

**ANTARCTIC RESEARCH VESSEL
OVERSIGHT COMMITTEE
(ARVOC)
MEETING**

07-08 SEPTEMBER 2000

NEW ORLEANS, LA

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These proceedings were compiled and produced by

Raytheon Polar Services Company
61 Inverness Drive E
Ste 300
Englewood, CO 80112

For further information or to make comments contact
Dr. Jim Holik at 303-790-8606 ext 3274 or holikji@polar.org

Post Meeting Recommendations
SEPTEMBER 7-8, 2000

RECOMMENDATION 1: CAPTAIN WARREN SANAMO, ECO, IS ASKED TO REVIEW THE DRAFT DOCUMENT AND PROVIDE INPUT/SUGGESTIONS TO THE COMMITTEE. THIS ACTION IS CONTINUED UNTIL TOMORROW'S MEETING TO ALLOW CAPT. SANAMO AND COMMITTEE MEMBERS TIME TO REVIEW THE DRAFT BEFORE A VOTE TO APPROVE. FOLLOWING COMMITTEES' APPROVAL THE *Interaction of USAP Research Vessels and Research Stations* WILL BE INCORPORATED INTO THE PI LETTER, THE POLICY MANUAL, AVAILABLE ON THE VESSELS AND ON THE WEB.

RECOMMENDATION 2: AN ARVOC WORKING GROUP (VERN ASPER, BILL DETRICH, AND STAN JACOBS) WILL CONTINUE TO GATHER INFORMATION ON WORKBOAT OPTIONS. INFORMATION WILL BE BROUGHT BACK TO ARVOC AND PAUC AND THE PREFERRED WORK BOAT OPTIONS, COST ESTIMATES, ETC. WILL BE COMPILED INTO AN EXECUTABLE PLAN AND FOLLOWING APPROVAL BY ARVOC AND PAUC, THE ARVOC/PAUC CHAIRS WILL INFORM DR. ERB AND MCCLINTOCK OF COMMITTEE ENDORSEMENTS. THE PROCESS FOR FUNDS ALLOCATION CAN THEN BEGIN.

RECOMMENDATION 3: RPS (JIM HOLIK) WILL UPDATE THE CAPITAL EQUIPMENT LIST THAT APPEARS ON THE WWW, DELETING ITEMS ALREADY PURCHASED OR NOT BEING PURCHASED, AND ADDING ALL NEW CAPITAL EQUIPMENT ITEMS.

RECOMMENDATION 4: JIM HOLIK WILL DEVELOP A CAPITAL EQUIPMENT LIST OF PROPOSED ITEMS. THE LIST WILL BE SUBMITTED TO COMMITTEE CHAIR AND WILL BE DISTRIBUTED TO ARVOC MEMBERS FOR REVIEW. THE COMMITTEE WILL GIVE FEEDBACK TO JIM HOLIK AND THE CAPITAL EQUIPMENT LIST WILL BE DISCUSSED AT THE NEXT ARVOC MEETING. THE LIST CAN BE PRIORITIZED BY MEMBERS PRIOR TO THE MEETING TO SAVE TIME AND ITEMS CAN BE SUBMITTED BY COMMITTEE FOR CONSIDERATION.

RECOMMENDATION 5: THE RESEARCH SUPPORT PLAN (RSP) WILL BE AMENDED TO INCLUDE AN EXPLANATION OF THE UNDERWAY DATA COLLECTION PROCESS AS IT APPLIES TO EACH SPECIFIC CRUISE.

ARVOC Meeting Agenda
07-08 SEPTEMBER 2000
R/V NATHANIEL B. PALMER
NEW ORLEANS, LOUISIANA

Welcome, Introductions	D. Karl
Chairman turnover/new member introductions	
Review of current agenda	
Review of ARVOC mission statement/Charter	
May 99 and Oct 98 Minutes- Approval	
NSF Report	D. Peacock
Raytheon Report	
Transition from ASA to RPSC	T. Yelvington
Science Support/Marine Operations	D. Atwood
Cooperative Agreement with WHOI	D. Atwood/B. Walden
Vessel/Palmer Station Interaction	B. Sidell or B. Detrich
Workboat for Palmer Station	B. Dietrich
Outbrief trends, FY99 GPRA Report and	
Vessel Performance Metrics	S. Kottmeier
Major Changes/Improvements to vessels	J. Holik
Warehouse/Logistic support in Punta Arenas	J. Holik/B. Borden
RVIB Rebid Update	C. Kennedy
SeaBeam	
Capital Equipment Plans	J. Holik
Electronic Support Planner (ESP)	R. Ely
AICC Report	J. Swift
GLOBEC	A. Doyle
Ship Scheduling	A. Sutherland
Adjourn- (Executive Session either immediately following meeting	
or after vessel tour)	
Day 2 SEPTEMBER 8, 2000	
Executive Session report, Any items continued from 9/7/00	
IT Report	D. Leger
Action Items from past meeting	J. Holik
Travel	J. Holik
Other items, other committee business	
Next Meeting date/location	
Adjourn	

September 7, 2000

Welcome, Introductions

Dave Karl, Chair, welcomed the ARVOC Committee, NSF representatives, Raytheon staff, and other guests to the ARVOC meeting held aboard the R/V NATHANIEL B. PALMER. Drs. Bob Anderson, Teresa Chereskin, and Bill Detrich were introduced as the newly elected board members replacing Drs. Bruce Sidell, Ken Smith, and Walker Smith. Dave Karl announced that, by Committee vote, Robin Ross was elected to serve and has accepted the office of Chair for the ARVOC Committee. Her three-year term begins January 1, 2001. Dave Karl will remain as ex-officio member of ARVOC. Roundtable introductions followed.

Review of current agenda

Reviewed the agenda and asked if there were any agenda items from the floor. No new items added.

Review/Approve 1999 and 1998 minutes

Motion was called for to approve the September 20-21, 1999 minutes. Motion was made, seconded, and passed to approve the minutes.

Motion was called for to approve the October 1-2, 1998 re-drafted minutes. Stan Jacobs noted an indexing error. An advice notice will be added to the minutes noting the indexing error. Motion was made, seconded, and passed to accept the October minutes with the inclusion of the advisement notice.

Review of ARVOC Mission Statement

Dave Karl reviewed, in part, the February 6, 1996 EOS article on the formation of the ARVOC. "ARVOC represents the interdisciplinary scientific interests of USAP's ice-capable research vessels, the R/V NATHANIEL B. PALMER and R/V POLAR DUKE (replaced by the R/V LAURENCE M. GOULD). The 9-member committee provides recommendations and advice about shipboard equipment and instrumentation (including acquisition and utilization), computer systems, scheduling issues (particularly long-range), staffing, communications, space allocation, and other issues that can improve the research capability of the program." Dave Karl noted that the committee is very much committed to this mission and will continue to work with the new contractor, Raytheon Polar Services and the NSF in achieving the mission goals.

NSF Report

Dennis Peacock reported that the NSF budget requests are now in the Senate Committee where members of both the House and the Senate will decide budget allocation. As of this meeting date, there are no final budget figures for FY01 to report.

Dennis Peacock recapped some of the important issues for the NSF. These included: Arctic and Antarctic research and how these might interact, astronomy sciences in Antarctica, global environment, the Dry Valleys research, aircraft logistics, traverses, weather forecasting, neutrino detector.

The Woods Hole transition and integration into Raytheon Polar Services Company (RPSC) is an evolving process, per Dr. Peacock, but is seen by the NSF and Raytheon as a positive addition to the Antarctic program.

Raytheon Reports

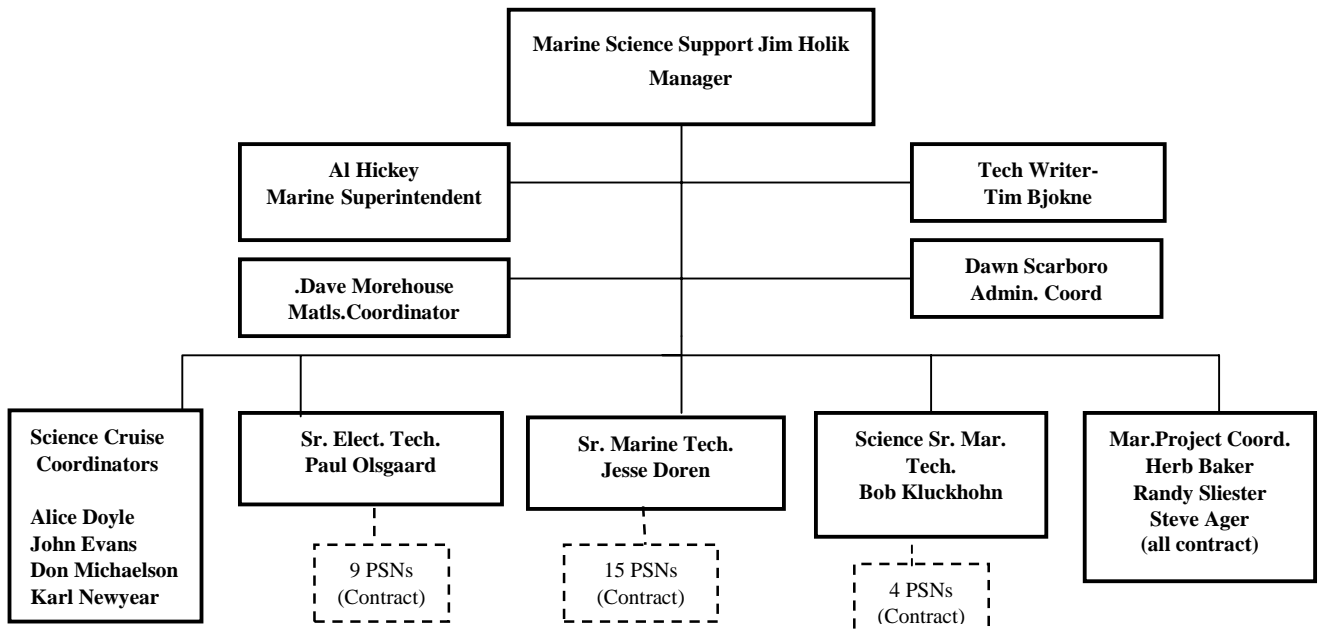
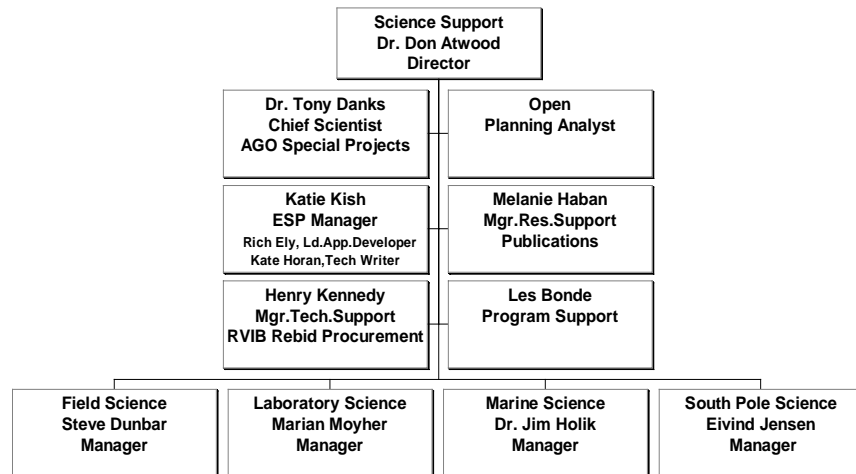
Transition from Antarctic Support Associates to Raytheon Polar Services Company

Tom Yelvington reported that the transition from ASA to Raytheon has been smooth and that 91% of the recruited incumbents were retained. This brings continuity to the program.

Raytheon strengths are: advanced technology, information technology and communications, a systems management system, and an aggressive CEO that will accomplish tasks better and more cost effectively.

Science Support/Marine Operations

Don Atwood presented the organization charts (below) and emphasized the strong management team within RPS. A team that is committed to bringing improvements to the USAP program and with the number of experienced staff retained there will be continued on-going support of advisory committees such as ARVOC and of the science groups.



Cooperative Agreement with WHOI

Don Atwood and Barrie Walden discussed the current status of the Cooperative Agreement with WHOI. While WHOI has been a part of the Raytheon proposal to the NSF from the beginning, the final agreement is still in process, per Don Atwood. It is believed the final agreement, when completed, will effectively utilize WHOI expertise and also have the value added of Raytheon marine staff.

In the process of preparing the proposal to NSF, there was initially a much larger scale plan for association between WHOI and Raytheon. As the transition finalized and as it became apparent experienced marine staff would be transitioning over to Raytheon, it also became clearer that a modification to the WHOI plan would better serve the science communities' and the NSF's goals. Barrie Walden, Don Atwood, and Jim Holik are working to complete a Cooperative Agreement that will allow WHOI to assist where and when needed and in the areas WHOI excels in, i.e., moorings, MOCNESS. The RPSC marine staff, headed by Jim Holik, will continue to support science as it has successfully done in the past.

Al Sutherland added that, even though this plan with WHOI is a more modest approach than earlier proposed, this doesn't mean the affiliation won't grow in the future. This might be where the ARVOC and other Users' Committees might be of assistance by providing input and feedback. Dave Karl asked where/how the principal investigators, as users, fit into the plan. Might the PI conceivably bring on the people and be responsible for certain tasks that are being relegated to WHOI? For example, the funds associated with the moorings could be routed through the PI and thus the liability would also be the PIs.

