

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

**01-02 May 2003  
Arlington, Virginia**

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To access all presentations from the May 2003 meeting- click the “[Go to](#)” within the report

WELCOME AND  
INTRODUCTIONS

Robin Ross opened the meeting and welcomed ARVOC members, RPSC Staff, NSF Representatives, and visitors.

Following roundtable introductions, Robin reviewed the 2001 minutes, Jim Swift motioned and Bill Detrich seconded that the 2001 minutes be approved following correction to the limitation terms of Drs. Bob Anderson, Teresa Chereskin, and Bill Detrich. Term limitation for these three committee members is January 01, 2000-December 31, 2002. Change has been noted and the 2001 minutes will be amended. Minutes were approved.

NSF, STATE OF

Al Sutherland reported on recent NSF staff changes. These include:

Scott Borg replacing retiring Dennis Peacock as Antarctic Sciences Section Head. Al noted that, until a replacement for Dr. Borg's Geology and Geophysics Program Manager position is named, Scott and Julie Palais will divide GGPM duties until the position is filled.

Susanne LaFratta replacing retiring Dwight Fisher as Section Head, Operations.

Al discussed the final budget approval by Congress that allowed for an 8% increase to the NSF budget.

Some unexpected costs over this last year:

The USCG was directed to sail the HEALY to McMurdo as backup to the POLAR SEA. This precaution was necessary due to extreme ice conditions and icebergs in the McMurdo area. The resulting expense of \$6 million was \$4 million over what was originally planned.

The RV NBP winch was deleted from the original budget but is now added back to the budget.

A first for the RV LMG Dush 11 is the SBI Arctic Cruise scheduled for July 5-August 28, 2003. Following the end of GLOBEC, the RV NBP had no science cruises planned for six months and the vessel was to dock in New Zealand for the duration of this idle period. The OPP/Arctic proposed the idea of sailing in support of Dr. Jim Swift's Arctic project. With positive response from RPSC staff and the NSF backing, the RV NBP will sail to the Arctic.

Final NSF topic- Al reported on the Signed Memo of Agreement between MARAD and the NSF. OPP has obtained the services of MARAD in support of design studies for a New Generation Polar Research Vessel to replace the R/V Nathaniel B. Palmer. Two workshops sponsored by OPP that form the basis for much of the preliminary design criteria can be found at:

<http://www.vims.edu/admin/sponpgms/AOPWReport.pdf>

<http://departments.colgate.edu/geology/faculty/AMGGPWReport.pdf>

RPSC, STATE OF

Steve Dunbar, Director of Science Support, in introducing himself to the

committee, listed briefly some of his past experiences with the Antarctic Program. Steve noted that he has been in the program for eleven years, focusing mainly on field and plateau work. Last year he spent a month at Palmer Station and is enjoying his work with the vessel operations department. In his present capacity as Director, Steve oversees the Marine staff, Palmer Lab staff, and budgets for the departments.

Steve added that RPSC is focused on continuous improvement and resolution of action items. RPSC employees' efforts are to improve every day and, although last year proved to be challenging, both equipment and weather wise, it was a successful year.

ACTION ITEMS

For status of October 15-16, 2001 Action Items. See pages 11 and 12 for October 15-16, 2001 Action Items/Status. (note: ARVOC did not meet in 2002)

MAJOR CHANGES

Jim Holik reported on new improvements to the vessels made during the refit/maintenance period June-July, 2002 in Talcahuano, Chile. [Go to presentation showing improvements.](#)

**ACTION: resulting from general discussion of the moon pool options: RPSC/ARVOC/MARAD WILL CONTINUE TO STUDY THE MOON POOL; HOW TO KEEP IT ICE FREE; HOW IT MIGHT BE CONSTRUCTED TO ALLOW DIVING/OTHER; BEST PLACEMENT FOR OPTIMAL USE; DOOR OR NO DOOR; ROV INSTRUMENTS, ETC.**

On the RV LMG--Dave Leger will talk later in the meeting of LMG's IT improvements.

Stair landing was improved, access to the hold, and gang plank and railing from 01 has been improved. Most changes over the past year have focused on the RV NBP.

SAFETY

Steve Dunbar, safety from RPSC and employees- total recordable injury record. When RPSC won the contract from ASA, it was RIR was twenty. We brought this down to below three. This is a continuing focus; if you observe safety issues, please let Steve, RPSC know so steps can be taken to continually improve. If the safety program impacts your science work, advise Steve of that too.

METRICS

Some of the more common metrics are:  
Sailing on time  
Cargo and equipment delivered on time  
Research Support Plans to the Principal Investigators on time

By striving to meet the pre-set negotiated metrics, RPSC can potentially earn more points toward the award fee and researchers are also provided better service.

