

MINUTES OF UNOLS ADVISORY COUNCIL MEETING
MARCH 12, 1974

1. A regular meeting of the UNOLS Advisory Council was convened at 0830 Tuesday, March 12, 1973 at the Allan Hancock Foundation, University of Southern California, Los Angeles. Present were:

MEMBERS

Dr. J. V. Byrne, CHAIRMAN
Dr. J. P. Craven
Dr. D. W. Menzel
Dr. P. L. Parker

EXECUTIVE COMMITTEE

Dr. A. E. Maxwell
Dr. J. M. Savage
R. P. Dinsmore, Ex. Sec'y

GUESTS

Miss Mary Johrde, NSF
Mr. Irving Swatzburg, Univ. of Hawaii
Dr. Bernard C. Abbott, USC

2. The meeting was convened by Dr. Byrne, Chairman, and followed by a brief welcome to the Allan Hancock Foundation by Dr. Savage who described the facilities and the planned schedule for the day.
3. The Draft Agenda dated Feb. 26, 1974 was adopted as submitted except to take up Items #3 and #4 (funding matters) on the second day of the meeting; and to add under other business the subject of the current status of National Oceanographic Facilities.
4. Minutes of the previous meeting was taken up. Miss Johrde submitted a correction to Item #10 (top of page 7) to read---"current funding research by NSF as of this date appears to require about \$8.8 of UNOLS ship days and the projection for the remainder of the year totals about \$10.2M. The latter could increase based on additional proposals received." (changes shown underlined).

Dr. Menzel, seconded by Dr. Parker, moved to accept the minutes as corrected. This was voted unanimously.

5. The Long Range Plan was taken up. Dr. Byrne reported that the proposed OAB study which would include future needs for facilities had been shelved and UNOLS should no longer plan on a joint effort.

The Executive Secretary reported on the NACOA-ICMSE "Capital Assets Study" which is to be conducted under contract to the Center for Naval Analyses. This study results from the concern NACOA expressed in its Annual Report over the status of facilities, especially ships. A study outlined was reviewed by the group and concern was expressed that it was being limited to "approved Federal plans" and would not, as a result, address the long range issues. The UNOLS Office is to assist the CNA in obtaining data from the academic side. The scheduled completion date is October 1974.

6. Dr. Craven introduced the University of Hawaii study on "UNOLS 1990" which was undertaken by his Marine Options class with the support of NSF. Copies of the draft report were made available to all present. He described the background of the work and that it was an analysis based on three independent paths:

- (1) "Experts" opinions of the support which might be available to the system.
- (2) The State Of Marine Technology during the same time span.
- (3) The framework of science requirements which determine the system mix.

The project leader, and associate of John Craven, Mr. Irving Swatzburg, described the report and its results which are summarized in the following table:

SUBSYSTEM	SIZE	REMARKS
Manned Observations at the air/sea interface		
Blue Water	29 ships	21 Conventional 2 SSP 3 Spar Buoy 3 Stable Platforms
Coastal	28 Ships greater than 65 feet 17 ships 50 ships	12 Conventional 4 SSP 4 Hydrofoil 8 Stable platforms (non-self propelled) 50' < ships < 65' 26 ft. in length
Shore Support Facilities	9	1 in each of 9 zones
Unmanned Observations	6 units	2 Acoustic arrays 4 Mobile units each with: 1 Unmanned-Untethered device 1 Unmanned-tethered device 1 Unmanned towed device
Manned Observations Underwater	12	9 Submersibles 3 Habitats
Computerized Command and Control and Information Processing	122 systems	
Unmanned Observations at the air-sea interface	46 buoys	

There followed a lengthy discussion on the Hawaii Report. To questions, Dr. Craven advised that satellites were not included because the participant so assigned dropped out of the course. Commercial activities were not included and the report deals only with academic science. The Group spent little time on resource economics. It was agreed that the Report

should be presented at the Annual meeting with two general expansions: (1) the section on future of science, and (2) a section on annual costs to arrive at the 1990 profile. How to achieve the first of these remains a problem. Dr. Byrne suggested that from a list of subjects individual experts could be solicited for their views in the form of monographs. To accomplish the second Dr. Menzel suggested that Mr. Swatzburg work with a small group to develop a year-by-year progression with accompanying capital and operational costs.

7. The Draft Summary Outline of UNOLS Long Range Plan for ships was reviewed in the context of how it relates to the Hawaii results. The summary of current Federally funded ships showed:

<u>Global Ships (250'-350')</u>	- 2
<u>Oceanwide (150'-250')</u>	- 7
<u>Coastal/Open Sea (125'-180')</u>	- 8
<hr/>	
total "blue water"	- 17
Coastal (66'-125')	- 8
Institutional (< 65')	- 8

To meet the Hawaii Study by 1990:

<u>TYPE</u>	<u>EXIST</u>	<u>REPLACE</u>	<u>NEW</u>
Blue Water	17	5	4
Coastal	8	5	7
Institutions	8	3	14
total	33	13	25

There followed a general discussion of the various aspects of the Plan Outline including the meanings of global ships, special purpose ships, national facilities and the projections of scientific requirements. It was

agreed to go into the Annual Meeting with an expanded Plan Outline and get the guidance of the members for further procedures. A suggested outline by Dr. Craven and added to by Drs. Parker, Savage and Maxwell was summarized as follows:

Scientific Requirements - obtain specially invited monographs by experts in various disciplines.

Institutional Outlooks - A small working group to synthesize laboratory needs based on correspondence.

Special Purpose Facilities - (i.e., polar ship; geology & geophysics ship, others) - small working groups of experts to develop conceptive needs and outlooks.

Ship Requirement Plan - A special small working group from Advisory Council (or otherwise) to translate the above into a feasible projection using the Hawaii Study as a catalyst.

Implementation Plan - An additional development of year-by-year capital funding (and associated operations costs) required in order to realize the overall projection.

8. The Group was hosted for lunch by Dr. Abbot, Director of the Allan Hancock Foundation and other members of the USC Staff. Following lunch there were several informal discussions of ongoing work at USC followed by a tour of the Foundation.
9. The proposed National Current Meter Facility (Agenda Item #6) was discussed at length, a copy of the Working Group Report of the 1/7/74 meeting having been made available.