Don Atwood responded by noting, for example, the recent MOCNESS observation made by the WHOI representative. In this observation it was noted there are redundant net sizes on the vessels. With a broad overview by WHOI and by their contractually responding or advising to situations such as this RPSC can better manage the vessel and have the required equipment for the PIs. Jim Holik added that PIs may offer or have needs for specially trained people for their cruises and these options can be decided on an case by case basis.

Barrie Walden reaffirmed Jim Holik's statement and added that WHOI's role is to supplement and improve the system when RPSC or the PI requests assistance. Plans are to structure the work so the Chief Scientist on board is the one who gives direction to the WHOI representative/worker. RPSC will continue to work with WHOI on the agreement and will keep ARVOC informed of agreement status.

Vessel/Palmer Station Interaction

Bruce Sidell discussed the *Interaction of USAP Research Vessels and Research Stations* draft. The document was developed by a working group (Wade Jeffrey, Robin Ross, Al Hickey, and Ron Nugent) representative of the science community, marine support, and operations. This draft was presented to PAUC in June 2000 and following today's discussion and review at ARVOC and with ARVOC's endorsement, a final version with

the noted (underlined) changes below will be resubmitted to PAUC for their endorsement. **RECOMMENDATION 1: CAPTAIN WARREN SANAMO, ECO, IS ASKED TO REVIEW THE DRAFT DOCUMENT AND PROVIDE INPUT/SUGGESTIONS TO THE COMMITTEE. THIS ACTION IS CONTINUED UNTIL TOMORROW'S MEETING TO ALLOW CAPT. SANAMO AND COMMITTEE MEMBERS TIME TO REVIEW THE DRAFT BEFORE A VOTE TO APPROVE. FOLLOWING COMMITTEES' APPROVAL THE *Interaction of USAP Research Vessels and Research Stations* WILL BE INCORPORATED INTO THE PI LETTER, THE POLICY MANUAL, AVAILABLE ON THE VESSELS AND ON THE WEB.**

ISSUES RE: INTERACTION OF USAP RESEARCH VESSELS AND RESEARCH STATIONS

The *United States Antarctic Program* (USAP) is a complex and multi-faceted endeavor that requires careful coordination and timely communication among all components to ensure success in achieving the unified goal of advancing science in the Polar Regions. The need for such coordination and communication is particularly acute in scheduling the timing and duration of port calls for the USAP's polar research vessels, *ARSV Laurence M. Gould* and *RV Nathaniel B. Palmer*. The designation of the *L.M. Gould* as an "Antarctic Research and Supply Vessel" (ARSV) specifically underscores the importance of that vessel's dual role in the USAP. In the case of ship-station interactions, the three parties are: the USAP (scientists, NSF – key contacts = vessel Chief Scientist, Station Science Leader), the Antarctic Contractor, *Raytheon Polar Services* (key contacts = vessel Marine Projects Coordinator, MPC, and Station Area Manager) and the ship operators, *Edison Chouest Offshore*, ECO (key contact = ship's Master).

Past experience of the USAP demonstrates that the needs of **both** shipboard science and station-based science and support can be met, if mutual respect is maintained between these constituencies and, timely communication occurs between their representatives. Scheduling conflicts between research vessels and stations have occurred in the past and the issue of ship-station interactions needs to be reemphasized. Appointment letters to Chief Scientists aboard the vessels and to the Station Science Leaders (SSL) now explicitly include their charges with regard to ship scheduling. The purpose of this document is to educate newcomers to the Program and to remind those with previous field experience of their responsibilities to ensure successful science and logistical operations in Antarctica.

The USAP's polar research vessels are critical as ocean-going platforms for the conduct of shipboard-based science and, especially in the case of the *L.M. Gould* and Palmer Station, are also essential lifelines for transport of station-based personnel and supplies. Published ship schedules are determined iteratively by the Antarctic contractor (*Raytheon Polar Services*) in consultation with officers of the *National Science Foundation* and represent (ideally) the best available compromise to address the needs of both ship- and station-based science projects and logistics. It is upon these ship schedules that all Principal Investigators and support personnel plan their activities. Just as available ship time can define the scope and success of shipboard science, timing of port calls at Palmer Station (especially those at beginning and end of cruises) equally define the field seasons of station-based scientific projects. Although we all recognize the importance of maintaining flexibility when operating in the often-challenging environment of Antarctica, every effort should be made to adhere to these schedules. When conditions dictate that modification of a published ship schedule is necessary, it is imperative that such a change be made through a process of consultation among all impacted parties, except in circumstances affecting the safety of the vessel and its personnel, where the ship's Master holds ultimate authority.

Because of their contractually defined role, the vessel-based Marine Projects Coordinator (MPC) has ultimate authority for determining ship schedule when underway (except in cases affecting safety of ship and passengers when that responsibility reverts to the ship's Master). The MPC and Station's Area Manager have primary responsibility for working out any changes in the timing of port calls at the Station. They are most aware of logistical requirements of ship and station. For the process to work well, however, it is essential that every effort be made to have their positions represent the needs of their constituencies. Thus, the MPC, shipboard Chief Scientist and Captain should consult about the requirements for and impact of any schedule change upon shipboard operations. Likewise, the Station Manager should consult with the Station Science Leader on-site at the Station. To ensure that all needs of the various science missions are considered, the Chief Scientist and SSL are urged, either directly or as part of a broader dialog with both MPC and Station Manager, to discuss impact of schedule changes on their scientific constituents. It is the shared responsibility of these scientific leaders and individual project leaders to ensure that needs of all projects are factored into these decisions.

All parties need to recognize that the USAP is a 24-hour/day operation, both at the Stations and aboard ships at sea. Although normal working hours should be factored into decisions for arrival and departure times from the Station, we must recognize that ship handling at the Station dock occasionally may require mustering of personnel outside of the normal workday. It is the responsibility of the Station Area Manager to ensure that contractor employees are provided with appropriate compensatory time off when these events occur.

While the USAP wishes to avoid any "hard-and-fast" policies because of the importance of flexibility and capacity to respond nimbly to rapidly changing circumstances in the field, the following are suggested normal operating procedures, unless unusual circumstances or weather events dictate otherwise:

- Whenever possible, the full published ship schedule should be maintained.

- Except in circumstances affecting safety of the ship and passengers (as described above), the ship will adhere to scheduled begin-cruise arrival date at the Station and end-cruise departure date from the Station. The only other exception to this rule is when a unanimous consensus for early end-cruise departure occurs among all science party leaders (both shipboard and station-based), MPC, Area Manager and ship's Master. A single dissenting opinion for schedule change from a science party means that the original schedule will be maintained.
- Personnel and projects should, in general, be expected to be available for departure from the Station at any time after 1000 on the departure date, although actual departure time may occur later in that day. Adherence to departure date (see second bulleted item, above) does not mean 0001 clock time on that calendar date.
- In the event that circumstances in the field dictate, a "working horizon" of 24 hr should be extended with respect to stability of intra-cruise ship schedule. In other words, every effort should be made to consult about and arrive at any changes in timing of intra-cruise port calls at the Station at least 24 hr in advance of that change. Consultation about such changes should involve MPC, Captain, Chief Scientist, Station Manager and SSL. **This is not license to alter the port call schedule at will.** It is simply recognition that some flexibility should be permitted in order to maximize overall success in meeting scientific and logistic goals. (revised 8/14/00)

Workboat for Palmer Station

In an effort to better support near shore research, the use of a Palmer Station workboat is being recommended by PAUC and is before ARVOC for its endorsement. Bruce Sidell and the working group propose the following:

Recommendation for a Vessel for Nearshore Support of Palmer Station Science ARVOC, 7,8 September New Orleans

Background

During the early years, marine science-related activities at Palmer Station were supported by *R/V Hero*, a 130' motor-sailor vessel with berthing capacity for 8 scientists in addition to crew. *Hero* provided close support to nearshore station-based science throughout the Peninsula area and also was capable of multiple-day fishing trips *etc.* to areas in the Peninsula archipelago, such as Low, Livingston and Deception Island areas. *Hero's* mission, because of her size did not include any significant cargo movement, which was handled by USCG icebreaker calls at Palmer Station.

In 1984, *Hero's* charter ended and, in 1985, *R/V Polar Duke* began service in support of Palmer Station science and logistics. *Polar Duke*, a 219' ice-strengthened steel-hulled vessel, added considerable capability to USAP Peninsula operations. She was excellently configured for cargo movement and had considerably greater space for scientist berthing (26). The size and seagoing capability of *Polar Duke* further expanded the scope of oceanographic activity that could be supported in the Antarctic Peninsula area. These same features, however, did slightly restrict the areas into which the vessel could nose to support nearshore or island-based activities. *Polar Duke's* charter ended in 1997.

The *ARSV Laurence M. Gould* commenced charter in support of USAP Peninsula science and logistics in 1998. There is no question that the *L.M. Gould* has provided a further significant advance in the sophistication of shipboard science that can be supported. Laboratory spaces are both more extensive and much more capable than those of its predecessor. This feature has not been lost on the community of oceanographers and demand for *LMG* use in support of deep water and more distant offshore science has been increasing steadily since her deployment. This increased demand inevitably has led to heightened competition with station-based nearshore science for use of the ship. As described for *Polar Duke* above, close nearshore work by the *LMG* also is constrained by the vessel's size and draft.

The Case for an Additional Vessel in Support of Peninsula Science

We have now reached a logical point to evaluate the merits of placing in service a third vessel (*i.e.* in addition to the *ARSV L.M. Gould* and *R/VIB Nathaniel B. Palmer*). This vessel could provide close support for shore parties engaged in research on marine birds and geology, serve as a fishing platform for trawling operations, support servicing of automated weather stations on RACER rock and Hugo Island, permit more extensive exploration of areas inside of coastal islands located west of the Antarctic Peninsula, allow the Palmer LTER to extend seasonal surveys and open up new possibilities for marine mammal research. Some of these activities are either not possible with the larger ship(s) or are, at the very least, not cost-effective uses of these sophisticated research platforms. Chartering of a smaller vessel would thus enhance Peninsula science opportunities and provide some relief from ever-increasing pressure on the *L.M. Gould's* schedule, permitting its capabilities as an oceanographic research platform to be exploited more effectively.

Discussions to date suggest that such a third vessel and its mission should have the following characteristics:

1. A modern vessel of "*Hero-like*" size and capability, with respect to support of nearshore activities. (*i.e.* 90-125' length), capability to probe more closely nearshore and at island sites, berthing for 6-10 scientists, capacity for multi-day scientific excursions within the Peninsula area. The vessel should be ice-strengthened and powered appropriately.
2. Such a vessel should deploy to the Peninsula/Palmer Station area for a season of *ca.* 6 months (*e.g.* beginning of December until end of May each year), with the possibility of one interim trip to S. America for purposes of crew rotation. It should **NOT** be envisioned as a substitute for the requirement of the *L.M. Gould* for movement of personnel and cargo between Palmer Station and S. America.

3. Active and passive acoustic work requires low levels of acoustic noise. This is important for krill, fish and zooplankton research. Likewise, possible future nearshore research needs, such as work with marine mammals, share this requirement. Thus, an acoustically quiet vessel would be very desirable.
4. The vessel should be equipped with downward and side-scan sonar or equivalent for maneuvering in areas not traditionally visited by the larger ships.
5. Envisioned operations include: zodiac work (including support of island shore parties for marine bird work and geology), diving, Otter and plankton trawling, CTD/Rosette deployment, deploying and servicing moorings of appropriate size and location, deploying benthic grabs and, passive and active acoustics.
6. There should be some minimal working laboratory space aboard, but priority should be placed on maintenance of specimens for return to more sophisticated laboratory facilities at Palmer Station.

Essentially, what we envision is a modern vessel that would be capable of going relatively far afield for short collecting trips to obtain marine specimens that would be transported back to Palmer Station for more detailed study and would permit seasonal surveys and physiological studies that have not been possible since deployment of *Hero*. **A significant number of current projects that require ship time on the larger LMG could be accommodated by such a smaller vessel, easing demand on the larger ship and ensuring its more efficient use in support of projects requiring the more sophisticated platform.** Thus, although representing a net increase in cost to the USAP, chartering of such a smaller vessel would significantly enhance both the overall scientific return to the program and ensure cost-effective use of a larger and much more costly vessel of the research fleet.

Chartering of a vessel that meets the criteria described above would obviously involve an open bidding process. However, simply to provide an illustration of the class of vessel that meets many of these criteria, the accompanying comparative table provides some general specifications of the *Abel-J*, a ship that has been chartered in recent years by the USAP and has performed at a very satisfactory level. Using cost estimates from the last charter of the *Abel-J* by ASA, we also have included a rough cost estimate for a 6-month deployment.

Operational Considerations

In discussing/evaluating the possibility of chartering a third, smaller vessel in support of Peninsula science, we are well served to consider several operational considerations.

