratory space required to house science program at each facility
- Can be overridden

RECURRING COSTS

	Gaining	Close or drawdown
Science	+	-
Personnel	+	-
O & M	+	-
Environmental	no change	becomes one-time

ONE-TIME COSTS & SAVINGS-

ONE-TIME COSTS & SAVINGS: Closing or Drawdown Facilities

- Savings:
  - Construction and procurement foregone
  - Real estate sales (not received until after environmental cleanup complete)
  - Maintenance foregone
- Costs:
  - Personnel severance, retirement, moves
  - Equipment moves and in-transit losses
  - Accelerated environmental cleanup
  - Program disruption

ONE-TIME COSTS & SAVINGS: Gaining Facilities

- COSTS
  - New construction
  - New hires
  - Maintenance upgrades
- SAVINGS: none

PERSONNEL ASSUMPTIONS

- Revised FTE levels: Professional staff, admin and part-time are proportionate to program size using local FTE costs. Managerial staff based on span of control ratio at facility. RPM staff proportionate to square feet under management. *CAN OVERRIDE*
- Number of spaces are offset by normal quit rate, retirement, early retirement. All others move to available spaces; RIF those in excess of spaces available; new hires fill spaces for which there is nobody left to move.

CONSTRUCTION ASSUMPTIONS

- Construction occurs in one year; moves occur the same year (assumes temporary congestion or small construction requirement)
- Lab space proportionate to science program level (can be overridden)
- Other space manually entered
- Construction cost =
  standard cost per sf x
  location cost adjustment factor x
  number of sf required

number of SI required

SCENARIO COST SUMMARY

- Presented by major budget element
  - Personnel
  - Operations and Maintenance
  - Construction
  - Environmental
  - Other (includes science [assumed R&D])
- 5-year inflated projection of baseline
- 5-year inflated costs under scenario
- Payback calculation (NPV)

Appendix VIII

GAINING FACILITY SELECTION GUIDELINES

Gaining Facility Selection Guidelines

The general rules for selecting a facility to which a science activity should be moved are as follows:

1. Appropriate to carry out moving science program
2. Have unused capacity (if available)
3. In same Center geographic region, if possible
4. Higher facility score than current facility
5. Already carrying out similar science (if applicable)

The ranking above provides a general sequencing that should narrow down the number and reasonableness of alternate locations. In many cases, the criteria will conflict from one location to another. In such cases, the facility meeting most of these criteria should be the primary receiving facility unless precluded by prior moves into that facility, or other case-specific issues.