Dr. Menzel considered that it was premature to proceed in recommending a national facility with the information thus far established. He stated that use of current meter arrays was lacking and until this was established he could not

agree with recommending the forthright creation of a national facility. There was general agreement by other members with this view. Dr. Craven moved to defer action until an intermediate questionnaire is circulated to obtain data on user needs and costs. It was agreed that this be done.

Dr. Byrne pointed out that regardless of determining user needs the NOVA current meters would become surplus at the conclusion of the shelf dynamics experiments and their disposition should be planned for. Dr. Parker suggested that these instruments could be included in with other major inventories together with a small maintenance funding and with the provision that they be made available to a user on reasonable request. Further experience could then determine the need for a full scale national facility. It was agreed that this appears to be a feasible course.

The Executive Secretary was requested to prepare a submission to UNOLS Members at the Annual Meeting reflecting the foregoing agreements.

9. Following this the meeting was recessed for the day and was reconvened at 0800, March 13, 1974.
10. Agenda Item #7 - Oceanographic Equipment Surveys was introduced by Miss Johrde who discussed the NSF goal for establishing inventories of equipment purchased by NSF which might be more cooperatively shared between users. Data on equipment purchases FY 73-75 was presented showing some of the categories of NSF supplied material. The question of record keeping vs. some sort of information service was discussed. The latter would be a more positive step extending beyond ordinary "bean counting". This was agreed as a viable approach and Dr. Maxwell suggested that the current meter situation could serve as a pilot effort in this area.

Other equipment arrangements were discussed such as "pool rentals" for use/repair needs, institutional surplus, and service support funding. All of these are variations for the current meter solution which can be explored. Dr. Craven

suggested that a long term goal include planning for an ultimate National Facility for equipment service and support. Dr. Byrne inquired if this was not the role of the NOAA Instrument Center. Miss Jhrde agreed to explore this possibility at the Washington coordinating level.

11. Miss Jhrde reported on the assignment of the new 177-ft. NSF ship and invited the Advisory Council to make recommendations and comments. The Executive Secretary had distributed data on the ship which is now scheduled for delivery in the Fall of 1975 following R/V OCEANUS, its sister ship. Miss Jhrde named the special panel to recommend to NSF on the assignment. It includes James Wakelin, Burr Steinbach, Lee Alverson, Robert Gerrels, John Calhoun, Capt. Bartov, and Charles Drake. The policy is that the ship is open to all proposers from graduate level labs who must be prepared to put up outfitting funds (\$400K).

There was general agreement that the Advisory Council should not prejudice any action of the panel by its own recommendations; it should offer, however, any help and information which the UNOLS Office might be able to provide.

Miss Jhrde asked the question of Advisory Council action in the OMB "requirement" of laying up three existing ships against the funding of the two new ones. The Executive Secretary responded that it ought to be UNOLS job to argue for the lifting of the "agreement" and at the very least get OMB concurrence to a one-for-one trade. This was agreed to and the Executive Secretary and Chairman are to work out strategies.

It was further agreed to include the new ship assignment on the agenda of the annual meeting and see if UNOLS members wish to adopt a position.

12. The Executive Secretary reported that the Annual Meeting is scheduled for May 15-16 at Washington. Dr. Byrne asked Dr. Craven who agreed to make a presentation on the Hawaii Study. Mr. Swatzburg will assist and will work with the UNOLS Office to develop an implementation plan.

Dr. Craven proposed that Long Range Planning be the principal theme for the Annual Meeting. This was seconded by Dr. Parker and agreed by all. The Executive Secretary asked for suggestions regarding the desirability of a speaker and who. All present were in favor of a speaker using ship construction and replacement as a theme. Suggestions for speakers included Owen (NSF), Snyder (OCEANAV), Wallace (NOAA) and White (NOAA).

13. The Executive Secretary reported on the recent meetings of the EASTWARD and ALPHA HELIX Review Committees. Each Committee meeting included both a policy session and a project review and planning session. The policy adopted by the EASTWARD Committee was to deal solely with the scientific merit of proposals with direction to the program manager (Barber) to adjust the selections in order to make the ship competitive for funding. The result of the EASTWARD review session was to produce a schedule (Sept. 74-Aug. 75) which did include a majority of NSF grantees or likely so.

The ALPHA HELIX Committee on the other hand considers its role to include the shaping of project policy and the seeking of support both within and outside of NSF. It defined areas of operation for 1975-1977 to include the Southwestern Pacific and Tropical American regimes (Amazon River, Galapagos and Caribbean reefs).

A task of the Advisory Council will be to propose to the Annual Meeting a slate of new members for each committee. Names of members to be replaced along with recommendations of the committee will be sent to Dr. Byrne.

14. The Current Funding Situation (Agenda Item #3) was taken up. Figures received from UNOLS Members and NSF indicate that whereas 1974 ship operations originally were estimated at \$17.1M the cost now appears to be about \$18.2, the increase being attributed to fuel costs and general inflation. Available funding to meet this is about \$16.5 which results in an estimated deficit of about \$1.7. Savings and cutbacks could reduce this to about \$1.1 which is probably the actual 1974 shortfall.


The fuel situation was discussed at some length. Miss Jhrde reported that fuel costs which traditionally have been about 6% of the budget are now 12%. She reported on the NSF-Navy agreement to make defense fuel available to UNOLS ships. This should result in some savings in addition to insuring availability.

Dr. Byrne submitted that the drastic increases in fuel costs constituted an exigency of the first order and that NSF ought to consider reallocating funds to meet this. This was seconded by Dr. Craven and voted unanimously. Miss Jhrde agreed to explore this possibility.

15. The Funding Outlook for 1975 (Agenda Item #4) was taken up based on figures provided by the Executive Secretary. Despite an outlook for 8% increase in NSF ship operations funding, the \$1M shortfall probably will be carried into 1975. Strategies to cope with this must be developed and discussed at the Annual Meeting. These include:
 - additional funding from other sources
 - increased funding to meet fuel cost
 - decreased fuel use through scheduling
 - ship lay ups and greater interinstitutional use of ships
16. The next meeting was decided to be May 14 or 15 in conjunction with and just prior to the annual meeting in order to review and update the Advisory Council submissions to the members.
17. There being no further business, the meeting was adjourned at 1:00 p.m.

Respectfully submitted,

J. V. Byrne, Chairman



R. P. Dinsmore, Ex. Sec'y

Background Information

(Items sent out prior to the upcoming meeting)

UNOLS Advisory Council Meeting
12-13 March 1974
University of Southern California
DRAFT AGENDA

Convene at 0830 at the Director's Suite of the Allan Hancock Foundation, USC, March 12, 1974.

