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Requirements Identification for the NOAA Center for Ocean Analysis and Prediction

Volume 2 Interview Summaries



Prepared for:

**U.S. Department
of Commerce**

**NATIONAL OCEANIC AND
ATMOSPHERIC ADMINISTRATION**

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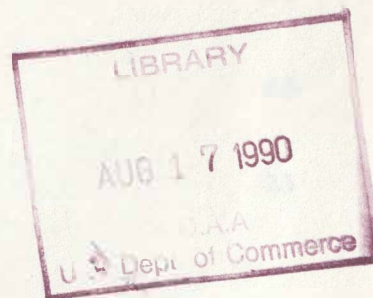
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INTRODUCTION

This is the second part of a two-volume report on a requirements identification study for the NOAA Center for Ocean Analysis and Prediction (COAP) in Monterey, California. A survey of the scientific community was conducted to establish the potential user constituency of COAP and user requirements for support from COAP. The first volume of the report contains descriptions of the study methodology, the mission statement for COAP, the current activities of selected NOAA Line Organizations, the results of the interviews and a set of recommended functions and goals for COAP. This volume contains the individual interview summaries with people both within and outside NOAA. Most of the interviews were conducted in person; the remainder were accomplished by telephone. The purpose of these interviews was to identify salient aspects of the interviewee's operation, solicit the interviewee's perspective on the relationship between his activities and COAP, and obtain suggestions on primary functions and goals for COAP. These summaries are an abbreviated description of the content of the conversations that were held. The interviews represent a broad cross section of opinion; however, it should also be noted that there are undoubtedly many individuals who would make a positive contribution to the discussion on COAP but who were not included as part of this initial survey effort.



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Interview Summary

1. Name and Affiliation of Person Interviewed

Name: Dr. John B. Pearce, Deputy Center Director,
NMFS Northeast Fisheries Center

Address: National Marine Fisheries Service\Northeast Fisheries Center
Woods Hole, MA 02543

Phone No.: (508) 548-5123

2. Date and Place of Interview

Northeast Fisheries Center/Woods Hole
May 1, 1989

3. Current Activities Relevant to COAP

As administrator of the Northeast Fisheries Center, Dr. Pearce oversees a wide variety of research that is relevant to COAP. The Northeast Fisheries Center collects data primarily on the status and trends of New England bottomfish stocks. It has its own data system set up on the Woods Hole Oceanographic Institute VAX mainframe. The information collected includes XBTs from merchant ships traveling along the U.S. East Coast and Gulf of Mexico. Dr. Pearce says that, in past years, NOAA has made many proposals for centers similar to COAP, but that past efforts have met with only limited success.

4. Recommendations for Goals of COAP

Dr. Pearce states that a usual pitfall for data collection centers is that they put an inordinate amount of energy into collecting data while paying little attention to making data available to researchers. Dr. Pearce feels strongly that there should only be a nominal fee for providing data to researchers. Dr. Pearce expressed reservations that COAP may duplicate data and interpretive services currently available from other organizations in NOAA such as the Ocean Assessments Division in NOS.

5. Projected Interaction with COAP

He foresees limited interaction between the Northeast Fisheries Center and COAP, at least initially, since his organization already has working relationships with groups that provide data and interpretive services.

1. Name and Affiliation of System Interviewed

6. Operation of COAP to Best Serve Interviewee's Needs

While he does not mention any particular activities that COAP should undertake to complement the efforts of the Northeast Fisheries Center, he emphasizes that COAP should focus on providing outputs not currently available to researchers.

7. Other

Northeast Fisheries Center/Seaside, Maine
July 2, 1987

2. Current Activities Relevant to COAP

Dr. Pearce is a biological oceanographer who currently is conducting the interdisciplinary (or marine ecosystem) the primary research cooperative on New England herringfish.

3. Recommendations for Goals of COAP

He believes that COAP must attract qualified people who have serious day-to-day responsibilities.

4. Perceived Connections with COAP

5. Operation of COAP to Best Serve Interviewee's Needs

He states that there is a general perception that new programs like COAP will detract from progress at the Northeast Fisheries Center. Accordingly, he stresses that COAP should complement existing research efforts rather than eclipse them.

6. Other

Interview Summary

1. Name and Affiliation of Person Interviewed

Name: Ambrose Gerald

Address: NMFS Northeast Fisheries Center, Woods Hole, MA 02543

Phone No.: (508) 548-5123

2. Date and Place of Interview

Northeast Fisheries Center/Woods Hole

May 1, 1989

3. Current Activities Relevant to COAP

Dr. Gerald is a biological oceanographer who currently is analyzing the interrelationships in marine ecosystems. His primary research concentrates on New England bottomfish.

4. Recommendations for Goals of COAP

He believes that COAP must strive to attract qualified people who have serious day-to-day responsibilities.

5. Projected Interaction with COAP

6. Operation of COAP to Best Serve Interviewee's Needs

He states that there is a general perception that new programs like COAP will detract from programs at the Northeast Fisheries Center. Accordingly, he stresses that COAP should complement existing research efforts rather than eclipse them.

7. Other

Interview Summary

1. Name and Affiliation of Person Interviewed

Name: Dave Mountain

Address: NMFS Northeast Fisheries Center, Woods Hole, MA 02543

Phone No.: (508) 548-5123

2. Date and Place of Interview

Woods Hole Oceanographic Institution

May 1, 1989

3. Current Activities Relevant to COAP

Dr. Mountain is a biological oceanographer who specializes in ecosystem analysis of Atlantic bottomfish. In the course of his research, he extensively uses physical, chemical, and biological data.

4. Recommendations for Goals of COAP

Dr. Mountain says that COAP should downplay collection of fishing data and concentrate on chemical oceanography. He states that NCAR in Boulder does excellent work in oceanographic and atmospheric modeling but is currently oriented toward climatological effects. Dr. Mountain believes that collection and analysis of more biological data would complement the physical and chemical data currently available from NCAR and the US Navy. He believes that COAP should work closely with the regional National Marine Fisheries offices where biological data are accumulated.

5. Projected Interaction with COAP

Dr. Mountain might interact regularly with COAP if it provided a forum where individuals from different disciplines could come together and work. To provide such a forum, COAP would have to be structured around real data.

6. Operation of COAP to Best Serve Interviewee's Needs

He believes that many young scientists easily tire of working for councils and need respite in their research. He says that a multidisciplinary center could serve to reinvigorate talent in the field. He notes that whatever the primary aim of COAP might be, the Center should complement research currently being undertaken at National Marine Fisheries regional offices.

7. Other

He says that "prediction" is a bad descriptor in the Center's title since it raises expectations and sets unrealistic goals for the Center. He notes that the lack of long-term historical chemical and physical data will hamper development of predictive models.

Phone No. 1-401-742-5100

2. Date and Place of Interview

Northwest Fisheries Center (Seaside)
May 2, 1989

3. Current Activities Relevant to O&P

Scientists at the Narragansett laboratory study the interactions of ocean and atmospheric variables. The types of research conducted include measuring the extent to which wind-driven upwelling cools the coastal and shelf waters, analyzing SST data from merchant ships along the eastern coastline and the Gulf of Mexico, establishing long-term sea and coastal anomalies of sea surface temperature from satellite data, and understanding which water masses are interacting with water from ocean dumping.

4. Recommendations for Goals of O&P

Both Dr. Armstrong and Dr. Ingles recommended that O&P downplay the public's expectations of the Center. They note that the Ocean Service's reports, which claimed to provide many of the services that O&P might also try to provide, had only limited success in serving the public. Dr. Armstrong and Dr. Ingles stress that the goals for O&P should be realistic and focused. They recommend that O&P adhere to its original purpose, as they understood it, namely to provide data and modeling.

5. Expanded Interaction with O&P

No specific interactions were specified.

6. Operation of O&P to Best Serve Interviewee's Needs

They mention that it will be difficult for O&P to standardize data outputs for a variety of researchers. They say that the Integrated Marine Analysis and Forecast System (IMAFS) provides a prototype for providing weather data, and they suggest that O&P should strive to be a prototype for providing oceanographic data.

7. Other

Interview Summary

1. Name and Affiliation of Person Interviewed

Name: Reed Armstrong and Mert Ingham, Physical Oceanography
Branch/Northeast Fisheries Center

Address: NMFS Northeast Fisheries Center, Narragansett,
Rhode Island 02822

Phone No.: (401) 782-3200

2. Date and Place of Interview

Northeast Fisheries Center/Narragansett
May 2, 1989

3. Current Activities Relevant to COAP

Scientists at the Narragansett laboratory study the interaction of ocean and atmospheric variables. The types of research conducted include measuring the extent to which wind-driven upwelling cools the coastal and shelf waters, analyzing XBT data from merchant ships along the eastern coastline and the Gulf of Mexico, establishing long-term mean and annual anomalies of sea surface temperature from satellite data, and understanding which water masses are interacting with wastes from ocean dumping.

4. Recommendations for Goals of COAP

Both Dr. Armstrong and Dr. Ingham recommend that COAP downplay the public's expectations of the Center. They note that the Ocean Service Centers, which claimed to provide many of the services that COAP might also try to provide, had only limited success in serving the public. Mr. Armstrong and Mr. Ingham stress that the goals for COAP should be limited and focused. They recommend that COAP adhere to its original purpose, as they understood it, namely to provide data and modeling.

5. Projected Interaction with COAP

No specific interactions were specified.

6. Operation of COAP to Best Serve Interviewee's Needs

They caution that it will be difficult for COAP to standardize data outputs for a variety of researchers. They say that the Integrated Marine Analysis and Forecast System (IMAFS) provides a prototype for providing weather data, and they suggest that COAP should strive to be a prototype for providing oceanographic data.

7. Other

Interview Summary

1. Name and Affiliation of Person Interviewed

Name: Ken Brink

Address: Woods Hole Oceanographic Institution, Woods Hole, MA 02543

Phone No.: (508) 548-1400

2. Date and Place of Interview

Woods Hole Oceanographic Institution
May 1, 1989

3. Current Activities Relevant to COAP

Dr. Brink is a physical oceanographer who is involved with ocean systems modeling. The data most useful for his work include wind, sea level and atmospheric records.

4. Recommendations for Goals of COAP

Dr. Brink believes that COAP should serve as a clearinghouse for existing data gathering centers like MMS, the United States Geological Survey, the National Oceanographic and Atmospheric Administration (NOAA), and universities. Currently, NODC is archiving data from some of these sources. Dr. Brink thinks that COAP staff should be broad-based mathematical modelers interested in combining data sets from different disciplines and coupling "low frequency information" on a variety of topics to try to explain long-term effects. He notes that currently a serious problem exists in analyzing regional meteorology, and he stresses that there will be a long term payoff if local systems are better understood.

5. Projected Interaction with COAP

To establish ocean circulation patterns over the continental shelf and determine the mixed layer depth (i.e., thermocline), physical oceanographers like Dr. Brink need to use data on hydrography and climate extensively. Dr. Brink believes that the Center should archive all available current data. Much of the research currently being conducted is small-scale, but such research could form the core of a broader understanding of physical oceanography.

INTERVIEW REPORT

6. Operation of COAP to Best Serve Interviewee's Needs

Dr. Brink's research would be facilitated if localized data on water column temperature, salinity, and light transmission were to become available. To be useful, data on these variables would need to be taken at one meter depth intervals on a 5-10 kilometer surface grid. Data on nutrients, chlorophyll, phytoplankton, zooplankton would also be helpful.