1. Estimated dates/duration of deployment: 1 Dec through 30 May = 6 months.
2. Berthing of the vessel would be at the Palmer pier except when she is working and when the *LMG* is at the Station.
3. Crew will live aboard and maintain a watchstander 24 hr/day.
4. Outside of the charter period, the vessel would be free to transit to other locations, including the Northern Hemisphere for work during the other half of the year. Alternatively, possible projects in the Chilean canals during the off period could be explored, as was the practice with *Hero*.
5. The vessel should remain below 60°S as much as possible during its charter period and intervening crossings of the Drake Passage should be kept to an **absolute minimum**. It's primary duty should be to support science and not logistics. [Note: The *L.M. Gould* would remain the primary, if not exclusive, means of moving personnel and cargo between Palmer Station and S. America.]
6. Management of the chartered vessel should be the responsibility of *RPSC's* Marine Operations because of ready access to infrastructure for marine operations support in Punta Arenas and, because of the necessity of coordinating scheduling of the vessel closely with schedules of both the large ships and Palmer Station.

Comparative Data on Vessels Active in the Antarctic Peninsula Area in Service to the USAP

	R/V <i>Hero</i>	R/V <i>Polar Duke</i>	ARSV <i>L.M. Gould</i>	R/V <i>Abel-J</i>
Length (ft)	125	219	236	105
Draft (ft)	~17	20	18	11
Speed (knots)	9	14	10	9
Crew	12	14	16	5
Science berths	8	26	24(+)	10
Range (km)	9,300	40,000	20,000	24,000
Tonnage	-?-		1600	151
USAP Service	Last service = 1984	1985 - 1997	1998-present	

Cost Estimate for 6 Months (180 days) Charter Based upon Last Charter of the *Abel-J* by *Antarctic Support Associates*

(Operator of the *Abel-J* = Spice Island Traders, Anchorage, Alaska)

[Estimate is based upon 180 day deployment and 75% time at-sea.]

	Day Rate	Number of Days	Total
Mobilization Fee			\$27,000
Demobilization Fee			\$27,000
Vessel (at sea)	\$5,244	135	\$707,940
Vessel (in port)	\$2,622	45	\$117,990
Food (at sea)	\$225	135	\$30,375
Food(in-port)	\$112	45	\$5,040

Estimated Total Cost for 180 Day Deployment = ~\$915,345 + Fuel

Captain Warren Sanamo inquired if the R/V LAURENCE M. GOULD is expected to be the support, resupply vessel for this workboat. In his opinion this would be a very difficult if not impossible task for the R/V LAURENCE M. GOULD. Chip Kennedy noted also that a lease versus purchase study must be done to determine the most practical way to proceed. This study is a government mandated process.

RECOMMENDATION 2: AN ARVOC WORKING GROUP (VERN ASPER, BILL DETRICH, AND STAN JACOBS) WILL CONTINUE TO GATHER INFORMATION ON WORKBOAT OPTIONS. INFORMATION WILL BE BROUGHT BACK TO ARVOC AND PAUC AND THE PREFERRED WORK BOAT OPTIONS, COST ESTIMATES, ETC. WILL BE COMPILED INTO AN EXECUTABLE PLAN AND FOLLOWING APPROVAL BY ARVOC AND PAUC, THE ARVOC/PAUC CHAIRS WILL INFORM DRS. ERB AND MCCLINTOCK OF COMMITTEE ENDORSEMENTS. THE PROCESS FOR FUNDS ALLOCATION CAN THEN BEGIN.

Outbrief Trends, FY99 GPR Report

Steve Kottmeier reported on the 1999 GPR (Government Performance and Results Act) science project survey. Results indicate that 95% of those responding rated support satisfactory or excellent. As the survey is now available electronically to grantees, reporting should be simpler and quicker in the future.

Report on FY1999 GPR Survey

- Report available on RPSC web site <http://www.polar.org/usapserv/usapserv.htm>
- 86% Response Rate Achieved (150/175 projects responded)
 - LMG 81% (17/21)
 - NBP 95% (19/20)
- 89% Productive Vs. 11% Unproductive Day
 - Uncorrected: LMG 78% Vs. 22%, NBP 94%, Vs. 6%
 - Corrected For Bad Weather: LMG 83% Vs. 17%, NBP 97% Vs. 3%
- Major Cause of Unproductive Time Was Bad Weather (35% Overall)
 - LMG 27%
 - NBP 42%
- Other Major Causes of Unproductive Time (Corrected for Bad Weather)
 - Other Circumstances (29% Overall, LMG 58%, NBP 33%)
 - Failure of Equipment/Instruments (23% Overall, LMG 19%, NBP 67%)
 - Transportation (19% Overall, LMG 12%, NBP 0%)
- Other Circumstances Causing Unproductive Time
 - LMG: Others Had Ship Time, Palmer Station Calls, and Cargo Packing/Paperwork Preparation
 - NBP: Cargo Packing/Paperwork Preparation, Early Departure of Vessel from Study Site, Equipment Replacement, and Palmer Station Calls
- Effectiveness of Planning (Overall Avg = 4 Days Lost)
 - LMG: 0 days
 - NBP: 0 days
- Major Causes of Days Lost Vs. Planned
 - Transit to Antarctica (-273 Days Loss Overall Vs. 1 Day Gain LMG and 7 Days Gained NBP)
 - Transit to Field (-120 Days Loss Overall Vs. 5 Days Gained LMG and 1 Day Gained NBP)
 - Experiment Data Collection (-121 Days Loss Overall Vs. 8 Days Loss LMG and 6 Days Loss NBP)
- Rating of Support Provided (96% Satisfactory + Excellent)
 - LMG: 95%
 - NBP: 96%
- Agreement With Survey Design (69% Agreement Overall)
 - LMG: 15%
 - NBP: 61%
- Suggestions for Improving the Survey:
 - Improved Instructions
 - Better Definition of Terms
 - Keep Survey Form Easy to Complete and Meaningful

- Allow More Space for Comments
- Post Survey on a Web Site for Completion

Vessel Performance Measures

In reviewing the survey results, Steve Kottmeier noted that next year's survey is being refined to more clearly identify the causes for lost work days, i.e., USAP equipment failure, grantee supplied equipment failure. This refinement is one way RPSC and the NSF can be better informed and possibly improve grantee support at Palmer Station. (Appendix A-Trends in Cruise Feedback, Measurement guide and goals, Feedback Trends 1999-2000, Cruises 1999-2000 Season)

It was also noted that the telephone conference out-briefs over the last year have been an excellent source of feedback to RSPC and the NSF and that actions were implemented as a result. Following discussion, ARVOC recommends that, as telephone conferencing may not be the most efficient/easiest method for obtaining after-cruise feedback, perhaps other ways to gather this information can be found. (see page 24 amendment to the Chief Scientist Letter)

Major Changes/Improvements to vessels

Jim Holik reported on major changes and improvements to both vessels. (below)
 Dave Karl asked if Jim Holik, for informational purposes, would provide ARVOC with the cost figures for major changes and improvements.

R/V NATHANIEL B. PALMER

<u>CTD</u>	INSTALLED NEW PENTIUM II PC AND 17" MONITOR -has both SeaSoft for DOS and SeaSave for Windows Upgraded one of two deck units (as for LMG)
<u>ADCP</u>	New logging and QC system installed (Firing/Chereskin) -data can now be processed and plotted during cruise -system now sends daily QC messages to Techs and PI Sound Velocity Probe installed in ADCP well Replaced old Ashtech 3DF GPS with ADU2 system
<u>Sonar</u>	Purchased HTI Bioacoustic towed sonar (38 and 120 KHz) Installed an 8.3kW Knudsen 302 B/R Echosounder 3.5 and 12 KHz (Chirp) can be used instead of BATHY 2000 or as backup
<u>Antenna Farm</u>	New ice-tower wings allow for correct antenna placements Inmarsat B dome no longer shadowed heading south
<u>Navigation</u>	Installed gyro converter to convert Yokogawa proprietary data to a standard NMEA gyro sentence
<u>Meteorology</u>	Purchased set of EPPLEY PIR and PSP sensors calibration set to swap with LMG and NBP
<u>Computers</u>	Installed 3 LCF flat panel monitors in electronics rack increases working space and reduces EMI, heat emission Installed Omni key video switches in racks allows multiple PC's to use same monitor and keyboard
<u>Remote Sensing</u>	Installed TerraScan system including SeaWifs Installed TerraScan work center on bridge Purchased full set of spares for TerraScan
<u>Deck</u>	Purchased 1m MOCNESS system (BESS) Purchased new Zodiac and two outboard engines
<u>LABS</u>	Purchased FRR Fluorometer for LTER

Renovated sinks and counters in Wet Lab (Domack renovation)
includes sink strainers for sediment
Installed two Percival Lighted incubators (-2C)
Purchased microscope video screen capture hardware/software
Purchased replacement water baths
Redesign of Uncontaminated Sea Water System

MG&G

Purchased 3000 cu in BOLT seismic air-gun array
6 guns ranging from 1000 cu inches to 300 cu inches
4x more power than previously available
Purchased 300 volt seismic power supply to fire new guns
eliminates current lag and trigger jitter for synchronous firing
Upgraded Syntron gun controller to control G/I and BOLT guns
Upgraded TRAX clock to time-tag seismic time break
Currently building new seismic deployment rail system
enables safer/streamlined large gun array handling
large guns (1000 and 750 cu.in. have been remachined
Purchased Ocean Instruments Box Corer
Purchased Smith-McIntyre Grab (Kahl Scientific)
Purchased new computer for Gravimeter and replaced fiber optic gyro

R/V LAURENCE M. GOULD

CTD

UPGRADED BOTH UNITS

eliminated dip switches inside deck unit
provides control for all settings via software
Purchased 24 place SeaBird Rosette (12L OTE Nisken)
New logging and QC system installed (Firing/Chereskin)
data can now be processed and plotted during cruise
system now sends daily QC messages to Techs and PI
Sound Velocity Probe installed in ADCP well
Replaced old Ashtech 3DF GPS with ADU2 system

Sonar

Installed new 20" EPC thermal plotter
Installed ODEC 12 KHz transceiver (pinger tracking)
Installed Benthos Acoustic Release Deck Unit
Installed patch panel to interface to 12 and 3.5 KHz arrays

XBT

Installed an auto-launcher that fires 6 probes

Meteorology

Purchased set of Eppley PIR and PSP sensors
calibration set to swap with LMG and NBP

UPS

UPS power installed in Dry Lab

CCTV

Replaced black and white cameras with color
Installed TV distribution amplifier banks on each deck
allows for future installation of TV in staterooms
TV's will be installed one room as transit time permits

Computer

Installed new SGI 02 and flat panel monitor

LABS

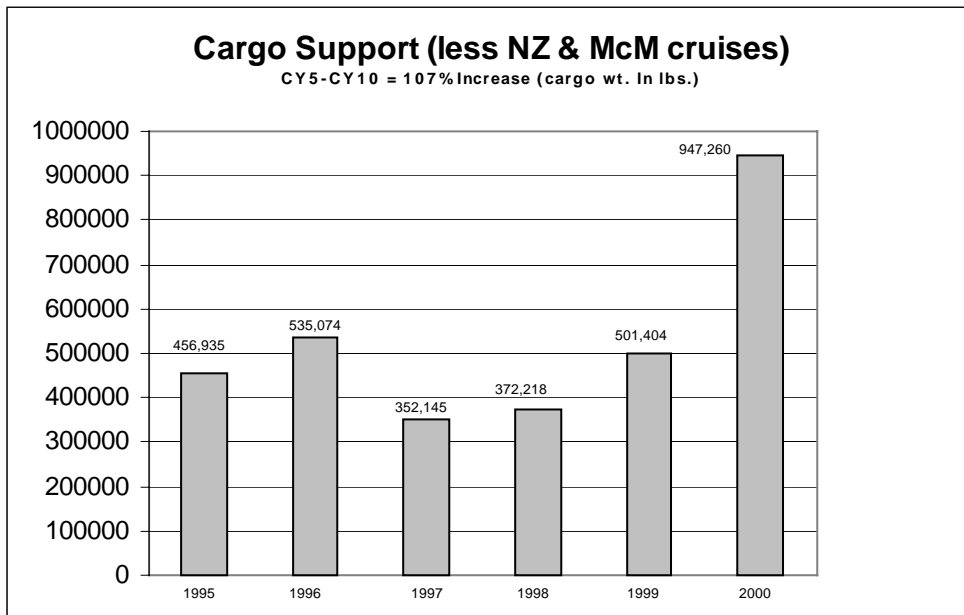
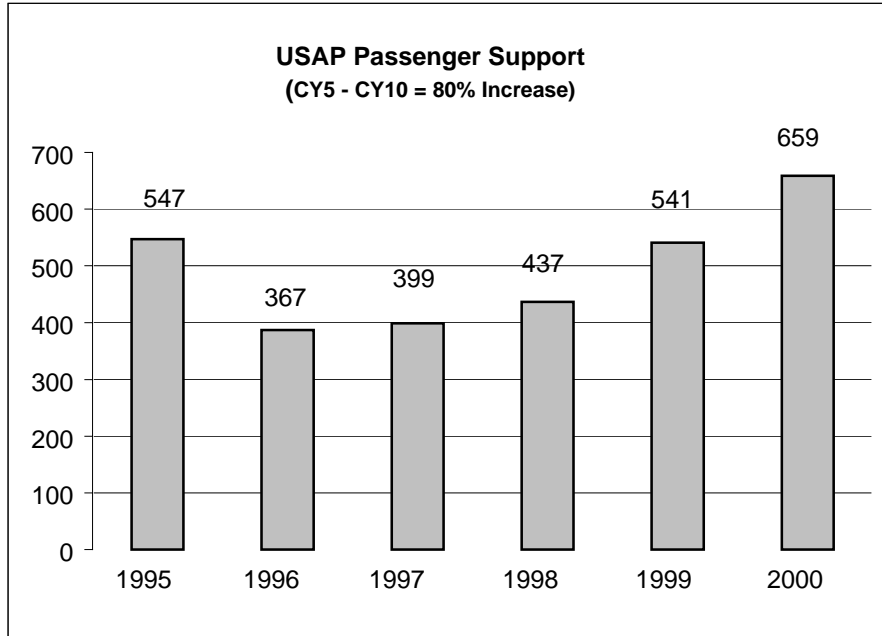
Installed 2 Percival lighted incubators (-2 C)
Purchased Nikon E800 microscope
Installed new Ultra Low Freezer
Completed rad-van renovation
Mezzanines extended in Baltic Room and Aquarium Room
Completed pass-throughs for all labs
Replaced counter tops in labs
Greenstrand piping upgrade completed for USW system
Purchased replacement water baths
Purchased Liquid Nitrogen dewars

Deck

- baffled to absorb vibration
- Purchased new Zodiac and two outboard engines
- Installed accelerator/pressure pump with 4 place manifold on deck
40 psi to wash nets and sieves
- Dive compressor overhauled with whips for SCBA's and SCUBA
- Installed U-guard for wire on DUSH-6

Warehouse/Logistic support in Punta Arenas

Brien Borden updated the ARVOC members on warehouse and logistics support in Punta Arenas. Also, presented were USAP Passenger Support and Cargo Support graphs that reflect the dynamic growth pattern experienced by the USAP from 1995 to 2000.