NOTE: At the last meeting the members agreed to meet by Groups to draft plans for facility response to scientific disciplines as follows:

Sea Bed: Drs. Craven, Byrne, Richards

*Water Column: Drs. Parker, Menzel,
Dugdale, Colwell*

The Chairman has suggested that these groups meet the evening before at the Vagabond Motel and again at 0830-1130 at USC on this effort. The regular meeting will begin after lunch.

1. Adoption of Agenda
2. Minutes of last meeting
 - the minutes of the 31 October-1 November meeting are included in the attached background material.
3. Current Funding Situation
 - the attached material includes summaries of current funding. Increased fuel costs are wiping out gains from Congressional "add-ons".
4. Funding Outlook for FY-1975
 - Data on the Federal FY-75 budget are attached. Outlook is about 8% increase for ship operations, 10% increase in research, and about level funding in equipment and other ops.
 - Strategies and guidelines for FY-75 ought to be discussed and developed. An attached working paper outlines some possible thrusts and recommendations by the Advisory Council.

5. Long Range Plan

- discussion of results of Working Groups sessions and considerations regarding inputs and format for a Long Range Plan.
- NACOA-ICMSE has contracted with the Center for Naval Analyses for a study on the capital inventory of the National Ocean Program. A copy of the study outline and some guidelines of the study are attached.
- John Craven and Irving Schwartzberg will report on the work at the University of Hawaii on the "1990 UNOLS".
- How to proceed further? Should a working group be convened? Should only a study plan be submitted to UNOLS at May meeting in order to bring their inputs and cooperation.

6. Proposed National Current Meter Facility

- The Working Group for a Current Meter Facility met at Harvard on January 7, 1974 with Dr. Niiler as chairman. A report of the meeting is included. It was recommended that proposals for such a facility be solicited from appropriate laboratories in order to ascertain interest and proceed further.

7. Oceanographic Equipment Surveys

- An NSF goal is to establish inventories on major oceanographic equipment which could be shared more cooperatively than in the past especially when its immediate need has passed. There is attached a summary of OFS equipment purchased in 1973-74. Recommendations in this area might be of assistance.

8. Assignment of second new 177-ft NSF R/V.

- The Advisory Council is invited to provide guidelines or recommendations regarding the assignment of this ship. Background material is attached.

9. Annual UNOLS Meeting

- Now scheduled for May 15-16 at Washington, D.C.
- Suggestions for Agenda items are invited.

10. UNOLS Charter

- Charter expires 9/21/74. Its readoption and/or changes will be a subject at the Annual Meeting. Does the Advisory Council wish to provide recommendations and inputs?

11. Recommendations for 1975

- It would be expedient if Advisory Council Recommendations which will serve as the basis for the 1974 Report were presented to UNOLS at the May meeting. To do this, these recommendations should be formed at this meeting for further development by correspondence.

12. Other Business

13. Next Meeting.

UNIVERSITY-NATIONAL OCEANOGRAPHIC LABORATORY SYSTEM

An association of Institutions
for the coordination and support
of university oceanographic facilities

UNOLS Office
Woods Hole Oceanographic Institution
Woods Hole, Massachusetts 02543

February 1, 1974

TO: Advisory Council Members


The next meeting of the Advisory Council has been rescheduled for Tuesday and Wednesday, March 12-13, 1974 at University of Southern California, Los Angeles. Meeting will convene at 0900, March 12 in the Director's suite of the Allan Hancock Foundation at USC. Accommodations are suggested at the:

Vagabond Motor Hotel
3101 South Figueroa
Los Angeles, California
Telephone: (213) 746-1531

This is within walking distance of the Allan Hancock Foundation.

The annotated agenda and background material will be mailed in the very near future. Those of you who had planned preparations leading to development of the long range plan may wish to contact me regarding how I might be of assistance.

We regret the rescheduling of the meeting. I hope you will be able to attend.


R. P. Dinsmore
Executive Secretary, UNOLS

RPD/lee

UNIVERSITY - NATIONAL OCEANOGRAPHIC LABORATORY SYSTEM

An association of Institutions
for the coordination and support
of university oceanographic facilities

UNOLS Office
Woods Hole Oceanographic Institution
Woods Hole, Massachusetts 02543

January 24, 1974

TO: Advisory Council

Because working information necessary to the next Advisory Council Meeting is running well behind schedule the February 4-5 meeting at Seattle would be ineffectual. I have proposed, and John Byrne agrees, that the meeting had better be postponed for about one month. Therefore, please cancel your plans for a February meeting.

I will contact each of you by phone to discuss your preferences for new dates and to make arrangements for preliminary work which must be undertaken.



R. P. Dinsmore
Executive Secretary, UNOLS

RPD/lee

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY
Interagency Committee on Marine Science and Engineering
U.S. DEPARTMENT OF COMMERCE
6010 Executive Boulevard
Rockville, Maryland 20852

10 Jan 1984

As you know, ICMSE has undertaken a study of the capital structure of the marine sciences in view of the concern expressed by NACOA in its second annual report. Enclosure (1) provides the background leading to the study as well as the statement of study parameters accepted by ICMSE and NACOA.

This study is being conducted for ICMSE through the Navy by its Center for Naval Analysis (CNA). Enclosure (2) is the preliminary study plan developed by CNA, a non-profit Federal Contract Research Center affiliated with the University of Rochester. CNA and its forerunners have been doing operations' research and systems analysis work for the Navy and other Federal agencies since the 1940's. In recent years, CNA has developed for the Navy a number of models and studies which show impact of capital assets on operating costs, support costs, and programs.

The study performance by CNA will be guided and reviewed by an advisory committee chaired by Dr. David Potter, Assistant Secretary of the Navy for Research and Development, with members drawn from ICMSE and NACOA. Direction and decision rests solely with ICMSE. Preliminary results of the study will be available to ICMSE member agencies for comment. The final study product will be released to ICMSE, accompanied by comments from the advisory committee, for its consideration and transmittal to NACOA through the Chairman, Federal Council for Science and Technology.

Accomplishing this important study will require the cooperation of all ICMSE agencies. Specific information requirements from each agency will be initiated through the ICMSE members. The information provided must be of quality and substance which the agencies will stand behind if the study is to provide a useful product and is to be completed on time.