7. Date and Place of Interview

Silver Spring, Maryland
National Fisheries Center, National Marine Fisheries Service
April 24, 1978

8. Current Activities Relevant to COAP

Dr. Brink manages policy issues at the headquarters of NMFS in the area of fisheries research and data systems.

9. Recommendations for Goals of COAP

COAP should be both a service organization providing secondary and tertiary integrated data sets using weather, oceanographic and fisheries data, as well as a research organization where NOAA scientists can spend time to learn new multidisciplinary research methods and carry out multidisciplinary research.

10. Projected Interaction with COAP

NMFS scientists would spend periods of time at COAP to learn about new, interdisciplinary data sets, new research methods, etc.

11. Operation of COAP to Best Serve Interviewee's Needs

COAP should organize global data sets of fisheries oceanography variables into a data system useful to fisheries researchers. Variables include sea surface temperature, ocean color, sea level, wave fields-- all obtainable from satellites. COAP can make data sets available for long time series by straggling together averaged for short periods and combining these satellite observations with subsurface temperatures from R/Vs, buoys, and research cruises. Also, COAP could be a focus for developing, applying, and evaluating NOAA scientists in artificial intelligence methods.

12. Other

Interview Summary

1. Name and Affiliation of Person Interviewed

Name: Glenn Flittner, NMFS Office of Research and Environmental Information

Address: National Marine Fisheries Service, 1335 East-West Highway
Silver Spring, Maryland

Phone No.: (301) 427-2367

2. Date and Place of Interview

Silver Spring, Maryland
Southwest Fisheries Center, National Marine Fisheries Service
April 24, 1989

3. Current Activities Relevant to COAP

Mr. Flittner manages policy issues at the headquarters of NMFS in the areas of fisheries research and data systems.

4. Recommendations for Goals of COAP

COAP should be both a service organization (provide secondary and tertiary integrated data sets using weather, oceanographic and fisheries data) as well as a research organization where NOAA scientists can spend time to learn new multidisciplinary research methods and carry out multidisciplinary research.

5. Projected Interaction with COAP

NMFS scientists could spend periods of time at COAP to learn about new, interdisciplinary data sets, new research methods, etc.

6. Operation of COAP to Best Serve Interviewee's Needs

COAP should organize global data sets of fisheries oceanography variables into a data system useful to fisheries researchers. Variables include sea surface temperature, ocean color, sea level, wave fields--all obtainable from satellites. COAP can make data sets available for long time series by stringing together averages for short periods and combining these satellite observations with subsurface temperatures from XBTs, buoys, and research cruises. Also, COAP could be a focus for developing, applying, and educating NOAA scientists in artificial intelligence methods.

7. Other

Interview Summary

1. Name and Affiliation of Person Interviewed

Name: Dr. Ford A. Cross, Director, NMFS Beaufort Laboratories
Southeast Fisheries Center, National Marine Fisheries Service

Address: Beaufort, North Carolina 28516-9722

Phone No.: (919) 728-8724

2. Date and Place of Interview

Telephone Interview - June 12, 1989

3. Current Activities Relevant to COAP

Dr. Cross directs the Beaufort Laboratory of the Southeast Fisheries Center. The Lab has two missions: 1) stock assessment of specific species in the South Atlantic/Gulf of Mexico area such as menhaden, snapper, and grouper; and 2) ecological research. In the first area the Lab carries out its own surveys, obtains and analyzes catch statistics from fishing boats, and analyzes spawning and recruitment data from its own surveys. In the second area it examines how larvae use habitat systems, how habitat degradation affects recruitment, and how oceanographic processes affect recruitment and the health of the stocks. In both of these tasks the Lab uses satellite imagery to obtain information on oceanographic variables such as Ekman transports, sea surface temperature, sea surface wind speeds, fronts and eddies, etc.

4. Recommendations for Goals of COAP

COAP could be a locus for making available, in a multidisciplinary format, data sets describing oceanographic, climate and fisheries phenomena. It could also serve as a training center for NOAA scientists and ADP people to receive training in using these data.

5. Projected Interaction with COAP

Beaufort would like to obtain certain types of data from COAP which are now difficult or impossible to get from elsewhere in NOAA (i.e., subsurface temperatures, sea surface temperatures in useful forms, ocean color variables, frontal systems).

6. Operation of COAP to Best Serve Interviewee's Needs

COAP should focus on organizing, presenting and making available multidisciplinary data sets which are not available, on-line, in real time, from other parts of NOAA. Also, other NOAA staff should be permitted to spend time at COAP learning which data are available and how to best utilize them for biological research.

7. Other

1. Date and Place of Interview

Time: 10:00 AM
April 15, 1999

2. Current Activities Related To COAP

The primary focus of Dr. Knepper's facilities are the Gulf of Mexico and the Atlantic coast of the U.S. Among the data the facilities provide are thermal profiles, salinity, ocean color and chlorophyll levels obtained by using HO-Boreal Coastal Bore Color Recorder data. The facility is able to relay data on phone lines and ship-to-shore channels, and complete data can be provided to users within 24 hours. Staff at the facility was trained to satellite and physical oceanography and ecology. Using artificial intelligence, the lab develops a chart showing the high (HIT), surface (SAT) and low (LIT) probabilities of catching butterflyfish at a given place.

3. Recommendations For Goals of COAP

Dr. Knepper believes that COAP should concentrate on making its data base accessible to the public. This would involve documenting which data and data products are available and aiding users with a capable support staff. Dr. Knepper hopes that COAP will provide historical, supplementary catch data. He also says that ground data should preferably be collected on a 5km spatial grid and averaged within reporting periods.

4. Suggested Applications with COAP

COAP could provide data on-line on factors like stratocumulus clouds, temperature, salinity, ocean colors, depth, and water color. Such data should be available with minimal delay after they have been observed.

Interview Summary

1. Name and Affiliation of Person Interviewed

Name: Andy Kemmerer, Director and Tom Lemming, Scientist, NMFS
Mississippi Laboratories

Address: National Marine Fisheries Service, Pascagoula, Mississippi and
Bay St. Louis, Mississippi

Phone No.: (601) 762-4591; (601) 688-3651

2. Date and Place of Interview

NMFS, Silver Spring
April 13, 1989

3. Current Activities Relevant to COAP

The primary focus of Dr. Kemmerer's facilities are the Gulf of Mexico and the Atlantic coast of the U.S. Among the data the facilities provide are thermal gradients, upwelling, ocean color and chlorophyll levels obtained by using historical Coastal Zone Color Scanner data. The facility is able to relay data on phone lines and ship-to-shore phones, and satellite data can be provided to users within six hours. Staff at the facility are trained in satellite and physical oceanography and ecology. Using artificial intelligence, the lab provides a chart showing the high (90%), medium (60%) and low (50%) probabilities of catching butterfish at a given pixel.

4. Recommendations for Goals of COAP

Dr. Kemmerer believes that COAP should concentrate on making its data bases accessible to the public. This would involve documenting which data and data products are available and aiding users with a capable support staff. Dr. Kemmerer hopes that COAP will provide historical, exploratory catch data. He also says that these data would preferably be organized on a fine spatial grid and averaged within reporting periods.

5. Projected Interaction with COAP

COAP could provide data on-line on factors like atmospheric fronts, temperature, salinity, ocean fronts, depth, and water color. Such data should be available with minimal delay after they have been observed.

6. Operation of COAP to Best Serve Interviewee's Needs

With so much research dependent on data updates more frequent than once per day, the greatest improvements in data usually concern frequency and timeliness. More information about fronts, eddies, river discharge, and horizontal currents are needed for research. Monterey should be set up as a research center for applications of artificial intelligence to fisheries oceanography using analyzed data sets obtained from other sources.

7. Other

1. Current Activities Relevant to COAP

The major activity of the FISH is to develop ways to improve environmental information in fisheries research. This included weather and climate information, ocean temperatures, among other activities. They search for linkages (interspecies, biological parameters). They have found that the right amount of accurate updating is critical for good recruitment of small pelagics. Their products include data sets on Elasmobranchs and spawning indices on a monthly basis. Dr. Laren also is the coordinator of the Albers Program for FISH.

2. Recommendations for Goals of COAP

Both services to utilize our research.

3. Projected Interaction with COAP

COAP could issue the monthly products FISH now generates, and it could incorporate satellite data on spatial patterns with other data sets. In addition, COAP could carry out research on what makes fronts form. The problem with satellite data is how to translate these data into useful, quantitative forms. A good satellite altimeter would be needed. Expanded satellite products probably require a mixed reaction in the fishing industry because they make marginal fisheries too efficient.

4. Operation of COAP to Best Serve Interviewee's Needs

Data Network and Support Division Managed by COAP Director: This would be a service group for others in NOAA. Engineers and data-oriented scientists could provide data bases and computer products.

COAP Science Division: This would be composed of fish oceanography scientists with a multidisciplinary focus.

The Center needs good interpretive scientists, not scientists.

Interview Summary

1. Name and Affiliation of Person Interviewed

Name: Andy Bakun and Dick Parrish, Pacific Fisheries Environmental Group (PFEG)

Address: NMFS, P.O. Box 831, Monterey, CA 93942

Phone No.: (408) 646-3311

2. Date and Place of Interview

Telephone Interview
June 6, 1989

3. Current Activities Relevant to COAP

The major activity of the PFEG is to develop ways to incorporate environmental information in fisheries research. This includes weather and climate information, ocean temperatures, among other variables. They search for linkages (interspecies, biological parameters). They have found that the right amount of moderate upwelling is critical for good recruitment of small pelagics. Their products include data sets on Ekman transports and upwelling indices on a monthly basis. Dr. Bakun also is the coordinator of the Albacore Program for NMFS.

4. Recommendations for Goals of COAP

Both service to others and research.

5. Projected Interaction with COAP

COAP could issue the monthly products PFEG now generates, and it could integrate satellite data on spatial patterns with other data sets. In addition, COAP could carry out research on what makes fronts form. The problem with satellite data is how to translate these data into useful, quantitative forms. A good satellite oceanographer would be needed. Enhanced satellite products probably receive a mixed reaction in the fishing industry because they make marginal fisherman too efficient.

6. Operation of COAP to Best Serve Interviewee's Needs

Data Network and Product Division Managed by COAP Director: This would be a service group for others in NOAA. Engineers and data-oriented scientists would provide data bases and computer products.

Ocean Science Division: This would be composed of line organization components with a multidisciplinary focus.

The Center needs good interpretive scientists, not automatons.

Name and Affiliation of Interviewee

7. Other

Name of Other Service Component

Other products COAP could produce of use to PFEG are: time series of ocean variables, e.g., large scale ocean fluctuations using model results from GFDL and others, data sets of marine weather information on CD ROM, and global subsurface data sets.

1. Date and Place of Interview

Southwest Fisheries Center, National Marine Fisheries Service
April 24, 1988

2. Current Activities Relevant to COAP

Dr. Bakun's group includes geophysicists whose research is geophysical in nature, also, as relating geophysical phenomena to biological populations. He currently is heading up an effort to provide enough information to assess the effects of the buoying of krill and fish in antarctic waters. Eddies and ocean fronts determine the distribution of krill and other pelagic resources, and color satellite imagery and surface currents are important elements.