Other items discussed included:

- Warehouse space

Recommended Solution

Lease full use of Warehouse #2 (Containerized cargo):

- Long Term Marine Storage
- Palmer Station Storage
- Cargo in transit (staged and sorted by cruise)
- GLOBEC

Warehouse #1 (Existing facility-break bulk loaded cargo):

- Marine Operations cargo
- Vessel Grantee cargo
- AGUNSA/RPSC offices
- Clothing inventory
- Clothing fitting rooms
- Marine Operations equipment maintenance shop
- Field gear/field food inventory

Outside Storage:

- To include space between Warehouse #1 and #2
- Include space on west end of Warehouse #2

Potential Construction issues:

Expand length of clothing inventory to increase clothing issue/fitting area if required (volume currently unknown), possibly to also include field storage space (volume too unknown). However, scheduling smaller groups for fitting at specific times can alleviate crowding.

Create separate field gear/field food storage facility as an option to expanding current clothing inventory area on the upper patio in Warehouse #1.

Build additional office for RPSC Logistics Representative and visitor computer workstations (upper patio in Warehouse #1)

- Peninsula Clothing Issue Upgrade and Passenger/clothing issue protocol

A panel comprised of RPSC Logistics and RPSC Field Support staff reviewed the grantees' Clothing Feedback responses from last season and took into consideration the overall procedures for clothing issue at Punta Arenas. The following *Clothing Protocol* is being implemented to improve clothing issue and to better support grantees traveling to Palmer Station or sailing on cruises from Punta Arenas.

Passenger/Clothing Issue Protocol

A Southbound Participant Process

1. During transit to the vessels in Punta Arenas, all USAP personnel will be met and assisted to their destination by an AGUNSA Representative in Santiago and Punta Arenas. Upon arrival in Punta Arenas, participants will assemble and be greeted by an AGUNSA representative. USAP personnel will be provided a letter of introduction and information outlining the meeting time for clothing distribution at the warehouse and when they will be allowed to move their personal belongings onto the research vessel.

2. Personnel should already have a visitor card which is included with their travel information tickets, but in addition, personnel will be provided with a map of the port area to identify the pier location for the vessel and the USAP Warehouse for clothing distribution.

3. After the arriving passenger head count and dispersing local information, AGUNSA will transport participants to the vessel, or to a hotel, where advance reservations have been coordinated from RPSC Travel.

B. AGUNSA Passenger/Clothing Issue Support Process

I. The role of AGUNSA for passenger assistance is to assist USAP participants during transit to Antarctica. Assistance includes airline passenger reception, research vessel passenger reception, dispersing information for local business, arranging hotel reservations, airline bookings and reservations, transport to/from hotels, clothing issue and return, and pickup/delivery of passengers to/from the vessel.

2. AGUNSA keys on two data forms from RPSC HQ to initiate action. These forms of communication are Passenger Advisories and Personnel Information Forms.

3. Passenger Advisories from RPSC Travel provide AGUNSA detailed airline itineraries and specific hotel reservation requests for individual travelers. AGUNSA takes action on the reservation requests and builds a personnel meet and assist schedule for Santiago and Punta Arenas. All requests are confirmed back to RPSC Travel in writing (email).

4. Personnel Information Forms are contained in the Medical Packet which are sent to all participants deploying to Antarctica for physical qualification. The personnel forms contain requests for clothing information about individuals which include height, weight, coat size, chest size, waist size, hat size, shoe size and glove size. When filled out, completed, and returned to RPSC by the participant, RPSC Medical will forward to AGUNSA. In advance of the travelers arrival in Punta Arenas, AGUNSA will utilize this form to prepare the necessary sizes of Extreme Cold Weather clothing for the deploying participant and stage for the scheduled clothing issue session.

C Clothing issue for deploying personnel

1. Personnel will report to the USAP Warehouse as indicated on their Introduction Letter provided them by AGUNSA at the airport.

2. Due to space restrictions in the clothing area, the reporting times for clothing issue will be staggered so that a maximum of 10 participants at a time will be reporting for clothing issue.

3. Once assembled in the clothing issue area, personnel will be shown a video film of the importance for proper fit of clothing. The video will also describe the range of temperatures and weather of the Antarctic Peninsula area ensuring that personnel understand the range and importance of clothing required for deployment.

4. A briefing of each type of clothing will be provided to allow the participants an opportunity to question the use and importance of a specific piece of equipment. Clothing samples will be affixed to the wall as a demonstration of each article.

5. Emphasis will be made regarding the importance of trying on every article of clothing and the fact that any clothing can be returned or exchanged if the participant is unhappy with it. Participants will also be informed of the extra clothing available by request.

6. Upon completion of the video tape and clothing article briefing, AGUNSA issues each participant pre-packed sea bags with tags indicating their name.

7. Participants are then requested to use the fitting rooms to try on the clothing issued to them. Any exchanges or additions will be noted on their clothing issue sheet.

D Clothing Inventory

1. As stipulated in the subcontract with AGUNSA, AGUNSA is responsible for maintaining clothing. An inventory of Peninsula clothing items will be taken. This inventory will include a complete description of each article of clothing, manufacturer, sizes and quantities on hand for each size. This will help determine what shortages/overstock exist. This information will be compiled into a spreadsheet for future ordering needs.

2. A determination will be made on the condition and frequency of use for different articles of clothing. Old, worn out or obsolete articles of clothing will be segregated from stocked items. Final approval for the disposal of items identified as old or worn out will be made by the Supervisor, Peninsula Logistics.

3. With the use of this inventory information and the clothing questionnaire that will be distributed to grantees passing through Punta Arenas, a determination can be made as to what new clothing items should be introduced into the P.A. stock.

E. Clothing Check-In Procedure

1. Prior to departure from Palmer Station or from the research vessels, USAP participants should take an inventory of their issued clothing. Any missing or stolen articles of clothing must be declared on an RPSC Clothing Report. After the Clothing Report is filled out it is given to the Station Admin or the ships MPC for approval. This is eventually given to AGUNSA who, maintains the Clothing Report along with the copy of the individual's Clothing Issue Form. The completed Clothing Report will relieve the individual of responsibility for the article of clothing as noted.

2. As the vessel approaches Punta Arenas, the MPC will post the ETA for docking and the turn-in procedure.

3. Re-deploying participants should be informed that all USAP clothing must be returned upon arrival to Punta Arenas. Participants may not keep garments until their actual day of departure from Punta Arenas. The only exception to this rule applies to RPSC personnel conducting turnover activities with other RPSC employees or RPSC employees working in the Punta Arenas warehouse.

4. Prior to arrival, the MPC should decide upon a time that all clothing bags are to be collected for off load.

5. Each participant must place all USAP clothing in their issued clothing bag, seal it with a plastic tie, ensure that their name tag is securely attached to their bag, and store the bag in the specified area.

6. AGUNSA will transport the bags from the vessel to the warehouse.

F. AGUNSA Clothing Turn-in Process

1. After collecting the clothing bags from the vessel and delivering them to the warehouse, AGUNSA will then check in the clothing against each participants original clothing issue sheet.

2. Any garment not returned must have been previously documented in a Clothing Loss form or documented on the Clothing Issue Form.
3. While performing the check in process, AGUNSA will also segregate any worn or damaged clothing for assessment as to future use. AGUNSA will follow procedures set forth by the Supervisor, Peninsula Logistics to determine which clothes are too worn to be of further use. Damaged clothing will be sent for local repair.
4. The remaining clothing will be sent to a local vendor for cleaning before being re-entered into inventory.
5. AGUNSA will maintain an inventory spreadsheet to keep exact numbers regarding articles of clothing on hand at the warehouse and what has been issued.
6. On a monthly basis, AGUNSA will send copies of the Clothing Issue Form, along with any completed Clothing Loss Reports to Peninsula Logistics at Denver headquarters.

**SAMPLE SAMPLE
CLOTHING FEEDBACK FORM**
(please print)

DATE:

NAME (OPTIONAL):

ASA / SCIENCE / TECHNICAL / VIP / OTHER.

For the following comments please circle the appropriate number to indicate your satisfaction with 1 being the worst and 5 being the best:

EXPLANATION OF ISSUE PROCEDURES: 1 2 3 4 5

AGUNSA ASSISTANCE: 1 2 3 4 5

FUNCTIONALITY OF CLOTHING ISSUED: 1 2 3 4 5

QUANTITY OF CLOTHING ISSUED: 1 2 3 4 5

QUALITY OF CLOTHING ISSUED: 1 2 3 4 5

COMMENTS: (Your input on clothing style, durability, color, clothing procedures etc, are appreciated)

**PLEASE RETURN THIS FORM TO THE STATION ADMIN, THE SHIP MPC
OR TO AGUNSA PERSONNEL AT THE PUNTA ARENAS WAREHOUSE.
THANK YOU FOR YOUR ASSISTANCE.**

- Onsight Logistics Coordinator

The proposal for a RPS representative to live and work in Chile is still being considered. This representative would interface with Agunsa, the Marine Projects Coordinators (MPC), Denver headquarters, and others when working through the many various tasks occurring during port calls. ARVOC supports the addition of this position and recommends it be someone with a marine background. Brien Borden noted that this position will not be filled until the budget is approved. However, the job description has been written and plans are to hire the most qualified applicant when the funds become available.

Brien also noted the Formalin form required by the airlines when shipping samples back to the U.S. This form will be aboard the vessels for grantees to use.

R/V LAURENCE M. GOULD Formalin/Formaldehyde Solution Certification

Formalin/Formaldehyde Solution Certification

This certification is provided in support of the below-described formalin/formaldehyde shipment by a domestic airline within Chile. These solutions are predominately diluted mixtures used solely for the preservation of biological specimens collected in Antarctic locations being forwarded to research institutions within the United States. Under normal conditions, these solutions do not exceed 10% formalin, or its equivalent, 3.7% Formaldehyde. In the event the solutions do exceed these concentrations, the solution will be indicated in the shipping manifest and packaged, labeled, and documented accordingly. Under IATA regulations, these concentrations do not require a dangerous goods certification unless they exceed 25% Formaldehyde solution as required in IATA Packaging Paragraph 309.

At the discretion of the Chilean airline carriers, these substances will be classified as Aviation regulated liquid, n.o.s., UN 3334 (formaldehyde solution at 3.7%), Packaging Paragraph 906, due to the potential of noxious fumes overcoming the airline crew in the event of accidental leakage, or spillage. As a courtesy to the airlines in Chile, the following shipment description is provided based upon information received from the originating scientific researcher. Those shipments classified as such are contained in the following packages:

TCN	Wt.	Cu.	Description
-----	-----	-----	-------------

I certify the above is accurate and true to the best of my knowledge, which is based upon information provided by the scientific researcher originating this shipment.

Marine Project Coordinator, R/V Laurence M. Gould

Date

*****SAMPLES/SAMPLES/SAMPLES*****

R/V NATHANIEL B. PALMER Formalin/Formaldehyde Solution Certification

Formalin/Formaldehyde Solution Certification

This certification is provided in support of the below-described formalin/formaldehyde shipment by a domestic airline within Chile. These solutions are predominately diluted mixtures used solely for the preservation of biological specimens collected in Antarctic locations being forwarded to research institutions within the United States. Under normal conditions, these solutions do not exceed 10% formalin, or its equivalent, 3.7% Formaldehyde. In the event the solutions do exceed these concentrations, the solution will be indicated in the shipping manifest and packaged, labeled, and documented accordingly. Under IATA regulations, these concentrations do not require a dangerous goods certification unless they exceed 25% Formaldehyde solution as required in IATA Packaging Paragraph 309.

At the discretion of the Chilean airline carriers, these substances will be classified as Aviation regulated liquid, n.o.s., UN 3334 (formaldehyde solution at 3.7%), Packaging Paragraph 906, due to the potential of noxious fumes overcoming the airline crew in the event of accidental leakage, or spillage. As a courtesy to the airlines in Chile, the following shipment description is provided based upon information received from the originating scientific researcher. Those shipments classified as such are contained in the following packages:

TCN	Wt.	Cu.	Description
-----	-----	-----	-------------

I certify the above is accurate and true to the best of my knowledge, which is based upon information provided by the scientific researcher originating this shipment.