2

The purpose of this letter is to solicit your assistance in alerting applicable elements of your agency to the purpose of the study and its information needs, in arranging for the necessary interviews with CNA study personnel, and in assuring prompt response to queries and questionnaires from CNA.

Sincerely,

Steven N. Anastasion
Executive Secretary
Interagency Committee on
Marine Science and Engineering

cc: Chairman, Federal Council for Science and Technology
Chairman, Interagency Committee on Marine Science and Engineering
Chairman, National Advisory Committee on Oceans and Atmosphere

Enclosures

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Arlington, Virginia 22209

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University of Rochester*

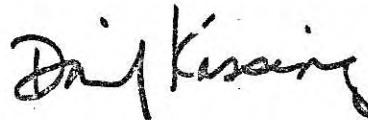
7 December 1973

InRe: (CNA) 2047-73

MEMORANDUM FOR THE INTERAGENCY COMMITTEE ON MARINE SCIENCE AND
ENGINEERING (ICMSE) Attn: Mr. Stephen Anastasion
Subject: ORRS Study Plan

Enclosure: (1) (CNA)2047-73, "ORRS Study Plan", R. Hale,
3 December 1973, Unclassified.

Enclosed is a study plan for the Oceanographic Research
Resource Study (ORRS). It is forwarded for comment by you
and other members of the ICMSE.



DAVID B. KASSING
President

7 December 1973

ORRS STUDY PLAN

This memo outlines a study plan for the Oceanographic Research Resources Study (ORRS).

OBJECTIVES

As outlined by ICMSE, the objectives of ORRS are (1) to provide information on the current inventory of marine science capital assets and planned additions/deletions to this inventory, (2) to determine the current utilization of marine science capital assets and the funds necessary to achieve full utilization, and (3) to determine the budget and physical capital required to carry out Congressionally or agency approved marine science programs, and also what programs can be carried out at alternate funding levels.

SCOPE

We believe we can fairly readily define the scope of the marine science program in terms of Federal and State agencies and institutions. Federal agencies would be those listed in the President's 1973 Federal Ocean report; State agencies and academic institutions are to be identified with the help of ICMSE.

However, we anticipate some trouble in defining what projects within the agencies should be included within the "marine science" program. Federal agency projects will be selected from among projects within the scope of the President's 1973 Federal Ocean Report.

We will select all projects within the scope of the Federal Ocean

For Comment

report except those dealing primarily with atmospheric science, enforcement of laws or treaties, or marine surface transportation (e.g., advanced ship engineering, maritime safety). For state projects we must define a selection criteria consistent with the Federal Ocean report. We suggest defining marine science projects as research or surveys dealing with living or non-living resources of the sea, marine environmental phenomena, defense objectives relating to the seas, or development of technology for undersea research (e.g., deep submersibles). We will exclude from state projects the same types of projects as are excluded from Federal agency projects. When a project has marine science activities combined with other purposes, we will include the project but flag its dual nature.

Since considering capital utilization and budget trade-offs involves operating funds as well as the costs of physical assets, we shall consider both. However, we shall pay particular attention to capital assets.

METHODOLOGY

Data Requirements. We expect to gather data on marine science projects and resources from all agencies in the marine science program. Tables 1 and 2 indicate the type of data we think is needed. The remainder of this section points out expected problems in defining and gathering data to complete the tables.

The leftmost column in table 1 lists categories meant to cover all the resources for a given agency/institution. We will subdivide these categories further (e.g., subdivide "ships" into ship types as shown in table 1) in order to get meaningful estimates of items such as operating and manpower costs. Also we

will flag entries which would result in double-counting; for example, NSF academic grants would show up as project money for an academic institution.

For each resource category in the leftmost column of table 1 we want to learn the major purpose(s) for which this resource is used. This will show where resources are used and will also let us flag resources used for both marine science and non-marine science purposes, a problem we discuss further below. The major purposes listed in the current report on the Federal Ocean Program (Table A-2) could serve as a starting point for developing a list meaningful to planners; we would of course exclude those purposes outside the scope of ORRS.

The information on current year inventory and operating costs (at current utilization), agency-approved future procurement/improvements, and planned retirements is data that we hope is available from participating agencies and institutions. Our initial contacts indicate that this is so. In addition to cost data in table 1, we will obtain the sources of recent past funding for major academic and marine institutions. This will show shifts among Federal, private and other funding sources.

Before gathering utilization data (the last major column in table 1) we must define measures of utilization. For some resource categories there appear to be obvious measures: days at sea per year for ships and deep submersibles and flight hours per year for aircraft. For these resource categories, we would ask agencies to estimate current and maximum utilization (with maximum

For Comment

being restricted by need for repair and crew rest), and additional funds needed to achieve maximum utilization. For resources other than ships, aircraft, and deep submersibles, clear measures of utilization require further thought.

Turning to agency requirements, the first two columns of table 2 ask for a list by agency of current and approved new projects. The third column identifies each project with one or more of the major purposes discussed above to allow decision-makers to quickly see the types of projects involved in any changes to the marine science program. The fourth column shows which of these current and approved new projects the agencies feel can be accomplished at two possible funding levels: current funding and funding increased to allow full utilization of assets.

The last column in table 2--resources needed--is very important; it allows us to tie together data in both tables. The resource needs of each project from table 2 and the cost of resources in table 1 will show the cost of alternate combinations of projects. We can also tell whether a combination of projects can be accomplished with the current and planned resources in table 1, or whether additional resources must be procured. Though the data on resources-needed will be very useful, it will probably also be difficult to define and gather. Some projects will have both marine science and non-marine science purposes. We probably will not be able to judge how much of such a project's resources are used for marine science purposes, but we will flag the dual nature of the project. Also resource needs for some proposed projects may be uncertain. We can accommodate this uncertainty

TABLE 2

AGENCY REQUIREMENTS

<u>Agency/Institution</u>	<u>Project</u>	<u>Major Purposes</u>	<u>Will Project Be Accomplished Under</u>		<u>Resources Needed</u>		
			<u>Current Funding</u>	<u>Max. Util. Funding</u>	<u>Type</u>	<u>Amount Needed By Yr</u>	
						<u>FY 75</u>	<u>76...79</u>
					e.g. ship	$\frac{1}{2}$	ship-yr
					aircraft	30	flt.hrs.
					manpower:		
					scient.	200	man-hrs
					support	100	man-hrs

by showing ranges of resource needs, though of course the estimate of costs to perform programs including such projects will be a range of costs rather than a single figure.