3. Recommendations for Goals of COAP

Dr. Bakun believes that COAP should not focus on developing single species models. Instead, he says that COAP should look at linkages in biological populations (e.g., krill as food for whales). Physical linkages on the true abundance of species would be useful for a variety of users.

4. Proposed Interaction with COAP

Dr. Bakun's group has just started its research on the distribution of pelagic resources in Antarctica. His group would be interested in color satellite imagery that may be available through COAP. His group is not that interested in geophysical data as yet, rather in the possibility these data could hold for the prediction of resource distribution.

5. Operation of COAP to Best Serve Interviewee's Needs

His group will need infra-red satellite imagery and surface currents for their research. While the group has not precisely determined their data needs, they believe that some data are currently available. If COAP can provide such data and serve as a clearinghouse for gathering data, it would aid his research.

Interview Summary

1. Name and Affiliation of Person Interviewed

Name: Roger Hewitt, Commander, NOAA

Address: NMFS Southwest Fisheries Center, La Jolla, California 92038

Phone No.: (619) 546-7052

2. Date and Place of Interview

Southwest Fisheries Center, National Marine Fisheries Service
April 24, 1989

3. Current Activities Relevant to COAP

Dr. Hewitt's group includes geophysicists whose research on geophysical anomalies aims at relating geophysical phenomena to biological populations. He currently is heading up an effort to provide enough information to assess the effects of the harvesting of krill and fish in Antarctic waters. Eddies and ocean fronts determine the distribution of krill and other pelagic resources, and color satellite imagery and surface currents are important elements.

4. Recommendations for Goals of COAP

Dr. Hewitt believes that COAP should not focus on developing single species models. Instead, he says that COAP should look at linkages in biological populations (e.g., krill as food for whales). Physical information on the true abundances of species would be useful for a variety of users.

5. Projected Interaction with COAP

Dr. Hewitt's group has just started its research on the distribution of pelagic resources in Antarctica. His group would be interested in color satellite imagery that may be available through COAP. His group is not that interested in geophysical data per se but rather in the possibility these data would hold for the prediction of resource distribution.

6. Operation of COAP to Best Serve Interviewee's Needs

His group will need infra-red satellite imagery and surface currents for their research. While the group has not precisely determined their data needs, they believe that some data are currently available. If COAP can provide more data and serve as a clearinghouse for existing data, it would aid his research.

Roger Hewitt
Page 2

7. Other

His group is planning a 120-day research cruise to Antarctica next year. This mission will include geophysicists and biologists.

Southwest Fisheries Center, National Marine Fisheries Service
April 24, 1968

8. Current Activities Relating to COAP

Dr. Hewitt's work concerns fish stock assessments of west coast species. To assess fish stocks, he estimates the number of eggs spawned by a parent population and analyzes the wind-induced currents, surface water temperatures, and patterns of upwelling that affect the phytoplankton which provide food for newly hatched fish. One third of his current work is on a contract to work as advisor of the Spanish government stock assessment techniques.

9. Recommendations for Goals of COAP

Dr. Hewitt believes that COAP should collect and back time hydrographic profiles and vessel surveys. Currently NMFS can provide hydrographic profiles for many specific areas at different times, but large gaps exist in the available data. Data obtained from COAP can cover as much as 12,000. Currently there are inadequate hydrographic profiles on depths up to 1,000 meters although there are data available for shallower areas. Given what he sees as the possible goals for COAP, he believes that the organization would best be staffed by biologically trained oceanographers.

10. Suggested Interactions with COAP

COAP could probably benefit from Hewitt's studies on the effects of the data they would collect, e.g., the consequences of upwelling without mixing indices and its effects on the biology of the fish.

Interview Summary

1. Name and Affiliation of Person Interviewed

Name: Paul Smith

Address: NMFS Southwest Fisheries Center, La Jolla, California 92038

Phone No.: (619) 546-7169

2. Date and Place of Interview

Southwest Fisheries Center, National Marine Fisheries Service
April 24, 1989

3. Current Activities Relevant to COAP

Dr. Smith's work concerns fish stock assessments of west coast species. To assess fish stocks, he estimates the number of eggs spawned by a parent population and analyzes the wind-induced currents, surface water temperatures, and patterns of upwelling that affect the phytoplankton which provide food for newly hatched fish. One third of his current work is on a contract to teach an agency of the Spanish government stock assessment techniques.

4. Recommendations for Goals of COAP

Dr. Smith believes that COAP should collect the data from hydrographic profiles and vessel surveys. Currently NODC can provide hydrographic profiles for many specific areas at different times, but large gaps exist in the available data. Data obtained from NODC can cost as much as \$5,000. Currently there are inadequate hydrographic profiles on depths up to 1,500 meters although there are data available for shallower areas. Given what he sees as the possible goals for COAP, he believes that the organization would best be staffed by classically trained oceanographers.

5. Projected Interaction with COAP

COAP would probably serve Dr. Smith by advising him on the usage of the data they would supply (e.g., the appropriateness of upwelling versus mixing indices) and by assessing the quality of the data.

6. Operation of COAP to Best Serve Interviewee's Needs

He needs information on the speed, direction, and temperature associated with ocean fronts. He needs these data at least bimonthly, but he would prefer to have them monthly or even daily. Data on front motion should be accurate to within 5 cm/sec. While the research vessel Pegasus provides limited data with this accuracy on depths up to 1500 meters, his research requires more data on the West Coast than are currently available from the Pegasus.

7. Other

Marine Fisheries Center, National Marine Fisheries Service
April 14, 1974

1. Current Applications Relevant to COAP

Dr. Larry Hamner's research involves migratory patterns. He is conducting his research by gathering data and analyzing it in relation to important factors in migration.

2. Recommendations for Goals of COAP

COAP should serve researchers rather than undertake research on its own. COAP should apply to long-term and global information that has been gathered at specific locations. Color satellite information could be an important component of this integrating process. Accordingly, satellites that can read through clouds would be an important asset to COAP. Any information gathered by COAP should be available both in hard copy form and through an on-line system.

3. Projected Interactions with COAP

These gentlemen indicated that multidisciplinary research on a regional scale is difficult to do since resources available for biological work are so limited. They cannot collect both oceanographic and environmental data because of this limitation. They foresee COAP providing them with data on sea level, sea surface temperature, fronts, the vertical distribution of isotherms, circulation and transport, wind magnitude, and vertical barometric pressure.

Interview Summary

1. **Name and Affiliation of Person Interviewed**

Name: R. Michael Laurs and Ron Lynn, Fisheries Oceanographers

Address: NMFS Southwest Fisheries Center, La Jolla, California

Phone No.: (619) 546-7086

2. **Date and Place of Interview**

Southwest Fisheries Center, National Marine Fisheries Service

April 24, 1989

3. **Current Activities Relevant to COAP**

Dr. Laurs currently researches albacore migration patterns. He is conducting his research by gathering data and analyzing it to determine important factors in migration.

4. **Recommendations for Goals of COAP**

COAP should serve researchers rather than undertake research on its own. COAP should strive to integrate and distill information that has been gathered at specific locations. Color satellite information would be an important component of this integrating process. Accordingly, satellites that can read through clouds would be an important asset to COAP. Any information gathered by COAP should be available both in hard copy form and through an on-line system.

5. **Projected Interaction with COAP**

These gentlemen indicated that multidisciplinary research on a regional scale is difficult to do since resources available for biological work are so limited. They cannot collect both oceanographic and environmental data because of this limitation. They foresee COAP providing them with data on sea level, sea surface temperature, fronts, the vertical distribution of isotherms, circulation and transport, wind magnitude, and surface barometric pressure.

6. Operation of COAP to Best Serve Interviewee's Needs

Dr. Laurs believes that COAP should provide global environmental information that could complement the biological observations that are made for specific locations. The Japanese currently provide much data on the western Pacific. As a result, COAP should concentrate on providing data for the eastern Pacific. Eastern currents are weaker and researchers will need more observations. Dr. Laurs states that he needs data within 15 days of real time.

7. Other

1. Current Activities Related to COAP

Dr. Kelly describes the relationship between dolphin populations and tuna catch, and he aims at determining the long term environmental implications of tuna fishing. Data for his research are currently supplied by observers on tuna vessels, but the frequency and spatial concentration of data from these sources is too low to meet his research needs. NOAA will be collecting additional data on dolphin populations for the next six years using two ships that are at sea for four months of the year.

2. Recommendations for Goals of COAP

Dr. Kelly notes that the National Marine Fisheries Service has concentrated on its marine mammal work and that traditionally it does little general research in the Atlantic. Perhaps COAP could supplement this work.

3. Projected Interaction with COAP

He believes that he will need much higher frequency data than the COAP could provide. Nonetheless, he says that COAP might provide first stage data on chlorophyll, nutrients, water flow, and water mass and local currents.

4. Operation of COAP to Best Serve Interviewee's Needs

His research requires that data be available on a yearly basis with repeats for each of the reporting periods. He states that reporting periods should preferably be no longer than two weeks each and that the spatial grid of data points should be as small as possible. Data would not need to be on-line, but it would be necessary to have it on tape. Important variables for his research are phytoplankton abundance, ocean bottom topography, chlorophyll depth, and fronts.

5. Other

Interview Summary

1. Name and Affiliation of Person Interviewed

Name: Steve Reilly

Address: NMFS Southwest Fisheries Center, La Jolla, CA

Phone No.: (619) 546-7169

2. Date and Place of Interview

Southwest Fisheries Center, National Marine Fisheries Service
April 24, 1989

3. Current Activities Relevant to COAP

Dr. Reilly researches the relationship between dolphin population and tuna catch, and he aims at determining the long term environmental implications of tuna fishing. Data for his research are currently supplied by observers on tuna vessels, but the frequency and spatial concentration of data from these sources is too low to meet his research needs. NOAA will be collecting additional data on dolphin populations for the next six years using two ships that are at sea for four months of the year.

4. Recommendations for Goals of COAP

Dr. Reilly notes that the National Marine Fisheries Service has contracted out its marine mammal work and that traditionally it does little mammal research in the Atlantic. Perhaps COAP could supplement this work.

5. Projected Interaction with COAP

He believes that he will need much higher frequency data than the Center could provide. Nonetheless, he says that COAP might provide first stage data on chlorophyll, nutrients, water flow, and large scale and local currents.

6. Operation of COAP to Best Serve Interviewee's Needs:

His research requires that data be available on a yearly basis with summaries for each of the reporting periods. He states that reporting periods should preferably be no longer than two weeks each and that the spatial grid of data points should be as small as possible. Data would not need to be on-line, but it would be necessary to have it on tape. Important variables for his research are phytoplankton abundance, ocean bottom topography, thermocline depths, and fronts.

7. Other

Interview Summary

1. Name and Affiliation of Person Interviewed

Name: Tim Barnett

Address: Scripps Institution of Oceanography, La Jolla, California

Phone No.: (619) 534-3223

2. Date and Place of Interview

Scripps Institution
April 24, 1989

3. Current Activities Relevant to COAP

Dr. Barnett performs long range global climate forecasting, including sea level change, CO2 trends, and El Nino prediction. His research is data intensive and relies heavily on simulation models. Dr. Barnett notes that Dr. Warren White at Scripps has been building a four dimensional ocean model using expendable bathythermograph (XBT) data for the upper 500 meters of the ocean. Dr. Barnett would like to increase the area simulated with this model so that all oceans are included. To do this two CRAY 2 class computers would need to be dedicated to the project.

