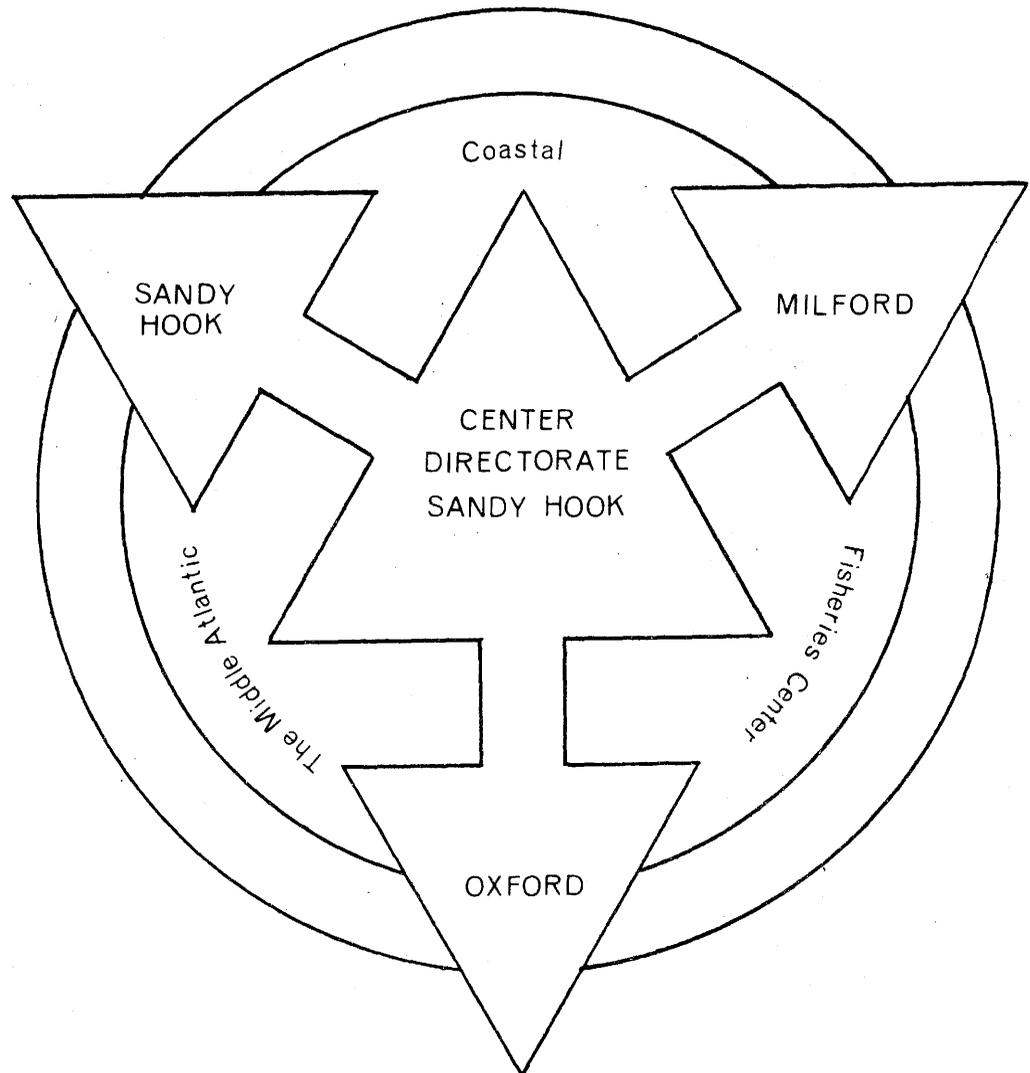




U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Northeast Region

MIDDLE ATLANTIC COASTAL FISHERIES CENTER



TASK DEVELOPMENT PLANS (INCREASES) - FY 1978
(Submitted 30 January 1976)

Informal Report #93

MIDDLE ATLANTIC COASTAL FISHERIES CENTER

Task Listing by MAC Number

<u>MAC #</u>	<u>Management Category</u>	<u>Task Title</u>
MAC-002	S2	MARMAP II: Multispecies, Middle Atlantic Bight
MAC-005	RF	Fishery Analysis: Middle Atlantic Sportfish
MAC-006	EI	Behavior of Fishes Under Environmental Stress
MAC-007	EI	Impact of Environmental Change, Middle Atlantic
MAC-008	EI	Biochemical Modeling: Middle Atlantic
MAC-009	EI	Microbiology & Chemistry: Middle Atlantic
MAC-015	EI	Physiological Effects of Pollutant Stress
MAC-016	EI	Life Studies: Comparative Pathobiology
MAC-017	EI	Disease and Environmental Stress
MAC-024	SP	Support: Middle Atlantic Coastal Fisheries Center
MAC-053	SI	MARMAP I: Biological Assessment
MAC-055		MESA - New York Bight
MAC-056	AQ	Aquaculture: Aquaculture Genetics
MAC-057	AQ	Aquaculture: Aspects of Nutritional Requirements of Molluscs
MAC-058		Control of Disease
MAC-059	AQ	Aquaculture: Spawning and Rearing of Molluscs
MAC-060	RF	Biological Assessment, Sportfish
MAC-061		Behavior of Fishes under Temperature Stress - AEC Reimbursable
MAC-063		Multispecies; Coastal Assessment
MAC-064	RF	MARMAP FA: Population Dynamics
MAC-065		Larval Fish Studies -- AEC Reimbursable
MAC-066		Construction of New Laboratory Building at Sandy Hook, New Jersey
MAC-067	EI	Pollution and Coastal Fisheries
MAC-069		Biological Effects of Dredging - Navy Reimbursable
MAC-070		Cell Disease in Molluscs - FDA Reimbursable
MAC-071	RF	Recreational Fisheries: Forage Fish-Predator Relations
MAC-072	EI	Larval and Algal Technical Services
MAC-073		Effect of Temperature on the Behavior of Marine Invertebrates
MAC-074		Ecological Baselines of the Outer Continental Shelf
MAC-075	RF	Nearshore and Estuarine Sportfish Analysis
MAC-076	RF	Fish Migration Analysis
MAC-077	EI	Mutagenic Effects of Pollutants
MAC-078		Environmental Chemistry
MAC-079		Environmental Microbiology
MAC-080		Effects of Petroleum on the Behavior of Marine Fishes and Invertebrates
MAC-081		Effect of Bulkheading on Fish Production
MAC-082		Disease Prevention and Control
MAC-083		Registry of Marine Pathology
MAC-084	EI	Biological Effects of Petroleum
MAC-085	S3	Middle Atlantic Coast Tuna Studies
MAC-086		Environmental Strike Force
MAC-087	AQ	Aquaculture Economic Anaysis
MAC-088	AQ	Aquaculture Engineering Analysis

MIDDLE ATLANTIC COASTAL FISHERIES CENTER

RELATIVE RANKING OF FY 1978 RESEARCH TASKS

(EXCLUDING REIMBURSABLES AND TASKS FOR WHICH NO INCREASES ARE REQUESTED)

1. MAC-002: MARMAP SII - Middle Atlantic
2. MAC-064: MARMAP FA, Population Dynamics
3. MAC-005: Fishery Analysis - Middle Atlantic Sportfish
4. MAC-075: MARMAP SII - Near-shore & Estuarine - Middle Atlantic
5. MAC-060: Biological Assessment, Sportfish
6. MAC-085: Middle Atlantic Coast Tuna Studies
7. MAC-076: Fish Migration Analysis
8. MAC-071: Recreational Fisheries: Forage Fish Predator Relations
9. MAC:053: MARMAP SI: Biological Assessment
10. MAC-067: Primary Productivity & Pollution
11. MAC-017: Disease & Environmental Stress
12. MAC-056: Aquaculture Genetics
13. MAC-006: Behavior of Fish Under Pollutant Stress
14. MAC-016: Comparative Pathology
15. MAC-058: Aquaculture - Control of Larval Disease
16. MAC-007: Impact of Environmental Change, Mid-Atlantic
17. MAC-083: Registry of Marine Pathology
18. MAC-057: Aquaculture - Aspects of Nutritional Requirements
19. MAC-078: Environmental Chemistry
20. MAC-059: Aquaculture - Spawning and Rearing of Molluscs
21. MAC-080: Effects of Petroleum Upon Behavior of Fishes
22. MAC-081: Effects of Bulkheading Upon Fish Production
23. MAC-077: Mutagenic Effects of Pollutants

24. MAC-084: Biological Effects of Petroleum Upon Marine Fishes
25. MAC-086: Environmental Strike Force
26. MAC-088: Aquaculture - Engineering Analysis
27. MAC-087: Aquaculture - Economic Analysis
28. MAC-082: Disease Prevention and Control

NMFS TASK DEVELOPMENT PLAN

(See Detailed Instructions)

1. DATE PREPARED

1/30/76

(Submit three copies by Jan. 2)

1. O: Director, National Marine Fisheries Service, ATTN: Fx5 National Oceanic and Atmospheric Administration Washington, D.C. 20235

FMC's - Submit a separate Task Development Plan for each task beginning, continuing, or ending in the current year, budget year, or budget year + 1. Reimbursable funds are not to be mingled with appropriated funds on any programmatic TDP; separate TDP's must be prepared. Submit one TDP itemizing the administrative support cost (Management Fund) for the FMC.

2. TDP NUMBER MAC-002-78-SII-A	3. OBJECTIVE CODES				4. RANK	
	A	B	C	D	BY TARGET /	BY + 1 INC. /

5. TASK NUMBER 88A2P1	6. TASK TITLE MARMAP II - Multispecies: Middle Atlantic Bight
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7. ORGANIZATION CODE FB6200	8. ORGANIZATION TITLE (Responsible for execution of this task) Resource Assessment Investigations	9. PRINCIPAL LOCATION City Highlands State NJ
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OBJECT CLASS * Lines 10-18. Enter all dollar values as thousands and tenths of thousands. Lines 21-22. Enter as man-years and tenths of man-years.	WZJBOO	CURRENT YEAR FY 1976		BUDGET YEAR FY 1977		BUDGET YEAR + 1 FY 1978	
		TARGET ALLOWANCE A	INCREASE B	TARGET ALLOWANCE C	INCREASE D	TARGET ALLOWANCE E	INCREASE F
0. Total Direct Labor	15						
11. Travel	19						
2. Rents, Communications, Utilities	21						
13. Contracts (To be let)	51						
4. Grants (Funds obligated)	52						151.0
5. Supplies	53						
16. Capital Equipment	54						
7. Other (All other obligations)							
18. Total Direct Funds (Add lines 10 through 17 above.)		166.0		166.0		166.0	500.0
19. Positions, Full-time permanent (Number applicable to this Task. Also, complete NOAA Form 32-14C.)		8		8		8	6
20. Positions, Other (Number applicable to this Task.)		4		4		4	4
21. Man-years, Permanent							
22. Man-years, Other							
23. Reimbursable Support (Reimbursable agreements only)							

REMARKS
Dependent upon Extended Jurisdiction

24. OFFICIAL PREPARING REPORT (Signature)
Arthur Merrill
Arthur Merrill

25. FMC DIRECTOR OR DESIGNATED REPRESENTATIVE (Sig.)
Carl J. Sindermann
Carl J. Sindermann

MAC-002

Narrative Section

A. Additional Funds:	BY+1	BY+2	BY+3	BY+4
Position/Funds (\$K)	6/500	6/500	6/500	6/500

B. Description of Increase Request:

The current semiannual groundfish survey in the Middle Atlantic is designed to provide a data base which would permit the detection and measurement of major population changes in certain selected groundfish species. Assessments to date, though adequate for past needs, can be considerably improved in sensitivity and can be extended to include many more commercially and recreationally important species by increasing the number of survey cruises to six bimonthly cruises. This will require some 10 additional manyears of effort (5 FTP), STD equipment, XBT launches and probes, and some 15 additional (expendable) trawls. All operations would be performed in accordance with standardized MARMAP SII operational guidelines.

1 Fishery Biologist	GS-12	Vacancy	Sandy Hook Laboratory,	MACFC	FTP
1 Fishery Biologist	GS-09	"	"	"	FTP
1 Fishery Biologist	GS-09	"	"	"	FTP
2 Biol. Technicians	GS-05	"	"	"	FTP
4 Biol. Aids	GS-04	"	"	"	"Other than FTP
1 Computer Programmer	GS-07	"	"	"	FTP

Annual outputs would be in the form of 6 real-time cruise reports, 6 real-time fishermen's cruise reports, and 6 computer-generated data reports. All biological and hydrographic data developed will be subjected to standardized MARMAP keypunch and printout auditing and verification procedures. Data tapes and printouts will routinely be available and used by personnel of other Center Tasks (MAC-005) (MAC-064) and by other Centers (NEC, South Carolina) for inclusion in ongoing population structure studies. The increase will permit a tripling of field (ocean survey) effort and, despite a resultant marine increase in data and in life history studies (MAC-060) will still permit real-time production of verified data.

C. Statement of Needs and Anticipated Benefits:

The demersal finfish resources of the Middle Atlantic Bight, while susceptible to assessment by standard MARMAP SII procedures, differ markedly from the demersal species to the northeast in that they are highly migratory (engaging in long-shore and shallow water to deep water migrations), in that many species are highly dependent upon estuaries in some part of their respective life histories and in that little or no sustained, comprehensive studies upon their life histories have been made. In addition to continuation of the established spring-fall survey the requested increase will permit four additional surveys to be conducted during the year. More frequent

cruises will eliminate the obvious seasonal bias of semiannual sampling. Estimates of prerecruits and adults will be improved and the number of species for which meaningful prerecruit data is available will be increased. The seasonal movements of all species in the area will, for the first time, be precisely defined. Hydrographic data collected would be more meaningful in the determination of environmental change and its possible effects. Additional baseline biological data will also be collected for key species. These data, including condition factors, gonad-somatic indices, and sex ratios can be accurately determined and may provide evidence of response to environmental stress before measurable population changes occur. (This is important for assessing of effects from proposed offshore oil development). The augmented work proposed herein would permit direct seasonal tie-in with other important, proposed work (MAC-075, Near-shore and Estuarine Studies), the pilot study (July 1974 to July 1975) of which has amply justified interest in estuarine and inshore assessment.

The benefits accruing from the augmented Task are manifold: (1) graphic computerized tracking (SYMAP) of the seasonal movements of many different species of finfishes, of seasonal changes in their distributions and abundances, and of their interactions with estuarine and close inshore waters (responsive to needs of F3/EAD), (2) a greatly enhanced NMFS position with sportfish interests, (3) a data base much more sensitive to local seasonally or environmentally-induced changes in the abundances or distributions of finfishes and attainment of a stable time-series oriented data much sooner than would be possible under a biannual survey operation.

The parent task and the augmentation requested herein are expected to pose no costs to the private sector. Costs to the public sector for the augmentation are expected to total \$2,000K by the close of fiscal year 1981, at which time a stable, sensitive data base, encompassing a wide spectrum of finfish species, and capable of sustaining sophisticated biometrical manipulations will have been attained. Costs to the public sector will be amortized through improved availability of commercial and recreational living marine organisms.

Primary recipients of the benefits to be accrued will be (1) commercial and recreational fishery interests, (2) Regional fisheries management councils, (3) state fisheries agencies from Rhode Island to and including North Carolina, (4) biometricians, engaged in preparation of management and allocation recommendations, (5) national and international negotiating groups (e.g., ICNAF), and (6) federal, state, municipal and local environmental groups.

4

This increase is directed toward PED Item D.1.a (Areas of Emphasis, International, without extended jurisdiction MARMAP/Recreational Species). It, together with the requested MAC-075, Inshore and Estuarine Studies, will make available to recreational fishermen (riverine and ocean shore anglers, estuarine, inshore and offshore boat fishermen as well as professional partyboat operators) real-time awareness of the locations and abundances of a far greater range of finfish species than ever before. Inasmuch as this proposed augmentation is for a task which is presently underway with federal personnel, which is coordinated with operating research centers to the north and south and which is performed under rigidly standardized procedures, this work should be performed by NOAA/NMFS personnel. Estuarine aspects of the ancillary Task (MAC-075) will be done in toto by interested agencies under grants or contracts.

This proposed increase reflects the Center's and NMFS' awareness of the need to respond to the critical requirements of our recreational fishermen constituency, the need to broaden significantly and quickly the scope of our assessment effort and the need to achieve an adequate quantitative data base as soon as possible. Failure to implement the requested increase will further erode the support of our sportfish community, certainly one of the largest in the nation, will constrain our data collection to the present relatively few species of fish and will greatly delay the attainment of the ability to recommend management and allocation schemes to federal and state agencies and institutions.