The data in table 2 will also allow us to handle the problem of resources in table 1 which have both marine science and non-marine science uses. A "non-marine science" project can be entered in table 2 for each agency with dual-purpose resources; resource needs of this project will be the amount used for non-marine science purposes. We can then leave these non-marine science resources unchanged in considering any changes to the marine science program.

Data Gathering. We shall formulate a questionnaire to help systematize our data gathering. For some geographically distant agencies/institutions we will have to rely solely on this questionnaire. However, wherever possible we prefer to work personally with the agencies to clarify our data categories and understand unique agency characteristics.

When we have gathered this data, we will develop a methodology which will allow us to meet the objectives set for this study. To do so consistently, the methodology will capture all costs affected by a program change including changed procurement, direct operating and support costs. Changes in procurement costs and in operating costs (due either to changes in number of assets or in utilization of assets) can be calculated directly from table 1. Support costs may change if we discover that certain resource categories (e.g., ship berthing or overhauls) exist largely to support other categories (e.g., surface ships). We

would try to approximate such changes, perhaps by making costs of supporting categories proportional to costs of supported categories.

STUDY DEADLINES

Begin Full-time work with 2 or 3 analysts	1 January
Preliminary reports to ICMSE	March 15 and as desired
Final Report	1 October

MASTER

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Coastal	28 Ships greater than 65 feet 17 ships 50 ships	12 Conventional 4 SSP 4 Hydrofoil 8 Stable platforms (non-self propelled) 50' < ships < 65' 26 ft. in length
Shore Support Facilities	9	1 in each of 9 zones
Unmanned Observations	6 units	2 Acoustic arrays 4 Mobile units each with: 1 Unmanned-Untethered device 1 Unmanned-tethered device 1 Unmanned towed device
Manned Observations Underwater	12	9 Submersibles 3 Habitats
Computerized Command and Control and Information Processing	122 systems	
Unmanned Observations at the air-sea interface	46 buoys	

There followed a lengthy discussion on the Hawaii Report. To questions, Dr. Craven advised that satellites were not included because the participant so assigned dropped out of the course. Commercial activities were not included and the report deals only with academic science. The Group spent little time on resource economics. It was agreed that the Report

should be presented at the Annual meeting with two general expansions: (1) the section on future of science, and (2) a section on annual costs to arrive at the 1990 profile. How to achieve the first of these remains a problem. Dr. Byrne suggested that from a list of subjects individual experts could be solicited for their views in the form of monographs. To accomplish the second Dr. Menzel suggested that Mr. Swatzburg work with a small group to develop a year-by-year progression with accompanying capital and operational costs.

7. The Draft Summary Outline of UNOLS Long Range Plan for ships was reviewed in the context of how it relates to the Hawaii results. The summary of current Federally funded ships showed:

<u>Global Ships</u> (250'-350')	- 2
<u>Oceanwide</u> (150'-250')	- 7
<u>Coastal/Open Sea</u> (125'-180')	- 8
<hr/>	
total "blue water"	- 17
Coastal (66'-125')	- 8
Institutional (<65')	- 8

To meet the Hawaii Study by 1990:

<u>TYPE</u>	<u>EXIST</u>	<u>REPLACE</u>	<u>NEW</u>
Blue Water	17	5	4
Coastal	8	5	7
Institutions	8	3	14
total	33	13	25

There followed a general discussion of the various aspects of the Plan Outline including the meanings of global ships, special purpose ships, national facilities and the projections of scientific requirements. It was

agreed to go into the Annual Meeting with an expanded Plan Outline and get the guidance of the members for further procedures. A suggested outline by Dr. Craven and added to by Drs. Parker, Savage and Maxwell was summarized as follows:

Scientific Requirements - obtain specially invited monographs by experts in various disciplines.

Institutional Outlooks - A small working group to synthesize laboratory needs based on correspondence.

Special Purpose Facilities - (i.e., polar ship; geology & geophysics ship, others) - small working groups of experts to develop conceptive needs and outlooks.

Ship Requirement Plan - A special small working group from Advisory Council (or otherwise) to translate the above into a feasible projection using the Hawaii Study as a catalyst.

Implementation Plan - An additional development of year-by-year capital funding (and associated operations costs) required in order to realize the overall projection.

8. The Group was hosted for lunch by Dr. Abbot, Director of the Allan Hancock Foundation and other members of the USC Staff. Following lunch there were several informal discussions of ongoing work at USC followed by a tour of the Foundation.
9. The proposed National Current Meter Facility (Agenda Item #6) was discussed at length, a copy of the Working Group Report of the 1/7/74 meeting having been made available.

Dr. Menzel considered that it was premature to proceed in recommending a national facility with the information thus far established. He stated that use of current meter arrays was lacking and until this was established he could not

agree with recommending the forthright creation of a national facility. There was general agreement by other members with this view. Dr. Craven moved to defer action until an intermediate questionnaire is circulated to obtain data on user needs and costs. It was agreed that this be done.

Dr. Byrne pointed out that regardless of determining user needs the NOVA current meters would become surplus at the conclusion of the shelf dynamics experiments and their disposition should be planned for. Dr. Parker suggested that these instruments could be included in with other major inventories together with a small maintenance funding and with the provision that they be made available to a user on reasonable request. Further experience could then determine the need for a full scale national facility. It was agreed that this appears to be a feasible course.

The Executive Secretary was requested to prepare a submission to UNOLS Members at the Annual Meeting reflecting the foregoing agreements.

9. Following this the meeting was recessed for the day and was reconvened at 0800, March 13, 1974.
10. Agenda Item #7 - Oceanographic Equipment Surveys was introduced by Miss Johrde who discussed the NSF goal for establishing inventories of equipment purchased by NSF which might be more cooperatively shared between users. Data on equipment purchases FY 73-75 was presented showing some of the categories of NSF supplied material. The question of record keeping vs. some sort of information service was discussed. The latter would be a more positive step extending beyond ordinary "bean counting". This was agreed as a viable approach and Dr. Maxwell suggested that the current meter situation could serve as a pilot effort in this area.

Other equipment arrangements were discussed such as "pool rentals" for use/repair needs, institutional surplus, and service support funding. All of these are variations for the current meter solution which can be explored. Dr. Craven

suggested that a long term goal include planning for an ultimate National Facility for equipment service and support. Dr. Byrne inquired if this was not the role of the NOAA Instrument Center. Miss Jhrde agreed to explore this possibility at the Washington coordinating level.