Marine Project Coordinator, RVIB Nathaniel B. Palmer

Date

RVIB Rebid Update

Chip Kennedy reviewed the Objectives of the RVIB Procurement and the work being done to improve the capabilities of R/V NATHANIEL B. PALMER during this port call.

Objectives

- Select a Research Vessel with Icebreaking Capability for the follow-on charter to the NATHANIEL B. PALMER
- Increase and enhance the scientific mission performance
- Increase the cargo handling capacity and reach
- Update regulatory compliance

Improved Capabilities

- Increase size of the Bio Lab by expanding to the former Science Freezer space
- Install a 42" diameter Moon Pool, main deck, starboard side. Plumb in an intake for the Uncontaminated Seawater System
- Increase crane lift and reach capability with the addition on a 50,000 lb. At 55 ft. telescoping boom, crane
- Install a second (redundant) UPS system, and improved lab electrical power distribution
- Improve ship ventilation and air conditioning systems
- Upgrade multibeam sonar system

Chip Kennedy, added that, to date, the RVIB procurement is as follows:

- Request For Proposals published July 1999
- List of Interested Bidders included twenty-three firms
- Expected list of viable responses is three to five possible bids
- Federal Appropriations Bill includes text which requires US shipyard source for RVIB
- One bid is received in December 1999. Evaluation of technical, cost and contractual elements began.

(Appendix B- the NBP floorplans)

September 8- Reconvene

Dave Karl noted that the Committee, during Executive Session, reiterated that they want to continue support of the USAP along with Raytheon Polar Services Company. Also, the Committee will continue to look for ways RPS might improve the system and will make suggestions.

ARVOC members feel very strongly about underway data collection and stress the importance of recording, maintaining, and quality assuring the data. ARVOC sees an urgent need for regulation and a systematic method for saving data collection sets.

SeaBeam 2112

The committee was informed that new SeaBeam software is to be delivered by September 15, 2000. Following initial testing at headquarters, plans are to test this software on board during the seatrials beginning September 26, 2000. ARVOC will be kept informed of the SeaBeam 2112 status. Dave Leger continued SeaBeam presentation- see page 24.

ARVOC September 7-8, 2000

Capital Equipment Past and Future Acquisitions

Jim Holik presented the Capital Equipment purchases for FY01 for both vessels (below). Total anticipated expenditures is \$639,655. These items have either already been purchased or are in the process of being purchased. Because of the contract transition from ASA to Raytheon Polar Services Company in April 2000 and because of the need to move expeditiously with capital purchases in order to have items available when required, these items have been ordered prior to the ARVOC meeting, per Jim Holik . Dave Karl requested that ARVOC members be allowed to contribute their input into future Capital Equipment acquisitions. Their collective knowledge and experiences could perhaps add to capital equipment decisions. **RECOMMENDATION 3: RPS (JIM HOLIK) WILL UPDATE THE CAPITAL EQUIPMENT LIST THAT APPEARS ON THE WWW, DELETING ITEMS ALREADY PURCHASED OR NOT BEING PURCHASED, AND ADDING ALL NEW CAPITAL EQUIPMENT ITEMS.**

R/V Nathaniel B. Palmer Total: \$487,840	
Electronics: \$151,140	
• Biospherical GUV/PUV	32,700
• Ashtech ADU2 (spare)	11,000
• Chelsea MKIII CTD Fluorometer	13,500
• Biospherical CTD PAR sensor	1,600
• Updgrade of BATHY 2000 to 10kW	1,250
• Benthos pinger w/accessories	25,000
• 2 Geometrics Magnetometers w/1400' cable	14,125
• Benthos Acoustic Release Deck Unit	7,000
• HP Spectrum Analyzer	10,000
Electronics: \$151,140	
Laboratory: \$245,700	
• Upright Ultra-Low	10,000
• Monitor for LSC	500
• New RAD VAN	95,000
• FRR Fluorometer	80,000
• 2 Replacement Water Baths	5,200
• New Microscope/Vibration table	55,000
Laboratory: \$245,700	
Marine Tech: \$ 91,000	
• Refrigerator/Freezer Container	10,000
• Nets and Rigging	10,000
• New Blocks for A-Frame	10,000
• Replacement Outboard Engines	5,000
• .680 wire replacement	40,000
• LEBUS shell	16,000
Marine Tech: \$91,000	
Total Capital Acquisitions FY01 NBP \$487,840	

R/V LAURENCE M. GOULD	
Electronics: \$56,115	
• Chelsea MKIII CTD Fluorometer	13,500
• Biospherical CTD PAR	1,600
• Biospherical Mast PAR	1,215
• Benthos Pinger w/accessories	25,000
• 4 rack-mount LCD flat panel monitors	4,800
• HP Spectrum Analyzer	10,000
Electronics: \$56,115	
Laboratory: \$69,700	

• Port-a Sal (backup)	25,000
• O ² Titrator	12,000
• Nutrient Analyzer upgrades	10,000
• Upright Ultra-Low	9,000
• 2 Replacement Water Baths	5,200
• Computers for Science Equipment	8,500
	Laboratory: \$69,700
Marine Tech: \$26,000	
• New Blocks for A-Frame	10,000
• Smith-Mac Grab	6,000
• Nets and Rigging	10,000
	Marine Tech: \$26,000
Total Capital Acquisitions FY01 LMG \$151,815	

Grand Total Both Vessels \$639,655

RECOMMENDATION 4: JIM HOLIK WILL DEVELOP A CAPITAL EQUIPMENT LIST OF PROPOSED ITEMS. THE LIST WILL BE SUBMITTED TO COMMITTEE CHAIR AND WILL BE DISTRIBUTED TO ARVOC MEMBERS FOR REVIEW. THE COMMITTEE WILL GIVE FEEDBACK TO JIM HOLIK AND THE CAPITAL EQUIPMENT LIST WILL BE DISCUSSED AT THE NEXT ARVOC MEETING. THE LIST CAN BE PRIORITIZED BY MEMBERS PRIOR TO THE MEETING TO SAVE TIME AND ITEMS CAN BE SUBMITTED BY COMMITTEE FOR CONSIDERATION.

Ship of Opportunity

Teresa Chereskin discussed the difficulties in obtaining data from underway systems and noted the process is somewhat cumbersome. There have been difficulties in having underway data collected as well as getting direct access to the data.

In the past, underway data was not being collected unless the Chief Scientist requested it, and, when collected, it was not being distributed by RPSC to all participating scientists. (Approval had to be granted by the Chief Scientist before any data from a particular cruise could be released.)

The NSF took a clear position that underway data should be collected regardless of whether the Chief Scientist requests it or not, and that data should be made available to everyone in the science party. (Exceptions to this are when the data is part of the Chief Scientist's specific science plan and he/she wants the data to remain proprietary. It was decided that routinely collected underway data such as TSG, Fluorometry, Transmissometer data and bathymetry (single beam) can be released to investigators without the permission of the PI.) A working group was established (Teri Chereskin, Robin Ross, and Bob Anderson) with the main task of determining how best to quality control the underway data stream.

ARVOC recommended that qualified PIs be encouraged to submit proposals to oversee collection, calibration, and quality control of underway data streams, in a similar vein to the ADCP program. Examples are underway met data, bathymetry, and fluorometry. In the meantime, these data streams should be collected with the caveat that the quality is of "unknown" status and should be used with caution.

RECOMMENDATION 5: THE RESEARCH SUPPORT PLAN (RSP) WILL BE AMENDED TO INCLUDE AN EXPLANATION OF THE UNDERWAY DATA COLLECTION PROCESS AS IT APPLIES TO EACH SPECIFIC CRUISE.

The issue of archiving remains unresolved.

Electronic Support Planner (ESP)

Richard Ely, Lead ESP Application Developer, discussed the ESP process and demonstrated with a “hands on” presentation how grantees move through the various ESP screens. The ESP has proved to be user friendly for the grantee’s who’ve tested the program and it is anticipated ESP will be an invaluable tool in the NSF/OPP and Raytheon support of grantees.

AICC Report

The full *Report from the UNOLS Arctic Icebreaker Coordinating Committee to the Antarctic Research Vessel Oversight Committee- September 2000* is attached as Appendix C.

Jim Swift, Chair, AICC, briefly recapped the activities and highlights of the UNOLS Arctic Icebreaker Coordinating Committee (following page.)

Concerns	Polar Sea, Polar Star, and Healy. AICC bringing science aspects of all three into step.
AICC role	Communications and advice regarding science planning and operations, science equipment, and technical support.
	The Coast Guard’s relationship with the Arctic marine science community is modeled after UNOLS large ship operators.
Examples	UNOLS-like documentation and information for scientists; participation in UNOLS Council, RVOC, RVTEC; ship time requests and vessel scheduling parallel to UNOLS; informal participation in the UNOLS equipment pool; MSTs on UNOLS cruises for training.
HEALY	A 4-season, icebreaking Arctic research vessel with UNOLS-like science facilities, operated by the Coast Guard for the academic science community. Delivered in late 1999. Large vessel (420’) with a complex physical plant; will take innovative steps to maintain and support.
Ice Trials	April and May 2000 between Canada and Greenland. Propulsion plant performed well after some problems, icebreaking specifications met or exceeded, no excessive milling. The vessel is responsive and maneuvers well in the ice and has good open water stability.
Science Tests	Feb-Mar and June 2000. Used UNOLS technical specialists and scientists. Emphasized both the “test memo” approach, where a science system was methodically checked out, and also the “science cruise approach, where equipment was used in the mode expected on a typical research cruise.
SeaBeam	(2112) Functional. Good bathymetric data in moderate seas, at most headings under 15 knots in open waters, and surprisingly good data in ice-covered waters. Similar data artifacts, reliability and capabilities as on UNOLS vessels.
ADCP	300 kHz not presently working below about 20 m. 150 kHz works OK for a broad bank instrument.
Bathy2000	Functional. Tracked a pinger to 2000m in moderate seas.
Knudsen	Clean 12 kHz bottom traces to 4000 m at speeds up to 15 knots.
XBT	No problems.

SDN	Science data network functions well in many cases, though there is presently a software migration to the NOAA software.
Seawater	Uncontaminated seawater system flow rate and temperature tests were completed at all locations. Problems with clogging intake in ice. Thermosalinograph and fluorometer were working.
Towing	MOCNESS tows an unqualified success, including in 80+% ice cover.
CTD	OK. Problem with the outboard sheave for the 0.322" wire.
Moorings	Deployments and recoveries were well in open water and in ice.
Labs	Biochemistry lab temperature control need work. Climate control chambers working reasonably well.
Dredging	Went well.
Coring	Ops over both stern and starboard went well. Maximum barrel length of 80 feet now supported.
Winch	Control system needs major modifications, now underway.

Jim Swift added that AICC was very impressed with the teachers from NSF's TEAA program; that the HEALY will clearly be ready for science support in 2001; the outlook is positive for NSF's Arctic marine science programs; the Coast Guard plans to continue "Science of Opportunity" (SOO) cruises in the western Arctic; and the rolling five-year plan for US Arctic icebreaker use will be available on UNOLS web site.

In closing, Jim Swift informed ARVOC that a new chair will be representing AICC next year as his term is expiring. Dave Karl, on behalf of ARVOC members, thanked Jim for his support and AICC representation over the past years.

GLOBEC

Alice Doyle, updated ARVOC on the GLOBEC (Southern Global Ocean Ecosystems Dynamics Program) cruises. To date, all work is proceeding as expected. Science information packets (SIPS) are still being received and reviewed by Raytheon Polar Services Company. Alice Doyle and the GLOBEC principal investigators will continue to work through the SIPS and will resolve any issues as they arise.

Ship Scheduling

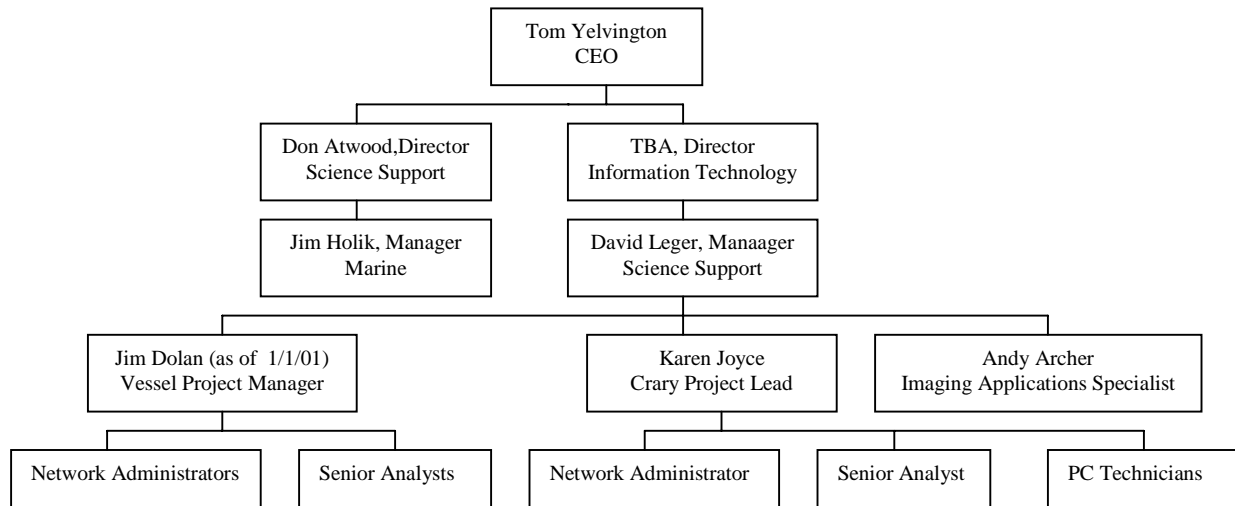
Al Sutherland discussed the NSF/OPP ship scheduling cycle. This information is an explanation, in general terms, of the timeline for scheduling science cruises.