① FY 1978	NMFS VESSEL TIME REQUIREMENTS		② Orig. <u>X</u> Rev. <u>—</u>							
③ Date 1/30/76	④ TDP # MAC-002	⑤ Prepared By: Holston								
⑥ Task Title (Multispecies-Middle Atlantic) MARMAP-SII										
⑦ Ship Time Required in Sea Days*										
Ship Type	Ship		Sea Days							
⑧ NOAA Ship (Name or Type)	FRS Delaware II									
	-Demersal Fish		80							
	-Ocean Shellfish		40							
	Subtotal Sea Days		120							
⑨ Charter Vessel (Type)										
	Subtotal Sea Days									
⑩ NMFS Small Craft (Name)	RV Rorqual		80							
	RV Kyma		20							
	Subtotal Sea Days		100							
⑪ Other Vessel (Name and Affiliation)										
// // // // // // // // // //		⑫ TDP Total Sea Days	220							
⑬ Total Number of NOAA Ship Cruises	1 2 3 4 5 ⑥ 7 8 9 10									
⑭ Month(s) When NOAA Ship Time Is Preferred	4 ⑤ 6 ⑦ 8 ⑨ 10 ⑪ 12 ① 2 ③									
⑮ Remarks										

* As defined in instruction sheet

NMFS TASK DEVELOPMENT PLAN

(See Detailed Instructions)

1. DATE PREPARED

1/30/76

(Submit five copies by Jan. 2)

TO: Director, National Marine Fisheries Service, ATTN: Fx5
National Oceanic and Atmospheric Administration
Washington, D.C. 20235

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2. TDP NUMBER MAC-005-79-NF-A	3. OBJECTIVE CODES				4. RANK	
	A	B	C	D	BY TARGET 2	BY + 1 INC. 3

5. TASK NUMBER 88F9P4	6. TASK TITLE Fishery Analysis - Middle Atlantic Sportfish
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7. ORGANIZATION CODE FB6200	8. ORGANIZATION TITLE (Responsible for execution of this task) Resource Assessment Investigations	9. PRINCIPAL LOCATION City: Highlands State: NJ
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OBJECT CLASS <i>Lines 10-18. Enter all dollar values as thousands and tenths of thousands. Lines 21-22. Enter as man-years and tenths of man-years.</i>	D I S P O S I T I O N S	CURRENT YEAR FY 19 <u>76</u>		BUDGET YEAR FY 19 <u>77</u>		BUDGET YEAR + 1 FY 19 <u>78</u>	
		TARGET ALLOWANCE A	INCREASE B	TARGET ALLOWANCE C	INCREASE D	TARGET ALLOWANCE E	INCREASE F
10. Total Direct Labor	15						
11. Travel	19						
12. Rents, Communications, Utilities	21						
13. Contracts (To be let)	51 52						100.0
14. Grants (Funds obligated)	58						
15. Supplies	53						
16. Capital Equipment	54						
17. Other (All other obligations)							
18. Total Direct Funds (Add lines 10 through 17 above.)		145.5		145.5		145.5	300.0
19. Positions, Full-time permanent (Number applicable to this Task. Also, complete NOAA Form 32-14C.)		5		5		5	5
20. Positions, Other (Number applicable to this Task.)		11		11		11	15
21. Man-years, Permanent							
22. Man-years, Other							
23. Reimbursable Support (Reimbursable agreements only)							

REMARKS

Dependent upon Extended Jurisdiction

24. OFFICIAL PREPARING REPORT (Signature)
Arthur Merrick
Arthur Merrick

25. FMC DIRECTOR OR DESIGNATED REPRESENTATIVE (SIGN)
Carl J. Sindermann
Carl J. Sindermann

3

The benefits accruing from the requested increase will assure that population structure models reflect all human removals and that management recommendations reflect all man-induced mortalities. All user groups, Regional Councils, State and Federal agencies, etc., will benefit. There is no cost expected for the private sector. Costs to the public sector will be minimal as compared to the anticipated gains in user benefits and satisfaction. This request is directed toward PED item D.1.a (MARMAP Recreational Species). The cited 15 OTFTP personnel may well be seasonally hired State employees or University students. The five FTP personnel are needed to process the data and, seasonally, to supervise the field operations. If the requested increase is not received, management data generated in the MAB by ocean surveys and from commercial landings will be seriously in error. However, once the relative catch and effort statistics are obtained for different geographic areas a reduced effort limited to the monitoring of representative sites will yield data which can be extrapolated to the entire Middle Atlantic Bight.

MAC-005

Narrative Section

A. Additional Funds:	BY+1	BY+2	BY+3	BY+4
Position/Funds (\$K)	5/300	5/300	5/300	5/300

B. Description of Increase Request:

The oceanic areas bordering the Middle Atlantic Bight enjoys a strong commercial fishery and, probably, the nation's most intensive sport fishery. Ongoing recreational fisheries surveys reflect very limited effort and are insufficient to document the total extent of the catch in the Middle Atlantic Bight. This Task (MAC-005), presently funded through reprogramming, at \$57K per year, was designed as a pilot study of limited scope to determine whether it would be fiscally and physically possible to measure the sportfish catch and effort. Two years of the pilot study, first at Ocean City, Maryland, and then at five fishing ports along the coast of New Jersey, has demonstrated not only the feasibility of measuring sportfish catch and effort but also that the magnitude of the sportfish catch in view of its implications for management made such a program mandatory. This will require a total of some 20 staff members (5 FTP) located at strategic points along the coast from Narragansett Bay to Cape Hatteras. Equipment needs will be minimal, mostly for transportation. Operations will be conducted from the staff members homes. The 15 OTFTP will be employed only during the active field season. Outputs will be: (1) monthly raw data reports reflecting catches by geographic areas, informal reports to sport-and commercial fish organizations; constant submission of catch, effort and biological statistical data to the Center's Task (MAC-005) Chief, for processing and usage by the Center's Task (MAC-064, Population Dynamics). The increase will permit the expansion of the present New Jersey-wide pilot study to coverage of the entire Bight and provide for real-time processing of the data.

C. Statement of Needs and Anticipated Benefits:

Present-day resource management projections and recommendations, at least in the MAB, do not take into account the massive annual fish removals by sportfishermen. A recent study showed that when the sportfish catch of fluke was added to that of the commercial fishing, it was larger than that of the commercial boats and placed the total catch considerably higher than the accepted MSY. Port Sampling efforts are adequate for commercial landings. However, within the Middle Atlantic the recreational harvest by weight is estimated to exceed the commercial catch for 11 of the 15 most important finfish species. Until recreational harvest information is adequate it will not be possible to fulfill the fisheries management sub-goals I-A (Resource Surveys/Data Analysis) or I-D (International Fisheries Management). In addition, biological information can be obtained from recreational catches of pelagic and semi-pelagic species which are seldom caught during groundfish surveys.

NMFS TASK DEVELOPMENT PLAN

(See Detailed Instructions)

1. DATE PREPARED
1/29/76

(Submit five copies by Jan. 2)

TO: Director, National Marine Fisheries Service, ATTN: Fx5 National Oceanic and Atmospheric Administration Washington, D.C. 20235

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2. TDP NUMBER MAC-006-78-EI-A1	3. OBJECTIVE CODES				4. RANK	
	A	B	C	D	BY TARGET #	BY + 1 INC. 13

5. TASK NUMBER 88C2P1	6. TASK TITLE Behavior of Fishes Under Environmental Stress
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7. ORGANIZATION CODE FB 6100	8. ORGANIZATION TITLE (Responsible for execution of this task) Ecosystems Investigations	9. PRINCIPAL LOCATION City: Highlands State: NJ
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OBJECT CLASS <i>Lines 10-18. Enter all dollar values as thousands and tenths of thousands. Lines 21-22. Enter as man-years and tenths of man-years.</i>	LINE	CURRENT YEAR FY 1976		BUDGET YEAR FY 1977		BUDGET YEAR + 1 FY 1978	
		TARGET ALLOWANCE A	INCREASE B	TARGET ALLOWANCE C	INCREASE D	TARGET ALLOWANCE E	INCREASE F
10. Total Direct Labor	15						
11. Travel	19						
12. Rents, Communications, Utilities	21						
13. Contracts (To be let)	51 52						
14. Grants (Funds obligated)	58						
15. Supplies	53						
16. Capital Equipment	54						
17. Other (All other obligations)							
18. Total Direct Funds (Add lines 10 through 17 above.)		88.6	-	88.6	-	88.6	46.3
19. Positions, Full-time permanent (Number applicable to this Task. Also, complete NOAA Form 32-14C.)		5	-	5	-	5	1
20. Positions, Other (Number applicable to this Task.)		0	-	0	-	0	0
21. Man-years, Permanent							
22. Man-years, Other							
23. Reimbursable Support (Reimbursable agreements only)							

REMARKS
Not Dependent

24. OFFICIAL PREPARING REPORT (Signature)
John B. Pearce

25. FMC DIRECTOR OR DESIGNATED REPRESENTATIVE (Sig.)
Carl J. Sindermann

NARRATIVE SECTION

A) Additional Funds: Behavior of Fishes Under Environmental Stress

$\frac{\text{BY} + 1}{1/46}$

$\frac{\text{BY} + 2}{1/46}$

$\frac{\text{BY} + 3}{1/46}$

$\frac{\text{BY} + 4}{1/46}$

B) Description of Increase Request: "Behavior of Fishes Under Environmental Stress". Planned increase will be used for sampling of demersal fishes and benthic invertebrates on a monthly basis as well as for analyses of resulting data. The research program will require one new fishery biologist (GS-9) as well as partial services of GS-13 Chief and three GS-11 fishery biologists. Research will be concerned with the impact of thermal addition and associated stress on the habitat requirements of juvenile cunner, tautog and winter flounder. Resulting data will be available as reports and publications.

C) Statement of Need and Anticipated Benefits: The present investigation is concerned with impact of thermal additions on the behavior of bottom dwelling finfish which exist in close proximity to possible sources of stress. The increase will result in data and reports to be used in siting and management of nuclear-electric generating stations and similar sources of heated waters. The present investigation has already resulted in data being used by ERDA, EPA and CEQ.

The increase in research will not result in cost to private and public sectors. Principal recipients of the benefits accruing from the increased research program will be EAD-NMFS, ERDA, EPA and other federal and state conservation and energy-related agencies. The existing program and proposed increase are directly responsive to the Habitat Protection Goal provided in the program emphasis document for FY 76-77-78.

The increase includes a new position but work must be done inhouse because of the specialized aquaria and research facilities required. Considerable capital investment has been made in these facilities. The increase in research should be effected as soon as possible but no later than FY 78. Sites are presently being surveyed and EIS being developed for several offshore nuclear power plants. A clear understanding of the impact of thermal stress due to such facilities should be at hand in order to effectively manage their operation.

The increase in the program would not require additional NOAA ship time or significant increase in NMFS small boat time. The program increase will not require additional physical facilities but may require slight modifications in existing experimental apparatus.

NMFS TASK DEVELOPMENT PLAN
(See Detailed Instructions)

1. DATE PREPARED
1/29/76

(Submit five copies by Jan. 2)
TO: Director, National Marine Fisheries Service, ATTN: Fx5 National Oceanic and Atmospheric Administration Washington, D.C. 20235

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2. TDP NUMBER MAC-007-78-EI-A1	3. OBJECTIVE CODES				4. RANK	
	A	B	C	D	BY TARGET -	BY + 1 INC. 16

5. TASK NUMBER 88C2P2	6. TASK TITLE Impact of Environmental Change, Middle Atlantic
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7. ORGANIZATION CODE FB 6100	B. ORGANIZATION TITLE (Responsible for execution of this task) Ecosystems Investigations	9. PRINCIPAL LOCATION City: Highlands State: NJ
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OBJECT CLASS <i>Lines 10-18. Enter all dollar values as thousands and tenths of thousands. Lines 21-22. Enter as man-years and tenths of man-years.</i>	CO LINE	CURRENT YEAR FY 1976		BUDGET YEAR FY 1977		BUDGET YEAR + 1 FY 1978	
		TARGET ALLOWANCE A	INCREASE B	TARGET ALLOWANCE C	INCREASE D	TARGET ALLOWANCE E	INCREASE F
10. Total Direct Labor	15						
11. Travel	19						
12. Rents, Communications, Utilities	21						
13. Contracts (To be let)	51 52						
14. Grants (Funds obligated)	58						
15. Supplies	53						
16. Capital Equipment	54						
17. Other (All other obligations)							
18. Total Direct Funds (Add lines 10 through 17 above.)		44.1		44.1		44.1	109.9
19. Positions, Full-time permanent (Number applicable to this Task. Also, complete NOAA Form 32-14C.)		4		4		4	1
20. Positions, Other (Number applicable to this Task.)		1		1		1	3
21. Man-years, Permanent							
22. Man-years, Other							
23. Reimbursable Support (Reimbursable agreements only)							

REMARKS
Not Dependent

4. OFFICIAL PREPARING REPORT (Signature)
John B. Pearce
John B. Pearce

25. FMC DIRECTOR OR DESIGNATED REPRESENTATIVE (Sig.)
Carl J. Sindermann
Carl J. Sindermann

NARRATIVE SECTION

A) Additional Funds: Impact of Environmental Change, Middle Atlantic

BY + 1
1/110

BY + 2
1/110

BY + 3
1/110

BY + 4
1/110

B) Description of Increase Request: "Impact of Environmental Change, Middle Atlantic". Increased funding will be required for continued environmental studies of Long Island Sound, Raritan Bay, New Jersey Coastline and other inshore environments in the Middle Atlantic Bight. The proposed program will require the services of a GS-12 Chief, two GS-11 fishery biologists or biological oceanographers, one GS-9 fishery biologist and three GS-3/4 technicians or work/study students. Significant outputs will include raw data available to NODC as well as reports and published papers concerned with environmental baselines and change due to environmental stress in Long Island Sound, Raritan Bay and inshore coastal waters. This is a continuing task but must be augmented with inhouse funds in order to continue studies previously funded by the U. S. Navy.

C) Statement of Need and Anticipated Benefits: Inshore coastal environments and embayments such as Raritan Bay and Long Island Sound are increasingly being used for various purposes ranging from waste disposal and harbor development to recreational and commercial fisheries and other water related activities. The present investigation has previously conducted periodic cruises to measure seasonal baselines. This research was completed in 1972 and 1973. It is essential to increase the scope of these investigations to determine seasonal and long-term changes in benthic biota and physical/chemical parameters. This investigation has previously resulted in an extensive baseline report on benthic resources of Long Island Sound. This report has been used by the New England River Basins Commission and other organizations interested in environmental management. The report, as well as a similar report on Raritan Bay, is being developed into an environmental briefing book which will be periodically revised and updated. The data, reports, briefing books and published papers are available to the scientific community as well as federal and state agencies, such as EAD-NMFS, responsible for environmental management. In addition the various data outputs are being related to productivity studies in the water column and to the presence and cycling of toxic materials. The data are being used to develop predictive models concerned with the distribution and flow of toxic materials through semiclosed ecosystems such as Long Island Sound and Raritan Bay.

There should be no cost to the private and public sectors due to an increase in funding for this program. Primary recipients of the

Impact of Environmental Change, Middle Atlantic (cont'd)

the benefits will include environmental managers such as EAD-NMFS, EPA and various state and local governmental units concerned with the environment and pollution. The proposed increase relates directly to the Habitat Protection Goal indicated in the program emphasis document for FY 76-77-78. The increase includes reprogramming of personnel presently working in reimbursable programs but will require one additional appointment to federal Civil Service.

The increased funding should be provided as soon as possible inasmuch as economic and socio-development in land masses bordering the embayments and coastlines is increasing. The consequence of this increase is increased development and pollution in the coastal zone which should be studied and described so as to effect adequate management procedures. The program increase will not require additional NOAA ship time or NMFS small boat time over and beyond the amount previously used. Because the personnel are presently assigned to the Middle Atlantic Coastal Fisheries Center and are adequately housed in laboratory and office space, no increase in physical facilities will be required.

NMFS TASK DEVELOPMENT PLAN

(See Detailed Instructions)

1. DATE PREPARED
1/30/76

(Submit five copies by Jan. 2)

TO: Director, National Marine Fisheries Service, ATTN: Fx5 National Oceanic and Atmospheric Administration Washington, D.C. 20235

FMC's - Submit a separate Task Development Plan for each task beginning, continuing, or ending in the current year, budget year, or budget year + 1. Reimbursable funds are not to be mingled with appropriated funds on any programmatic TDP; separate TDP's must be prepared. Submit one TDP itemizing the administrative support cost (Management Fund) for the FMC.

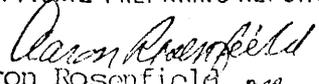
2. TDP NUMBER MAC-016-78-EI-A1	3. OBJECTIVE CODES				4. RANK	
	A	B	C	D	BY TARGET -	BY + 1 INC. #

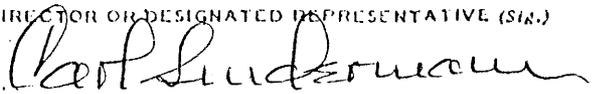
5. TASK NUMBER 88C202	6. TASK TITLE Comparative Pathobiology					
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7. ORGANIZATION CODE FB6400	8. ORGANIZATION TITLE (Responsible for execution of this task) Pathobiology Investigations			9. PRINCIPAL LOCATION City: Oxford State: MD		
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OBJECT CLASS Lines 10-18. Enter all dollar values as thousands and tenths of thousands. Lines 21-22. Enter as man-years and tenths of man-years.	UN Z J B O U	CURRENT YEAR FY 19 <u>76</u>		BUDGET YEAR FY 19 <u>77</u>		BUDGET YEAR + 1 FY 19	
		TARGET ALLOWANCE A	INCREASE B	TARGET ALLOWANCE C	INCREASE D	TARGET ALLOWANCE E	INCREASE F
10. Total Direct Labor	15						
11. Travel	19						
12. Rents, Communications, Utilities	21						
13. Contracts (To be let)	51 52						10.0
14. Grants (Funds obligated)	58						
15. Supplies	53						
16. Capital Equipment	54						
17. Other (All other obligations)							
18. Total Direct Funds (Add lines 10 through 17 above.)		105.1		105.1		105.1	152.2
19. Positions, Full-time permanent (Number applicable to this Task. Also, complete NOAA Form 32-14C.)		6		6		6	6
20. Positions, Other (Number applicable to this Task.)		0		0		0	2
21. Man-years, Permanent							
22. Man-years, Other							
23. Reimbursable Support (Reimbursable agreements only)							

24. MARKS

OFFICIAL PREPARING REPORT (Signature)

 Aaron Rosenfield *RAA*

25. FMC DIRECTOR OR DESIGNATED REPRESENTATIVE (SIGN.)

 Carl J. Sindemann

MAC-016

Narrative Section

A. Additional Funds	BY+1	BY+2	BY+3	BY+4
Position/Funds (\$K)	3/152	3/152	3/152	3/152

B. Description of Increase Request:

The approach to be used in achieving the task objective involves the integration of habitat analysis, population dynamics, and diagnostic histopathology. Geographic locations for shellfish sampling are to be selected on the basis of having recognized minimal or maximal exposure to industrial or recreational activities. Study areas are to be characterized with regard to water quality characteristics, sediment type, and human activity. Target species of shellfish (mollusks, crabs, lobsters) will be used for comparative histopathological study to measure the effects of habitat modification on normal and pathological anatomy and morphology. Areas of research that are found suitable for study outside of the laboratory will be recommended for extramural contract research.

The task will develop and publish a systematic index of the principal microorganisms responsible for disease or stress in shellfish hosts and of the influence of different environmental characteristics on the ecology and species composition of microorganisms as endo- or ectoparasites or commensals.

Publish illustrated atlases of the histological anatomy of normal tissues and organ systems of shellfish, including pathological changes caused by specific disease agents.

Provide diagnostic histopathological services and guidance to shellfish growers and to representatives of state, federal, and foreign institutions.