4. Recommendations for Goals of COAP

Dr. Barnett believes that NOAA should have a wind-wave model and that it should rely more extensively on data gathered by satellite. He notes that for the \$20,000 required for leasing an inexpensive fishing boat, NOAA could purchase computers that would be capable of receiving satellite data on oceanographic variables. He also believes that it would be useful for COAP to organize satellite data to make it more readily useable.

5. Projected Interaction with COAP

COAP could aggregate raw data into small grids to make it accessible for Dr. Barnett. This would be particularly useful for data on sea surface temperatures. Currently, Mr. Barnett uses raw data for his analysis.

6. Operation of COAP to Best Serve Interviewee's Needs

He needs data for global sea surface temperatures (on a weekly basis), wind stress (a minimum of twice daily for high latitudes), and air/sea heat exchange (also a minimum of twice daily).

Name and Affiliation of Person Interviewed

7. Other

Name of Interviewer

Dr. Barnett notes that starting in the 1990s, a mass of oceanographic data will become available as satellites launched by European nations start relaying data. He says that it will be important to distill this data before researchers use it. This could be a role for COAP.

Name of Institution

2. Date and Place of Interview

National Marine Mammal Lab -- Seattle
April 26, 1989

3. Current Activities Relevant to COAP

Dr. Foster analyzes marine mammal population levels and trends to determine how human interaction affects these. He also researches the accumulation of pollutants (heavy metals and toxins) in marine mammals. Currently studies sponsored by the IAP provide more than 10% of the data for Dr. Foster's research. Data are also obtained from the International Whaling Commission and from industry sources.

4. Recommendations for Goals of COAP

Dr. Foster notes that oceanographic, climatic, and fisheries data are currently available through established sources, although they are costly to obtain. He believes that COAP might be able to ease the collection of data for researchers by providing French and Soviet satellite imagery at a reduced cost.

5. Projected Interaction with COAP

He states that presently he can get all the data he needs with the exception of satellite imagery. Unless COAP could provide data more efficiently and more cheaply than sources that currently supply data, he would probably continue to use his present sources.

Interview Summary

1. **Name and Affiliation of Person Interviewed**

Name: Chuck Fowler

Address: National Marine Mammal Lab, NMFS Alaska Fisheries Center
Seattle, Washington

Phone No.: (206) 526-4047

2. **Date and Place of Interview**

National Marine Mammal Lab -- Seattle
April 26, 1989

3. **Current Activities Relevant to COAP**

Dr. Fowler analyzes marine mammal population levels and trends to determine how human interaction affects these. He also researches the accumulation of pollutants (heavy metals and toxins) in marine mammals. Currently cruises sponsored by the lab provide more than 50% of the data for Mr. Fowler's research. Data are also obtained from the International Whaling Commission and from industry sources.

4. **Recommendations for Goals of COAP**

Dr. Fowler notes that oceanographic, climatic, and fisheries data are currently available through established sources, although they are costly to obtain. He believes that COAP might be able to ease the collection of data for researchers by providing French and Soviet satellite imagery at a nominal cost.

5. **Projected Interaction with COAP**

He states that presently he can get all the data he needs with the exception of satellite imagery. Unless COAP could provide data more efficiently and more cheaply than sources that currently supply data, he would probably continue to use his present sources.

DETERMINING FACTORS

Work and Affiliations of Interviewee

6. Operation of COAP to Best Serve Interviewee's Needs:

He can get air temperature, wind speeds, and storm indices data from National Weather Service tapes. He can get the following data from NOS: ocean temperature, salinity, primary productivity, depth, currents. He obtains fisheries data from NMFS and state agencies. If COAP should serve his research requirements, it would have to provide similar data on at least a daily basis. Data would preferably be collected in the St. Paul Alaska area because of the large seal population there or another location on the west coast.

7. Other

Current Activities Relating to COAP

Dr. Sundell researched the relationship between physical variables and the biology of the lower trophic levels. A major component of his research is to analyze the quantity and movements of seal and larvae. He has recently been studying pollens in the Gulf of Alaska. This fish population is extremely dynamic, its biomass having changed tenfold in ten years. He performs most of his own data collection. His own cruises, together with data contributed by OAR, provide 95 percent of the data needed for his research.

Recommendations for Goals of COAP

He stresses that the accessibility of data will be the key to the success of COAP. He agrees that surface water data relayed by satellite, not readily available to researchers at this point, would be important to provide. He would concern that COAP may detract from other current NOAA initiatives without offering compensating benefits. He notes that the National Oceanographic Data Center (NODC) currently serves as a data clearinghouse and questions the distribution of services that COAP will offer.

Projected Interaction with COAP

At this point he is able to meet nearly all of his own data needs. The National Marine Fisheries Service provides data on the location of seal and larvae, and he integrates this information with oceanographic information provided by OAR. He foresees little interaction with COAP, and he states that he would be opposed to giving his data to the Center.

Interview Summary

1. Name and Affiliation of Person Interviewed

Name: Art Kendall

Address: Resource Assessment and Conservation Engineering
NMFS Alaska Fisheries Center, Seattle

Phone No.: (206) 526-4000

2. Date and Place of Interview

Alaska Fisheries Center, Seattle
April 26, 1989

3. Current Activities Relevant to COAP

Dr. Kendall researches the relationship between physical variables and the biology of the lower trophic levels. A major component of his research is to analyze the quantity and movement of eggs and larvae. He has recently been studying pollock in the Gulf of Alaska. This fish population is extremely dynamic, its biomass having changed tenfold in ten years. He performs most of his own data collection. His own cruises, together with data contributed by OAR, provide 95 percent of the data needed for his research.

4. Recommendations for Goals of COAP

He stresses that the accessibility of data will be the key to the success of COAP. He states that surface color data relayed by satellite, not readily available to researchers at this point, would be important to provide. He voices concern that COAP may detract from other current NOAA initiatives without offering compensating benefits. He notes that the National Oceanographic Data Center (NODC) currently serves as a data clearinghouse and questions the distinction in services that COAP will offer.

5. Projected Interaction with COAP

At this point he is able to meet nearly all of his own data needs. The National Marine Fisheries Service provides data on the location of eggs and larvae, and he integrates this information with oceanographic information provided by OAR. He foresees little interaction with COAP, and he states that he would be opposed to giving his data to the Center.

Interview Report

1. Name and AFFILIATION of Person Interviewed
6. Operation of COAP to Best Serve Interviewee's Needs

Dr. Kendall's research would be aided by data on the convection process by which eggs are transported. To be most useful, these data would need to be provided in near real-time. Satellite information on the primary productivity would also be useful.

7. Other

2. Date and Place of Interview

Alaska Fisheries Service
April 22, 1983

3. Specific Activities Related to COAP

Dr. Kendall's research on variability in fisheries biomass by collecting and analyzing data on fish-eating patterns. In addition to collecting his own data, he obtains data from scientific journals. Surface current distributions are essential to the models he uses, with other important variables being sea surface and bottom temperatures, the metabolic requirements of species, growth requirements, spatial requirements, and other factors.

4. Recommendations for Needs of COAP

He says that most oceanographic data are already available from NOAA (Navy Oceanographic Observing Data System), so that it would be repetitive for COAP simply to gather and provide raw data. He believes that it would be useful for COAP to aggregate and quality control data so that it would be easier for researchers to use. COAP could also develop models that use synoptic data for use by different parts of NOAA.

5. Projected Interactions with COAP

He believes that COAP could aid his research by accumulating satellite data and temperature and salinity profiles. He says that poorly calibrated data hinder his time-series analysis. COAP could also aid him if it provided data on a finer spatial grid than is currently available.

6. Operation of COAP to Best Serve Interviewee's Needs

He notes that getting enough data on fish feeding habits is difficult. He also needs to obtain synoptic data, in particular wind speed and atmospheric pressure, on a finer spatial grid than is currently available.

He wants synoptic sea level data and tidal data. Also, he needs subsurface variables beyond what is available.

Interview Summary

1. Name and Affiliation of Person Interviewed

Name: Nick Bax

Address: Alaska Fisheries Center, Environmental Conservation Division
Seattle, Washington

Phone No.: (206) 526-4000

2. Date and Place of Interview

Alaska Fisheries Center
April 26, 1989

3. Current Activities Relevant to COAP

Dr. Bax tries to explain variability in fisheries biomass by collecting and analyzing data on fish-eating patterns. In addition to collecting his own data, he obtains data from scientific journals. Surface current distributions are essential to the models he uses, with other important variables being sea surface and bottom temperature, the metabolic requirements of species, growth requirements, spatial requirements, and eating habits.

4. Recommendations for Goals of COAP

He says that most oceanographic data are already available from MOODS (Master Oceanic Observation Data System), so that it would be repetitive for COAP simply to gather and provide raw data. He believes that it would be useful for COAP to aggregate and quality control data so that it would be easier for researchers to use. COAP could also develop models that use synoptic data for use by different parts of NOAA.

5. Projected Interaction with COAP

He believes that COAP could aid his research by organizing satellite data and temperature and salinity profiles. He says that poorly calibrated data hinder his time series analysis. COAP could also aid him if it provided data on a finer spatial grid than is currently available.

6. Operation of COAP to Best Serve Interviewee's Needs

He notes that getting enough data on fish feeding habits is difficult. He also needs to obtain atmospheric data, in particular wind speed and barometric pressure, on a finer spatial grid than is currently available.

He wants synoptic sea level data and tidal data. Also, he needs sub-surface variables beyond what is available.

7. Name and Affiliation of Person Interviewed

7. Other

Dr. Bax believes that if COAP were to try to standardize the variables used in predictive models, it would irritate the research community and yield poor results.

Phone No. (206) 366-4173

2. Date and Place of Interview

Alaska Fisheries Center
April 20, 1989

3. Current Activities Relevant to COAP

Dr. Bax's division looks at the ecological and biological issues associated with fishery stocks. Of particular concern in his research is the effect of temperature on growth. Dr. Bax's collects catch data using fishing vessels in Alaska. Integrates this information, and reports it to the scientific community at large and to the Alaska and Pacific Fisheries Management Councils.

4. Recommendations for Goals of COAP

He cautions the future administrators of COAP to be careful of data collection for its own sake. By evaluating oceanographic and biological data, COAP could aid researchers and provide a training ground for graduate students.

5. Proposed Interaction with COAP

He believes that his group may be able to integrate information excluded by the staff of COAP before passing this information on to the research community.

6. Operation of COAP to Best Serve Interviewee's Needs

He says that COAP might provide time series of oceanographic data, especially data for sea surface temperature and vertical temperature gradients. He adds that COAP would be welcomed in the scientific community only if it did not drain the financial resources on which existing centers and organizations depend.

7. Other

Interview Summary

1. Name and Affiliation of Person Interviewed

Name: Rich Marasco, Director, Resource Ecology and Fisheries Management Division

Address: NMFS Northwest and Alaska Fisheries Centers,
Seattle, Washington

Phone No.: (206) 526-4172

2. Date and Place of Interview

Alaska Fisheries Center
April 26, 1989

3. Current Activities Relevant to COAP

Dr. Marasco's division looks at the economic and biological issues associated with fishery stocks. Of particular concern in his research is the effect of temperature on growth. Mr. Marasco's collects catch data using fishing vessels in Alaska, integrates this information, and relays it to the scientific community at large and to the Alaska and Pacific Fisheries Management Councils.