11. Miss Jhrde reported on the assignment of the new 177-ft. NSF ship and invited the Advisory Council to make recommendations and comments. The Executive Secretary had distributed data on the ship which is now scheduled for delivery in the Fall of 1975 following R/V OCEANUS, its sister ship. Miss Jhrde named the special panel to recommend to NSF on the assignment. It includes James Wakelin, Burr Steinbach, Lee Alverson, Robert Gerrals, John Calhoun, Capt. Bartow^{call}, and Charles Drake. The policy is that the ship is open to all proposers from graduate level labs who must be prepared to put up outfitting funds (\$400K).

There was general agreement that the Advisory Council should not prejudice any action of the panel by its own recommendations; it should offer, however, any help and information which the UNOLS Office might be able to provide.

Miss Jhrde asked the question of Advisory Council action in the OMB "requirement" of laying up three existing ships against the funding of the two new ones. The Executive Secretary responded that it ought to be UNOLS job to argue for the lifting of the "agreement" and at the very least get OMB concurrence to a one-for-one trade. This was agreed to and the Executive Secretary and Chairman are to work out strategies.

It was further agreed to include the new ship assignment on the agenda of the annual meeting and see if UNOLS members wish to adopt a position.

12. The Executive Secretary reported that the Annual Meeting is scheduled for May 15-16 at Washington. Dr. Byrne asked Dr. Craven who agreed to make a presentation on the Hawaii study. Mr. Swatzburg will assist and will work with the UNOLS Office to develop an implementation plan.

Dr. Craven proposed that Long Range Planning be the principal theme for the Annual Meeting. This was seconded by Dr. Parker and agreed by all. The Executive Secretary asked for suggestions regarding the desirability of a speaker and who. All present were in favor of a speaker using ship construction and replacement as a theme. Suggestions for speakers included Owen (NSF), Snyder (OCEANAV), Wallace (NOAA) and White (NOAA).

13. The Executive Secretary reported on the recent meetings of the EASTWARD and ALPHA HELIX Review Committees. Each Committee meeting included both a policy session and a project review and planning session. The policy adopted by the EASTWARD Committee was to deal solely with the scientific merit of proposals with direction to the program manager (Barber) to adjust the selections in order to make the ship competitive for funding. The result of the EASTWARD review session was to produce a schedule (Sept. 74-Aug. 75) which did include a majority of NSF grantees or likely so.

The ALPHA HELIX Committee on the other hand considers its role to include the shaping of project policy and the seeking of support both within and outside of NSF. It defined areas of operation for 1975-1977 to include the Southwestern Pacific and Tropical American regimes (Amazon River, Galapagos and Caribbean reefs).

A task of the Advisory Council will be to propose to the Annual Meeting a slate of new members for each committee. Names of members to be replaced along with recommendations of the committee will be sent to Dr. Byrne.

14. The Current Funding Situation (Agenda Item #3) was taken up. Figures received from UNOLS Members and NSF indicate that whereas 1974 ship operations originally were estimated at \$17.1M the cost now appears to be about \$18.2, the increase being attributed to fuel costs and general inflation. Available funding to meet this is about \$10.5 which results in an estimated deficit of about \$1.7. Savings and cutbacks could reduce this to about \$1.1 which is probably the actual 1974 shortfall.

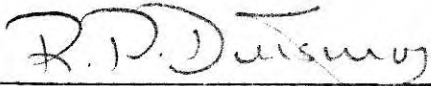
The fuel situation was discussed at some length. Miss Johrde reported that fuel costs which traditionally have been about 6% of the budget are now 12%. She reported on the NSF-Navy agreement to make defense fuel available to UNOLS ships. This should result in some savings in addition to insuring availability.

Dr. Byrne submitted that the drastic increases in fuel costs constituted an exigency of the first order and that NSF ought to consider reallocating funds to meet this. This was seconded by Dr. Craven and voted unanimously. Miss Johrde agreed to explore this possibility.

15. The Funding Outlook for 1975 (Agenda Item #4) was taken up based on figures provided by the Executive Secretary. Despite an outlook for 8% increase in NSF ship operations funding, the \$1M shortfall probably will be carried into 1975. Strategies to cope with this must be developed and discussed at the Annual Meeting. These include:
 - additional funding from other sources
 - increased funding to meet fuel cost
 - decreased fuel use through scheduling
 - ship lay ups and greater interinstitutional use of ships
16. The next meeting was decided to be May 14 or 15 in conjunction with and just prior to the annual meeting in order to review and update the Advisory Council submissions to the members.
17. There being no further business, the meeting was adjourned at 1:00 p.m.

Respectfully submitted,

J. V. Byrne, Chairman



R. P. Dinsmore, Ex. Sec'y

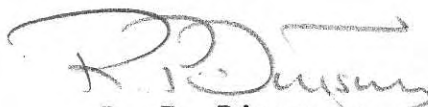
UNIVERSITY - NATIONAL OCEANOGRAPHIC LABORATORY SYSTEM

An association of Institutions
for the coordination and support
of university oceanographic facilities

March 6, 1974

Memo to Advisory Council

The attached plan memorandum from the Center for Naval Analyses shows the plan for their Capital Assets Study. This should be added to the other information concerning Agenda Item #6 (long range plan) for the forthcoming meeting.



R. P. Dinsmore
Executive Secretary, UNOLS

RPD/lee

Encl.

(CNA) 305-74
22 February 1974

MEMORANDUM

DETAILS OF ORS DATA DEFINITIONS
AND METHODOLOGY

R. Hale
A. Jondrow

Institute of Naval Studies

CENTER FOR NAVAL ANALYSES

1401 Wilson Boulevard
Arlington, Virginia 22209

This memorandum represents the best opinion of CNA at the time of issue. It does not necessarily represent the opinion of the Department of the Navy.

Reference: (a) (CNA)2047-73, "ORRS Study Plan", R. Hale, 3
December 1973, Unclassified.

BACKGROUND

The Interagency Committee on Marine Science and Engineering (ICMSE) has contracted with CNA to study the capital assets used for ocean science and technology (hereafter referred to as ocean science). The impetus for this study was the concern expressed by the National Advisory Committee on Oceans and Atmosphere (NACOA) and by the ICMSE over possible underinvestment in capital assets for future ocean science efforts and possible underutilization of current capital assets. Consequently, objectives of the study are to provide the following: an inventory of current capital assets, measures of actual and maximum utilization of this inventory, a projected inventory based on agency-approved procurement and retirement plans, and a comparison between this projected inventory and capital services required by agency-approved ocean science programs.