Personnel will be:

- 2 Fishery Biologists GS-05 Vacancies Oxford Laboratory, MACFC (Field Studies)

C. Statement of Needs and Anticipated Benefits:

The effects of disease on the quality and quantity of standing crops of shellfish are of continuing importance to both commercial and recreational user groups. Although timely and significant progress toward shellfish has been realized today, the intrusion of potentially hazardous physical and chemical environmental modifications on aquatic habitats has been recognized as a serious supplementary threat possibly of a magnitude equal to that posed by known biotic agents. Consequently, it is incumbent on both federal and state agencies to redirect some research energy into evaluating the interactions between natural and man-made factors that impinge on the health and fecundity of natural and introduced shellfish populations. The principal

goal of the task proposed here is to attempt to identify certain environmental factors which interface with disease problems and should be taken into account in managing our fishery resources. Commercial and recreational interests have a continuing need for up-to-date research input and information resulting therefrom to support decisions on the maintenance and rehabilitation of successful shellfish producing areas.

Benefits accrue to federal and state fisheries policy-makers, to regional fisheries councils, to F3/EAD and to interested shellfish processors. This increase is directed to '78 PED, Item: Habitat Protection. Work visualized is primarily in the field and will be supervised by staff pathologists; consequently, work must be done by in-house employees.

NMFS TASK DEVELOPMENT PLAN

(See Detailed Instructions)

1. DATE PREPARED

1/30/76

(Submit five copies by Jan. 2)

TO: Director, National Marine Fisheries Service, ATTN: Fx5 National Oceanic and Atmospheric Administration Washington, D.C. 20235

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2. TDP NUMBER MAC-017-78-EJ-A1	3. OBJECTIVE CODES				4. RANK	
	A	B	C	D	BY TARGET -	BY + 1 INC. //

5. TASK NUMBER 88C2P9	6. TASK TITLE Disease and Environmental Stress	
7. ORGANIZATION CODE FB6400	8. ORGANIZATION TITLE (Responsible for execution of this task) Pathobiology Investigations	9. PRINCIPAL LOCATION City: Oxford State: MD

OBJECT CLASS Lines 10-18. Enter all dollar values as thousands and tenths of thousands. Lines 21-22. Enter as man-years and tenths of man-years.	LINE NO.	CURRENT YEAR FY 19 ⁷⁶		BUDGET YEAR FY 19 ⁷⁷		BUDGET YEAR + 1 FY 19 ⁷⁸	
		TARGET ALLOWANCE A	INCREASE B	TARGET ALLOWANCE C	INCREASE D	TARGET ALLOWANCE E	INCREASE F
0. Total Direct Labor	15						
11. Travel	19						
2. Rents, Communications, Utilities	21						
13. Contracts (To be let)	51 52						
4. Grants (Funds obligated)	58						
15. Supplies	53						
16. Capital Equipment	54						
7. Other (All other obligations)							
18. Total Direct Funds (Add lines 10 through 17 above.)		130.9		130.9		130.9	97.0
9. Positions, Full-time permanent (Number applicable to this Task. Also, complete NOAA Form 32-14C.)		10		10		10	3
20. Positions, Other (Number applicable to this Task.)		1		1		1	1
21. Man-years, Permanent							
2. Man-years, Other							
23. Reimbursable Support (Reimbursable agreements only)							

REMARKS

24. OFFICIAL PREPARING REPORT (Signature) <i>Arnon Rosenfield</i> Arnon Rosenfield	25. FMC DIRECTOR OR DESIGNATED REPRESENTATIVE (SIGN) <i>Carl J. Sindermann</i> Carl J. Sindermann
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MAC-017

Narrative Section

A. Additional Funds:	BY+1	BY+2	BY+3	BY+4
Position/Funds (\$K)	6/99	6/99	6/99	6/99

B. Description of Increase Request:

Spatial and temporal trawl surveys for selected fish with emphasis upon young-of-the year will be conducted to obtain fish for examination. Shore-line aquatic environments will be selected which represent the spectrum of deteriorated habitats amenable to intensive study. Whenever feasible analysis of water and sediments will supplement the examination of fish. To the extent possible, disease will be related to natural or man-made stresses.

The initial approach in examining fish will be histologic. The prevalence of gross external lesions (ulcers, tumors, etc.) on all fish sampled by trawl will be noted. A statistically acceptable subsample will be necropsied to access the prevalence of gross visceral lesions. Visceral, nervous, and skeletal tissues will be fixed, blocked, sectioned, and stained for microscopic examination. Special stains will be employed as required and all gross and microscopic lesions will be documented photographically.

Although histopathology initially will be the basis for characterizing a lesion or systemic disease, it is realized that other disciplines must be employed whenever possible. Diagnostic microbiology, immunology, cell culture, and electron microscopy will be utilized to advantage when required. The deliberate laboratory exposure of selected fish to biotic and abiotic stresses will be conducted in conjunction with collaborators at other MACFC laboratories.

Personnel needs will be:

2	Fishery Microbiologist	GS-07	Vacancy	Oxford Laboratory,	MACFC
4	Fishery Biologist	GS-05	"	"	"

They will extend the efforts, on a "strike force" basis, of some 10 highly experienced research pathologists and physiologists now at the Oxford Laboratory.

Outputs will be in the form of "red-flag" reports to Environmental Assessment Division, NMFS, data reports to MACFC-064 on mortalities, and reports generally designed to permit a rational assessment of the impact of environmental stress in terms of disease and mortalities of marine and anadromous fishes. This "strike force" group will operate in conjunction with the MACFC ecosystems strike-force (MAC-086), but as a part of an on-going task in pathobiology.

C. Statement of Needs and Anticipated Benefits:

The alteration and destruction of coastal aquatic habitats via man's activities have considerable consequence for the well-being of marine and anadromous fishes. The susceptibility of marine fishes to biotic and abiotic diseases is directly influenced by environmental stresses. It presently is not known how environmental stresses are significant to the 1) survival of larval and juvenile fish, 2) reproductive potential of sexually mature fish, and 3) longevity of adult fish. The population size of any given fish species can be profoundly affected by stress-induced disease via its effect on recruitment and adult longevity. Marine fish, both commercial and recreational, are one of the nation's most valuable resources. Both short- and long-term research is required to understand how environmental stress and disease affect marine fish. Experimental research to test and/or substantiate hypotheses is a necessary requisite to the primarily observational and initially diagnostic study of disease. Adequate knowledge of disease, whether infectious, nutritional genetic, or environmentally induced is essential and fundamental to the successful management of fishery resources and habitat protection. The immediate beneficiaries of the research proposed are F3/EAD and other Federal and State regulatory agencies, commercial and recreational fishermen, environmentalists, and the public.

This request is directed to the Habitat Protection section of the fiscal '78 PED. Work must be done in-house to utilize, in a cost-effective manner, the established research competency of the staff resident at the laboratory.

NMFS TASK DEVELOPMENT PLAN

(See Detailed Instructions)

1. DATE PREPARED

1/30/76

(Submit two copies by Jan. 2)

To: Director, National Marine Fisheries Service, ATTN: Fx5 National Oceanic and Atmospheric Administration Washington, D.C. 20235

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TDP NUMBER		3. OBJECTIVE CODES				4. RANK	
MAC-053-78-SI-A		A	B	C	D	BY TARGET	BY + 1 INC.
						—	9
TASK NUMBER		6. TASK TITLE					
88A2P2		MARMAP SI: Biological Assessment					
ORGANIZATION CODE		8. ORGANIZATION TITLE (Responsible for execution of this task)				9. PRINCIPAL LOCATION	
FB6200		Resource Assessment Investigations				City Highlands State NJ	

OBJECT CLASS lines 10-18. Enter all dollar values as thousands and tenths of thousands. lines 21-22. Enter as man-years and tenths of man-years.	LINE NUMBER	CURRENT YEAR FY 1976		BUDGET YEAR FY 1977		BUDGET YEAR + 1 FY 1978	
		TARGET ALLOWANCE	INCREASE	TARGET ALLOWANCE	INCREASE	TARGET ALLOWANCE	INCREASE
		A	B	C	D	E	F
Total Direct Labor	15						
Travel	19						
Rents, Communications, Utilities	21						
Contracts (To be let)	51 52						102.0
Grants (Funds obligated)	58						
Supplies	53						
Capital Equipment	54						
Other (All other obligations)							
Total Direct Funds (Add lines 10 through 17 above.)		139.3		139.3		139.3	250.0
Positions, full-time permanent (Number applicable to this Task. Also, complete NOAA Form 32-14C.)		8		8		8	5
Positions, Other (Number applicable to this Task.)		3		3		3	0
Man-years, Permanent							
Man-years, Other							
Reimbursable Support (Reimbursable agreements only)							

REMARKS
Dependent upon Extended Jurisdiction

OFFICIAL PREPARING REPORT (Signature) Arthur Merrill	25. FMC DIRECTOR OR DESIGNATED REPRESENTATIVE (Sig.) Carl J. Sindermann
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MAC-053

Narrative Section

A. Additional Funds:	BY+1	BY+2	BY+3	BY+4
Position/Funds (\$K)	5/250	5/250	5/250	5/250

B. Description of Increase Request:

When MARMAP was conceived and implemented it was intended to provide the necessary scientific information to support management decisions and achieve the national goal of conservation, protection and allocation of our marine fishery resources. To that end, Survey I activities were developed to estimate location of spawning; determine distribution and quantity of fish eggs and larvae in a defined area; and forecast number, location and mortality rates of egg larvae, juvenile and prerecruit life stages.

Based on our collections over the past 10 years, we propose to augment our ongoing efforts by initiating a 6-year investigation consisting of six synoptic cruises (10-14 days each) a year, with the monthly sequence of sampling to shift after 3 years. During the first three years, monthly samples will be collected from April through September. Sampling procedures for both biological and environmental collections will follow standard techniques for Survey I activities. We will occupy approximately 80 stations on each cruise. Estimated increased costs are \$250K per year.

2 Fishery Biologists	GS-11	Vacancies	Sandy Hook Laboratory	MACFC
1 Fishery Biologist	GS-07	Vacancy	" "	" "
1 Computer Technician	GS-05	Vacancy	" "	" "

The sampling frequency of Survey I activities by MACFC personnel from FY'74 through FY'77 is inadequate for meeting all but the most fundamental MARMAP objectives. Ichthyoplankton sampling throughout the Middle Atlantic Bight has been "piggybacked" on semi-annual groundfish cruises. At this twice-yearly level of sampling intensity, we can provide only baseline data for defining gross features of the areal and temporal distribution of early stages of a limited number of different fishes. Added sampling effort is necessary if our ichthyoplankton studies are to achieve their potential contribution to MARMAP.

C. Statement of Needs and Anticipated Benefits:

Coastal waters off the Middle Atlantic states are among the richest and most heavily fished in the western hemisphere. In addition to providing habitat for adult fishes, shelf waters between Cape Cod and Cape Hatteras serve as spawning grounds for many of our most important commercial and recreational species, and as nursery grounds for their young stages. Fish eggs and larvae can be found year-round but spring, summer and fall are the seasons when most spawning takes place. Although a few species might spawn throughout the year, the majority do so over a period of a few months and, for most, spawning peaks during a period of weeks. To assure that spawning peaks are not missed, cruises should be conducted at not less

than monthly intervals. It is only with this level of sampling intensity that we can collect biological information on early life stages that will both provide for and support sound coastal management decisions.

At the proposed sampling intensity for FY 78 it is anticipated that we will collect quantitative data on young fishes that can be used to estimate year class success and advance our predictive capabilities which, at present, are totally lacking.

① FY 1978	NMFS VESSEL TIME REQUIREMENTS	② Orig. <u>X</u> Rev. <u>—</u>
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③ Date 1/30/76	④ TDP # MAC-053	⑤ Prepared By: Holston
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⑥ Task Title MARMAP SI - Biological Assessment
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⑦ Ship Time Required in Sea Days*

Ship Type	Ship	Sea Days
⑧ NOAA Ship (Name or Type)	FRS Delaware	30
	Subtotal Sea Days	30
⑨ Charter Vessel (Type)	Offshore catamaran or appropriate conventional	42
	Subtotal Sea Days	42
⑩ NMFS Small Craft (Name)		
	Subtotal Sea Days	72
⑪ Other Vessel (Name and Affiliation)		
	⑫ TDP Total Sea Days	

⑬ Total Number of NOAA Ship Cruises	1 2 3 4 5 ⑥ 7 8 9 10
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⑭ Month(s) When NOAA Ship Time Is Preferred	④ ⑤ ⑥ ⑦ ⑧ ⑨ 10 11 12 1 2 3
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⑮ Remarks

* As defined in instruction sheet

NMFS TASK DEVELOPMENT PLAN

(See Detailed Instructions)

1. DATE PREPARED

1/30/76

(Submit five copies by Jan. 2)

TO: Director, National Marine Fisheries Service, ATTN: Fx5 National Oceanic and Atmospheric Administration Washington, D.C. 20235

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2. TDP NUMBER MAC-056-78-AQ-A1	3. OBJECTIVE CODES				4. RANK	
	A	B	C	D	BY TARGET —	BY + 1 INC. 12

5. TASK NUMBER 88E4P1	6. TASK TITLE Aquaculture: Aquaculture Genetics
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7. ORGANIZATION CODE FB6300	8. ORGANIZATION TITLE (Responsible for execution of this task) Experimental Biology Investigations	9. PRINCIPAL LOCATION	
		City Milford	State CT

OBJECT CLASS Lines 10-18. Enter all dollar values as thousands and tenths of thousands. Lines 21-22. Enter as man-years and tenths of man-years.	LINE NO	CURRENT YEAR FY 19 76		BUDGET YEAR FY 19 77		BUDGET YEAR + 1 FY 1978	
		TARGET ALLOWANCE	INCREASE	TARGET ALLOWANCE	INCREASE	TARGET ALLOWANCE	INCREASE
		A	B	C	D	E	F
10. Total Direct Labor	15						
11. Travel	19						
12. Rents, Communications, Utilities	21						
13. Contracts (To be let)	51 52						
14. Grants (Funds obligated)	58						
15. Supplies	53						
16. Capital Equipment	54						
17. Other (All other obligations)							
18. Total Direct Funds (Add lines 10 through 17 above.)		55.0		55.0		55.0	84.0
19. Positions, Full-time permanent (Number applicable to this Task. Also, complete NOAA Form 32-14C.)		4		4		4	5
20. Positions, Other (Number applicable to this Task.)		0		0		0	1
21. Man-years, Permanent							
22. Man-years, Other							
23. Reimbursable Support (Reimbursable agreements only)							

24. OFFICIAL PREPARING REPORT (Signature) James E. Hanks James E. Hanks	25. FMC DIRECTOR OR DESIGNATED REPRESENTATIVE (SIG.) Carl J. Sindermann Carl J. Sindermann
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MAC-056-78-AQ-A-1

Narrative Section

A. Additional Funds:	BY+1	BY+2	BY+3	BY+4
Position/Funds (\$K)	5/84	5/84	5/84	5/84

B. Description of Increase Request:

This task develops genetic information on oysters and other shellfish by initiating selection experiments, experimental inbreeding and a cross breeding program. This work will provide breeding information requested by the shellfish industry and also serve as a genetic demonstration to industry. The task will involve a Geneticist GS/11, two Fishery Biologists GS/5, two Biological Technicians GS/4 and a Work/Study Technician GS/3; all based at the Milford Laboratory. Outputs would include scientific papers, data reports and demonstrations of selective breeding, inbreeding, hybridization and mutation breeding. The augmentation will enhance continuing and increasing requests for advice from shellfish industry growers.

C. Statement of Need and Anticipated Benefits:

Increased funds and ceiling would enable study of more commercial traits, make it possible to conduct larger experiments where desirable and carry larger numbers of genetic lines, accelerating development of breeding response information for industry. Studies on the American oyster could be extended to include breeding experiments on other shellfish, as needed or relevant to the industry. There are continuing requests for the Milford staff to participate in shellfish genetic breeding programs at universities and involvement in genetic consultant and education series to industry--an 84K increase would satisfy these requests.

The task addresses the aquaculture goal 3 and should be conducted in-house because adequate expertise and facilities exist within our organization. Money and staff limitations limit present related activities to a much smaller scale than fully productive and without an ongoing hatchery program.

NMFS TASK DEVELOPMENT PLAN

(See Detailed Instructions)

1. DATE PREPARED

1/30/76

(Submit five copies by Jan. 2)

TO: Director, National Marine Fisheries Service, ATTN: Fx5 National Oceanic and Atmospheric Administration Washington, D.C. 20235

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2. TDP NUMBER MAC-057-78-AQ-A1	3. OBJECTIVE CODES				4. RANK	
	A	B	C	D	BY TARGET —	BY + 1 INC. 18

5. TASK NUMBER 88E4P2	6. TASK TITLE Aquaculture: Aspects of Nutritional Requirements of Molluscs
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7. ORGANIZATION CODE FB6300	8. ORGANIZATION TITLE (Responsible for execution of this task) Experimental Biology Investigations	9. PRINCIPAL LOCATION City: Milford State: CT
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OBJECT CLASS Lines 10-18. Enter all dollar values as thousands and tenths of thousands. Lines 21-22. Enter as man-years and tenths of man-years.	LINE NUMBER	CURRENT YEAR FY 19 76		BUDGET YEAR FY 19 77		BUDGET YEAR + 1 FY 19	
		TARGET ALLOWANCE	INCREASE	TARGET ALLOWANCE	INCREASE	TARGET ALLOWANCE	INCREASE
		A	B	C	D	E	F
0. Total Direct Labor	15						
1. Travel	19						
2. Rents, Communications, Utilities	21						
3. Contracts (To be let)	51 52						
4. Grants (Funds obligated)	58						
5. Supplies	53						
6. Capital Equipment	54						
7. Other (All other obligations)							
8. Total Direct Funds (Add lines 10 through 17 above.)		64.6		64.6		64.4	85.0
9. Positions, Full-time permanent (Number applicable to this Task. Also, complete NOAA Form 32-14C.)		2		2		2	4
10. Positions, Other (Number applicable to this Task.)		3		3		3	0
11. Man-years, Permanent							
12. Man-years, Other							
13. Reimbursable Support (Reimbursable agreements only)							

MARKS

24. OFFICIAL PREPARING REPORT (Signature)
James E. Hanks

25. FMC DIRECTOR OR DESIGNATED REPRESENTATIVE (Sig.)
Carl J. Sindermann

MAC-057-78-AQ-A-1

Narrative Section

A. Additional Funds:	<u>BY+1</u>	<u>BY+2</u>	<u>BY+3</u>	<u>BY+4</u>
Position/Funds (\$K)	4/85	4/85	4/85	4/85

B. Description of Increase Request:

This task addresses the problem of providing an economical, satisfactory nutrition support for animals reared in aquacultural procedures. Assistance in problem solving, introduction of innovative procedures and research in phytoplankton food-chain components and molluscan food utilization are overall goals of this task. Molluscan research is supported by availability of high quality algal food organisms in volume for maintenance of laboratory animals. A microbiologist GS-11, biologist GS-7, technician GS-5 and chemist GS-9 based at Milford would satisfy staffing.