4. Recommendations for Goals of COAP

He cautions the future administrators of COAP to be careful of data collection for its own sake. By evaluating oceanographic and biological data, COAP could aid researchers and provide a training ground for academic studies.

5. Projected Interaction with COAP

He believes that his group may be able to integrate information evaluated by the staff at COAP before passing this information on to the research community.

6. Operation of COAP to Best Serve Interviewee's Needs

He says that COAP might provide time series of oceanographic data, especially data for sea surface temperature and vertical temperature gradients. He adds that COAP would be welcomed in the scientific community only if it did not drain the financial resources on which existing centers and organizations depend.

7. Other

Interview Summary

1. Name and Affiliation of Person Interviewed

Name: Gary Stauffer and Tom Dark

Address: Resource Assessment and Conservation Engineering Division
NMFS Alaska Fisheries Center, Seattle

Phone No.: (206) 526-4170

2. Date and Place of Interview

Alaska Fisheries Center, Seattle

April 26, 1989

3. Current Activities Relevant to COAP

Dr. Stauffer and Dr. Dark's group surveys the distribution and abundance of fish stocks. To obtain data, they use two general methods, bottom trawl surveys and hydroacoustics. They maintain a well-documented data base of stock information, and they regularly provide data to councils. At present, they are totally dependent on their own data collection efforts.

4. Recommendations for Goals of COAP

They think that COAP should undertake a description of the coastal current system, including surface and subsurface layers, from central California to the Bering Sea. They note that many oceanographic variables (e.g., upwelling indices and bottom topography) remain unmeasured for many areas in this region. Since several other groups are currently initiating coastal current analysis programs, COAP would need to coordinate its research with other existing projects.

5. Projected Interaction with COAP

COAP could provide them with information on ocean bottom temperatures, vertical temperature gradients, bottom topography, and upwelling indices (monthly and semimonthly). For the purposes of their research, they would need data on a fine spatial grid.

6. Operation of COAP to Best Serve Interviewee's Needs

They like the idea of a research group like COAP, which can carry out sophisticated analyses using processed data sets obtained from other sources but they say that the Center would have to pay close attention to the needs of other researchers in NOAA. An important way it could help researchers is by counselling them on the applications of oceanographic data. For instance, COAP could assist Dr. Stauffer and Dr. Dark by helping them formulate measures of primary productivity.

7. Other

- 1. Current activities relevant to COAP
- 2. Digital Time Forecasting Analysis System (DTFAS) is presently undergoing testing. This international computer analysis system was purchased by the F204 group that is responsible for the integrated marine analysis and forecasting system. DTFAS will use forecasts of all of the other volume of this report.
- 3. Recommendations for Goals of COAP
- 4. Projected interaction with other
- 5. Operation of COAP to best serve interviewee's needs
- 6. Digital data sets will be used to analyze mixed layer depth and high resolution data sets for COAP.
- 7. Other
- 8. More data is available to the forecasting of models, i.e., coupled oceanographic and atmospheric models.

Interview Summary

1. Name and Affiliation of Person Interviewed

Name: Frank Kniskern, NOAA Program Leader

Address: Joint Ice Center, Washington, D.C.

Phone No.: (301) 763-5972

2. Date and Place of Interview

Naval Polar Oceanography Center

April 30, 1989

3. Current Activities Relevant to COAP

A Digital Ice Forecasting Analysis System (DIFAS) is presently undergoing tests. This interactive computer analysis system was produced by the PROFS group that is responsible for the Integrated Marine Analysis and Forecasting System (IMAFS). (Also see Section 4.3 of the other volume of this report).

4. Recommendations for Goals of COAP

5. Projected Interaction with COAP

6. Operation of COAP to Best Serve Interviewee's Needs

Useful information would be the ocean mixed layer depth and high resolution SST near the ice edge.

7. Other

Navy ONR is interested in the interfacing of models, i.e., coupled meteorological, ice and ocean models.

Interview Summary

1. Name and Affiliation of Person Interviewed

Name: Gary Wohl

Address: Joint Ice Center/OPC, Washington, D.C.

Phone No.: (301) 763-5972

2. Date and Place of Interview

Telephone interview
June 5, 1989

3. Current Activities Relevant to COAP

There is an ice problem in the Japan Sea but SST data are not of sufficient frequency or coverage to address the problem.

Ice acts with the wind; wind just south of ice edge would be useful.

4. Recommendations for Goals of COAP

5. Projected Interaction with COAP

6. Operation of COAP to Best Serve Interviewee's Needs

Mixed layer depth is more useful to modelers than to JIC in its operational mode.

7. Other

To contain operational costs COAP should, to the extent possible, draw upon local talent rather than import people to the Monterey area.

Interview Summary

1. Name and Affiliation of Person Interviewed

Name: Richard Barazotto, Chief

Address: Ocean Products Division, NOS Office of Ocean Services, World Weather Building, Camp, Springs, Maryland

Phone No.: (301) 763-8030

2. Date and Place of Interview

World Weather Building

April 4, 1989

3. Current Activities Relevant to COAP

(see Section 4.1 of the other volume of this report)

4. Recommendations for Goals of COAP

COAP should include coastal oceanographic modeling (hydrodynamic, water quality).

5. Projected Interaction with COAP

Does not foresee significant interaction with COAP (i.e., flow of data would be from OPC to COAP but not vice-versa).

OPC is a center for IGOS subsurface temperature data but does not do much with it; COAP's interest in this type of data could drive more activity in this area.

6. Operation of COAP to Best Serve Interviewee's Needs

7. Other

OPC is especially strong in real-time support. An example is the Project ERICA study of cyclones in the North Atlantic: data from drifting buoys were transmitted through ARGOS, quality controlled by OPC and re-transmitted to on-site researchers for real-time support.

Interview Summary

1. Name and Affiliation of Person Interviewed

Name: Kim Buttleman, Interactive Processing Branch, Office of
Satellite Data Processing and Distribution (NESDIS)
Marsha Weaks (NESDIS/OPC)

Address: World Weather Building
5200 Auth Road, Camp Springs, Maryland 20746

Phone No.: (301) 763-8051

2. Date and Place of Interview

World Weather Building
June 12, 1989

3. Current Activities Relevant to COAP

Their work is an interactive mode with the computer and satellite data. As part of the COASTWATCH program they give the NMFS Beaufort Lab an SST image six to seven times a week using a 386 PC. Ocean features are not currently tailored to individual users. Clouds have historically been a problem but with a change in the processing algorithms in the future, this situation should improve.

4. Recommendations for Goals for COAP

It is difficult to make specific recommendations when a specific plan of action has not been formulated for the Center. It is not straightforward to ship around satellite data. The Center would ideally have access to a satellite downlink station. If the Center focuses on west coast dynamics, it should have its own HRPT (High Resolution Picture Transmission) for processing of satellite data. Even then it will still have to obtain information from OPC for the east coast, Gulf of Mexico and Alaska.

5. Projected Interaction with COAP

One means for improving the quality of numerical models is to combine satellite data and other data to create a realistic input stream to the models.

6. Operation of COAP to Best Serve Interviewee's Needs

7. Other

The IMAFS can be used as a communication system. However, it is a rather expensive work station.

Interview Summary

1. Name and Affiliation of Person Interviewed

Name: Bob Corell (Director of Geosciences)
Mike Reeve (Head, Ocean Sciences Research Section)

Address: National Science Foundation, Washington, D.C.

Phone No.: (202) 357-7924

2. Date and Place of Interview

National Science Foundation
April 20, 1989

3. Current Activities Relevant to COAP

NSF has been working on linkages with NOAA in fisheries oceanography with no results to date. Not much ecosystem modeling is supported by NSF now - this science is in its infancy.

4. Recommendations for Goals of COAP

There is a void in coastal oceanography that the COAP could fill.

5. Projected Interaction with COAP

The Center will be viewed seriously only if adequate, long-term funding is demonstrated early on; then, its agenda can be set.

6. Operation of COAP to Best Serve Interviewee's Needs

7. Other

The Center has to build a constituency in the scientific community. If good research is emphasized, then support from the research community will follow. An analogy is the Gulf Stream predictive modeling by Allan Robinson's Harvard group that eventually caught the attention of the Navy which now supports this work.

Interview Summary

1. Name and Affiliation of Person Interviewed

Name: Kent Hughes, Deputy Director

Address: National Oceanographic Data Center, Washington, D.C.

Phone No.: (202) 673-5594

2. Date and Place of Interview

NODC

April 21, 1989

3. Current Activities Relevant to COAP

"COASTWATCH" program uses near real-time AVHRR data to identify water masses that might have impact on fisheries. This program was promoted by NMFS and NESDIS. An example of its application is the identification by the NMFS Beaufort Lab of red tide off North Carolina, i.e., warm Gulf Stream filaments breaking off and impinging on the shore. (Also see Section 4.5 of the other volume of this report).

4. Recommendations for Goals of COAP

The Center could use near real-time data to make forecasts.

5. Projected Interaction with COAP

Minimal, if any, interaction is expected.

6. Operation of COAP to Best Serve Interviewee's Needs

7. Other

Interview Summary

1. **Name and Affiliation of Person Interviewed**

Name: Ants Leetmaa, Dick Reynolds, Vern Kousky

Address: Climate Analysis Center, World Weather Bldg., Camp Springs, MD

Phone No.: (301) 763-8227

2. **Date and Place of Interview**

CAC

April 5, 1989

3. **Current Activities Relevant to COAP**

Climate applications should be done at CAC i.e., both atmospheric modeling and oceanic modeling on a basin-wide scale. NOS does not have models. CAC uses GFDL as a resource for its models. CAC's oceanic modeling is in the hindcast mode and oriented toward monthly averages. NMC is currently doing an operational meteorological boundary layer model. (See Section 4.2 of the other volume of this report).

4. **Recommendations for Goals of COAP**

The Center should emphasize living marine resources and coastal oceanography. A liaison with the Navy is beneficial although there are some drawbacks e.g., turnaround time, classified data, computer resources. There are advantages in examining historical data e.g., IR/Coastal Zone Color Scanner, to capture time-separated images of the coastal zone.

5. **Projected Interaction with COAP**

They do not foresee the Center impacting their work.

6. **Operation of COAP to Best Serve Interviewee's Needs**

7. **Other**

The Center may be a disaster because of lack of resources. The resources needed for generating products are immense. The development of coastal models would take 3 to 5 years. There is a scarcity of good modelers and it will be difficult to attract people to Monterey because of living costs. The Center will probably be dependent on the Navy for products and since the data are already pre-processed the Center can not add value to these products.

Interview Summary

1. Name and Affiliation of Person Interviewed

Name: Ben Watkins (Chief), Barbara Banks, Bob Warner
Information Processing Division, Office of Satellite Data
Processing and Distribution (NESDIS)

Address: 4301 Suitland Road, FB4
Washington, D.C. 20390

Phone No.: (202) 763-5687

2. Date and Place of Interview

Washington, D.C.
June 12, 1989

3. Current Activities Relevant to COAP

Sea surface temperature observations are produced globally every six hours with a resolution of 8 kilometers. These data are transmitted to CAC, OPC, NMC (and from NMC to FNOC and GTS). Analyzed fields are provided at global 100 km (daily), regional 50 km (twice weekly) and local 14 km scales to OPC, NWS and subscribers. The polar satellite also provides mapped infrared and visible image mosaics with a resolution as fine as 4 km.