SHIP SCHEDULING CYCLE	
• June	-Proposals due
• Jul-Aug	-OPS Review: "Strawman" Schedule
• Sep-Oct	-Science-OPS Meetings (yes,no, maybe) -PM Notifications (final decisions for declines)
• Nov-Dec	-RPSC Detailed Schedule development
• Jan-Apr	-Final Decisions on Maybes -RPSC public schedule (iterative)
• May	-Final (?) Schedule

The RPSC Marine Science Superintendent works closely with the NSF to establish ships' schedules that will best accommodate all of the approved projects. It is important that SIPs be submitted as early as possible for ship scheduling. Al Sutherland asked the ARVOC to review the ship scheduling process and provide him with any suggestions regarding how ARVOC might be able to provide assistance and advice in the development of schedules.

Information Technology Report

Dave Leger presented the RPSC Information Technology Organization Chart follows.



Dave Leger presented the Past Year's Activities, Vessel I.T. Plans for the Coming Year, and Vessel I.T. Long Range plans. Overview contents follow.

Activities Since September 20, 1999 ARVOC Meeting

- Completed all Y2K activities and passed through the Y2K transition period with no data loss
- Email policy statement written per ARVOC action item. This policy was reviewed by ARVOC and NSF prior to acceptance.
- Added Macintosh computer in Forward Drylab for ping editing.
- Set up ADCP and pCO² data collection and distribution, including recording of flow meter data for seawater system.
- Added PC and Macintosh workstations, as well as a printer, to the 03 Conference Room study area.
- Installed flat panel monitors on the NBP and LMG, these have met with very favorable reviews.
- Implemented a routine inventory and tracking system for vessel I.T. spares and increased spares inventory on both ships.
- Installed new automated program on LMG to generate JGOFS spreadsheet format data files for inclusion in cruise data distribution.
- Installed O2 SGI Unix workstation on LMG with Generic Mapping Tool installed.
- Installed HP755CM E-sized color ink jet plotter on LMG.
- Upgraded LMG DAS from 16 channels to 32 channels, and installed loggers for Sound Velocity Probe.
- Have filled all vessel positions except for one Network Administrator position. This brings us back to pre-Raytheon staffing levels.

Vessel I.T. plans for the coming year

- Establishment of a network test bench with every operating system being used on the ships for troubleshooting and design efforts.
- Prototype of Linux based RVDAS system
 - RVDAS had previously been ported at ASA to Linux. We are prototyping a new port of the current system, at RPSC, in planning for the lifecycle replacement of the SGI systems. A Linux based systems would provide vendor independence and more readily available parts in foreign ports.
- Installation of new Bathy2000 gray-scale printer.

- Installation of ESP on the vessels, with automated daily updates.
- Continued modernization of the NBP's network, with a reallocation of sub-netting and a move from a router based network to a layer 3 switching network.
 - Improves performance
 - Enables accommodation of increased network drops specified in the RVIB RFP and proposal
 - Improves availability of IP addresses on the ship
- Continued use of flat panel monitors where possible, and addition of spare flat panels to inventory.
- Addition of a network appliance for across platform disk space.
- Testing of a DLT tape drive for backup of across platform disk storage areas.
- Web hosting of cruise track GIS database.

Vessel I.T. Long Range Plans

- Plan for the possible installation of a new multibeam sonar system on the NBP (RVIB).
- Plan for the expansion of network services on the NBP to accommodate new network drops being installed as part of RVIB.
- Plan for the possibility of installing a TDRS satellite terminal on the vessels at some future date
 - This would provide high bandwidth internet connectivity for a portion of each day, current thinking is around one hour per day.

Dave Leger reported on the current *Vessel E-Mail Use Policies*. While ARVOC members are familiar with the e-mail restrictions and vessel/station limitations, the policy is shown below for reference.

Vessel Email Policy

Account information:

Vessel e-mail accounts will be setup and available 3 days prior to cruise departure. These accounts will be set up with names made up of the first 6 letters of your last name, and the first 2 of your first name *as it appears on your medical paperwork*, i.e., Edmund Hilary would be hilaryed. The e-mail addresses for the NBP are @nbp.polar.org, the LMG is @lmg.polar.org (i.e., hillared@nbp.polar.org and hillared@lmg.polar.org). These accounts will be deleted 1 day after arrival in port at the end of the cruise, unless special arrangements are made prior to arrival.

The only exception to the naming convention is a special arrangement which may be made, with advance notice in the SIP, for researchers working both at Palmer Station and the LMG in the same period. In this case, you may request a special e-mail address which will automatically forward copies of your e-mail to both the LMG and Palmer Station. You will be informed what this address is when it is set up by RPSC headquarters. Please be aware that if you are using one of these special addresses, you must advise correspondents to always reply to that address, regardless of where any messages actually come in from (the vessel or the station).

It is requested that busy e-mail accounts not be forwarded directly to the vessel, and voluminous periodical e-mail such as graphics laden newsletters not be forwarded. If an e-mail account is forwarded, please unsubscribe or re-direct newsletters when possible.

E-mail on the ship is compressed and burst transmitted. The ship does not actually connect with the internet, and POP-IMAP remote e-mail access, web access, telnet sessions, and ftp transfers are not supported. Please do not plan on remotely accessing systems/e-mail at your home institution from the ship.

Restrictions:

E-mail messages are physically restricted to no more than 75 kilobytes in size. This includes the header, and any overhead involved in an attachment. Please be aware that a 74kb attachment is not likely to fit once the header and such are added.

The use of attachments (within the 75 kb limit) is limited to science, cruise, and Teacher Experiencing Antarctica use. Science use includes correspondence and transfers in support of science, both at home and aboard the vessel. Cruise related would include such items as Edison Chouest Offshore and Raytheon Polar Services correspondences with home office and with the NSF. Teacher Experiencing Antarctica use would include sending HTML files and digital pictures back to their home institution. Unacceptable uses would be sending of personal digital photos and documents, and flagrant violators (those sending non-science, cruise, or TEA attachments more than once every two weeks) will be notified and asked to cease

such activities. Repeated flagrant violations may result in notification to the NSF, home institutions, suspension of e-mail privileges, or other actions.

Exceptions:

If an e-mail message is larger than 75 kb is required for valid science reasons (software or calibration information needed for an instrument being used on the cruise, technical information needed to use/repair an instrument, charts or imagery needed for navigation, etc.) then contact the MPC, and he/she will inform you as to how that message may be sent/received, as well as advising the support staff that the transfer is authorized. Vessel staff will always cooperate to transfer files/messages deemed essential for current science work on the vessel. If this transfer was not identified in the SIP and approved by the NSF, depending on the costs incurred in providing the transfer, connect time costs may be billed back to the grantee. Large transfers identified in the SIP and approved by the NSF program manager will not be billed.

If an e-mail message or file transfer larger than 75 kb, which is not directly in support of science on the current cruise needs to be sent/received, please contact the MPC, who will advise the support staff that a billable transfer is to be made. These transfers may be made, but will be run in a special session. The date and time of the transfer will be noted, and the grantee will be billed for the actual communications costs billed Raytheon Polar Services by the Inmarsat service provider. Please be aware that typical effective bandwidth is about 6 kb per second and that connect time is billed at \$10 per minute. Due to the low altitude of the Inmarsat satellites at southern latitudes, connections may not be reliable, and more than one try may be required, in some circumstances, to send a file/message.

It is not recommended that files/messages of over 5 megabytes be transferred over Inmarsat. The chances of maintaining a connection long enough, at sea, to transfer this volume of data, are not great. Under no circumstances should transfers of 20 megabytes or more be attempted by vessel IS staff, even if billing of the cost has been agreed to. The chances of success are very low, and the outcome is likely to be an incomplete transfer and a big bill. System users must understand the limitations of working in extreme remote environments.

SeaBeam 2112

Dave Leger continued earlier discussion of the SeaBeam activities. It was noted that SeaBeam Activities over the last year were as follows:

- No new software releases or changes in operation since September 20, 1999 ARVOC meeting.
- Components failed this year (spares used):
 - 5 volt power supply, repaired unit shipped 7/00
 - 12 volt power supply, repaired unit shipped 7/00
 - 8mm tape drive, repaired unit shipped 7/00
 - SCSI disk drive, repaired unit shipped 7/00
 - Op Amp board, repaired unit shipped 7/00
 - Operator console SCI Indy computer, unit is being repaired, has been at SeaBeam over 8 months
- Installation of new SeaView software with displays to bridge
- Test of new SeaBeam release scheduled for late September transit to Panama Canal (earlier test cancelled due to software not being available on schedule).

RPSC will continue to update ARVOC on the SeaBeam status.

Chief Scientist Letter/Post Cruise Briefings/Sitreps/Weekly Reports

Stan Jacobs asked for ARVOC discussion of the ship-to-station interactions relative to the Chief Scientist Letter, de-briefings, Sitreps, and weekly reports as currently generated.

The ARVOC consensus, after discussion:

- The Chief Scientist Letter is correspondence from the NSF and instructs the Chief Scientist to perform specific tasks while sailing on his/her cruise, i.e., weekly reporting to the NSF on cruise status, required meeting with the Captain and MPC. While there may be some minor changes occasionally to the text, the Chief Scientist letter will continue to be used. (see below for revisions to Paragraphs 4 and 5)

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NBP-Chief Scientist Letter- Changes

Because USAP research vessels are responsible for the movement of personnel and cargo to/from ports, including antarctic stations such as McMurdo and Palmer Stations, keeping to vessels' schedules is important and arrival of the research vessels at ports is critical. Slight deviation in arrival or departure of the research vessel at McMurdo or Palmer Stations is possible, but may disrupt both station and vessel science plans. If there is a contemplated change due to unforeseen conditions in scheduled arrival or departure of the vessel at McMurdo or Palmer Stations, then, you, working with the RPSC Marine Projects Coordinator, should make direct radio or personal contact at the station with the NSF Representative, Station Science Leader, and RPSC Area Manager, to discuss potential impacts and mitigating measures.

At the completion of your cruise, the RPSC Marine Projects Coordinator will arrange for a de-briefing among you, the ship's Captain and the Marine Projects Coordinator. The purpose of this de-briefing will be to review the operations and logistics associated with the support of your cruise. Your input will help assess ways to improve support and reinforce continuation of things that work well. It will help if, during the course of your cruise, you keep a log of things that would be of interest in such a discussion. The MPC will make a written report of the de-brief and will provide e-mail copies of it to: attendees of the meeting, RPSC, NSF, and members of the Antarctic Research Vessel Oversight Committee (ARVOC).

LMG Chief Scientist Letter- Changes

Because USAP research vessels are responsible for the movement of personnel and cargo in the Antarctic Peninsula region, keeping to vessels' schedules is important and arrival of the research vessels at Punta Arenas is critical. Slight deviation in arrival or departure of the research vessel at Palmer Station is possible, but may disrupt both station and vessel science plans. If there is a contemplated change due to unforeseen conditions in scheduled arrival or departure of the vessel at Palmer Station, then, you, working with the RPSC Marine Projects Coordinator, should make direct radio or personal contact at the station with the Station Science Leader and RPSC Palmer Area Manager, to discuss potential impacts and mitigating measures.

At the completion of your cruise, the RPSC Marine Project Coordinator will arrange for a de-briefing among you, the ship's Captain, and the Marine Project Coordinator. The purpose of this de-briefing will be to review the operations and logistics associated with the support of your cruise. Your input will help assess ways to improve support and reinforce continuation of things that work well. It will help if, during the course of your cruise, you keep a log of things that would be of interest in such a discussion. The Marine Project Coordinator will make a written report of the de-brief and will provide e-mail copies to: attendees of the meeting, RPSC, the NSF, and members of the Antarctic Research Vessel Oversight Committee (ARVOC).

- ARVOC recommends a change to the Post Cruise de-briefings. Due to the difficulties encountered when arranging teleconferences between the Chief Scientists, the NSF, and Raytheon Polar Services Company, ARVOC recommends, with NSF and RPSC approval, that the de-briefings be conducted on board the vessels, just prior to cruise end. The Marine Project Coordinator will conduct the de-briefing with the departing Chief Scientist. The MPC will then send the de-briefing report via e-mail to ARVOC members, the NSF, and RPS. Information from the de-briefing will continue to be used in the GPRA and Metric Performance reports. (see above Changes to Chief Scientist Letter) ARVOC members discussed conducting their own, independent post-cruise out briefs via telephone.
- Daily and weekly Situation Reports (SITREPS) were initially requested by Dr. Neal Sullivan as a way of staying informed, on a day-to-day basis, of the activities aboard the vessels. These reports have been found to be useful to NSF/OPP Program Managers and RPS Marine staff, as well as being a quick way to report metric performance, weather conditions, and vessel location each day. Jim Holik will work with the MPCs to improve the SITREP format and to ensure that each MPC is knowledgeable in what is expected from daily/weekly situation reporting.
- Clearances and foreign collaborations were discussed briefly. The NSF and Raytheon Polar Services Company are aware of the many issues and difficulties that may arise when research vessels enter foreign waters, i.e., the 200 mile limitation. John Evans, Special Projects Coordinator, has developed good working relationships with the various foreign governments where clearances are required. John Evans will be

assigned as Point of Contact to those Principal Investigators who require special clearances and collaborations.