C. Statement of Needs and Anticipated Benefits:

Additional funding is necessary to determine chemical composition of phytoplankters and other dietary materials to more clearly define dietary requirements of bivalve larvae. Information on chemical composition should uncover new sources of protein and other dietary components that could have wide-spread applicability including requirements of molluscan life stages other than larvae. Maintenance on pure strains of unicellular marine algae, evaluation of nutritional factors and study of various micro-algal culture parameters will provide material and data useful to aquaculturists now dependent on living food sources in commercial and academic aquaculture operations nationally and internationally. The Milford facility has developed a unique system for developing and maintaining such culture.

NMFS TASK DEVELOPMENT PLAN

(See Detailed Instructions)

1 | 3
1. DATE PREPARED
1/30/76

(Submit five copies by Jan. 2)

0: Director, National Marine Fisheries Service, ATTN: Fx5 National Oceanic and Atmospheric Administration Washington, D.C. 20235

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TDP NUMBER	3. OBJECTIVE CODES				4. RANK	
AC-058-78-AQ-A1	A	B	C	D	BY TARGET —	BY + 1 INC. 15

TASK NUMBER	6. TASK TITLE
8E4P3	Aquaculture: Control of Molluscan Disease

ORGANIZATION CODE	8. ORGANIZATION TITLE (Responsible for execution of this task)	9. PRINCIPAL LOCATION	
B6410	Pathobiology Investigations	City Milford	State CT

OBJECT CLASS <i>(See 10-18. Enter all dollar values as thousands and tenths of thousands. Lines 21-22. Enter as man-years and tenths of man-years.)</i>	W Z J B O O	CURRENT YEAR FY 19.76		BUDGET YEAR FY 19.77		BUDGET YEAR + 1 FY 1978	
		TARGET ALLOWANCE A	INCREASE B	TARGET ALLOWANCE C	INCREASE D	TARGET ALLOWANCE E	INCREASE F
0. Total Direct Labor	15						
1. Travel	19						
2. Rents, Communications, Utilities	21						
3. Contracts (To be let)	51						
4. Grants (Funds obligated)	52						
5. Supplies	58						
6. Capital Equipment	53						
7. Other (All other obligations)	54						
Total Direct Funds <i>(Add lines 10 through 17 above.)</i>		42.8		42.8		42.3	95.9
Positions, Full-time permanent <i>(Number applicable to this Task. Also, complete NOAA Form 32-14C.)</i>		2		2		2	5
Positions, Other <i>(Number applicable to this Task.)</i>		1		1		1	1
Man-years, Permanent							
Man-years, Other							
Reimbursable Support <i>(Reimbursable agreements only)</i>							

MARKS

OFFICIAL PREPARING REPORT (Signature) <i>Caron Rosenfield</i> on Rosenfield	25. FMC DIRECTOR OR DESIGNATED REPRESENTATIVE (Sig.) <i>Carl J. Sindermann</i> Carl J. Sindermann
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MAC-058

Narrative Section

A. Additional Funds:	BY+1	BY+2	BY+3	BY+4
Position/Funds (\$K)	3/95.9	3/95.9	3/95.9	3/95.9

B. Description of Increase Request:

As far as possible, research will be integrated with ongoing Pathobiology Investigations now dealing primarily with diseases of wild fish and shellfish. Research emphasis will focus on prophylaxis and treatment of infectious and noninfectious diseases of larvae and juveniles of selected shellfish and fish produced under hatchery and grow-out systems. Subsequently, diseases occurring in nursery systems and in adult and reproducing populations, both foreign and domestic, will be studied. Field and laboratory experiments will be implemented to test hypotheses on disease control and to test fishery management practices as they apply to various phases of aquaculture operations; particularly, in hatchery systems. Techniques will be developed to: (1) monitor, isolate, identify, culture, and diagnose micropathogen presence and quantify degree of chemical contamination in water, sediment, and animal tissues; (2) determine the mechanisms of micropathogen transmission, penetration, infectivity, host specificity; (3) qualitatively and quantitatively measure micropathogen and chemical activity and host responses via biochemical, cytological, physiological, immunological, and biophysical studies. Long-range plans call for implementing research activities as described above to include larval species of several crustaceans and finfish.

1	Fishery Biologist	GS-07	Vacancy	Milford Laboratory, MACFC
2	Fishery Biologists	GS-05	Vacancy	" " "

Outputs will be in the form of successful control of larval disease outbreaks in hatcheries, in the establishment of effective sanitary regulations and in improved equipment design, and in data reports. This increase as matching funds will augment the ongoing task established in 1975 by internal MACFC reprogramming.

C. Statement of Needs and Anticipated Benefits:

Increased exploitation of the nation's estuaries and coastal zones for industrial and residential development and recreational activities has markedly reduced the areas available for the production and harvest of fish and shellfish. More efficient and effective means to enhance U.S. seafood production must be found aquaculture. Disease is often a limiting factor to successful husbandry operations. Of particular concern are disease enhancement, increased abnormalities, and mortalities among larval

species as associated with thermal effluents per se or synergistically with chemical agents used to inhibit, destroy, or prevent growth of fouling organisms in energy generating operations. Thus, use of these effluents, where populations reach maximum density and the transfer of susceptible stocks (as eggs, larvae, fry, fingerlings) becomes a routine procedure, it is necessary to conduct scientific studies on the role of disease so that its effects can be prevented, minimized, or eliminated in these habitats.

A program of disease research would involve: (1) the development and implementation of a research program for disease prevention and control, particularly in hatchery and nursery systems; (2) the development and implementation of an inspection system for routine diagnosis and identification of infectious agents; (3) contracts and interdisciplinary research projects in collaboration with industry, universities, state, and federal agencies and other research institutions; (4) legislation providing a favorable climate for aquaculture research, e.g., specific NOAA appropriations, "coastal zone legislation," "ocean dumping act," and fish disease legislation, thus leading to coordinated programs with other NOAA elements such as Sea Grant and Federal Aid (88-309) projects. Information generated would be disseminated to all user groups and others interested in aquaculture operations, particularly industry, state, and some university laboratories who cannot do the work themselves.

This TDP represents a modified submission in which funds for the last half of FY 1974 were reprogrammed. Specific actions for FY 1978 include use of reimbursable funds to study diseases and chemical agents (ozone, chlorine, bromine) effects on flora and larval development.

This increase request is directed to '78 PED item: Aquaculture: IIIB, and V. Total funding requested for all molluscan aquaculture exceeds the target in the PED but equals the matching funds expected since 1975. Work should be done in-house inasmuch as the necessary leadership expertise is already onboard.

NMFS TASK DEVELOPMENT PLAN

(See Detailed Instructions)

1. DATE PREPARED

1/30/76

(Submit five copies by Jan. 2)

TO: Director, National Marine Fisheries Service, ATTN: Fx5 National Oceanic and Atmospheric Administration Washington, D.C. 20235

FMC's - Submit a separate Task Development Plan for each task beginning, continuing, or ending in the current year, budget year, or budget year + 1. Reimbursable funds are not to be mingled with appropriated funds on any programmatic TDP; separate TDP's must be prepared. Submit one TDP itemizing the administrative support cost (Management Fund) for the FMC.

TDP NUMBER	3. OBJECTIVE CODES				4. RANK	
MAC-059-78-A2-AL	A	B	C	D	BY TARGET	BY + 1 INC.
					-	20
TASK NUMBER	6. TASK TITLE					
88E4P4	Aquaculture: Spawning & Rearing of Molluscs					
ORGANIZATION CODE	8. ORGANIZATION TITLE (Responsible for execution of this task)				9. PRINCIPAL LOCATION	
FB6300	Experimental Biology Investigations				City	State
					Milford	Ct

OBJECT CLASS Lines 10-18. Enter all dollar values as thousands and tenths of thousands. Lines 21-22. Enter as man-years and tenths of man-years.	WZJ R O O	CURRENT YEAR FY 1976		BUDGET YEAR FY 1977		BUDGET YEAR + 1 FY 1978	
		TARGET ALLOWANCE	INCREASE	TARGET ALLOWANCE	INCREASE	TARGET ALLOWANCE	INCREASE
		A	B	C	D	E	F
D. Total Direct Labor	15						
E. Travel	19						
F. Rents, Communications, Utilities	21						
G. Contracts (To be let)	51 52						
H. Grants (Funds obligated)	58						
I. Supplies	53						
J. Capital Equipment	54						
K. Other (All other obligations)							
Total Direct Funds (Add lines 10 through 17 above.)		87.6		87.6		87.6	68.0
Positions, Full-time permanent (Number applicable to this Task. Also, complete NOAA Form 32-14C.)		5		5		5	4
Positions, Other (Number applicable to this Task.)		3		3		3	2
Man-years, Permanent							
Man-years, Other							
Reimbursable Support (Reimbursable agreements only)							

OFFICIAL PREPARING REPORT (Signature) <i>James E. Hanks</i> James E. Hanks	25. FMC DIRECTOR OR DESIGNATED REPRESENTATIVE (SIGN.) <i>Carl J. Sindermann</i> Carl J. Sindermann
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MAC-059-78-AQ-A-1

Narrative Section

A. Additional Funds:	BY+1	BY+2	BY+3	BY+4
Position/Funds (\$K)	4/68	4/68	4/68	4/68

B. Standard methods available at Milford Laboratory and in the literature which have proven successful for culturing the oyster, will be used in attempts to develop hatchery culture methods for other bivalve species of known or potential commercial value. Because each species has certain unique requirements, these methods will be modified or new technical approaches developed. Attempts will be made in logical sequence (including gametogenesis, spawning the adults, rearing the larval stages, growing the post-set stage immediately after metamorphosis and, finally, growing the juveniles) to adapt proven techniques to the culture of new aquaculture candidates, modifying these techniques when necessary. Initially, the bay scallop and the surf clam will be considered for their potential as aquaculture candidates.

A Fishery Biologist, GS-07, supported by 3 Technicians, GS-04, could conduct this task. Research results would be available through technical and verbal reports to aquaculturists.

C. Statement of Needs and Anticipated Benefits:

This task will produce an integrated series of culture procedures which will allow commercial culturists to rear the bay scallop and the surf clam to market in sufficient quantity and at a price that will be economically feasible. Other species of molluscs of known or potential value for which culture methodology is unknown or incomplete will be considered in the future.

Base funding for this task will support research leading to an understanding of the fundamental requirements of the target species and the technical skills necessary to rear them on a laboratory scale. It will also provide for preliminary efforts to scale up seed production to a hatchery level. However, an increase in funds will be necessary to complete the hatchery-level research and to initiate the final phase of the task objective, i.e., development of field methods for rearing seed to market-size individuals.

The task addresses one aspect of aquaculture goals and takes advantage of in-house expertise in hatchery culture developed for oyster culture.

NMFS TASK DEVELOPMENT PLAN

(See Detailed Instructions)

1. DATE PREPARED

1/30/76

(Submit five copies by Jan. 2)

TO: Director, National Marine Fisheries Service, ATTN: Fx5 National Oceanic and Atmospheric Administration Washington, D.C. 20235

FMC's - Submit a separate Task Development Plan for each task beginning, continuing, or ending in the current year, budget year, or budget year + 1. Reimbursable funds are not to be mingled with appropriated funds on any programmatic TDP; separate TDP's must be prepared. Submit one TDP itemizing the administrative support cost (Management Fund) for the FMC.

2. TDP NUMBER MAC-060-78-RF-A-1	3. OBJECTIVE CODES				4. RANK	
	A	B	C	D	BY TARGET -	BY + 1 INC. 5

5. TASK NUMBER 88F9P1	6. TASK TITLE Biological Assessment: Sportfish
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7. ORGANIZATION CODE FB6200	8. ORGANIZATION TITLE (Responsible for execution of this task) Resource Assessment Investigations	9. PRINCIPAL LOCATION City: Highlands State: NJ
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OBJECT CLASS <i>Lines 10-18. Enter all dollar values as thousands and tenths of thousands. Lines 21-22. Enter as man-years and tenths of man-years.</i>	INZ R O O	CURRENT YEAR FY 1976		BUDGET YEAR FY 1977		BUDGET YEAR + 1 FY 1978	
		TARGET ALLOWANCE A	INCREASE B	TARGET ALLOWANCE C	INCREASE D	TARGET ALLOWANCE E	INCREASE F
10. Total Direct Labor	15						
11. Travel	19						
12. Rents, Communications, Utilities	21						
13. Contracts (To be let)	51 52						30.0
14. Grants (Funds obligated)	58						
15. Supplies	53						
16. Capital Equipment	54						
17. Other (All other obligations)							
18. Total Direct Funds (Add lines 10 through 17 above.)		121.6		121.6		121.6	160.0
19. Positions, Full-time permanent (Number applicable to this Task. Also, complete NOAA Form 32-14C.)		3		3		3	7
20. Positions, Other (Number applicable to this Task.)		7		7		7	0
21. Man-years, Permanent							
22. Man-years, Other							
23. Reimbursable Support (Reimbursable agreements only)							

REMARKS
Dependent upon Extended Jurisdiction

24. OFFICIAL PREPARING REPORT (Signature) Arthur Merrill	25. FMC DIRECTOR OR DESIGNATED REPRESENTATIVE (Signature) Carl J. Sindermann
---	---

MAC-060

Narrative Section

A. Additional Funds:	BY+1	BY+2	BY+3	BY+4
Position/Funds (\$K)	7/160	7/160	7/160	7/160

B. Description of Increase Request:

An increase in funding (\$160K) in FY'78 will allow us to provide information for construction of biostatistical models on a real-time basis. Two areas of current study will be expanded to meet anticipated needs: (1) age determination and rates of growth will be derived for species (selected for stock assessment - MAC-064) by analysis of scales, otoliths, and other bony structures; and (2) spawning seasons of fishes (MAC-053) in the Middle Atlantic Bight will be determined as well as the relation of fecundity to age, size, and areal distribution within the Bight. In addition, long-term changes in spawning and fecundity will be monitored to determine natural and/or possible man-induced environmental effects.

Personnel involved will be:

2 Fishery Biologists	GS-05	Vacancies	Sandy Hook Laboratory,	MACFC
4 Biological Technicians	GS-04	"	"	"
1 Computer Technician	GS-05	"	"	"

Outputs will be in the form of data reports, popular activities, scientific manuscripts; findings will be utilized by other MARMAP tasks (MAC-053, MAC-064).

C. Statement of Needs and Anticipated Benefits:

Our basic biological knowledge of the life histories of many coastal fishes is totally inadequate for recommending immediate and sound national and international management policies. In general, the purpose of this task is to provide the life history data base essential to determination of recruitment, optimum levels of exploitation, and the impact of long-term natural fluctuations and man-induced changes in the environment upon our fisheries resources.

This augmentation will closely follow suggestions and guidelines to develop fisheries management information of marine recreational and commercial significance (Sub-goals I-A and III-A). In addition, various user groups, other than NMFS researchers, such as population and environmental analysts, industry, sportsmen, and management and regulatory agencies will be provided with these data upon request.

Increase request is directed to PED Item D.1.A. MARMAP Recreational Species. Present in-house competence is over-extended; it is performing both scientific and technician duties. The most cost-effective approach is to supplement the present staff. If this request is not received, biological information important to resource managers and to our sport-fish constituency will be delayed, and at a time when such information is crucially needed.

NMFS TASK DEVELOPMENT PLAN

(See Detailed Instructions)

1. DATE PREPARED

1/30/76

(Submit five copies by Jan. 2)

TO: Director, National Marine Fisheries Service, ATTN: Fx5 National Oceanic and Atmospheric Administration Washington, D.C. 20235

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2. TDP NUMBER MAC-064-78-RF-A	3. OBJECTIVE CODES				4. RANK	
	A	B	C	D	BY TARGET —	BY +1 INC. 2

5. TASK NUMBER	6. TASK TITLE MARMAP FA: Population Dynamics
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7. ORGANIZATION CODE FB6200	8. ORGANIZATION TITLE (Responsible for execution of this task) Resource Assessment Investigations	9. PRINCIPAL LOCATION City: Highlands State: NJ	
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OBJECT CLASS <i>Lines 10-18. Enter all dollar values as thousands and tenths of thousands. Lines 21-22. Enter as man-years and tenths of man-years.</i>	LINE NO.	CURRENT YEAR FY 1976		BUDGET YEAR FY 1977		BUDGET YEAR +1 FY 1978	
		TARGET ALLOWANCE A	INCREASE B	TARGET ALLOWANCE C	INCREASE D	TARGET ALLOWANCE E	INCREASE F
10. Total Direct Labor	15						
11. Travel	19						
2. Rents, Communications, Utilities	21						
13. Contracts (To be let)	51						
4. Grants (Funds obligated)	52						88.0
	58						
5. Supplies	53						
16. Capital Equipment	54						
7. Other (All other obligations)							
18. Total Direct Funds (Add lines 10 through 17 above.)					275.0		200.0
19. Positions, Full-time permanent (Number applicable to this Task. Also, complete NOAA Form 32-14C.)					3		4
20. Positions, Other (Number applicable to this Task.)					8		0
21. Man-years, Permanent							
2. Man-years, Other							
23. Reimbursable Support (Reimbursable agreements only)							

REMARKS
Dependent upon Extended Jurisdiction

24. OFFICIAL PREPARING REPORT (Signature)
Arthur Merrill
Arthur Merrill

25. FMC DIRECTOR OR DESIGNATED REPRESENTATIVE (SIGN)
Carl J. Sindermann
Carl J. Sindermann

MAC-064

Narrative Section

A. Additional Funds:	BY+1	BY+2	BY+3	BY+4
Position/Funds (\$K)	4/200	4/200	4/200	4/200

B. Description of Increase Request:

The population dynamics task unit will utilize a resource research data bank including recent historical information to provide management advice to fishery industries, state, federal and international groups charged with conservation and allocation of renewable marine resources. Cruise surveys, commercial and recreational landings, and biological data on recruitment and mortality will be used to determine status of stocks and will be further developed into yield estimates. A new approach will be to develop analytical techniques for "mixed" fisheries problems of international involvement, which are needed for a functional exploitation policy.