4. Recommendations for Goals for COAP

5. Projected Interaction with COAP

They are currently working on providing SST with resolution of 3.5 km for the Great Lakes. Areas the size of, for instance, Monterey Bay could possibly benefit if a special product of this type is made available. A pilot project is also being conducted to upgrade the present system of charts by shipping data through a PC in more of a real-time mode.

6. Operation of COAP to Best Serve Interviewee's Needs

7. Other

Interview Summary

1. Name and Affiliation of Person Interviewed

Name: Eddie Bernard (Director), Jim Overland, Ed Harrison, Herb Curl,
Terry Jackson

Address: Pacific Marine Environmental Laboratory (PMEL), Seattle, WA

Phone No.: (206) 526-6800

2. Date and Place of Interview

PMEL

May 3, 1989

3. Current Activities Relevant to COAP

The Fisheries Oceanography Coordinated Investigations (FOCI) is studying processes leading to recruitment variability of walleye pollock in the western Gulf of Alaska. Field surveys, lab studies, satellite data analysis and modeling are being used to characterize the physical/biological variability and its effects. (Also see Section 4.6 of the other volume of the report).

4. Recommendations for Goals of COAP

Although PMEL researchers (e.g., Ed Harrison) have a need for easy access to environmental information, this was not recommended as a key focus for COAP. The prime recommendation was for COAP to concentrate on coastal oceanography, e.g., surface currents, and demonstrate a proficiency in this area. The geographical focus, at first, should be the Washington/Oregon/California area. Establish a prototype model at some skill level using local data sets, e.g., CALCOFI. Expand to other regions later.

5. Projected Interaction with COAP

There has already been some attempt to involve COAP personnel in aspects of the FOCI program, i.e., fisheries climatology for the Alaska area.

6. Operation of COAP to Best Serve Interviewee's Needs

7. Other

COAP should be semi-autonomous, i.e., have its own check-writing capability. COAP should have specific goals and a specific timeline. Other comments included:

Interview Report

1. Name and Affiliation of Interviewee

(1) COAP should extract long time series from individual researchers' files e.g., productivity vs. chlorophyll, global climate-type data sets.

Name: University of Washington, Seattle, Washington

(2) the current evaluation performed by COAP of 48 hour forecasts of NMC, FNOC, ECMWF models segregated by geographical regions has merit.

2. Date and Place of Interview

(3) it is important to understand cross-shelf transport.

University of Washington

May 3, 1989

3. Current Activities Relevant to COAP

Dr. Young is currently doing research on the effects of seasonal shifts in the Indian Ocean on tuna and would like to be able to go to a center like COAP and get wind and sea level data expeditiously.

4. Recommendations for Goals of COAP

The Center should provide information to establish the links between the environment and the climate on various time scales. The data could be used to infer information about the climate. Fish catch data for the recent past and fish stock data for the distant past would indicate trends in abundance of living marine resources, e.g., if we could reconstruct a recent time the Ice Age on showing the reaction of climate to the warming trend, this information could be used to assess the impact of future warming.

5. Proposed Interactions with COAP

The Northwest Fisheries Center and PFFC are examples of where good fisheries research is ongoing. If COAP is an outgrowth of the PFFC, this would be constructive.

6. Opportunities at COAP to Meet Some Interviewee's Needs

We question whether the Center has its specialization in numerical modeling. This function could be supported at PFFC or a university, for instance. Various types of satellite data might prove useful. SST, albedo, color, surface, reflectance.

Interview Summary

1. Name and Affiliation of Person Interviewed

Name: Warren Wooster

Address: University of Washington, Seattle, Washington

Phone No.: (206) 545-2497

2. Date and Place of Interview

University of Washington

May 3, 1989

3. Current Activities Relevant to COAP

Dr. Wooster is currently doing research on the effects of monsoon winds in the Indian Ocean on tuna and would like to be able to go to a center like COAP and get wind and sea level data expeditiously.

4. Recommendations for Goals of COAP

The Center should provide information to establish the links between the environment and the biota on various time scales. The biota could be used to infer information about the climate. Fish catch data for the recent past and fish scale data for the distant past would indicate trends in abundance of living marine resources, e.g., if one could reconstruct a record from the Ice Age on showing the reaction of biota to the warming trend, this information could be used to assess the impact of future warming.

5. Projected Interaction with COAP

The Southwest Fisheries Center and PFEG are examples of where good fisheries research is ongoing. If COAP is an outgrowth of the PFEG, this would be constructive.

6. Operation of COAP to Best Serve Interviewee's Needs

He questions whether the Center has to specialize in numerical modeling. This function could be supported at PMEL or a university, for instance. Various types of satellite data might prove useful: SST, altimetry, color scanner, scatterometer.

1. Name and Affiliation of Person Interviewed

7. Other Curt Collins, Chairman

Changes in the strength of upwelling might be evaluated from fish records. Full numerical modeling (physical/ecosystem) is beyond present capabilities. The market for near real-time oceanic information is not the same as it is for weather data from the NWS. The Navy is the principal customer for near real-time products.

2. Date and Place of Interview

NPS
April 24, 1983

3. Concept Activities Relevant to ODAF

NPS has a strong modeling component. Overall emphasis is physical oceanography with some acoustics. Dr. Sebastian and Mary Pattison have access to NWSA computing facilities. NPS is currently addressing climate applications and coastal oceanography.

4. Recommendations for Goals of ODAF

Coastal oceanography appears to be a natural area for ODAF. The Center may wish to consider working with satellite data series, e.g., coastal zone color scanner archived data. Dick Barber of NWSA has done some along these lines for Monterey Bay (notes). NWSA has recently approved these data in a database.

5. Prepared Interaction with ODAF

Craig Wilson is using NWSA facilities for his dissertation. In the past, there has not been a lot of interaction between the NPS group and NWSA/ODA. Doug Nichols of ODA has talked to Curt Collins about transferring data from the research vessel R/V ROR in real time (Acoustic Doppler Current Meter) to NWS for NWSA's use.

6. Operation of ODAF to Meet Specific Interviewee's Needs

Curt Collins would like to see more interaction between NPS and ODAF. For various reasons it has not happened previously but there now seems to be a convergence of interests. The interaction would be mutually beneficial.

Interview Summary

1. Name and Affiliation of Person Interviewed

Name: Curt Collins, Chairman

Address: Department of Oceanography, Naval Postgraduate School,
Monterey, CA

Phone No.: (408) 646-2673

2. Date and Place of Interview

NPS

April 13, 1989

3. Current Activities Relevant to COAP

NPS has a strong modeling component. Overall emphasis is physical oceanography with some acoustics. Al Semtner and Mary Batteen have access to NCAR computing facilities. NPS is currently addressing climate applications and coastal oceanography.

4. Recommendations for Goals of COAP

Coastal oceanography appears to be a natural area for COAP. The Center may also want to consider working with satellite time series, e.g., coastal zone color scanner archived data. Dick Barber of MBARI has done work along these lines for Monterey Bay (note: NASA has recently archived these data in a database).

5. Projected Interaction with COAP

Craig Nelson is using PFEG facilities for his dissertation. In the past, there has not been a lot of interaction between the NPS group and PFEG/OAG. Doug McLain of OAG has talked to Curt Collins about transferring data from the research vessel BIG SUR in real time (Acoustic Doppler Current Meter) to OAG for NOAA's use.

6. Operation of COAP to Best Serve Interviewee's Needs

Curt Collins would like to see more interaction between NPS and COAP. For various reasons it has not happened previously but there now seems to be a convergence of interests. The interaction would be mutually beneficial.

7. Other *and Additional of Further Interviewed*

A third of NPS staff does modeling (Al Semtner, Craig Nelson, Mary Batteen, Bob Haney, Jing Chiu, Dave Smith, Roland Garwood). Data management is important but it is not handled well by academics. The NWS Redwood City satellite facility is closing with AVHRR function probably transferring to the Naval Environmental Prediction and Research Facility. This may offer some opportunities.

2. Name and Place of Interview

Smith Weather Building
April 9, 1989

3. Current Activities Related to COAP

They perform near real-time forecasts (hourly, daily) in areas of marine meteorology, ocean surface structure, ocean waves, and low, etc. Their focus is synoptic meteorology/oceanography. An example is global ocean surface winds with statistically least dynamically generated winds for the coastal zone (see Section 4.1 of the other volume of this report for details). They do continual validation between GOC and JRC meteorological models.

4. Recommendations for Goals of COAP

5. Expected Interactions with COAP

They do not foresee any overlap in their and COAP's products.

6. Operation of COAP in East Coast Interviewee's Words

7. Other

They have a need for subsurface oceanography.

Interview Summary

1. Name and Affiliation of Person Interviewed

Name: D.B. Rao, Bill Gemmil

Address: Marine Products Group, NMC, World Weather Bldg., Camp Springs,
MD

Phone No.: (301) 763-8133

2. Date and Place of Interview

World Weather Building
April 6, 1989

3. Current Activities Relevant to COAP

They perform near real-time forecasts (hours, days) in areas of marine meteorology, ocean thermal structure, ocean waves, and ice, i.e., their focus is synoptic meteorology/oceanography. An example is global ocean surface winds, with statistically (not dynamically) generated winds for the coastal zone (see Section 4.1 of the other volume of this report for details). They do continual validation between NMC and FNOC meteorological models.

4. Recommendations for Goals of COAP

5. Projected Interaction with COAP

They do not foresee any overlap in their and COAP's products.

6. Operation of COAP to Best Serve Interviewee's Needs

7. Other

They have a need for subsurface oceanography.

Interview Summary

1. Name and Affiliation of Person Interviewed

Name: Robert Cheney

Address: Charting and Geodetic Services, National Ocean Service
Rockville, Maryland

Phone No.: (301) 443-8556

2. Date and Place of Interview

Rockville, Maryland

May 11, 1989

3. Current Activities Relevant to COAP

He is responsible for GEOSAT altimeter records which can yield sea level changes with an rms accuracy of about 4 cm for a time scale of a month or longer. GEOSAT's orbit has a reprint period of 17 days, with an effective period much less near the equator where ocean phenomena are slowly varying in the zonal direction. A key objective of this program is to establish/maintain a long time series. This portion of the GEOSAT program is primarily a sea level variability mission.

4. Recommendations for Goals of COAP

5. Projected Interaction with COAP

The comparison of the recorded signal with the geoid allows identification of a circulation signal in the record. Some early experimental work has been done on open ocean tides. There are some quantitative comparisons that have been made between his group's sea level anomaly maps and the results of a wind-driven ocean circulation model that are encouraging. This suggests that there is a future in incorporating altimeter data in certain wind-driven ocean models.

6. Operation of COAP to Best Service Interviewee's Needs

7. Other

Altimetry does not presently yield good absolute dynamic topography mainly because of uncertainties in the marine geoid models; however, monitoring of sea level change over time is possible. The Navy is more oriented to real-time (operational mode) than his group although they monitor only about 5 percent of the globe; his group models about 50 percent of the globe.

Interview Summary

1. Name and Affiliation of Person Interviewed

Name: Christopher Mooers

Address: INO, Stennis Space Center, MS

Phone No.: (601) 688-2509

2. Date and Place of Interview

Washington, D.C.