Reference (a) is the CNA study plan for the Ocean Science and Technology Study (ORS)*. Reference (a) discusses the scope and goals of ORS in general terms and summarizes the two study tasks of defining and gathering data and building a model to use the data. This memorandum expands on the summary of these two tasks. First, we discuss in detail our data definitions. These definitions are designed to provide the data we need for our

*The study name is more general than in reference (a) to reflect inclusion of assets for surveying and engineering as well as research.

methodology, and they also reflect the suggestions of our working level review committee. Second, we discuss in detail our methodology for combining the data to fulfill the study objectives.

DATA REQUIREMENTS

Tables 1 and 2 of this paper are revisions of the two tables in reference (a). Below we define in detail what is to be included under each heading of both tables.

Table 1

Asset Categories

The first column of table 1 shows categories which describe both capital assets used in ocean science work and facilities to support these assets. We want to include all assets within the scope of the 1973 Federal Ocean Report, except for assets dealing primarily with education, marine surface transportation and enforcement of laws and treaties.

Under each category, we want a list by name of all capital assets owned and/or operated by ocean science agencies/institutions at the end of fiscal year 1973. Below we state the degree of detail desired under each asset category:

- Surface ships: all ships 50 feet or longer should be listed by hull name and type. To give a complete inventory, temporarily out of service (TOS) ships should be included.
- Aircraft: all aircraft should be listed by type/model/series (e.g., P-3B) and, where applicable, major mission.
- Satellites: all satellites should be listed by name and type.

TABLE 1

<u>Asset Categories</u>	<u>Major Purposes</u>			<u>Agency/Institution</u>		<u>End FY 73 Number Operating TOS</u>	<u>Approved Proc/ Improvement</u>		<u>Planned Retirements</u>	
	<u>List 1</u>	<u>List 2</u>	<u>List 3</u>	<u>Owns</u>	<u>Operates</u>		<u>FY 74</u>	<u>FY 75...79</u>	<u>FY 74</u>	<u>75...7</u>
Surface Ships										
Aircraft										
Satellites										
Manned Submersibles										
Unmanned Submersibles										
Major Computers										
Major Shore Labs										
Special Purpose Facilities										
Support Facilities (for mobile assets)										

<u>Asset Categories</u>	<u>Actual FY 73 Utilization</u>		<u>Maximum Utilization</u>		<u>Additional Data</u>	<u>Comments</u>
	<u>Level</u>	<u>Operating Costs</u> (See text of categories)	<u>Level</u>	<u>Additional Costs</u> (See text for categories)		
Surface Ships						
Aircraft						
Satellites						
Manned Submersibles						
Unmanned Submersibles						
Major Computers						
Major Shore Labs						
Special Purpose Facilities						
Support Facilities (for mobile assets)						

- Submersibles (manned or unmanned): all submersibles should be listed by name.

- Major computers: all general purpose, permanently-installed major computers dedicated more than 20% to ocean science should be listed by name and location. Computers to be considered "major" will be identified with the help of the study review committee.

- Major shore labs: all major shore labs should be listed by name and location.

- Special purpose facilities: all major special purpose facilities should be listed by name and location. Special purpose facilities are major facilities which may be within a major shore lab or independent of any lab. Examples of special purpose facilities include instrument testing facilities, hydrodynamic facilities, pressure tanks, and hyperbaric facilities. Specific assets to be included in this category will be identified with the help of the study review committee.

- Support facilities (mobile assets): support facilities for mobile assets should include all facilities which support surface ships, aircraft, satellites, and deep submersibles. Facilities should be identified by the type of mobile asset supported. Note that if support facilities exist primarily to support assets other than those included in ORS, we will not include the support facilities in ORS.

Major Purposes

For each entry within an asset category, we wish to indicate a major purpose or purposes to characterize uses of that particular asset. These major purposes are broad descriptors which will

allow us to list all assets involved at least partially in, say, physical oceanographic research. However, any asset may be described by more than one major purpose. Therefore, the major purposes will not allow us to determine which assets are devoted exclusively to an area of ocean science.

Each entry within an asset category will be identified by one or more purposes from each of three lists. The first list of purposes describes the major activity area(s) in which the asset is used: physical oceanography, chemical oceanography, fisheries research, all other biological oceanography, geology and geophysics, engineering, acoustics, and mapping and charting. The second list of purposes describes the area(s) of national interest for which the asset is used: environment, disaster warning, national security, food, energy, and mineral resources (other than energy). Finally, the third list of purposes describes the assets by one or more of the major purposes used in the 1973 Federal Ocean Report (excluding those purposes outside the scope of ORS): international cooperation and collaboration; national security; living resources; development and conservation of the coastal zone; non-living resources; oceanographic research; environmental observation and prediction; ocean exploration, mapping and charting, and geodesy; general purpose ocean engineering; and national centers and facilities.

Agency/Institution

The agency or institution which owns the asset and the one which operates it will be indicated.

Number of Assets

The number of assets at end FY 73 should be stated, with an indication for ships as to whether the asset is currently in service or temporarily out of service. Some agencies or institutions record data on a calendar year basis. Hence if data on number of assets is not available for end FY 73, we will use end calendar 1973 data and specify this in accompanying comments.

Approved Future Procurements/Planned Retirements

We wish to project the inventory of assets for FY 75-79 based on our end FY 73 inventory. To this end, we will request information on agency-approved plans for inventory changes for FY 74-79. Specifically, we will request agency-approved plans for procurement (by number of items and total cost) and for alterations (by total cost) for each year from FY 74-79. Under procurement, agencies should include plans to reactivate ships which are temporarily-out-of-service and should show reactivation costs. We will also request agency-approved plans for temporary and permanent retirements.

For each entry in this section the document or level of the agency approving the change will be specified in accompanying comments. Comments will also state in what dollars costs are measured so that we can later adjust all costs to current year dollars.

Utilization

Due to concern that some assets are currently underutilized, the ICMSE has asked CNA to measure asset utilization. We will measure intensity of utilization of capital assets rather than

value of utilization. As an example of this distinction, our measure of utilization for surface ships - days at sea - does not measure the competency of the scientists who are at sea or the value of their output. We choose measures of intensity rather than value of use because they are definable; such measures should be useful in focusing management attention. Proposed measures of intensity of use are:

- Ships - days at sea per year (i.e., days out of any port including homeport)
- Submersibles (manned and unmanned) - dive days per year
- Aircraft - flight hours per year
- Major computers - hours of operation per year

ICMSE does not desire measures of utilization for the following asset categories: satellites, major shore labs, special purpose facilities, support facilities.