To accomplish the above objectives, four additional staff members (biometrician, operational analyst, fisheries biologist, and computer programmer) to the unit are required together with new equipment (time-sharing terminal and other computing equipment for their support).

1 Biometrician	GS-13	Vacancy	Sandy Hook Laboratory, MACFC
1 Systems Analyst	GS-12	"	" " " " "
1 Fishery Biologist	GS-09	"	" " " " "
1 Computer Programmer	GS-11	"	" " " " "

C. Statement of Needs and Anticipated Benefits:

Taking into account the anticipated future legal and jurisdictional changes in the regime of coastal fisheries management within 200 miles of the coast of the United States and other nations, and the need to provide for an orderly transition, this 200K augmentation of the population dynamics investigation for establishing various fisheries management schemes is necessary in order to achieve the following set of long-range objectives:

- (1) The establishment of a rational conservation regime based on the best available quantitative scientific evidence;
- (2) The determination of allowable catch and other conservation measures by the U. S. on the basis of MSY's qualified by relevant environmental and economic factors;

- (3) The implementation of preferential harvesting strategies for U. S. fishermen based on their capacity to harvest the living resources;
- (4) The implementation of resource allocation management system based on the principles of optimum utilization with mixed fisheries problems.

The short-range objectives are to characterize and accomplish the overall task objectives for (1) establishing a valuable information source bank including biological, cruise survey, landings and effort data as well as the related literature synopsis, (2) utilizing these information sources to estimating population parameters (growth, mortality, recruitment, population size) of commercially and recreationally important species in the Bight, and (3) developing useful analytical and simulation models for predicting and monitoring systems of multi-nation, multi-gear, and multi-species fisheries.

The proposed augmented studies will be directly beneficial to the state, regional, federal and international fisheries policy makers as well as commercial and recreational fishermen.

This increase request is directed to PED Item D.1.b.(1). Work must be done in-house inasmuch as it will generate final national policy recommendations for management and allocation of the living marine resources of the MAB. If the requested increase is not received, the nation will not be in a position to honor its national and international obligations for rational management and allocation of the resources of the Middle Atlantic coastal waters.

NMFS TASK DEVELOPMENT PLAN

(See Detailed Instructions)

1. DATE PREPARED

1/29/76

(Submit five copies by Jan. 2)

TO: Director, National Marine Fisheries Service, ATTN: Fx5 National Oceanic and Atmospheric Administration Washington, D.C. 20235

FMC's - Submit a separate Task Development Plan for each task beginning, continuing, or ending in the current year, budget year, or budget year + 1. Reimbursable funds are not to be mingled with appropriated funds on any programmatic TDP; separate TDP's must be prepared. Submit one TDP itemizing the administrative support cost (Management Fund) for the FMC.

2. TDP NUMBER MAC-067-78-EI-A1	3. OBJECTIVE CODES				4. RANK	
	A	B	C	D	BY TARGET —	BY + 1 INC. 10

5. TASK NUMBER 88C2R1	6. TASK TITLE Primary Productivity and its Relationship to Pollution and Coastal Fisheries
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7. ORGANIZATION CODE FB 6100	8. ORGANIZATION TITLE (Responsible for execution of this task) Ecosystems Investigations	9. PRINCIPAL LOCATION City: Highlands State: NJ
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OBJECT CLASS <i>Lines 10-18. Enter all dollar values as thousands and tenths of thousands. Lines 21-22. Enter as man-years and tenths of man-years.</i>	LINE NUMBER	CURRENT YEAR FY 19 ⁷⁶		BUDGET YEAR FY 19 ⁷⁷		BUDGET YEAR + 1 FY 19 ⁷⁸	
		TARGET ALLOWANCE	INCREASE	TARGET ALLOWANCE	INCREASE	TARGET ALLOWANCE	INCREASE
		A	B	C	D	E	F
10. Total Direct Labor	15						
11. Travel	19						
12. Rents, Communications, Utilities	21						
13. Contracts (To be let)	51 52						
14. Grants (Funds obligated)	58						
15. Supplies	53						
16. Capital Equipment	54						
17. Other (All other obligations)							
18. Total Direct Funds (Add lines 10 through 17 above.)		78.6		78.6		78.6	95.5
19. Positions, Full-time permanent (Number applicable to this Task. Also, complete NOAA Form 32-14C.)		7		7		7	0
20. Positions, Other (Number applicable to this Task.)		1		1		1	2
21. Man-years, Permanent							
22. Man-years, Other							
23. Reimbursable Support (Reimbursable agreements only)							

REMARKS

Not Dependent

24. OFFICIAL PREPARING REPORT (Signature)

John B. Pearce

25. FMC DIRECTOR OR DESIGNATED REPRESENTATIVE (Sig.)

Carl J. Sindermann

NARRATIVE SECTION

A) Additional Funds: Primary Productivity and its Relationship to Pollution and Coastal Fisheries

BY + 1
0/96

BY + 2
0/96

BY + 3
0/96

BY + 4
0/96

B) Description of Increase Request: "Primary Productivity and its Relationship to Pollution and Coastal Fisheries" will enable this investigation to conduct research on the relationship between productivity in coastal waters and secondary productivity in the benthic environment as it relates to demersal fish. Personnel input will include services of an investigation chief, GS-13, two GS-12 fishery biologists, three GS-11 microbiologist, one GS-11 oceanographer, three GS-9 fishery biologists and two to three GS-5-7 technicians. These personnel will be assigned to the Sandy Hook facility, Middle Atlantic Coastal Fisheries Center, with the exception of the microbiologists who will be assigned to the microbiology laboratory, Milford, Connecticut. This task is a continuation of previous work conducted on primary productivity and a separate task, Environmental Microbiology. Requested increases will enable the investigation to interrelate data from primary productivity, microbiology, benthic community, and finfish productivity studies.

C) Statement of Need and Anticipated Benefits: Previously the disparate investigations were conducted separately. Increases required will enable more indepth field work to be completed and detailed analyses and syntheses of data. The problem at hand has to do with how environmental deterioration and pollution impacts upon the various links of the food web which culminate in marine finfish. Studies conducted in the past have been principally discipline oriented, i.e. microbiology. The present task attempts to relate primary productivity to various secondary trophic levels. The benefits that will accrue from increased funding and reorganization will enable personnel of the investigation to tie change in finfish standing stocks and recruitment to environmental changes that directly impact on primary productivity and secondary productivity in the benthic environment.

The proposed program should not result in any cost to the private or public sector. Primary recipients of the benefits will include the fish management personnel as well as EAD-NMFS and other federal and state agencies concerned with environmental deterioration and pollution. The proposed investigation is directly responsive to the Habitat Protection Goal of the program emphasis document for FY 76-77-78.

The increase does not include new positions; positions are acquired through reorganization of existing investigations. Continued deterioration in the physical/chemical environment of the Middle Atlantic Bight and

Primary Productivity and its Relationship to Pollution and Coastal Fisheries (cont'd)

continued decline in the fisheries, both finfish and shellfish, emphasize the urgency in understanding primary and secondary productivity as these relate to the coastal marine fisheries. The program increase will not require additional NOAA ship time over and beyond present needs. It will require quarterly cruises on the FRV Delaware II and periodic day cruises on small boats. No new physical facilities will be required inasmuch as the Center laboratories are well-equipped for the proposed work.

NMFS TASK DEVELOPMENT PLAN

(See Detailed Instructions)

1. DATE PREPARED

1/30/76

(Submit five copies by Jan. 2)
Director, National Marine Fisheries Service, ATTN: F&S
National Oceanic and Atmospheric Administration
Washington, D.C. 20235

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2. TDP NUMBER AC-071-78-RF-A-1	3. OBJECTIVE CODES				4. RANK	
	A	B	C	D	BY TARGET —	BY + 1 INC. 8

5. TASK NUMBER	6. TASK TITLE Recreational Fisheries: Forage Fish-Predator Relations
----------------	---

7. ORGANIZATION CODE PB6200	8. ORGANIZATION TITLE (Responsible for execution of this task) Resource Assessment Investigations	9. PRINCIPAL LOCATION City: Highlands State: NJ
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OBJECT CLASS Line 10-18. Enter all dollar values as thousands and tenths of thousands. Line 21-22. Enter as man-years and tenths of man-years.	B I Z J O O U	CURRENT YEAR FY 1976		BUDGET YEAR FY 1977		BUDGET YEAR + 1 FY 1977	
		TARGET ALLOWANCE	INCREASE	TARGET ALLOWANCE	INCREASE	TARGET ALLOWANCE	INCREASE
		A	B	C	D	E	F
10. Total Direct Labor	15						
11. Travel	19						
. Rents, Communications, Utilities	21						
13. Contracts (To be let)	51 52						77.0
. Grants (Funds obligated)	58						
15. Supplies	53						
16. Capital Equipment	54						
. Other (All other obligations)							
18. Total Direct Funds (Add lines 10 through 17 above.)							150.0
19. Positions, Full-time permanent (Number applicable to this Task. Also, complete NOAA Form 32-14C.)							3
20. Positions, Other (Number applicable to this Task.)							0
21. Man-years, Permanent							
. Man-years, Other							
23. Reimbursable Support (Reimbursable agreements only)							

MARKS

Dependent upon Extended Jurisdiction

24. OFFICIAL PREPARING REPORT (Signature)
Arthur Merrill
Arthur Merrill

25. FMC DIRECTOR OR DESIGNATED REPRESENTATIVE (Sig.)
Carl J. Sindermann
Carl J. Sindermann

MAC-071

Narrative Section

A. Additional Funds:	BY+1	BY+2	BY+3	BY+4
Position/Funds (\$K)	3/150	3/150	3/150	3/150

B. Description of Increase Request:

This program when initiated (\$250K) and augmented (\$150K) will examine the relationships between the abundance of forage species and seasonality and variability of predator diet by determining: (1) relative abundance, seasonality, and distribution of forage species in selected estuarine and ocean environments, (2) seasonality and variability of predator diet items, (3) changes in diet to age of predator, illumination, feeding grounds, temperature, and prey size, and (4) food items from catches of commercial and recreational fisheries and from research cruises.

Personnel involved will be:

- 1 Fishery Biologist GS-12 Sandy Hook Laboratory, MACFC
- 2 Biological Technicians GS-05 " " " "

C. Statement of Needs and Anticipated Benefits:

Conflicts between sport- and commercial fishermen constantly develop on the alleged adverse effects of commercial harvesting of forage species (e.g., bluefish and striped bass) to recreational fishermen. Such conflicts go to the heart of the allocation problem implicit in any rational resource management system. Currently, the problems usually result in local discriminatory legislation which is seldom based on knowledge of the resource. It behooves us now to initiate studies which will furnish a foundation for future allocation (sportfish vs commercial fish) problems.

Initiation and augmentation of this task will closely follow suggestions and guidelines to develop fisheries management information of marine recreational and commercial importance (Sub-goals I-A and III-A). In addition to NMFS goals these data will also be available to user groups (e.g., environmental analysts, industry, and management and regulatory agencies) upon request. An exerted effort will be made, whenever possible, to release research results via non-technical sources (e.g., news releases, federal publications, popular publications, etc.) to both recreational and commercial fisheries components on a real-time basis.

This request is directed toward PED Item D.1.a. MARMAP Recreational Species. Inasmuch as the proposed studies bear on highly controversial problems and upon the necessity for unbiased allocation decisions, it is deemed vital that the necessary foundation studies be done by federal employees.

NMFS TASK DEVELOPMENT PLAN

(See Detailed Instructions)

1. DATE PREPARED

3/30/76

(Submit five copies by Jan. 2)

TO: Director, National Marine Fisheries Service, ATTN: Fx5 National Oceanic and Atmospheric Administration Washington, D.C. 20235

FMC's - Submit a separate Task Development Plan for each task beginning, continuing, or ending in the current year, budget year, or budget year + 1. Reimbursable funds are not to be mingled with appropriated funds on any programmatic TDP; separate TDP's must be prepared. Submit one TDP itemizing the administrative support cost (Management Fund) for the FMC.

TDP NUMBER AC-075-78-RF-A	3. OBJECTIVE CODES				4. RANK	
	A	B	C	D	BY TARGET -	BY + 1 INC. 4

TASK NUMBER	6. TASK TITLE Nearshore and Estuarine Sportfish Analysis
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ORGANIZATION CODE B6200	8. ORGANIZATION TITLE (Responsible for execution of this task) Resource Assessment Investigations	9. PRINCIPAL LOCATION City: Highlands State: NJ
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OBJECT CLASS nos 10-18. Enter all dollar values as thousands and tenths of thousands. nos 21-22. Enter as man-years and tenths of man-years.	UNIT BOOK	CURRENT YEAR FY 19_76		BUDGET YEAR FY 19_77		BUDGET YEAR + 1 FY 19_78	
		TARGET ALLOWANCE A	INCREASE B	TARGET ALLOWANCE C	INCREASE D	TARGET ALLOWANCE E	INCREASE F
Total Direct Labor	15						
Travel	19						
Rents, Communications, Utilities	21						
Contracts (To be let)	51 52						152.0
Grants (Funds obligated)	58						
Supplies	53						
Capital Equipment	54						
Other (All other obligations)							
Total Direct Funds (Add lines 10 through 17 above.)							250.0
Positions, Full-time permanent (Number applicable to this Task. Also, complete NOAA Form 32-14C.)							4
Positions, Other (Number applicable to this Task.)							0
Man-years, Permanent							
Man-years, Other							
Reimbursable Support (Reimbursable agreements only)							

REMARKS
Dependent upon Extended Jurisdiction

OFFICIAL PREPARING REPORT (Signature)
Arthur Merrill
Arthur Merrill

25. FMC DIRECTOR OR DESIGNATED REPRESENTATIVE
Carl J. Sinderman
Carl J. Sinderman

MAC-075

Narrative Section

A. Additional Funds	BY+1	BY+2	BY+3	BY+4
Position/Funds (\$K)	4/250	4/250	4/250	4/250

B. Description of Increase Request:

Initiation of this 250K task will allow ocean beaches and inlets of the Middle Atlantic to be systematically sampled over the course of a year using haul seines as large as 1,500 feet in length and 16 feet in depth. This type of gear will efficiently catch fishes ranging in size from 3.4 inches to at least 9 feet and provide information as to their measure of abundance, rates of growth, and routes of migrations, especially for the most important recreational species. Estuaries will be systematically sampled using the same technique as above, but the work will be contracted, preferably to the various coastal states.

Personnel involved are contract monitors and will perform the beach seining functions. All work in estuaries will be contracted to state agencies.

1 Fishery Biologist	GS-13	Vacancy	Sandy Hook Laboratory,	MACFC
2 Fishery Biologists	GS-09	"	"	"
1 Secretary	GS-04	"	"	"

Outputs will be in the form of biannual data reports, contract reports. Findings will be included in Fishermen's Cruise Reports.

C. Statement of Needs and Anticipated Benefits:

This proposed task directly relates to goal III-A (Marine Recreational Fisheries) and to goal I-A (Resource Survey/Data Analysis). Studies have shown that species diversity is very high in shallow-water areas, often higher than found in deeper water areas, and that shallow-water areas are important as spawning and nursery grounds. Yet, there is a general lack of information about fishes occurring in these areas along broad geographical stretches of the coast in the western North Atlantic. There is particularly a paucity of knowledge in the species composition, size, distribution, and seasonal abundance of fishes there. The NMFS is presently spending large amounts of time and money collecting information so we can determine the overall condition of various fish populations as well as being able to predict their abundance in the future. However, this work can at best be of only limited application if the nearshore contingents are not taken into consideration. Indeed, often the catches of fishes taken by otter trawl on the various MARMAP cruises steadily increase upon approaching nearshore

water, but the sampling has to be discontinued due to the danger of operating in shoal waters. There occurs in these shallow-water areas a preponderance of fodder species as well as relatively large size species important to recreational fishermen. For example, one study has shown that the three most important species to surf anglers (bluefish, striped bass, northern kingfish) were among the ten most prevalent species occurring along the shore.

This task will support the regional councils efforts to manage coastal fisheries stocks. Other groups benefiting will include state, federal and international fisheries managers as well as commercial and recreational fishermen.

This request is directed to PED Item D.1.b.(1) in that it will permit incorporation into assessment activities a large, almost preponderant, segment of the living marine resources of the Middle Atlantic Bight, which resources have hitherto been largely omitted from stock calculations. The great majority of the work herein contemplated will be done by contract. If this requested increase is not received, stock assessment figures for the Middle Atlantic will continue to reflect only that component of the total resource which, at some point in time, happens to be outside the 15-fathom line.

NMFS TASK DEVELOPMENT PLAN

(See Detailed Instructions)

1 | 1 | 3
 1. DATE PREPARED
 1/30/76

(Submit five copies by Jan. 2)
 O: Director, National Marine Fisheries Service, ATTN: Fx5 National Oceanic and Atmospheric Administration Washington, D.C. 20235

FMC's - Submit a separate Task Development Plan for each task beginning, continuing, or ending in the current year, budget year, or budget year + 1. Reimbursable funds are not to be mingled with appropriated funds on any programmatic TDP; separate TDP's must be prepared. Submit one TDP itemizing the administrative support cost (Management Fund) for the FMC.

TDP NUMBER TAC-076-78-RF-A	3. OBJECTIVE CODES				4. RANK	
	A	B	C	D	BY TARGET -	BY + 1 YR. 7

TASK NUMBER: 6. TASK TITLE
 Fish Migration Analysis

ORGANIZATION CODE: B6200
 8. ORGANIZATION TITLE (Responsible for execution of this task)
 Resource Assessment Investigations
 9. PRINCIPAL LOCATION
 City: Highlands | State: NJ

OBJECT CLASS <i>lines 10-18. Enter all dollar values as thousands and tenths of thousands. lines 21-22. Enter as man-years and tenths of man-years.</i>	UN- D- R- E- C- O	CURRENT YEAR FY 19 76		BUDGET YEAR FY 19 77		BUDGET YEAR + 1 FY 19 78	
		TARGET ALLOWANCE A	INCREASE B	TARGET ALLOWANCE C	INCREASE D	TARGET ALLOWANCE E	INCREASE F
10. Total Direct Labor	15						
11. Travel	19						
12. Rents, Communications, Utilities	21						
13. Contracts (To be let)	51						
14. Grants (Funds obligated)	52						370.0
15. Supplies	53						
16. Capital Equipment	54						
17. Other (All other obligations)							
18. Total Direct Funds (Add lines 10 through 17 above.)							500.0
19. Positions, Full-time permanent (Number applicable to this Task. Also, complete NOAA Form 32-14C.)							6
20. Positions, Other (Number applicable to this Task.)							0
21. Man-years, Permanent							
22. Man-years, Other							
23. Reimbursable Support (Reimbursable agreements only)							

REMARKS
 Dependent upon Extended Jurisdiction..