JMS Naval Architects Salvage Engineers Report

The JMS conducted science and oceanographic systems surveys of the R/V LAURENCE M. GOULD on October 4th and 5th 1999 and of the R/V NATHANIEL B. PALMER on December 6th through 8th 1999. The report followed the NSF *Ship Condition Form* and summarized conditions found on each vessel. (Copies of JMS reports to ARVOC members under separate cover.)

The JMS certification for both vessels states:

1. The science and oceanographic systems are in compliance with the UNOLS Research Vessel Safety Standards. However, several areas for improvement are noted for attention in the report and Summary of Recommendations. (Al Hickey, Superintendent, RPS Marine Division responded to the recommendations. The JMS report is included for ARVOC members under separate cover. Responses to recommendations are available through RPS.)
2. The science and oceanographic systems of the R/V LAURENCE M. GOULD and the R/V NATHANIEL B. PALMER are being maintained in a condition which meets or exceeds the standards usually expected of a research vessel of this size and service.

Status of Action Items from September 20-21, 1999

Recommended Actions from September 20-21, 1999 ARVOC meeting were reviewed and the status of each is shown below as presented by Jim Holik -overviews.

RECOMMENDATION 1: ASA SHOULD CONSIDER A THREE STEP PROCESS TO IMPROVE THE TURNAROUND TIME FOR THE ARVOC MEETING PROCEEDINGS. STEPS: A) LIST OF CURRENT RECOMMENDATIONS MADE DURING THE MEETING WILL BE SENT TO COMMITTEE MEMBERS/ASA ATTENDEES. B) INITIAL DISTRIBUTION OF ROUGH PROCEEDINGS WILL BE AVAILABLE FOR REVIEW AND COMMENT WITHIN TWO MONTHS. C) FINAL DISTRIBUTION OF FORMAL PROCEEDINGS WITHIN THREE MONTHS.

DONE- Draft minutes from September meeting to be reviewed today and Committee approval requested.

RECOMMENDATION 2: ASA WILL REVISE THE OCTOBER 1-2, 1998, MINUTES AND SUBMIT THEM FOR COMMITTEE REVIEW/INPUT. AFTERWHICH COMMITTEE APPROVAL WILL BE REQUESTED.

DONE- Minutes from October 1998 meeting rewritten and submitted for Committee approval.

RECOMMENDATION 3: D.KARL WILL ACCEPT NOMINATIONS FOR THE THREE EXPIRING ARVOC POSITIONS. NOMINEES WILL BE PRIORITIZED AND ELECTION INFORMATION WILL BE PROVIDED TO NSF/ASA BY DECEMBER 31, 1999. ELECTION WILL BE VIA E-MAIL TO EXPEDITE THE PROCESS. ALSO, NOMINATIONS AND ELECTION OF VICE CHAIRMAN BY ARVOC WILL OCCUR PRIOR TO THE NEXT ARVOC MEETING.

DONE- Teri Chereskin, Bob Anderson, Bill Detrich introduced as new Committee Members. New Chair/Vice Chair to be named by Committee.

RECOMMENDATION 4: ALL MEMBERS OF ASA ADVISORY COMMITTEES SHOULD RECEIVE A HARDCOPY OF THE 1999-2000 SCIENCE PLANNING SUMMARY.

Done- Summaries were mailed to all members by ASA following the September meeting.

RECOMMENDATION 5: ASA, WITH OVERSIGHT SUGGESTIONS FROM DRS. CHERESKIN AND FIRING, SHOULD CONSIDER IMPROVING THE OPERATION OF THE ADCP ON THE R/V NATHANIEL B. PALMER BY INSTALLING ACOUSTIC TILES IN THE WELL AND BY INSTALLING THE ASHTECH ADU2. ALSO RECOMMENDED WAS THE INSTALLATION OF SOUND SPEED SENSORS IN THE WELLS OF BOTH VESSELS.

Currently in process on both vessels.

RECOMMENDATION 6: ASA SHOULD WORK WITH ARVOC, PAUC, NSF/OPP, ECO, AND AGUNSA, TO ACHIEVE LONG-TERM RESOLUTION OF SHIP/STATION/PORT INTERACTIONS. WITHIN THIS RECOMMENDATION, ARVOC BASICALLY SUPPORTS THE "SIDELL" COMMITTEE TO HELP CRAFT A PHILOSOPHY OF HOW TO SUPPORT THE MULTIPLE REQUIREMENTS OF THE PENINSULA SYSTEM (SHIP AND STATION). ALSO, UNDER THIS RECOMMENDATION IS THE NEED TO CLARIFY THE TRIAD OF LEADERSHIP ON BOARD THE SHIP, AND POSSIBLY ON STATION.

In Process- Bruce Sidell/working group will present recommendation to ARVOC today.

RECOMMENDATION 7: A REPRESENTATIVE OF ARVOC SHOULD REVIEW THE SIPS WITH ASA TO MAXIMIZE THE SCHEDULING OF THE USAP RESEARCH VESSELS FOR RESEARCH CRUISES AND TO HELP MINIMIZE SCHEDULING CONFLICTS. (RECOGNIZING THAT NON-NSF PERSONS ARE NOT TO BE INVOLVED PRIOR TO FUNDING DECISIONS, ARVOC DOES OFFER ADDITIONAL TECHNICAL EXPERTISE AND EXPERIENCE DURING THE PROPOSAL STAGE IF NSF/ASA CAN DETERMINE AN APPROPRIATE METHOD.

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Not done due to transition from ASA to Raytheon. Possibility of representation still an option.

RECOMMENDATION 8: ASA SHOULD CONSIDER ACQUISITION OF A SMALL WORK BOAT FOR USE OUT OF PALMER STATION TO EXTEND THE CURRENT 2-MILE BOATING LIMIT.

In process. Will be discussed at today's meeting.

RECOMMENDATION 9: A LIASON MEMBER FROM PAUC SHOULD ATTEND ALL FUTURE ARVOC MEETINGS AND AN ARVOC REPRESENTATIVE SHOULD ATTEND PAUC MEETINGS.

Done- Bruce Sidell

RECOMMENDATION 10: ASA (NOW RPS) SHOULD CONSIDER THE FOLLOWING IN OUTBRIEFS FO CHIEF SCIENTISTS: a) ECO PARTICIPATION b) SUMMARIZE ALL OUTBRIEFS AND DISTRIBUTE SUMMARIES TO THOSE PARTICIPATING IN THE OUTBRIEFS c) ANNUALLY SUMMARIZE THE TRENDS OF THE OUTBRIEFS FOR ARVOC REVIEW AND DISCUSSION. **Outbriefs an agenda topic today. This recommendation was taken but needs to be discussed in terms of value added and time required.**

RECOMMENDATION 11: ASA (NOW RPS) SHOULD CONSIDER RETURNING CTD SUPPOR TO THE SCIENTISTS WHO REQUEST THAT SUPPORT. RPS SHOULD SEND RESEARCH SUPPORT PLANS (RPS) TO PIS SIX WEEKS PRIOR TO CRUISE DATE. **RPS will continue to provide CTD support. We will, however, continue to be open to grantee input both in terms of personnel and equipment. We have employed grantee specified technicians in the past and will continue to do so. At the same time we continue to improve out in-house CTD operations.**

Research Support Plans will now be posted on the Web. These should be available at least six weeks prior to the cruise. This is the responsibility of the RPSC POC. Unless specifically requested, hard copies will not be mailed to grantees.

RECOMMENDATION 12: ASA (NOW RPS) AND NSF/OPP SHOULD INVESTIGATE THE USE OF THE USCG ICEBREAKERS TO RESUPPLY PALMER STATION, THEREBY FREEING USAP RESEARCH VESSELS FOR OCEANOGRAPHIC CRUISES. NSF/OPP SHOULD ALSO INVESTIGATE THE COSTS, ADVANTAGES, DISADVANTAGES OF USING EITHER A USCG VESSEL OR A COMMERCIAL CARRIER TO TRANSPORT HAZARDOUS WASTE NORTH FROM PALMER STATION TO AVOID LOSING TWO MONTHS OF RESEARCH TIME ON THE R/V NATHANIEL B. PALMER OR R/V LAURENCE M. GOULD. **We have made several inquiries as to the availability of the Coast Guard Icebreakers both for transporting hazardous waste and for ancillary science projects. To date we have been unable to coordinate anything effectively. Schedules and different missions and on-board equipment have made this unrealistic to date. We have also invetigated use of a commercial carrier to transport haz waste. The results were that given the nature of the cargo and the scheduling, it was more cost effective to use the NBP. This issue will continue to be investigated for the next haz run north.**

RECOMMENDATION 13: ARVOC PLEDGES TO WORK WITH ASA, OR THE NEW CONTRACTOR IF SELECTED, OVER THE NEXT CONTRACT PERIOD, BEGINNING 01 APRIL 2000. **On-going.**

RECOMMENDATION 14: ASA (NOW RPS) AND NSF/OPP SHOULD DEVELOP PLANS TO ARCHIVE HISTORICAL AND MODERN UNDERWAY DATA SETS FOR ACCESS BY SCIENTISTS. RPS AND NSF/OPP PLANS SHOULD INCLUDE AN EVALUATION STEP TO ENSURE THE DATA CAN BE QUALITY ASSURED/QUALITY CONTROLLED, I.E., CALIBRATIONS DONE, ETC. **RPSC, like ASA, continues to save cruise data although archiving the data is beyond our tasking. This issue will continue to surface at every ARVOC meeting until the contractor is tasked to formally archive cruise data. We have frequent requests for data that we accommodate to the extent possible. There is no change on the status of this issue.**

RECOMMENDATION 15: ARVOC SHOULD IDENTIFY SPECIFIC INCIDENTS AND WAYS IN WHICH RPS SHOULD INVESTIGATE AND IMPROVE THE AGUNSA WORKING CONDITIONS/OPERATIONS AT PUNTA ARENAS, CHILE.

In-progress. Will be discussed at today's meeting.

RECOMMENDATION 16: D. KARL WILL DRAFT A SUMMARY OF THE EXECUTIVE SESSION DISCUSSIONS FOR RPS/NSF. **D. KARL WILL CORRESPOND WITH THE NSF.**

RECOMMENDATION 17: RPS SHOULD CONTINUE TO INVESTIGATE THE DUSH 9 WINCH ISSUE AND INFORM THE COMMITTEE OF ITS FINDINGS.

- 1) DUSH 9 WINCH ISSUES: COST, LOCATION, ETC. AND WILL KEEP THE COMMITTEE INFORMED
- 2) REPOSITIONING THE DUSH 4 AND 6 WINCHES, BUT NOT BEFORE INFORMATION REGARDING 4)BELOW IS COLLECTED AND DISCUSSED.
- 3) REDESIGN/RELOCATION OF CABLE RUNS, ON THE R/V LAURENCE M. GOULD
- 4) INFORMATION ON THE RELATIVE FREQUENCY OF USE OF THESE WINCHES AND WHICH OTHER FUNCTIONS OF THE VESSEL ARE NEEDED SIMULTANEOUSLY (E.G., IS THE DUSH 4 MOST OFTEN USED WITH THE STARBOARD A-FRAME OR THE STERN A-FRAME? WITH INCUBATORS ON THE DECK, WHICH WINCH IS USED MOST OFTEN?)

Discussion of this issue has come to a complete stop since realizing that the upgrade to a DUSH 9 from the DUSH 6 would result in exceeding the working limit of the Stern A-frame. The Stern A-frame has a safe working load of 20,000 lbs. Both the pulling power of the proposed winch and the working load of the 9/16 wire rope are greater than the working load of the A-frame. Discussion should focus on the feasibility of increasing the capacity of the Stern A-frame and the value added impact on science operations. A cable guard has been installed on the LMG to keep the cable on the DUSH 6 off the main deck.

RECOMMENDATION 18: RPS SHOULD INVESTIGATE MEASURES TO DAMPEN THE MOTION OF SEAWATER IN THE R/V LAURENCE M. GOULD AQUARIUM TANKS. C. KENNEDY WILL CONTACT JIM ST. JOHN, NAVAL ARCHITECT, TO DETERMINE THE SIZE OF MESH NEEDED TO PREVENT SLOSHING/WAVES. **Baffles have been added to the aquarium tanks in an effort to dampen the motion.**

RECOMMENDATION 19: RPS IS TO LOOK INTO TV CABLE DROPS IN CABINS AGAIN AS ARVOC BELIEVES THE CABLEING WOULD BOOST MORALE. J. HOLIK WILL INVESTIGATE THE COST AND POSSIBILITY OF PUTTING IN MORE TV CABLE DROPS. **In-process on the LMG.**

RECOMMENDATION 20: RPS WILL CONTINUE TO INVESTIGATE THE RAD VAN LOCATION SITE OPTIONS AN DTHIS WILL BE A TOPIC FOR THE NEXT ARVOC MEETING. **New Peck & Hale inserts are being installed on the NBP to allow more flexibility in van location. LMG unchanged.**

RECOMMENDATION 21: J. HOLIK WILL GET THE NOISE LEVEL DATA (MATLAB) TO D. KARL FOR DATA DISSIMULATION. RPS SHOULD HAVE SHIP NOISE DATA EVALUATED FOR ITS IMPACT ON THE MECHANORECEPTORS OF MARINE ORGANISMS. **J. Holik believes this was done.**

RECOMMENDATION 22: RPS SHOULD RESOLVE THE BATHY COLOR PRINTER PROBLEM. A color, continuous feed printer is not an option for the BATHY 2000. We have purchased a high quality greyscale plotter for the BATHY 2000.