We will request from agencies data on utilization for FY 73 since this is the latest data available. If FY 73 utilization is clearly not typical (e.g., ship was being overhauled for half the year) we will use data for the latest typical year and note the year in accompanying comments.

Operating Costs

We need to obtain data on operating costs of capital assets at the FY 73 level of utilization. The type of detail needed under operating costs differs according to the type of assets. For surface ships, aircraft, satellites, and submersibles, operating costs will be requested in the following detail:

Direct costs

- # crew
 - \$ crew
 - \$ fuel
 - \$ periodic overhaul (by year FY 75-79)
 - \$ all other direct costs (including routine maintenance)
-

Support costs

- \$ berthing and port charges (ships only)
- \$ ground/shore support (except berthing)
- \$ indirect management support

We include berthing and ground/shore support under each asset only if an agency contracts for the support and pays for it on a per-asset basis. If the agency maintains its own support facilities, we would capture the total cost of the support facility under the asset category of support facilities.

Indirect management support is costs for personnel and facilities which do not directly supervise, maintain, or operate ORS capital assets (e.g., the upper management of a university as opposed to personnel who specifically support that school's ship activities). Normally we would not include such indirect management costs in ORS because they are not controlled by ocean science planners. However, some agencies (e.g., NSF) pay other agencies to run assets included in ORS, and for each asset these funding agencies reimburse the operating agency for a share of the operating agency's management costs. These per-asset costs are controllable by ocean science planners, and so are included in ORS. Such costs are included in this separate category to distinguish them from direct or ground/shore support costs, and thus to render operating costs more comparable among agencies.

For major computers, major shore labs, special purpose facilities, and support facilities, the operating cost breakdowns are simpler than those for mobile assets because we are less concerned about comparing operating costs between agencies. The breakdowns are as follows:

- # program personnel (i.e., personnel performing technology or research activities)
- \$ program personnel
- # support personnel
- \$ support personnel
- \$ all other costs

Costs of support facilities are included in ORS only if the cost would be significantly reduced by elimination of a major portion of ORS assets supported by that facility. Thus if berthing facilities for ships included in ORS, are provided by a facility serving ships other than those in ORS, and if this facility's operations and costs would not change significantly even if all the ships included in ORS were eliminated, we would exclude the costs of this facility from ORS.

As most agencies and institutions in our study keep records by fiscal year, we will ask for fiscal year operating costs in all asset categories. However, academic institutions and some agencies record operating costs by calendar year. If these institutions cannot translate their costs into fiscal year, we will average data for the two calendar years overlapping the requested fiscal year, and treat this average as a "fiscal year" cost.

Maximum Utilization and Associated Costs

In addition to actual utilization, CNA has been asked to estimate maximum utilization for selected assets and cost to

achieve maximum utilization of these assets. We will measure maximum utilization for the same types of assets and use the same measures we used for actual FY 73 utilization. For ships, aircraft, and submersibles (manned and unmanned), we will define maximum utilization as being constrained by the most constraining of the following five factors: (1) crew restraints including need for crew rest (addition of another crew should not be considered in determining crew restraints but additional overtime should be considered); (2) time for routine maintenance; (3) idle time caused by weather; (4) time required to reconfigure the asset's scientific equipment; and (5) idle time caused by government fuel allocations. For major computers, maximum utilization is to be constrained only by down-time for repairs.

We must also determine in FY 73 dollars, the increase in costs over actual FY 73 costs required to achieve maximum utilization. Additional operating costs would be listed in the same categories as are used for operating resources at actual utilization. However, costs could also increase in categories other than operating costs. For example, maximum utilization could require additional scientific personnel or additional computer time. Costs in these other categories should be identified as to the asset (e.g. which shore lab will house additional people or which computer is to be used more) and the additional dollars to achieve this increased use.

Additional Data

Finally, we will collect additional data on certain capital assets to meet four types of needs:

(1) Replacement costs for ships, aircraft, and submersibles are needed, even where there are no agency-approved procurement plans, because capital service requirements may justify purchase of additional assets. Replacement costs should be for an asset with the same general capabilities and only minor improvements. Where capital requirements justify purchase of an asset different from those in the current inventory, we will treat this as a new asset and collect separate data on it.

Replacement costs for computers and satellites will not be collected because rapid changes in technology would render these estimates too uncertain.

(2) Measures of ship and computer capacity are needed to determine assets required to meet capital service requirements.

(3) Measures of ship substitutability are needed to determine which ships can satisfy the capital service requirements of programs. Use of this data will be explained in the methodology section.

(4) Some general interest data, where it is not difficult to gather, will be assembled because of its potential usefulness.

Additional data to be collected is as follows:

Ships

Replacement costs

Measure of ships' capacities (in terms of scientist-days-at-sea achieved in FY 73)

Measures of ship substitutability

Size (under 100 feet, 100-200 feet, over 200 feet)

Special capabilities (capability to do polar operations, deep coring, trawling, deep water positioning, submersible handling, mapping and charting)

General interest (year built, year converted if applicable, planned retirement date, length, displacement, number of berths for scientists)

Aircraft

Replacement costs

General interest (age, planned retirement date, number of engines, cubic feet of cargo space, whether number of sensors or number of scientists limits a plane's accomodation of research programs and the limiting number)

Satellites

General interest (launch date, maximum data transmission rate, mean mission duration)

Submersibles

Replacement costs

General interest (age, planned retirement date, maximum operating depth, number crew where applicable)

Computers

Measure of computer capacity (in terms of total dollar billings by the computer in FY 73)

General interest (model, generation, core storage size, planned replacement date)

Comments

This section will indicate sources of data and any deviations from the data definitions.

Items Related to Table 1

Grants and Contracts

Table 1 shows the asset operating and procurement costs of each agency. Hence the total costs on table 1 should be the total spending of each agency for ocean science, with the exception of spending on grants and contracts to other agencies and institutions. Since we want total spending by agency, we want costs of grants and contracts by agency.

On the other hand, agencies grant money to universities to run their ships and aircraft, and we will have already captured this cost in table 1. Hence adding costs from table 1