OFFICIAL PREPARING REPORT (Signature)
 Arthur Merrill

25. FMC DIRECTOR OR DESIGNATED REPRESENTATIVE (Sig.)
 Carl J. Sindermann

MAC-076

Narrative Section

A. Additional funds:	BY+1	BY+2	BY+3	BY+4
Position/Funds (\$K)	6/500	6/500	6/500	6/500

B. Description of Increase Request:

The problem of obtaining adequate information on the movement of fish across political boundaries (a matter of very great importance to MACFC) is two-fold: inadequate documentation of existing data and inadequate data. This 500 K proposal outlines an effective method of accumulating this data thru fish tagging studies both historical and planned. Archiving of fish tagging data for the entire Atlantic Coast at a single location would make it rapidly available for fisheries managers, help reduce duplication of research efforts, and allow logical determination of priority species for future tagging studies. MACFC will establish a data bank for all Atlantic Coast fish tagging data. Data will be acquired from existing state and federal research organizations. MACFC will design a SELGEM format for storing retrieving and manipulating tagging data and will convert all existing data to the format. As the data accumulates it will be evaluated for adequacy of parameters such as geographic range of tagging locations, size range of specimens tagged, comparability of population size with present populations, per cent of tag returns, and suitability of tagging methods used. MACFC will initiate tagging studies for priority species using in-house personnel and contracts with states or universities. Depending on priorities determined by analysis of existing data these studies may be of either a single or multi-species approach.

Personnel will be:

1 Fishery Biologist (Research)	GS-12	Vacancy	Sandy Hook Laboratory, MACFC
1 Fishery Biologist (Research)	GS-09	"	" " " "
1 Fishery Biologist (Research)	GS-07	"	" " " "
1 Computer Programmer	GS-09	"	" " " "
3 Biological Technicians	GS-04	"	" " " "

Task Outputs

1. Tagging Data Bank
2. Identification of critical knowledge gaps concerning movements of fish across political boundaries.
3. Data Reports and Graphs
4. Input data for socio-economic and yield models

C. Statement of Needs and Anticipated Benefits:

This task relates to various aspects of extended jurisdiction proposals, the Northeast Region's proposed program development plan for Recreational Fisheries and NMFS goals III-A (Marine Recreational Fisheries) and I-A (Resource Surveys/Data Analysis). According to extended jurisdiction documents, responsibility and authority for managing an individual fish species will depend primarily upon the species movements across political boundaries and the movement of many species is either poorly understood, relatively undocumented, or both. This lack of information is particularly obvious where it concerns pelagic or semi-pelagic species which are relatively invulnerable to capture during groundfish trawling surveys. Many of the pelagic or semi-pelagic species are key recreational species as well as commercially important.

This task will support the regional councils efforts to manage coastal fisheries stocks. Other groups benefiting will include state, federal and international fisheries managers as well as commercial and recreational fishermen.

This request is directed to PED Item D. I. b. (1). inasmuch as data on migratory habits of fish species will be a first concern of Regional Fisheries Councils to decide upon jurisdictional matters and much work must be done prior to inception of the Councils. Work should be done in-house in view of the need for early, effective sustained and coast-wide efforts.

NMFS TASK DEVELOPMENT PLAN

(See Detailed Instructions)

1. DATE PREPARED

1/30/76

(Submit five copies by Jan. 2)

Director, National Marine Fisheries Service, ATTN: Fx5
National Oceanic and Atmospheric Administration
Washington, D.C. 20235

FMC's - Submit a separate Task Development Plan for each task beginning, continuing, or ending in the current year, budget year, or budget year + 1. Reimbursable funds are not to be mingled with appropriated funds on any programmatic TDP; separate TDP's must be prepared. Submit one TDP itemizing the administrative support cost (Management Fund) for the FMC.

TDP NUMBER AC-077-78-EI-A1	3. OBJECTIVE CODES				4. RANK	
	A	B	C	D	BY TARGET —	BY + 1 INC. 23
TASK NUMBER	6. TASK TITLE Mutagenic Effects of Pollutants					
ORGANIZATION CODE B6300	8. ORGANIZATION TITLE (Responsible for execution of this task) Experimental Biology Investigations				9. PRINCIPAL LOCATION City Milford State CT	

OBJECT CLASS <i>Lines 10-18. Enter all dollar values as thousands and tenths of thousands. Lines 21-22. Enter as man-years and tenths of man-years.</i>	WZ J L O O	CURRENT YEAR FY 19 <u>76</u>		BUDGET YEAR FY 19 <u>77</u>		BUDGET YEAR + 1 FY 19 <u>77</u>	
		TARGET ALLOWANCE	INCREASE	TARGET ALLOWANCE	INCREASE	TARGET ALLOWANCE	INCREASE
		A	B	C	D	E	F
Total Direct Labor	15						
Travel	19						
Rents, Communications, Utilities	21						
Contracts (To be let)	51 52						
Grants (Funds obligated)	58						
Supplies	53						
Capital Equipment	54						
Other (All other obligations)							
Total Direct Funds (Add lines 10 through 17 above.)							200.0
Positions, Full-time permanent (Number applicable to this Task. Also, complete NOAA Form 32-14C.)							6
Positions, Other (Number applicable to this Task.)							3
Man-years, Permanent							
Man-years, Other							
Reimbursable Support (Reimbursable agreements only)							

OFFICIAL PREPARING REPORT (Signature) James E. Hanks James E. Hanks	25. FMC DIRECTOR OR DESIGNATED REPRESENTATIVE (SIG.) Carl J. Sindermann Carl J. Sindermann
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Narrative Section

A. Additional Funds:	BY+1	BY+2	BY+3	BY+4
Position/Funds (\$K)	6/200	6/200	6/200	6/200

B. Description of Increase Request:

This task proposes a coordinated field monitoring study of developing fish eggs, supported by experimental work to back up field data. Pelagic fish eggs will be collected from heavily polluted neuston as well as demersal fish eggs. Laboratory-spawned eggs of the same fish species studied in wild collections will provide a baseline of spontaneous chromosome abnormalities. These would be exposed to chronic exposure to suspect offending pollutants with subsequent study of the developing eggs and gonads for genetic damage. Post-spawned eggs of unexposed parents will be exposed to suspect chemicals, and eggs appraised cytogenetically. Cultures can be maintained to link particular levels of chromosome damage to malformation, lethality, or poor vigor. This study will require a cytogeneticist GS/11-12, geneticist GS-9, fishery biologist GS-7, and technicians one GS-5 and two GS-4, all to be based at the Milford Laboratory, MACFC. Data reports and scientific publications would report the mutagenic effects of pollutants and supply critical data on the long-term effects of chronic low-dose exposure to selected classes of marine contaminants on the reproductive phase of fish. These data supply information for establishing water quality standards and significant in court for environmental assessment decisions.

C. Statement of Need and Anticipated Benefits:

The problem addressed is assessment of cytogenetic damage of important fish species from pre-spawning contaminant load and post-spawning exposure to contaminants; determine historic and background chromosome aberration rates; relate environmental factors in chromosomal aberration rates; back up field data with laboratory exposures of parental stock and eggs to pollutants; correlate chromosome damage to malformation; lethality and reduced vigor of larvae. These data are significant in relating and determining larval mortality, important in resource assessment statistics. These studies from inhouse funds will require 200K/annum. Recipients accruing benefits would include commercial and recreational fishermen and the public. The task addresses fisheries management and environmental assessment goals. The Milford laboratory has a body of expertise and developed methodologies for study of fish eggs, applicable to any formalin-fixed samples--materials therefore may be selected from resource assessment cruises and museum material from historic cruises. The insidious nature of genetic effects contributing to a background of widely fluctuating fishery populations makes a monitoring effort significant to conservation of fishery populations. This is especially true since reproduction of managed fish populations is controlled principally from establishment of fishing quotas.

NMFS TASK DEVELOPMENT PLAN

(See Detailed Instructions)

1. DATE PREPARED

1/29/76

(Submit five copies by Jan. 2)

TO: Director, National Marine Fisheries Service, ATTN: Fx5 National Oceanic and Atmospheric Administration Washington, D.C. 20235

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2. TDP NUMBER	3. OBJECTIVE CODES				4. RANK	
MAC-078-78-EI-A1	A	B	C	D	BY TARGET	BY + 1 INC.
					-	19

5. TASK NUMBER	6. TASK TITLE
	Environmental Chemistry Investigation

7. ORGANIZATION CODE	8. ORGANIZATION TITLE (Responsible for execution of this task)	9. PRINCIPAL LOCATION	
FB 6110	Ecosystems Investigations	City Milford	State Ct.

OBJECT CLASS <i>Lines 10-18. Enter all dollar values as thousands and tenths of thousands. Lines 21-22. Enter as man-years and tenths of man-years.</i>	ENL B O O C	CURRENT YEAR FY 1976		BUDGET YEAR FY 1977		BUDGET YEAR + 1 FY 1978	
		TARGET ALLOWANCE	INCREASE	TARGET ALLOWANCE	INCREASE	TARGET ALLOWANCE	INCREASE
		A	B	C	D	E	F
10. Total Direct Labor	15						
11. Travel	19						
12. Rents, Communications, Utilities	21						
13. Contracts (To be let)	51 52						
14. Grants (Funds obligated)	58						
15. Supplies	53						
16. Capital Equipment	54						
17. Other (All other obligations)							
18. Total Direct Funds (Add lines 10 through 17 above.)							36.4
19. Positions, Full-time permanent (Number applicable to this Task. Also, complete NOAA Form 32-14C.)							1
20. Positions, Other (Number applicable to this Task.)							1
21. Man-years, Permanent							
22. Man-years, Other							
23. Reimbursable Support (Reimbursable agreements only)							

REMARKS

Not Dependent

24. OFFICIAL PREPARING REPORT (Signature)
John B. Pearce
John B. Pearce

25. FMC DIRECTOR OR DESIGNATED REPRESENTATIVE (Sig.)
Carl J. Sindermann
Carl J. Sindermann

NARRATIVE SECTION

A) Additional Funds: Environmental Chemistry

<u>BY + 1</u>	<u>BY + 2</u>	<u>BY + 3</u>	<u>BY + 4</u>
1/36	1/36	1/36	1/36

B) Description of Increase Request: Heavy metals, PCBs, pesticides and other toxic materials have been demonstrated to be increasing in the environment and the living resources utilized for human food. Preliminary data have been collected by the Environmental Chemistry Investigation and numerous publications have been made concerned with baseline levels of heavy metals in the environment and living resources. The proposed program would require funds to study the dynamics of movements of metal from the physical environment through the marine food chain. Also, funding would be utilized for the study of PCBs and other toxic materials. The continuing program would emphasize the dynamics of the mobilization of toxic elements and their passage through the food web. The program would require a GS-13 Investigation Chief, GS-11 analytical chemist, GS-9 chemical technician and two temporary or work/study aids. Personnel assigned to the investigation would be located at the Milford Laboratory, Middle Atlantic Coastal Fisheries Center.

C) A crucial problem exists in terms of metals, PCBs and other toxic materials being introduced into the coastal environment and Middle Atlantic Bight. The impact of these toxic materials on human beings is poorly understood and the sublethal effects of these toxic materials on the resource itself is even less understood. The investigation will be principally oriented towards understanding how materials are accumulated in living marine resources and pass through the various primary and secondary trophic levels. In concert with reports from FDA and EPA, the program will also enable decisions to be made as to the well-being of certain food products.

There should be no increased cost to the private or public sectors because of this program. Principal recipients of the benefits will include managers of the fishery and environment, including EAD-NMFS, EPA and FDA. State environmental and public health groups will also benefit from research data. The public will benefit because proper management steps can be taken once the data are available and this will result in better management of the fishery as well as more wholesome food products.

The proposed program is related principally to the Habitat Protection Goal given in the program emphasis document for FY 76-77-78. The principal increase in positions required for this program is at the technician level.

Environmental Chemistry (cont'd)

Principal scientists and supervising biologists are presently available to the program but present funding does not provide for the technician and aid personnel required for successful completion of the program. The program has recently come into existence because of reorganization but sufficient funds are not available for full utilization of the senior personnel.

The program will require no increase in NOAA vessel time and no significant increase in NMFS small boat time since experimental organisms and samples required for the program can be collected in concert with other ongoing investigations. Adequate laboratory facilities are available to the Milford Laboratory, Middle Atlantic Coastal Fisheries Center.

NMFS TASK DEVELOPMENT PLAN

(See Detailed Instructions)

1. DATE PREPARED

1/29/76

(Submit five copies by Jan. 2)
O: Director, National Marine Fisheries Service, ATTN: Fx5 National Oceanic and Atmospheric Administration Washington, D.C. 20235

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TDP NUMBER MAC-080-78-EI-A1	3. OBJECTIVE CODES				4. RANK	
	A	B	C	D	BY TARGET -	BY + 1 INC. 21

TASK NUMBER	6. TASK TITLE The Effect of Petroleum on the Behavior of Marine Fishes and Invertebrates
-------------	---

ORGANIZATION CODE FB 6100	8. ORGANIZATION TITLE (Responsible for execution of this task) Ecosystems Investigations	9. PRINCIPAL LOCATION City: Highlands State: NJ
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OBJECT CLASS <i>Lines 10-18. Enter all dollar values as thousands and tenths of thousands. Lines 21-22. Enter as man-years and tenths of man-years.</i>	UNIT PROG. CODE	CURRENT YEAR FY 19 ⁷⁶		BUDGET YEAR FY 19 ⁷⁷		BUDGET YEAR + 1 FY 19 ⁷⁸	
		TARGET ALLOWANCE A	INCREASE B	TARGET ALLOWANCE C	INCREASE D	TARGET ALLOWANCE E	INCREASE F
0. Total Direct Labor	15						
1. Travel	19						
2. Rents, Communications, Utilities	21						
3. Contracts (To be let)	51 52						5.0
4. Grants (Funds obligated)	58						-
5. Supplies	53						
6. Capital Equipment	54						
7. Other (All other obligations)							
8. Total Direct Funds (Add lines 10 through 17 above.)							96.6
9. Positions, Full-time permanent (Number applicable to this Task. Also, complete NOAA Form 32-14C.)							4
10. Positions, Other (Number applicable to this Task.)							0
11. Man-years, Permanent							
12. Man-years, Other							
13. Reimbursable Support (Reimbursable agreements only)							

MARKS
Not Dependent

OFFICIAL PREPARING REPORT (Signature)
John B. Pearce
John B. Pearce

25. FMC DIRECTOR OR DESIGNATED REPRESENTATIVE (SIGN.)
Carl J. Sindermann
Carl J. Sindermann

NARRATIVE SECTION

A) Additional Funds: Effects of Petroleum on the Behavior of Marine Fishes and Invertebrates

<u>BY + 1</u>	<u>BY + 2</u>	<u>BY + 3</u>	<u>BY + 4</u>
4/97	4/97	4/97	4/97

B) Description of Increase Request: "Effects of Petroleum on the Behavior of Marine Fishes and Invertebrates" will involve studies of the impact of refined and unrefined petroleum products on living marine resources. Input will require, part-time, the direction of a GS-13 investigation chief as well as principal research activities of a GS-11 and GS-9 fishery biologists. These personnel will work principally at the Sandy Hook facility, Middle Atlantic Coastal Fisheries Center. Significant output will include data and reports and publications concerned with impact of petroleum products on the behavior of important marine finfish and invertebrates including hake, bluefish and the blue claw crab. The proposed program would last three fiscal years.

C) Statement of Need and Anticipated Benefits: At the present time major petroleum exploration and development is taking place or is planned for the Middle Atlantic Bight including the extremely productive Georges Bank and Baltimore Canyon Trough areas. It is probable that these activities will result in the release of petroleum products to the marine coastal environment. Research data to date would indicate that certain elements of the marine food web are affected by petroleum products. Changes in the behavior of lobsters due to petroleum have been documented. Little is known about the impact of petroleum products on the behavior of marine finfish, particularly movement, schooling and feeding responses. The Sandy Hook Laboratory is unique in having a well-developed facility for the study of marine finfish including aquaria systems ranging in size from several hundred to 40,000 gallons. Total benefits from the proposed research will include data on the likely impacts of petroleum on the behavior of marine organisms. Certain behavior responses may be predictive and indicative of other changes due to oil contamination. The program should result in no cost to the private or public sector. Primary recipients of the benefits will include fishery managers, EAD-NMFS and other federal and state conservation organizations, the American petroleum industry and the general public. The program is oriented towards the Habitat Protection Goal of the program emphasis document for FY 76-77-78. The increase proposed for the program would include two new positions, a GS-11 and GS-9 fishery biologist.

Factors effecting the urgency of this request are obvious; offshore oil exploration and development is underway but review of recent EIS and other

Effects of Petroleum on the Behavior of Marine Fishes and Invertebrates (cont'd)

supporting documents indicate that little is known about the sublethal effects of petroleum products on the behavior of marine fish. This knowledge should be garnered as soon as possible.

The proposed program will require no significant increase in NOAA ship time or NMFS small boat time. Vessels will generally be required only for collecting fish for experimental purposes and to support field diving observations. The program increase will require no additional physical facilities inasmuch as the present experimental facility is well-equipped. Some plumbing and support modifications may have to be made, however.