April 10, 1989

3. Current Activities Relevant to COAP

COAP should focus on the coastal ocean. He questions the attention to regional issues by one center except possibly in an operational mode; in the research mode interaction with local researchers/academia is needed. The Center could use a global model (e.g., CAC model) for input conditions to coastal models; also satellite altimetry, if used carefully, could supply boundary conditions and resolve eddies on the shelf. COAP needs to be embedded in NOAA's Coastal Ocean program. The Center could benefit from a visiting scientist program.

4. Recommendations for Goals of COAP

Communication with the Navy is important but reliance on the Navy in Monterey has some dangers (classified information, computer resources). Contacts with the Navy are: Dave Evans, Allan Weinstein, Mel Briscoe of ONR; Fred Saalfeld, Director of ONR. If Navy sees a benefit in altering their plans to accommodate COAP, they may seek cooperation, e.g., need for real time capability in the coastal ocean where they have few grid points.

5. Projected Interaction with COAP

NOAA needs to make its programs more cohesive so data can be used in numerical models. Many useful data sets are being neglected, e.g., DOE and MMS - sponsored field programs.

6. Operation of COAP to Best Serve Interviewee's Needs

7. Other

It will require time and people to start up and establish an ocean modeling program. The Center could use existing models and translate them into a user-friendly format for operational use. Ecosystem modeling has inherent problems associated with quality/quantity of data and the modeling process itself. A class VII computer is coming to the Navy but it is not clear if it will be situated in Bay St. Louis or Monterey.

215, Monterey
April 22, 1977

3. Current Activities Relevant to COAF

4. Recommendations for Goals of COAF

COAF should establish data collection can be addressed intelligently and quickly. Major data sets should be transferred to CD-ROM. The Center should consider the use of space systems as early as possible for the Center's use of an integrated data management system. The Center should consider the possibility of using data in rather than establishing a rigid agenda. The system should use real-time data from research vessels to facilitate data collection, e.g., data from more than one ship rather than opportunities for data to be processed and relayed as a single vessel underway to and from research operations.

5. Projected Interactions with COAF

6. Operation of COAF to Best Serve Interagency's Needs

7. Other

Entry and exit of all data is not getting into the system for all major observations. Only a quarter of total data and a quarter of delayed data after processing - are recorded. Because the COAF's operations are primarily associated with NWS activities, COAF's operations should be associated with products and forecasts in Fisheries and Wildlife. It is not obvious especially with the current interdisciplinary studies. Additional monitoring could be done by the COAF center than within COAF.

Interview Summary

1. Name and Affiliation of Person Interviewed

Name: Doug McLain

Address: Ocean Applications Group, NOS, Monterey, CA

Phone No.: (408) 646-8068

2. Date and Place of Interview

OAG, Monterey
April 12, 1989

3. Current Activities Relevant to COAP

4. Recommendations for Goals of COAP

COAP should assemble data so problems can be addressed intelligently and quickly. Major data sets should be transferred to CD-ROM. The Center should consider all time and space scales. An early success for the Center would be an efficient data management scheme. The Center should respond to requests as they come in rather than establishing a rigid agenda. The Center does not use near real-time SST data now. The Center could interact in near real time with research vessels to maximize their operations, e.g., data from more than one ship (ships of opportunity program) could be assembled and relayed to a single vessel underway to aid its research objectives.

5. Projected Interaction with COAP

6. Operation of COAP to Best Serve Interviewee's Needs

7. Other

Fifty per cent of all data is not getting into the system (of all marine observations, only a quarter in-real time and a quarter in delayed mode -often years/decades - are reported). Whereas the OPC's operations are primarily associated with NWS activities, COAP's operations could be associated with problems and forecasts in fisheries and pollution. Data management is not trivial especially with international, interdisciplinary studies. Numerical modeling could be done by the Navy rather than within COAP.

Interview Summary

1. **Name and Affiliation of Person Interviewed**

Name: Gary Sharp

Address: Consultant, COAP, Monterey, CA Washington, D.C.

Phone No.: (408) 646-1649

2. **Date and Place of Interview**

COAP

April 12, 1989

3. **Current Activities Relevant to COAP**

4. **Recommendations for Goals of COAP**

One priority for the Center is acquisition of relevant data sets. Early successes for the Center could be easier access to data on parameters such as depth of isotherms and SST across the ocean basin. As part of NOAA's Climate and Global Change Program an effort in the area of paleo-biological indicators would help to extend the observational record back, possibly, several millenia. The COADS data could be used to establish inter-parameter correlations/calibration. This information combined with paleo-biological evidence (e.g., fish scales) could then extend the record back beyond the time period covered by COADS.

5. **Projected Interaction with COAP**

6. **Operation of COAP to Best Serve Interviewee's Needs**

The Center should have a visiting scientist program.

7. **Other**

General Circulation Models (GCMs) have several problems associated with input data and the level of physics being modeled; hence, the discrepancies among outputs from various GCMs and the inability to reproduce some key known features. Ecosystem modeling is basically data-driven. Murray Brown of the MMS is establishing a new type of agreement with field scientists; field data sets must be entered into NODC archives before the principal investigator has finished working with them.

Interview Summary

1. Name and Affiliation of Person Interviewed

Name: John Ball

Address: NOAA Constituent Affairs Office, Washington, D.C.

Phone No.: (202) 443-8344

2. Date and Place of Interview

Telephone Interview

March 29, 1989

3. Current Activities Relevant to COAP

4. Recommendations for Goals of COAP

The Center should have an ombudsman to build a bridge between the Center and the user community. The type of data that is useful for fisheries is SST in a user-friendly format, depth of thermocline and depth/sediment information. Different species are correlated with different kinds of bottoms. NOAA has a lot of bottom data. IMAFS is an attractive way to display relationships among parameters e.g., fish type vs. bottom type.

5. Projected Interaction with COAP

6. Operation of COAP to Best Serve Interviewee's Needs

7. Other

NOAA historically has had a serious "hand-off" problem with its user community.

Interview Summary

1. Name and Affiliation of Person Interviewed

Name: Albert Semtner

Address: Department of Oceanography, Naval Postgraduate School,
Monterey, CA

Phone No.: (408) 646-3267

2. Date and Place of Interview

NPS

April 13, 1989

3. Current Activities Relevant to COAP

Bert Semtner's global eddy resolving model has 20 levels, a 1/2 degree resolution and is run for decades. Global, short-term runs are performed by the Navy.

4. Recommendations for Goals of COAP

COAP should work cooperatively with FNOC in doing global ocean forecasting, i.e., coupling of respective basin-wide and coastal models. Bert Semtner's model could be configured for a region and then supply boundary conditions for a coastal model. COAP could have embedded models which feed-back to the Navy grid.

5. Projected Interaction with COAP

6. Operation of COAP to Best Serve Interviewee's Needs

7. Other

Navy is interested in the eastern Pacific and northern Atlantic. W. Munk and A. Forbes, in a paper submitted to Journal of Physical Oceanography "Global Ocean Warming: An Acoustic Measure?", have suggested using acoustic wave travel time as a measure of changes in ocean temperature.

Interview Summary

1. Name and Affiliation of Person Interviewed

Name: Dick Barber, Director

Address: Monterey Bay Aquarium Research Institute (MBARI), Monterey

Phone No.: (408) 647-3702

2. Date and Place of Interview

Telephone Interview

May 15, 1989

3. Current Activities Relevant to COAP

It is timely for the establishment of the Center with its interests in global change and coastal ocean/pollution.

4. Recommendations for Goals of COAP

The Center could assemble datasets (meteorology, oceanography, fish catch) to use for interdisciplinary work. The Center should concentrate its new activities in a few areas early on and demonstrate the value of these endeavors before expanding its scope. Coupled physical/ecosystem models are a good idea but they are a long-term venture.

5. Projected Interaction with COAP

He is enthused about the prospects for cooperative efforts. MBARI focuses on the 10-30 km scale but needs to go to the larger scale (eastern boundary current) for a comprehensive perspective. The COAP could provide this link.

6. Operation of COAP to Best Serve Interviewee's Needs

7. Other

He agrees with Dennis Powers of Hopkins Marine Station that re-location of COAP to the Monterey waterfront would lead to beneficial interaction among the various labs. He is impressed with the work of Ants Leetmaa's group.

Interview Summary

1. Name and Affiliation of Person Interviewed

Name: Sig Larson

Address: Pacific OCS Office, Minerals Management Service, Los Angeles

Phone No.: (213) 894-7104

2. Date and Place of Interview

Telephone Interview

May 8, 1989

3. Current Activities Relevant to COAP

The MMS supports field programs and numerical modeling in the Atlantic, Pacific, Gulf of Mexico and Alaskan regions.

4. Recommendations for Goals of COAP

The visiting scientist program should be instituted at the COAP, i.e., quality scientists would visit the Center for 6 months and then return to their own facilities. Coastal numerical modeling is a worthwhile area for the Center to explore. High resolution grids can reproduce key circulation features. An ideal situation would be access to a supercomputer for grid resolutions as fine as one kilometer.

5. Projected Interaction with COAP

6. Operation of COAP to Best Serve Interviewee's Needs

High quality computer and communication resources in Monterey would be very beneficial to the COAP.

7. Other

He is speaking for himself and not officially for the MMS. NOAA has traditionally supported fisheries and weather, not physical oceanography. A long-term commitment to the Center is needed.

Interview Summary

1. Name and Affiliation of Person Interviewed

Name: Bruce Parker

Address: Estuarine & Ocean Physics Branch, NOAA Office of Oceanography
and Marine Assessment, Rockville, MD

Phone No.: (301) 443-8060

2. Date and Place of Interview

Telephone Interview
May 10, 1989

3. Current Activities Relevant to COAP

His group is performing modeling mostly on estuaries - Delaware Bay, Long Island Sound, Charleston Harbor.

4. Recommendations for Goals of COAP

A critical mass of people is needed at the Center to absorb the technology.

5. Projected Interaction with COAP

6. Operation of COAP to Best Serve Interviewee's Needs

7. Other

Interview Summary

1. Name and Affiliation of Person Interviewed

Name: Ed Sarachik

Address: University of Washington, Seattle, Washington

Phone No.: (206) 543-6720

2. Date and Place of Interview

University of Washington

May 2, 1989

3. Current Activities Relevant to COAP

He is studying large scale changes in the deep circulation of the ocean (carbon uptake with simple biological and nutrient cycles modeled) with implications for the greenhouse effect.

4. Recommendations for Goals of COAP

The large scale modeling of the ocean basin in a climatological context would best be done at an established center rather than starting up a program at COAP. The U.S. needs a Center for Ocean Prediction to parallel the NWS; it has been suggested previously by Richard Anthes that NCAR might serve this function. A focus by the COAP in the coastal region is appropriate.

5. Projected Interaction with COAP

6. Operation of COAP to Best Serve Interviewee's Needs

Mixed layer depth would be one worthwhile product.

7. Other

A supercomputer is vital to large scale modeling. Many people are interested in Global Climate Change; the numerical modeling work is being done at various centers (GFDL, CAC). The WOCE program is doing ocean circulation modeling. Some large scale modeling is ongoing at PMEL; Ed Harrison is using the National Bureau of Standards Cyber 205. It might be possible to apply Allen Robinson's Harvard model to the coastal region.

Interview Summary

1. Name and Affiliation of Person Interviewed

Name: Don Scavia

Address: NOAA Chief Scientist's Office, Washington, D.C.

Phone No.: (202) 377-5181

2. Date and Place of Interview

Chief Scientist's Office, Washington, D.C.