RECOMMENDATION 23: RPS SHOULD OBTAIN UNOLS VIDEO AND BETTER SAFETY VIDEOS. This has been done and reviewed by RPS and ECO. There were aspects of the video that were valuable and other aspects that either did not apply or were contrary to the message we want to portray. The video is on board the NBP but is generally not shown.

RECOMMENDATION 24: RPS SHOULD DRAFT VESSEL E-MAIL USE POLICY FOR REVIEW AND COMMENT BY ARVOC. A standard e-mail policy has been developed and is included in every Research Support Plan.

RECOMMENDATION 25: RPS SHOULD DRAFT A POLICY STATING HOW RPS WILL SUPPORT THE SEABEAM SYSTEM. SeaBeam will be discussed at today's meeting.

RECOMMENDATION 26: RPS SHOULD REVIEW AND IMPROVE ITS TRAVEL TICKETING PROCEDURE TO BETTER SERVE THE SCIENTISTS. Will be done.

RECOMMENDATION 27: ARVOC SUPPORTS PART OF THE PLANNING MEETING PROPOSAL OF PAUC AND MAUC AND SHOULD PROVIDE RPS WITH ITS POSITION FORMALLY. D. Karl can advise status.

RECOMMENDATION 28: RPS SHOULD PROVIDE DATA FROM THE KNUDSON EQUIPMENT ABOARD THE R/V LAURENCE M. GOULD TO G. DOMACK/ARVOC FOR ANALYSIS COMPARISON WITH THE BATHY SYSTEM DATA. J. Holik believes this was done. If not, he will make it happen as soon as possible.

RECOMMENDATION 29: RPS SHOULD DISTRIBUTE TO ARVOC LISTS OF "PURCHASED" AND "TO PURCHASE" CAPITAL EQUIPMENT FOR REVIEW AND COMMENT. Capital Equipment will be discussed at today's meeting.

RECOMMENDATION 30: ARVOC SHOULD DEVELOP A POSITION ON UNDERWAY DATA SETS AND DATA COLLECTED ON "CRUISES OF OPPORTUNITY" FOR RPS AND NSF/OPP REVIEW. Teri Chereskin will discuss at today's meeting.

RECOMMENDATION 31: RPS SHOULD SEND A REPRESENTATIVE TO THE SHALLOW DRILLING INITIATIVE MEETING 4-6 FEBRUARY 2000. Meeting was cancelled. RPS has kept track of the progress on the various prototypes being tested. Unfortunately, so far, no good news.

RECOMMENDATION 32: RPS SHOULD REVIEW WITH NSF/OPP THE PURCHASE AND USE OF DEFIBRILLATORS BY EMTS TO TREAT HEART ATTACK PATIENTS ABOARD THE R/V LAURENCE M. GOULD AND R/V NATHANIEL B. PALMER. Done. Plans are to purchase defibrillators.

Charter

Committee members will be asked by Chair to review the ARVOC Charter and to make recommendations, i.e., possibly revise the Charter to delete the vice-chair requirement. The Committee will submit the revised Charter Draft to NSF and RPSC for review and approval at the next ARVOC meeting.

ANTARCTIC RESEARCH VESSELS OVERSIGHT COMMITTEE (ARVOC) CHARTER

The Antarctic Research Vessels Oversight Committee (ARVOC) exists to ensure representation of the scientific community in the management and operation of the U.S. Antarctic Program (USAP) research vessels. An important function of ARVOC will be to provide advice and make recommendations regarding the ships and other scheduling issues, efficient utilization of shipboard equipment and instruments, and the shipboard computer network and hardware. Recommendations of the committee may also involve staffing, communications, allocation of space, and other matters related to improving the research support capabilities of the research vessels. ARVOC will provide advice and make recommendations to RAYTHEON POLAR SERVICES COMPANY (RPSC), who is responsible for making recommendations in turn to the National Science Foundation (NSF) Office of Polar Programs (OPP). RPSC will be responsible for implementing NSF/OPP approved recommendations.

Membership: Members of ARVOC will be drawn from the community of ocean research scientists, with particular emphasis on those with current or previous NSF/OPP support for research aboard USAP research vessels. Members will serve for three years with one-third of the membership replaced each year. Members will assist in the selection of a Chairperson, who will serve for three years in that capacity in addition to time already served as a member, and one additional year at their discretion as an ex-officio member to assist in the transition of the new Chairperson. Explicit details regarding membership term limits and selection criteria are provided below. On occasion, one or more persons with expertise related to a specific agenda item may be invited to participate in the ARVOC meeting. Decisions concerning the need for and selection of meeting guests shall reside with the ARVOC Executive Committee consisting of the ARVOC Chairperson, **Executive Committee Vice Chair (nominated from the ARVOC)**, RPS Representative, and NSF/OPP Representative. Guests will be identified in the meeting agenda which shall be distributed to ARVOC members at least one week prior to each meeting.

Meetings: ARVOC will meet at least once a year in appropriate locations. Minutes will be taken at each meeting by an RPSC staff person and provided to ARVOC members, and RPSC and NSF/OPP. The minutes will also be made available to the general scientific community via the World Wide Web (WWW) RPS home page. ARVOC may also hold special meetings in association with major conferences in order to facilitate the communication of ARVOC-related matters to the general community.

Working Groups: Topics may occasionally arise that warrant particular focused attention. When such topics arise, an ad hoc Working Group may be formed to formulate a position, make recommendations to ARVOC, or directly to RPSC and NSF/OPP.

TERM LIMITATIONS AND SELECTION CRITERIA

1. Membership should be representative of all relevant areas of expertise with minimal institutional overlap.
2. Members will serve only one three-year term, unless selected to serve as the Chairperson (and in an ex-officio capacity [see above]). This shall not rule out a non-consecutive term.
3. Membership will be staggered so that approximately one-third of the membership is rotated annually.
4. Nominations for new members will be solicited from the broader community through the ARVOC list-server, and will also be made by ARVOC members, and RPSC and NSF/OPP representatives to the ARVOC.
5. Membership nominations will be prioritized in Executive Session, and then presented to the Chairperson, and RPSC and NSF/OPP representatives for concurrence.
6. The committee size will be limited to no more than nine (9) members, plus the ex-officio former Chairperson, to maintain manageability. Advice on certain subjects may be required from experts possessing knowledge complementing that of the ARVOC members, which will be sought in writing and/or telephone. Guests may also be invited to participate in ARVOC meetings for their specialized expertise.
7. Nominees for Chairperson will be restricted to current ARVOC members to ensure continuity and "corporate memory", and solicited from ARVOC members, and RPSC and NSF/OPP representatives to the ARVOC. The nominations for Chairperson will be presented to the incumbent Chairperson, and RPSC and NSF/OPP representatives for review and concurrence.

(09/08/00)

Other: Continue Unfinished Items

Dave Karl will serve as ex-officio ARVOC member for one-year beginning at the end of his term as member and Chair-12/31/2000. Two new ARVOC members will be recruited to fill Steve Cande's and Dave Karl's expiring memberships which end December 31, 2000. Robin Ross was elected by ARVOC members to serve as the new ARVOC Chair. (Note: members as of minutes publication: Robin Ross, Chair, Bob Anderson, Vernon Asper, Teresa Chereskin, Bill Detrich, Eugene Domack, Stan Jacobs, newly elected members Steve Ackley and Jamie Austin. Dave Karl serves as ex-officio member.)

Next Meeting Date/Location to be decided.

Al Sutherland thanked Dave Karl for his work as ARVOC Chair and for his continued support as ex-officio in the coming year.

There being no further business the meeting adjourned 3:00PM.

ARVOC Members and Term/Limitations

<p>Dr. Vernon Asper University of Southern Mississippi Center for Marine Science Bldg 1103, Room 102 Stennis Space Center, MS 39529 EMAIL: vernon.asper@usm.edu Term Limitation: December 31, 2001</p>	<p>228-688-3178</p>	<p>F-228-688-1121</p>
<p>Dr. Eugene Domack Hamilton College Department of Geology 198 Hamilton College Clinton, New York 13323 EMAIL edomack@hamilton.edu Term Limitation: December 31, 2001</p>	<p>315-859-4711</p>	<p>F-315-859-4807</p>
<p>Dr. David Karl, Chair University of Hawaii Department of Oceanography 1000 Pope Road Honolulu, Hawaii 96822 EMAIL: dkarl@soest.hawaii.edu Term Limitation: December 31, 2000 (will serve as ex-officio member beginning 01/01/01)</p>	<p>808/956-8964</p>	<p>F 808/956-5059</p>
<p>Dr. Steven Cande University of California, San Diego Scripps Institute of Oceanography Mail Code 0215 La Jolla, CA 92093-0215 EMAIL: scande@ucsd.edu Term Limitation: December 31, 2000</p>	<p>619-534-1552</p>	<p>F 619-534-0784</p>
<p>Mr. Stan Jacobs Lamont Doherty Earth Observatory Palisades, NY 10964 EMAIL: sjacobs@ldeo.columbia.edu Term Limitation: December 31, 2001</p>	<p>914-365-8326</p>	<p>F914-365-8157</p>
<p>Dr. Robin Ross University of California, Santa Barbara Marine Science Institute Santa Barbara, CA 93106 EMAIL: robin@icess.ucsb.edu Term Limitation: December 31, 2003 (will replace Dr. Karl as Chair effective 1/1/01)</p>	<p>805-893-2096</p>	<p>F 805-893-8062</p>

New ARVOC Members:

Dr. Bob Anderson

914-365-8508

F 914-365-8155

LDEO, P.O. Box 1000

Rte. 9

Palisade, NY 10964-8000

EMAIL: boba@ldeo.columbia.edu

Term Limitation: January 01, 2000- December 31, 2002

Dr. Teresa Chereskin

858-534-6368

F 858-534-0704

University of California, San Diego

MS 0230

9500 Gilman Drive

La Jolla, CA 92093-0203

tchereskin@ucsd.edu

Term Limitation: January 01, 2000-December 31, 2002

Dr. Bill Detrich

617-373-4495

F 617-373-3724

Dept. of Biology

414 Mugar Hall, Northeastern University

360 Huntington

Boston, MA 02115

iceman@neu.edu

Term Limitation: January 01, 2000-December 31, 2002

Others in attendance:

National Science Foundation (NSF/OPP):

4201 Wilson Boulevard

Arlington, Virginia 22230

Dr. Dennis Peacock

Mr. Al Sutherland

Dr. Dean Stockwell

703-292-8030 F 703-306-0139

EMAIL: dpeacock@nsf.gov

EMAIL: alsuther@nsf.gov

EMAIL: dstockwe@nsf.gov

Raytheon Polar Services

61 Inverness Drive

Suite 300

Englewood, Colorado 80112

Mr. Tom Yelvington

Dr. Anthony Danks

Dr. Don Atwood

Mr. Les Bonde

Dr. Jim Holik

Ms. Alice Doyle

Mr. Henry Kennedy

Mr. Jim St. John, Consultant

Dr. Steve Kottmeier

Mr. Robert Kluckhohn

Mr. David Leger

Ms. Dawn Scarboro

303-790-8606 F 303-790-9130

EMAIL: yelvinto@polar.org

EMAIL: danksan@polar.org

EMAIL: atwooddo@polar.org

EMAIL: bondele@polar.org

EMAIL: holikji@polar.org

EMAIL: doyleal@polar.org

EMAIL: hvk@aol.com

EMAIL: jstjohn7@earthlink.net

EMAIL: kottmest@polar.org

EMAIL: kluckhro@polar.org

EMAIL: legerda@polar.org

EMAIL: scarboda@polar.org

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Mr. Rich Ely
Mr. Brien Borden
Mr. Ernie Joynt

EMAIL: elyri@polar.org
EMAIL: bordenbr@polar.org
EMAIL: joynter@polar.org

Woods Hole Oceanographic Institute

Mr. Barrie Walden

EMAIL: bwalden@whoi.edu

SIO and UNOLS/AICC

Dr. Jim Swift

EMAIL: jswift@ucsd.edu

Edison Chouest Offshore, L.L.C.

Mr. Mark Gisclair
Captain Joe Brokowski
Captain Warren Sanamo
Mr. Spence Guidry

EMAIL: mark.gisclair@eco.chouest.com
EMAIL: capt_ice@nbp.polar.org
EMAIL: sanamowa@lmg.polar.org
EMAIL: spence.guidry@eco.chouest.com

(Newly elected ARVOC members:

Dr. Jamie Austin

jamie@utig.ig.utexas.edu

Term limitation: December 31, 2003

Dr. Steve Ackley

sackley@pol.net

Term limitation: December 31, 2003)