NMFS TASK DEVELOPMENT PLAN

(See Detailed Instructions)

1. DATE PREPARED
1/29/76

(Submit five copies by Jan. 2)

0: Director, National Marine Fisheries Service, ATTN: Fx5 National Oceanic and Atmospheric Administration Washington, D.C. 20235

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TDP NUMBER	3. OBJECTIVE CODES				4. RANK	
AC-081-78-EI-A1	A	B	C	D	BY TARGET	BY + 1 INC.
					-	22

TASK NUMBER	6. TASK TITLE
	Effect of Bulkheading on Fish Production

ORGANIZATION CODE	B. ORGANIZATION TITLE (Responsible for execution of this task)	9. PRINCIPAL LOCATION
B 6100	Ecqsystems Investigations	City: Highlands State: NJ

OBJECT CLASS <i>lines 10-18. Enter all dollar values as thousands and tenths of thousands. lines 21-22. Enter as man-years and tenths of man-years.</i>	W Z J B O	CURRENT YEAR FY 19 ⁷⁶		BUDGET YEAR FY 19 ⁷⁷		BUDGET YEAR + 1 FY 19 ⁷⁸	
		TARGET ALLOWANCE A	INCREASE B	TARGET ALLOWANCE C	INCREASE D	TARGET ALLOWANCE E	INCREASE F
0. Total Direct Labor	15						
1. Travel	19						
2. Rents, Communications, Utilities	21						
3. Contracts (To be let)	51						
4. Grants (Funds obligated)	52						
5. Supplies	58						
6. Capital Equipment	53						
7. Other (All other obligations)	54						
8. Total Direct Funds (Add lines 10 through 17 above.)							93.2
9. Positions, Full-time permanent (Number applicable to this Task. Also, complete NOAA Form 32-14C.)							3
10. Positions, Other (Number applicable to this Task.)							2
11. Man-years, Permanent							
12. Man-years, Other							
13. Reimbursable Support (Reimbursable agreements only)							

MARKS
Not Dependent

OFFICIAL PREPARING REPORT (Signature)
John B. Pearce
John B. Pearce

25. FMC DIRECTOR OR DESIGNATED REPRESENTATIVE (Sig)
Carl J. Sindermann
Carl J. Sindermann

NARRATIVE SECTION

A) Additional Funds

$\frac{BY + 1}{3/93}$

$\frac{BY + 2}{3/93}$

$\frac{BY + 3}{3/93}$

$\frac{BY + 4}{3/93}$

B) Description of Increase Request: "Impact of bulkheading and physical disruption of estuarine habitat." The purpose is to conduct research on the effects of bulkheading and associated physical/chemical disruption of habitat. The investigation will require comparison of effects of bulkheading in highly polluted and pristine field situations and will require quantification of finfish standing stocks as well as plankton and benthic forage species. The investigation will involve measurement of change in sediment types, dissolved oxygen, salinity and other physical/chemical parameters. It will also require a GS-12, chief, and two GS-9 fishery biologists as well as two work/study or temporary aides. Significant output will include data reports and publications to be used by EAD-NMFS personnel as well as personnel assigned to state environmental protection and conservation agencies. Data will be highly quantitative and repeatable. The second phase of the investigation will involve actual construction of bulkheads with subsequent measurements of change and modeling of the impact of these activities on typical estuaries.

C) Statement of Need and Anticipated Benefits

It has been recognized by EAD-NMFS, state conservation agencies and conservation and wildlife organizations that small bulkheading operations presently being conducted in estuarine waters have, in total, a large effect on the productivity of the coastal zone and the marine fishery. To date little data is available and consequently it is virtually impossible to justify denial of permit applications submitted to management agencies. The proposed investigation will produce quantitative data applicable to estuarine situations throughout the Middle Atlantic states, including the Virginian and Temperate Zoogeographic Provinces. The resulting data will allow EAD-NMFS and other federal and state reviewing personnel to accurately predict the effect of proposed individual bulkheading projects as well as the total effect of numerous individual developments. Estimated cost for the first three years of the program would be somewhat less than \$100,000 per year. The primary recipients of benefits from the proposed program will be EAD-NMFS and various state conservation and environmental protection agencies charged with coastal zone management and the general public having an interest in marine fisheries and preservation of the coastal zone.

The proposed investigation is responsive to the Habitat Protection Goal indicated in the program guidance document for FY 76-77-78. Positions required for the proposed program would be assigned from the MACFC and the research would be conducted inhouse as opposed to contracts or grants. This is required because of the multiplicity of talent which will be needed to conduct the biological field work as well as chemical/physical measurements necessary to the total program. The research should be initiated as soon as possible, no later than FY 78; recent articles in the New York Times and other news media indicate that thousands of acres of marshlands are being

lost each year because of bulkheading and associated physical disruption and development.

The program would require use of small vessels and boats presently available to MACFC. Adequate physical facilities are available to support the program including chemical and microbiology laboratories. This program has been requested and endorsed by EAD-NMFS personnel as well as conservation organizations such as the American Littoral Society. Planning for this program has involved EAD-NMFS and state conservation personnel, as well as suggestions from the general public through organizations such as the American Littoral Society.

NMFS TASK DEVELOPMENT PLAN

(See Detailed Instructions)

1 | 13

1. DATE PREPARED

1/30/76

(Submit five copies by Jan. 2)

TO: Director, National Marine Fisheries Service, ATTN: F&S National Oceanic and Atmospheric Administration Washington, D.C. 20235

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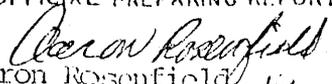
TDP NUMBER MAC-082-78-EI-A1	3. OBJECTIVE CODES				4. RANK	
	A	B	C	D	BY TARGET -	BY + 1 INC. 28

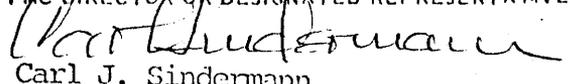
TASK NUMBER	6. TASK TITLE Disease Prevention and Control
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ORGANIZATION CODE FB6400	8. ORGANIZATION TITLE (Responsible for execution of this task) Pathobiology Investigations	9. PRINCIPAL LOCATION City: Oxford State: MD
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OBJECT CLASS <i>lines 10-18. Enter all dollar values as thousands and tenths of thousands. Lines 21-22. Enter as man-years and tenths of man-years.</i>	W Z J B O O	CURRENT YEAR FY 1976		BUDGET YEAR FY 1977		BUDGET YEAR + 1 FY 1978	
		TARGET ALLOWANCE A	INCREASE B	TARGET ALLOWANCE C	INCREASE D	TARGET ALLOWANCE E	INCREASE F
0. Total Direct Labor	15						
1. Travel	19						
2. Rents, Communications, Utilities	21						
3. Contracts (To be let)	51						
4. Grants (Funds obligated)	52						11.0
5. Supplies	53						
6. Capital Equipment	54						
7. Other (All other obligations)							
8. Total Direct Funds (Add lines 10 through 17 above.)							193.0
9. Positions, Full-time permanent (Number applicable to this Task. Also, complete NOAA Form 32-14C.)							8
10. Positions, Other (Number applicable to this Task.)							2
11. Man-years, Permanent							
12. Man-years, Other							
13. Reimbursable Support (Reimbursable agreements only)							

REMARKS

4. OFFICIAL PREPARING REPORT (Signature)

 Aaron Rosenfield

25. FMC DIRECTOR OR DESIGNATED REPRESENTATIVE (Sig.)

 Carl J. Sindermann

MAC-082

Narrative Section

A. Additional Funds:	FY+1	FY+2	FY+3	FY+4
Position/Funds (\$K)	8/193	8/193	8/193	8/193

B. Description of Increase Request:

Sampling protocols and histological and cultural procedures are already available for the screening of some marine organisms for infectious agents. Existing techniques from other disciplines will be tried and others developed to increase our knowledge of the affects of disease organisms on our natural resources. We plan to (1) develop protocol for the inspection of marine products prior to their importation into the U.S. and (2) develop procedures to assess the viability of infectious and noninfectious organisms in living marine resources being transferred from one area in the United States to another area.

Outputs will consist of data requests and screening protocols to be recommended to regulatory officials for inspection for infectious and noninfectious diseases of marine feral and cultivated fish and shellfish prior to importation or transfer for stocking or consumption purposes. Personnel will be:

1	Fishery Biologist	GS-12	Vacancy	Oxford Laboratory, MACFC			
2	Fishery Biologists	GS-11	Vacancies	"	"	"	
3	Fishery Biologists	GS-09	Vacancies	"	"	"	
2	Biol. Lab. Techn.	GS-05	Vacancies	"	"	"	

This is a new Task; funds and staff are required.

C. Statement of Needs and Anticipated Benefits:

Promiscuous importation of live foreign or domestic fish or shellfish for stocking purposes exposes the local stocks to diseases against which they may have no immunity. Adequate knowledge of the role of disease in the ecology of marine poikilotherms is a fundamental need for the successful management of fishery resources. Diseases whether infectious, nutritional, genetic, or environmental are paramount factors limiting the abundance of marine fish, crustaceans, and mollusks. Infectious agents have already been introduced into previously uninfected fishery resources by the indiscriminate transfer of marine organisms and the disease entities they harbored. The need for basic knowledge of how disease operates and the application of that knowledge is emphasized in light of the treaties which

have been, and are predicted to be, signed with other governments to permit the importation of various fishery products. Considerable concern is given to the safeguard of public health by the U. S. National Shellfish Sanitation Program, but no such program exists to protect the well-being of our own natural resources from the possible introduction of infectious agents. The primary recipients of the services produced by the task are industry, the states, and the general public.

Accomplishment of the task objectives would establish standard guidelines to protect our natural resources from the promiscuous domestic and foreign importation of fishery products that may contain infectious agents.

This task proposed is directed toward pending legislation requiring the inspection of transferred living marine resources; as such it is not directly pertinent to the PED.

NMFS TASK DEVELOPMENT PLAN

(See Detailed Instructions)

1. DATE PREPARED

1/30/76

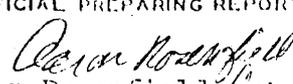
(Submit five copies by Jan. 2)

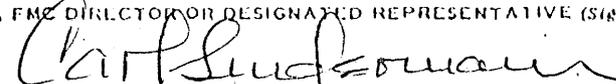
TO: Director, National Marine Fisheries Service, ATTN: Fx5 National Oceanic and Atmospheric Administration Washington, D.C. 20235

FMC's - Submit a separate Task Development Plan for each task beginning, continuing, or ending in the current year, budget year, or budget year + 1. Reimbursable funds are not to be mingled with appropriated funds on any programmatic TDP; separate TDP's must be prepared. Submit one TDP itemizing the administrative support cost (Management Fund) for the FMC.

TDP NUMBER		3. OBJECTIVE CODES				4. RANK		
MAC-083-78-EI-A1		A	B	C	D	BY TARGET	BY + 1 INC.	
						-	17	
7. TASK NUMBER		6. TASK TITLE						
		Registry of Marine Pathology						
2. ORGANIZATION CODE		8. ORGANIZATION TITLE (Responsible for execution of this task)				9. PRINCIPAL LOCATION		
FB6400		Pathobiology Investigations				City Oxford State MD		
OBJECT CLASS		NO UN COR	CURRENT YEAR FY 1976		BUDGET YEAR FY 1977		BUDGET YEAR + 1 FY 1978	
Lines 10-19. Enter all dollar values as thousands and tenths of thousands. Lines 21-22. Enter as man-years and tenths of man-years.			TARGET ALLOWANCE A	INCREASE B	TARGET ALLOWANCE C	INCREASE D	TARGET ALLOWANCE E	INCREASE F
0. Total Direct Labor		15						
1. Travel		19						
2. Rents, Communications, Utilities		21						
3. Contracts (To be let)		51 52						11.0
14. Grants (Funds obligated)		58						
5. Supplies		53						
16. Capital Equipment		54						
7. Other (All other obligations)								
18. Total Direct Funds (Add lines 10 through 17 above.)								141.1
19. Positions, Full-time permanent (Number applicable to this Task. Also, complete NOAA Form 32-14C.)								7
20. Positions, Other (Number applicable to this Task.)								2
21. Man-years, Permanent								
22. Man-years, Other								
23. Reimbursable Support (Reimbursable agreements only)								

REMARKS

24. OFFICIAL PREPARING REPORT (Signature)

 Aaron Rosenfield (fx)

25. FMC DIRECTOR OR DESIGNATED REPRESENTATIVE (Sig.)

 Carl J. Sindemann

MAC-083

Narrative Section

A. Additional Funds:	BY+1	BY+2	BY+3	BY+4
Position/Funds (\$K)	7/141	7/141	7/141	7/141

B. Description of Increase Request:

Activity and organization will utilize existing facilities, pathological specimens, and publications available at the Middle Atlantic Coastal Fisheries Center. An ad hoc organizational committee consisting of Center personnel has been appointed. The Committee in turn has appointed an acting curator and it is anticipated that a governing board, including membership from the university community and other disease-oriented agencies as well as NOAA scientists will be invited to serve as an advisory body. Informal and possibly formal liaison with such agencies as the Smithsonian Institution and the Armed Forces Institute of Pathology may be eventually considered. We plan to 1) provide physical and administrative capability for management of Registry; 2) advise the scientific community of the availability of the Registry and solicit accessions and utilization; and 3) provide the scientific diagnostic, and research purposes.

The goals are:

1. Provide space, facilities, and equipment for collection, classification, and storage of histological specimens, blocks, slides, photographs, and publications related to diseases and abnormalities of estuarine and marine shell and fin fishes.
2. Augment liaison with existing collections and expertise nationally and internationally.
3. Increase suitable accessions and provide methodology for submission, processing, loan, and recovery of accessions.
4. Encompass existing Center ADP operations in storage and retrieval of information found in collections and in published materials pertinent to the mission of ROMP.
5. Provide safe, permanent, orderly storage and curatorial services for the Registry on a continuing basis.

Personnel will consist of:

1	Editorial Assistant	GS-06	Vacancy	Oxford Laboratory, MACFC
2	Library Technicians	GS-05	Vacancies	" " "
2	Fishery Biologist	GS-05	Vacancies	" " "
1	Biological Technician	GS-05	Vacancy	" " "

C. Statement of Need and Anticipated Benefits:

A factor of paramount significance in the hunting, gathering, recruitment, culture, husbandry and utilization of any food species, including the fishes, is the continuing interplay of health and disease in the target species. Recognition of the need for enhancement of renewable food resources from the marine, as well as terrestrial environment,

with concomitant emphasis on pollution abatement and aquaculture have, in turn, sparked widely dispersed studies on diseases and abnormalities of marine biota. Through inhouse, Sea Grant, and contract studies, NOAA components are actively committed to prosecuting such studies.

As these essential but geographically divergent research activities and findings proliferate, it becomes increasingly difficult, especially for new workers, to become familiar with already described or established clinical disease entities; and to effect accurate diagnoses of pathological conditions which may be unfamiliar to them, but which have been described and elucidated elsewhere.

It is the purpose of this Task to establish and to operate a National Registry of Marine Pathology (ROMP) to serve as a central reference collection for clinical, illustrative and published material related to diseases of marine and estuarine vertebrate and invertebrate fishes.

Benefits are self-evident, in that accomplishment of the task objectives will supply to the marine science and biomedical community a registry and bibliographic service of disease-related resources whose value will increase incrementally with time and use.

This request is directed toward PED Item Habitat Protection inasmuch as the Registry will become a repository for information on all known diseases and disease agents, both biotic and abiotic. Expertise for management and leadership of the Registry staff is already on board; additional personnel are necessary to service the organization.

NMFS TASK DEVELOPMENT PLAN

(See Detailed Instructions)

1. DATE PREPARED

1/30/76

(Submit five copies by Jan. 2)

TO: Director, National Marine Fisheries Service, ATTN: Fx5 National Oceanic and Atmospheric Administration Washington, D.C. 20235

FMC's - Submit a separate Task Development Plan for each task beginning, continuing, or ending in the current year, budget year, or budget year + 1. Reimbursable funds are not to be mingled with appropriated funds on any programmatic TDP; separate TDP's must be prepared. Submit one TDP itemizing the administrative support cost (Management Fund) for the FMC.

2. TDP NUMBER MAC-084-78-EI-A1	3. OBJECTIVE CODES				4. RANK	
	A	B	C	D	BY TARGET -	BY + 1 INC. 24

5. TASK NUMBER	6. TASK TITLE Biological Effects of Petroleum
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7. ORGANIZATION CODE FB6300	8. ORGANIZATION TITLE (Responsible for execution of this task) Experimental Biology Investigations	9. PRINCIPAL LOCATION City: Milford State: CT	
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OBJECT CLASS <i>Lines 10-18. Enter all dollar values as thousands and tenths of thousands. Lines 21-22. Enter as man-years and tenths of man-years.</i>	W Z J R O O	CURRENT YEAR FY 19 <u>76</u>		BUDGET YEAR FY 19 <u>77</u>		BUDGET YEAR + 1 FY 19 <u>78</u>	
		TARGET ALLOWANCE A	INCREASE B	TARGET ALLOWANCE C	INCREASE D	TARGET ALLOWANCE E	INCREASE F
10. Total Direct Labor	15						
11. Travel	19						
12. Rents, Communications, Utilities	21						
13. Contracts (To be let)	51						
14. Grants (Funds obligated)	52						
15. Supplies	53						
16. Capital Equipment	54						
17. Other (All other obligations)							
18. Total Direct Funds (Add lines 10 through 17 above.)							215.0
19. Positions, Full-time permanent (Number applicable to this Task. Also, complete NOAA Form 32-14C.)							8
20. Positions, Other (Number applicable to this Task.)							3
21. Man-years, Permanent							
22. Man-years, Other							
23. Reimbursable Support (Reimbursable agreements only)							

REMARKS

24. OFFICIAL PREPARING REPORT (Signature) <i>James E. Hanks</i> James E. Hanks	25. FMC DIRECTOR OR DESIGNATED REPRESENTATIVE (SIGN.) <i>Carl J. Sindermann</i> Carl J. Sindermann
--	--

MAC-084-78-EI-A-1

Narrative Section

A. Additional Funds:	BY+1	BY+2	BY+3	BY+4
Position/Funds (\$K)	8/215	8/215	8/215	8/215

B. Description of Increase Request:

This task will determine any damaging effects of petroleum hydrocarbons on marine organisms, including finfish, crustaceans and shellfish, by establishing the precise levels that cause mortality and sublethal physiological damage at all stages in their life history through a series of controlled exposure experiments.

A research team consisting of a Research Physiologist GS/12, Research Chemist GS/12, Fishery Biologist GS/11, Chemist GS/9, Fishery Biologist GS/7, Laboratory Technician GS/7, Physical Science Aid GS/5, and Biological Aid GS/4 will design, conduct and interpret the experimental sets. Experimental results will be made known to environmental control and other conservation-oriented agencies in anticipating and constraining exploitative aspects which impace on living resources.

C. Statement of Need and Anticipated Benefits:

There is an evident sense of urgency and need in exploiting our OCS resources, but there is also agreement among the federal agencies concerned, particularly the Bureau of Land Management and NOAA, that realistic offshore biological impact data should be obtained prior to and subsequent to oil and gas exploration. The NMFS, as the biological arm of NOAA, is concerned with both the short-term and long-term biological effects of petroleum hydrocarbons on marine organisms. This concern is not only with the drilling of oil alone, but with all phases of the oil industry, including shipping, refining, oil spills, oil leaks, crude oil, fuel oil, etc.