April 26, 1989

3. Current Activities Relevant to COAP

Within the Coastal Ocean Program there is the intention to revitalize fisheries science with a re-emphasis on the study of the natural variability of the system and the ocean physics - biology approach to resource allocation. Funds would be made available to the NMFS line organizations and COAP through a proposal preparation/review process.

4. Recommendations for Goals of COAP

COAP has geographical benefits, access to data, and the prospect of high quality data manipulation and distribution through IMAFS and an advanced networking system. The Center should address environmental prediction with a focus on living marine resources. The Center should have a visiting scientist program.

5. Projected Interaction with COAP

6. Operation of COAP to Best Serve Interviewee's Needs

7. Other

In ecosystem modeling the issue of interconnectivity is very complex.

Interview Summary

1. Name and Affiliation of Person Interviewed

Name: John Martin, Director

Address: Moss Landing Marine Laboratories, Monterey Bay

Phone No.: (408) 633-3304

2. Date and Place of Interview

Moss Landing
April 13, 1989

3. Current Activities Relevant to COAP

It is important to understand the dynamics of Monterey Bay. A circulation model of the Bay would be beneficial in view of possible sources of contaminants to the Bay as well as proposed offshore oil development.

4. Recommendations for Goals of COAP

The Center is not needed. NOAA should support their existing labs. GFDL could do the modeling that is required.

5. Projected Interaction with COAP

6. Operation of COAP to Best Serve Interviewee's Needs

He would like to have mixed layer depth from FNOC.

7. Other

Monterey Bay is seeking sanctuary status. This has consequences for NOAA's involvement in the area.

Interview Summary

1. Name and Affiliation of Person Interviewed

Name: Dennis Powers, Director

Address: Hopkins Marine Station, Monterey, CA

Phone No.: (408) 373-0674

2. Date and Place of Interview

Hopkins Marine Station

April 13, 1989

3. Current Activities Relevant to COAP

They are working on microbiology, ecology, larvae (how they are affected by water movements) in the intertidal zone. They are beginning to examine the physics at the mouth and seaward of the mouth of Monterey Bay.

4. Recommendations for Goals of COAP

COAP fits in naturally with NOAA's Coastal Ocean Initiative. He believes that a review of the work plan for COAP by the NRC Ocean Studies Board would be appropriate.

5. Projected Interaction with COAP

He is enthusiastic about the prospect of working closely with COAP. He considers their activities complementary to those of Hopkins and MBARI.

6. Operation of COAP to Best Serve Interviewee's Needs

He suggests that COAP re-locate to the Monterey waterfront near Hopkins and MBARI to foster interaction and interdisciplinary work.

7. Other

The COAP agenda overlaps with what the Navy is doing. COAP should work with the Navy. These connections could be established in a workshop.

Interview Summary

1. Name and Affiliation of Person Interviewed

Name: Dale Haidvogel

Address: Chesapeake Bay Institute, Johns Hopkins University, Baltimore,
MD

Phone No.: (301) 338-1916

2. Date and Place of Interview

Telephone Interview

April 18, 1989

3. Current Activities Relevant to COAP

4. Recommendations for Goals of COAP

Coastal oceanography is an appropriate topical area for COAP. Other agencies have coastal initiatives but little has materialized: INO is focusing on the North Atlantic and downplaying its coastal initiative; ONR (Tom Kinder) has a limited budget; Ken Brink has presented a program for coastal physical oceanography (COPO) for NSF support but it is exploratory now. There is a lack of programmatic flexibility in many of these programs.

5. Projected Interaction with COAP

6. Operation of COAP to Best Serve Interviewee's Needs

7. Other

The COAP agenda overlaps with what the Navy is doing. COAP should work with the Navy. These connections could be established in a workshop.

Interview Summary

1. Name and Affiliation of Person Interviewed

Name: Andy Robertson, Chief

Address: Ocean Assessments Division, Office of Oceanography and Marine Assessment, Rockville, MD

Phone No.: (303) 443-8933

2. Date and Place of Interview

Rockville, MD
April 24, 1989

3. Current Activities Relevant to COAP

They are responsible for monitoring of the status of estuaries and coastal areas. The hazardous materials response branch in Seattle does numerical modeling e.g., simplified pollutant transport modeling. (Also see Section 4.4 of the other volume of this report).

4. Recommendations for Goals of COAP

COAP should continue to do what it has done in the past, i.e., working with FNOC data, manipulating data.

5. Projected Interaction with COAP

He does not expect much interaction with COAP. Functions proposed for the Center could best be done elsewhere e.g., the numerical modeling could be accomplished within the Ocean Assessments Division.

6. Operation of COAP to Best Serve Interviewee's Needs

Products that are attractive to them: 1) detailed atlases of temperature and salinity in coastal areas (weekly/monthly) 2) monitoring of nutrient over-enrichment (chlorophyll, oxygen, turbidity).

7. Other

Physical modeling is advanced relative to chemical/biological modeling. Therefore, emphasis should be on the latter.

Interview Summary

1. **Name and Affiliation of Person Interviewed**

Name: Burnell Vincent, Sam Williams

Address: Office of Research & Development, EPA, Washington, D.C.

Phone No.: (202) 382-5967

2. **Date and Place of Interview**

EPA, Washington, D.C.

May 12, 1989

3. **Current Activities Relevant to COAP**

In the ocean their research activities are primarily directed toward estuaries, especially since dumping at sea was prohibited. Therefore, not much study is being conducted on the continental shelf. They are involved in the global climate issue.

4. **Recommendations for Goals of COAP**

They think a visiting scientist program at the Center is a positive aspect. The Center could do nearshore numerical modeling and produce information that would be useful to EPA.

5. **Projected Interaction with COAP**

They would encourage a closer working relationship with NOAA, e.g., standardization of testing methods in estuaries.

6. **Operation of COAP to Best Serve Interviewee's Needs**

7. **Other**

John Paul of their Narragansett Lab does three-dimensional numerical modeling. As part of Status & Trends there is a need to assess the condition of coastal waters, i.e., long-term monitoring. John Paul is associated with a new program called Environmental Monitoring and Assessment Program (EMAP). This is a long-term program that identifies sites with good databases and good local scientists with the goal of establishing intensive monitoring. This program may involve numerical modeling as well as field surveys. John Paul may have some contact with Bud Ehler at NOAA on this program.

INTERVIEW SUMMARY

A comprehensive review of federal programs for ocean pollution research, development and monitoring is contained in the document Summary of Federal Programs and Projects - National Marine Pollution Program by the National Ocean Pollution Program Office.

Marine Atlantic Oceanographic & Biological Laboratory (MAOBL)
P.O. Box 12234
Miami, FL

Phone No. (305) 371-4100

2. Date and Place of Interview

Telephone Interview
May 7, 1977

3. Current Activities Related to OAS

A lot of their work on "data bases" is connected with the Global Change Initiative. Historically they have done some physical oceanography/monitoring in support of the New York State Dumping studies. They are involved in the MAOBL and the other related work. (Also see Section 3.7 of the other volume of this report.)

4. Recommendations for OAS

Not enough detailed information has been made available to the Center. Therefore, it is difficult to determine an outline as to the appropriate functions. Generally it is not considered a priority activity to MAOBL's center/lab. If there were more OAS related, it would be to expand on the types of work being pursued by other MAOBL's group.

5. Projected Interaction with OAS

If the Center produced useful data packages (e.g., objective analysis of oceanographic data) these would be welcome at MAOBL. The Climate Analysis Center supplies these types of material.

6. Operations of OAS to Best Serve Interviewee's Needs

7. Notes

There was a coastal studies initiative several years ago in which they were to participate; however, the funding evaporated. One continual problem is the lack of availability of good data; examples are non-funded projects for which data are not readily available.

Interview Summary

1. **Name and Affiliation of Person Interviewed**

Name: Hugo Bezdek (Director), Don Hansen (Chief - Physical Oceanography)

Address: Atlantic Oceanographic & Meteorological Laboratory (AOML), Miami, FL.

Phone No.: (305) 361-4300

2. **Date and Place of Interview**

Telephone Interview
May 9, 1989

3. **Current Activities Relevant to COAP**

A lot of their work is "blue water" in connection with the Global Change Initiative. Historically they have done some physical oceanography/monitoring in support of the New York Bight Dumping studies. They are involved in TOGA, EPOCS, but not much coastal work. (Also see Section 4.7 of the other volume of this report).

4. **Recommendations for Goals of COAP**

Not enough detailed information has been made available on the Center. Therefore, it is difficult to formulate an opinion as to its appropriate functions. Generally it is not considered a timely addition to NOAA's centers/labs. If there were merit to the Center, it would be to expand on the types of work being pursued by Andy Bakun's group.

5. **Projected Interaction with COAP**

If the Center produced useful data packages (e.g., objective analysis of oceanographic data) these would be welcome at AOML. The Climate Analysis Center supplies these types of material.

6. **Operation of COAP to Best Serve Interviewee's Needs**

7. **Other**

There was a coastal studies initiative several years ago in which they were to participate; however, the funding evaporated. One continual concern is the lack of availability of good data; examples are NSF-funded projects for which data are not readily available.

Interview Summary

1. **Name and Affiliation of Person Interviewed**

Name: Jim O'Brien

Address: Mesoscale Air-Sea Interaction Group, Florida State University,
Tallahassee, FL

Phone No.: (904) 644-4581

2. **Date and Place of Interview**

Telephone Interview

May 15, 1989

3. **Current Activities Relevant to COAP**

He is working on a "next generation" numerical model. Florida State University and NORDA are working on embedded models.

4. **Recommendations for Goals of COAP**

The Center should foster a visiting scientist program. Numerical modeling off the U.S. West Coast is feasible and can reproduce the basic structures. Nowcasting can be done with data assimilation from satellites; forecasting is more problematic because of inadequate wind forecasts. One drawback of numerical models is that we have limited knowledge of how best to interpret/display/use the output.

5. **Projected Interaction with COAP**

National networks allow numerical modeling to be done from anywhere.

6. **Operation of COAP to Best Serve Interviewee's Needs**

7. **Other**

Ocean forecasting is a worthwhile goal to strive toward; once it is a reality it will create its own constituency/clientele. ONR/NSF are funding efforts to encourage new modelers. One potential model for use by COAP is the NORDA/Hurlburt model which is 3-level with resolution of one sixth or one twelfth of a degree. A coupled model could then be used for the shelf region.

Interview Summary

1. Name and Affiliation of Person Interviewed

Name: Joe Hall, Raymond Hall, Mark Curran, Tom Armitage

Address: Office of Marine and Estuarine Protection (OMEP), EPA,
Washington, D.C.

Phone No.: (202) 475-7182

2. Date and Place of Interview

EPA, Washington, D.C.
April 27, 1989

3. Current Activities Relevant to COAP

They are continually confronted with the challenge of finding and pulling together available data that are spatially and temporally adequate to define the condition of an estuary. They do not have a unified data management plan to impose a common format on their various databases from different sites.

4. Recommendations for Goals of COAP

A visiting scientist program will be productive. It would be beneficial to EPA if the Center performed numerical modeling of nearshore areas at a relatively fine scale.

5. Projected Interaction with COAP

In EPA's estuary program there is a primary emphasis on historical data, first.

6. Operation of COAP to Best Serve Interviewee's Needs

7. Other

They have a perception that the type of work envisioned for the Center is currently being done by such organizations as the Woods Hole Oceanographic Institution.