The task bears on goals of habitat protection and fisheries management. Benefits accrue to recreational and commercial fishermen as well as resource-consumers.

NMFS TASK DEVELOPMENT PLAN

(See Detailed Instructions)

1. DATE PREPARED

1/30/76

(Submit five copies by Jan. 2)

TO: Director, National Marine Fisheries Service, ATTN: Fx5 National Oceanic and Atmospheric Administration Washington, D.C. 20235

FMC's - Submit a separate Task Development Plan for each task beginning, continuing, or ending in the current year, budget year, or budget year + 1. Reimbursable funds are not to be mingled with appropriated funds on any programmatic TDP; separate TDP's must be prepared. Submit one TDP itemizing the administrative support cost (Management Fund) for the FMC.

2. TDP NUMBER MAC-085-78-S3-A1		3. OBJECTIVE CODES A B C D				4. RANK BY TARGET BY + 1 INC. - 6	
5. TASK NUMBER		6. TASK TITLE Middle Atlantic Coast Tuna Studies					
7. ORGANIZATION CODE FB6200		8. ORGANIZATION TITLE (Responsible for execution of this task) Resource Assessment Investigations				9. PRINCIPAL LOCATION City Highlands State NJ	

OBJECT CLASS Lines 10-18. Enter all dollar values in thousands and tenths of thousands. Lines 21-22. Enter as man-years and tenths of man-years.	M E J N O O	CURRENT YEAR FY 19 <u>76</u>		BUDGET YEAR FY 19 <u>77</u>		BUDGET YEAR + 1 FY 19 <u>78</u>	
		TARGET ALLOWANCE A	INCREASE B	TARGET ALLOWANCE C	INCREASE D	TARGET ALLOWANCE E	INCREASE F
10. Total Direct Labor	15						
11. Travel	19						
12. Rents, Communications, Utilities	21						
13. Contracts (To be let)	51 52						
14. Grants (Funds obligated)	58						
15. Supplies	53						
16. Capital Equipment	54						
17. Other (All other obligations)							36.0
18. Total Direct Funds (Add lines 10 through 17 above.)							121.3
19. Positions, Full-time permanent (Number applicable to this Task. Also, complete NOAA Form 32-14C.)							3
20. Positions, Other (Number applicable to this Task.)							3
21. Man-years, Permanent							
22. Man-years, Other							
23. Reimbursable Support (Reimbursable agreements only)							

REMARKS
Dependent upon Extended Jurisdiction

24. OFFICIAL PREPARING REPORT (Signature)
Arthur Merrill
Arthur Merrill

25. FMC DIRECTOR OR DESIGNATED REPRESENTATIVE (S/R)
Carl J. Sindermann

MAC-085

Narrative Section

A. Additional Funds:	BY+1	BY+2	BY+3	BY+4
Position/Funds (\$K)	3/121	3/121	3/121	3/121

B. Description of Increase Request:

The research studies of bluefin tuna will include delineating spawning areas, experimental fishing to collect juveniles, developing abundance indices of juvenile populations, initiating a volunteer log book program and tournament coverage with recreational fishermen to determine size composition and success of the angler catch, and aid in the market and news division in monitoring the commercial catch and obtaining biological samples of landings. The study will require a GS-09 project leader, two GS-07 fishery biologists and two work study or temporary aids, based from the Sandy Hook Laboratory. Significant output will include data reports and scientific publications on population structure, movements and biological responses to changes in environmental characteristics. Supportive activities will include experimental fishing from laboratory and charter vessels, integration of a volunteer cadre of offshore anglers, and cooperation with ongoing efforts of the SEFC and the regional port sampling pool.

C. Statement of Needs and Anticipated Benefits:

1. Basic studies are needed to determine the nature and cause of fluctuations in availability of bluefin tuna and associated scombrids, including the yellowfin, albacore and bigeye. Biological data are particularly lacking in the middle Atlantic area for the seasonal behavior and potential of this resource. A recreational fishery primarily on yearlings has developed and is estimated to have yielded 30-40,000 individuals in 1974 and some 15,000 individuals in 1975. A scientific survey of the resource would aid in establishing sound conservation recommendations for perpetuation of the species as recreational and commercial resources. The extent of the Middle Atlantic states as a secondary spawning area and information on maturation of western Atlantic stocks remains to be described. The process of recruitment from small fish fisheries to those for large bluefin and determination of rates of interchange between ocean areas would be available from selective tagging studies. Sustained tagging is necessary to determine stock structure (cf. MAC-076).

Data will form the basis of establishing predictive trend indices and, with improved statistics of harvest, will be of direct use to international councils for establishing management strategies and allocations for optimum yield of the resource. Estimated costs of research activities would amount to ca. 120K. Primary recipients of the benefits would include recreational and commercial fishermen. This will expand our resource assessment data base to meet U.S. commitments in international agreements.

2. The work can most efficiently be done in-house because an effective expertise for larval sampling, knowledge of fishermen and port facilities already exists at MACFC. The program would require the service of either NOS or charter vessels to allow efficient experimental fishing gear (longline, graduated gill net, etc.) to be deployed in offshore waters in the vicinity of the Gulf Stream front.

NMFS TASK DEVELOPMENT PLAN

(See Detailed Instructions)

I. DATE PREPARED
1/29/76

(Submit five copies by Jan. 2)

TO: Director, National Marine Fisheries Service, ATTN: Fx5 National Oceanic and Atmospheric Administration Washington, D.C. 20235

FMC's - Submit a separate Task Development Plan for each task beginning, continuing, or ending in the current year, budget year, or budget year + 1. Reimbursable funds are not to be mingled with appropriated funds on any programmatic TDP; separate TDP's must be prepared. Submit one TDP itemizing the administrative support cost (Management Fund) for the FMC.

2. TDP NUMBER MAC-086-78-EI-A1	3. OBJECTIVE CODES				4. RANK	
	A	B	C	D	BY TARGET —	BY + 1 INC. 25

5. TASK NUMBER	6. TASK TITLE Environmental Strike Force
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7. ORGANIZATION CODE FB 6100	8. ORGANIZATION TITLE (Responsible for execution of this task) EcoSystems Investigations	9. PRINCIPAL LOCATION City: Highlands State: NJ
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OBJECT CLASS <i>Lines 10-18. Enter all dollar values as thousands and tenths of thousands. Lines 21-22. Enter as man-years and tenths of man-years.</i>	W N L D O O	CURRENT YEAR FY 19__		BUDGET YEAR FY 19__		BUDGET YEAR + 1 FY 1976	
		TARGET ALLOWANCE	INCREASE	TARGET ALLOWANCE	INCREASE	TARGET ALLOWANCE	INCREASE
		A	B	C	D	E	F
10. Total Direct Labor	15						
11. Travel	19						
12. Rents, Communications, Utilities	21						
13. Contracts (To be let)	51 52						
14. Grants (Funds obligated)	58						
15. Supplies	53						
16. Capital Equipment	54						
17. Other (All other obligations)							
18. Total Direct Funds (Add lines 10 through 17 above.)							69.5
19. Positions, Full-time permanent (Number applicable to this Task. Also, complete NOAA Form 32-14C.)							2
20. Positions, Other (Number applicable to this Task.)							1
21. Man-years, Permanent							
22. Man-years, Other							
23. Reimbursable Support (Reimbursable agreements only)							

REMARKS

Not Dependent

24. OFFICIAL PREPARING REPORT (Signature)
John B. Pearce
John B. Pearce

25. FMC DIRECTOR OR DESIGNATED REPRESENTATIVE (SIGN.)
Carl J. Sindermann
Carl J. Sindermann

NARRATIVE SECTION

A) Additional Funds: Environmental Strike Force

$\frac{\text{BY} + 1}{2/70}$

$\frac{\text{BY} + 2}{2/70}$

$\frac{\text{BY} + 3}{2/70}$

$\frac{\text{BY} + 4}{2/70}$

B) Description of Increase Request: "Environmental strike force." This program will allow immediate localized response to environmental change due to pollution, major catastrophes and physical alterations. Personnel assigned to the task will include a GS-11, task leader, and a GS-9, fishery biologist. In situations requiring prolonged study, temporary aides or technicians may be assigned. The program will be responsible for rapidly accumulating data and facts which will allow EAD-NMFS and other governmental units to assess the impact and significance of a particular environmental change.

C) Statement of Need and Anticipated Benefits: Personnel assigned by the Middle Atlantic Coastal Fisheries Center are frequently called upon to assess minor or relatively temporary environmental change due to pollution and other factors; in the past, these have included such episodes as oil pollution by the sinking of the tanker Ocean Eagle in San Juan Harbor, numerous oil spills in the New York Metropolitan area, major fish kills at the Oyster Creek Nuclear Electric Plant and fish die-offs on artificial reefs. Recently personnel attached to the Center have had to respond to the problem of PCB's in estuarine fish and fish disease in striped bass collected from power plant effluents. In several cases, the response has taken up several man months by using assigned program personnel. Personnel would be immediately available to respond to localized environmental problems and to develop adequate data which will allow EAD-NMFS and other agencies to make proper and adequate decisions. The benefits from such a program will be many, but will result in a savings to the government in as much as program personnel would not be diverted from ongoing or long term tasks. Primary recipients of the benefits would include various federal and state agencies, which would not have to furnish personnel to respond to localized environmental problems, and the general public; the latter would benefit particularly because individuals would be available to adequately evaluate change in the estuarine and coastal environment.

This proposed problem logically falls under the Habitat Protection Goal provided in the program guidance document for FY 76-77-78. The work should be conducted inhouse in as much as access to permanent, diversified, well equipped laboratories is essential to the program. Personnel attached to the program must be ready to respond to environmental situations developing throughout the Middle Atlantic Bight from Cape Cod to Cape Hatteras. This program should be implemented as soon as possible, but no later than FY 78. The program should not require NOAA ship time, but small boats, capable of being trailered, would have to be available to the personnel. Adequate physical facilities exist at the Sandy Hook Laboratory, Middle Atlantic

Coastal Fisheries Center and support facilities are available at the Milford and Oxford Laboratories of the Center in the eventuality that environmental change occurs well north or south of the Sandy Hook facility.

NMFS TASK DEVELOPMENT PLAN

(See Detailed Instructions)

1. DATE PREPARED

1/30/76

(Submit live copies by Jan. 2)

TO: Director, National Marine Fisheries Service, ATTN: Fx5 National Oceanic and Atmospheric Administration Washington, D.C. 20235

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2. TDP NUMBER MAC-087-78-AQ-A1		3. OBJECTIVE CODES A B C D				4. RANK BY TARGET BY + 1 INC. — 27	
5. TASK NUMBER		6. TASK TITLE Aquaculture Economic Analysis					
7. ORGANIZATION CODE FB6300		8. ORGANIZATION TITLE (Responsible for execution of this task) Experimental Biology Investigations				9. PRINCIPAL LOCATION City Milford State CT	

OBJECT CLASS <i>Lines 10-18. Enter all dollar values as thousands and tenths of thousands. Lines 21-22. Enter as man-years and tenths of man-years.</i>	EN- D- R- P- O	CURRENT YEAR FY 19 76		BUDGET YEAR FY 1977		BUDGET YEAR + 1 FY 1978	
		TARGET ALLOWANCE A	INCREASE B	TARGET ALLOWANCE C	INCREASE D	TARGET ALLOWANCE E	INCREASE F
10. Total Direct Labor	15						
11. Travel	19						
12. Rents, Communications, Utilities	21						
13. Contracts (To be let)	51 52						
14. Grants (Funds obligated)	58						75.0
15. Supplies	53						
16. Capital Equipment	54						
17. Other (All other obligations)							
18. Total Direct Funds (Add lines 10 through 17 above.)							75.0
19. Positions, Full-time permanent (Number applicable to this Task. Also, complete NOAA Form 32-14C.)							0
20. Positions, Other (Number applicable to this Task.)							0
21. Man-years, Permanent							
22. Man-years, Other							
23. Reimbursable Support (Reimbursable agreements only)							

REMARKS

24. OFFICIAL PREPARING REPORT (Signature) <i>James E. Hanks</i> James E. Hanks	25. FMC DIRECTOR OR DESIGNATED REPRESENTATIVE (Sig.) Carl J. Sindermann
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MAC-087

Narrative Section

A. Additional Funds	BY+1	BY+2	BY+3	BY+4
Position/Funds (\$K)	0/75	0/75	0/75	0/75

B. Description of Increase Request:

Contractual economic analyses, concurrent with engineering research on molluscan aquaculture systems will provide the single-unit (cost) equivalents to which competitive systems and sub-systems can be compared for cost effectiveness (in addition to productivity). The study will identify cost-critical factors in the system and provide guidelines for initiating remedial cost-cutting research on engineering studies. Input will include cost assessments of available overall systems, individual proposed subsystems, simulation analyses and demonstrations by interactive simulation analyses for determining the optimal economic mix of competitive systems and sub-systems. The contracted economic analysis would be an adjunct to the engineering systems analysis and together with biological and engineering data would afford a base for federal recommendations to industry of a commercially viable shellfish hatchery operation.

C. Statement of Needs and Anticipated Benefits:

More effective and efficient means to enhance U.S. seafood production are needed to compensate for reduction in available estuaries and coastal zones resulting from increased exploitation by industrial and residential development and recreational activities. This study will identify and resolve cost-critical factors in molluscan aquaculture systems. Many aquaculture feasibility trials have been unsuccessful by failing to determine individual cost-critical factors and initiate remedial cost-cutting research on engineering studies. No systems research proposals should be carried beyond bench-level stage without an overall cost-effectiveness analysis. This task will (1) provide concrete evidence of commercial feasibility maximum productivity vs minimal cost), (2) give guidance on where and when to invest money and effort in research and engineering, and (3) collaborate with concurrent engineering analyses to effect simulation studies.

The integrated task outputs would serve to reduce public health hazards associated with consumption of raw molluscs, these hazards have closed many existing beds and limited market supply of molluscs. Emphasis on molluscan aquaculture would reduce the competitive demand commercial use of desirable inshore environments. Benefit recipients would include commercial fishermen and the consumer public. This task addresses the aquaculture goal of the PED and the work can be carried out on a contractual basis.

NMFS TASK DEVELOPMENT PLAN

(See Detailed Instructions)

I. DATE PREPARED

1/30/76

(Submit five copies by Jan. 2)

TO: Director, National Marine Fisheries Service, ATTN: Fx5 National Oceanic and Atmospheric Administration Washington, D.C. 20235

FMC's - Submit a separate Task Development Plan for each task beginning, continuing, or ending in the current year, budget year, or budget year + 1. Reimbursable funds are not to be mingled with appropriated funds on any programmatic TDP; separate TDP's must be prepared. Submit one TDP itemizing the administrative support cost (Management Fund) for the FMC.

2. TDP NUMBER		3. OBJECTIVE CODES				4. RANK	
MAC-088-78-RQ-A1		A	B	C	D	BY TARGET	BY + 1 INC.
5. TASK NUMBER		6. TASK TITLE					
		Aquaculture Engineering Analysis					
7. ORGANIZATION CODE		8. ORGANIZATION TITLE (Responsible for execution of this task)				9. PRINCIPAL LOCATION	
FB6300		Experimental Biology Investigations				City	State
		Milford		CT			
OBJECT CLASS Lines 10-18. Enter all dollar values as thousands and tenths of thousands. Lines 21-22. Enter as man-years and tenths of man-years.	W Z J D O O	CURRENT YEAR FY 19 76		BUDGET YEAR FY 19 77		BUDGET YEAR + 1 FY 19 78	
		TARGET ALLOWANCE A	INCREASE B	TARGET ALLOWANCE C	INCREASE D	TARGET ALLOWANCE E	INCREASE F
10. Total Direct Labor	15						
11. Travel	19						
12. Rents, Communications, Utilities	21						
13. Contracts (To be let)	51 52						75.0
14. Grants (Funds obligated)	58						
15. Supplies	53						
16. Capital Equipment	54						
17. Other (All other obligations)							
18. Total Direct Funds (Add lines 10 through 17 above.)							75.0
19. Positions, Full-time permanent (Number applicable to this Task. Also, complete NOAA Form 32-14C.)							0
20. Positions, Other (Number applicable to this Task.)							0
21. Man-years, Permanent							
22. Man-years, Other							
23. Reimbursable Support (Reimbursable agreements only)							

REMARKS

24. OFFICIAL PREPARING REPORT (Signature)
James E. Hanks
James E. Hanks

25. FMC DIRECTOR OR DESIGNATED REPRESENTATIVE (Sig.)
Carl J. Sindermann

MAC-088

Narrative Section

A. Additional Funds	BY+1	BY+2	BY+3	BY+4
Position/Funds (\$K)	0/75	0/75	0/75	0/75

B. Description of Increase Request:

Activities involve the development of concepts in efficient hatchery design for production of commercially desirable molluscs. The contract engineering analysis during the research process will permit design and construction of a highly automated, smooth-flow system to maximize production at a minimum cost. Early input will include analysis of existing flow designs for molluscan maricultures, determination of critical engineering factors, initiation of prototype test module construction for critical factors, and development of process models for molluscan mariculture (oysters, scallops) emphasizing capital-intensive methods and sequenced from spawning to marketing. The completion report, available after 3 years of support, would address two of five factors militating against successful commercial aquaculture operations - coupled with an economic analysis would permit design and demonstration of a commercially viable shellfish hatchery.

C. Statement of Needs and Anticipated Benefits:

More effective and efficient means to enhance U.S. seafood production are needed to compensate for reduction in available estuaries and coastal zones resulting from increased exploitation by industrial and residential development and recreational activities. Many aquaculture feasibility trials have been unsuccessful by failing to provide capital-intensive substitutes for manual labor, particularly for slow-growing stationary animals such as oysters, clams and scallops. Design of a highly automated smooth-flow system, guaranteeing maximum production at minimum cost would ensure a low cost, high grade product in adequate supply to the consumer public. Task outputs would reduce public health hazards associated with consumption of raw molluscs, these hazards have closed many existing beds and limited market supply of molluscs. Emphasis on molluscan aquaculture would reduce the competitive demand for commercial use of desirable inshore environments. Benefit recipients would include commercial fishermen and the consumer public. This task addresses the aquaculture goal of the PED and the work can be carried out on a contractual basis.