Al Sutherland noted that ARVOC can help by suggesting how to more closely identify our measurements and Steve Dunbar added that RPSC doesn't want to manage the metric...rather the goal is to provide continually improving service while maintaining good metrics.

[Go to Metrics presentation.](#)

**ACTION: RPSC WILL LOOK INTO UPGRADING THE HOTEL/LINENS/ TOWELS ON THE R/V L.M. GOULD. (AS THIS MAY REQUIRE A CONTRACT MODIFICATION ECO WOULD BE INVOLVED PER S. DUNBAR. HOTEL/QUALITY OF LIFE WILL BE ADDED AS A METRIC FOR NEXT YEAR.**

NBP  
REPLACEMENT

Al Sutherland discussed the next generation Antarctic research vessel. He noted that the R/V NATHANIEL B. PALMER contract expire date is 2008 but can/may extend to 2012. It is prudent to consider replacement early enough to incorporate new technologies into the design of a replacement vessel.

Two workshops (*Antarctic Oceanography Planning Workshop: Possible Replacement of the R.V.I.B. Nathaniel B. Palmer* June 25-26, 2002 and *Antarctic Marine Geology and Geophysics Planning Workshop* March 23-24, 2002) were convened to solicit broad community input, initiate discussions, to determine objectives and technical needs of Antarctic research vessels.

- \*Results supported by both workshops
- slightly larger ship
- greater ice breaking ice/ shedding capacity
- longer cruise duration
- able to support AUVs and Geotechnical Drilling
- Moonpool

(Final reports from these two workshops are available upon email request to [aleventer@mail.colgate.edu](mailto:aleventer@mail.colgate.edu) and on the Internet at <http://departments.colgate.edu/geology/faculty/AMGGPWReport.pdf> <http://www.vims.edu/admin/sponpgms/AOPWREPORT.PDF>

ARVOC, as interdisciplinary scientific representatives, will continue to actively participate in the new vessel planning and design.

Al Sutherland discussed the timeline for the new icebreaker noting that the

anticipated completion date is December 2007.

Concept design complete	1 year
RFP complete	November 2003
Proposal due to RPSC	March 2004
Contract award	December 2004
Detail design completion	December 2005
Cut steel	December 2005
ARVOC site reviews	April-May 2007
Ship completion	December 2007
ECO charter ends	February 2008

Dick Voelker, MARAD and Jim St.John, STC, the NBP Replacement presentation. [Go to PRV Feasibility-Level Design Studies](#) (8 pages). ([Richard.voelker@marad.dot.gov](mailto:Richard.voelker@marad.dot.gov))

Skip Owen, RPSC Project Manager, has been brought on specifically to take on an important role in the vessel replacement process. Skip will be liaison to MARAD, NSF, ARVOC and other science community members.

For New Generation Polar Research Vessel forum go to

<http://www.polar.org/science/marine/prv/index.htm> Moved to [www.usap.gov](http://www.usap.gov) in June 2004

NBP  
REPLACEMENT

Following presentation, Jim St. John and Dick Voelker welcomed feedback on the proposed vessel layout. It was noted that the science community can provide invaluable insight into many areas of the design, i.e., where to place the helo hangar, spacing and size of the moon pool, crane placement, galley and lab placement, AUVs and ROVs, drilling arrangements, net sizes, doors, towing requests, ice breaking capabilities- where/when/how the users plan to sail.

MULTIBEAM  
UPDATE

ARVOC committee, NSF, RPSC, MBARI guests and MARAD continued with general discussion and the consensus that more meetings specifically aimed at planning/designing the Polar Research Vessel are needed.

Suzanne O'Hara discussed the EM120 update. A collaborative team made up of IT staff, ET staff, Chip Kennedy, Joe Borkowski all had input into the multibeam installation. Today's presentation provides ARVOC with the current status and how the equipment is operating. Specific topics will be addressed in side discussions.

[Go to Multibeam Update presentation.](#)

The RPSC and Simrad working relationship is very good and is much improved over the Seabeam relationship. Fully explained questions are answered or at least responded to quickly, per Suzanne.

Outstanding problems:

- Sound velocity is a problem. Simrad needs to address this problem and hopefully resolve. Currently, Suzanne is overriding the sound velocity

problem by compensating but this is not a viable, long-term solution. Simrad has not experienced this problem in any of their tests but they do need to address this problem for RPSC.

- Horns or ridges that run parallel to the data track exist at about the outer 1/3 of the data. This problem was first noticed in California during sea trials. Simrad again has not experienced this problem.
- The system does not work well with large crab angles greater than 10°. The documentation that went with the menus was wrong. Online versus book documentation was wrong. Simrad is looking into this.

All of these issues have been sent on to RPSC for further action with Simrad.

- When backing and ramming, data collection will not be attempted due to the poor quality of the data, but we will work to compromise.
- Occasionally, the ice under the vessel interferes with the readings. Increasing or decreasing the vessel speed sometimes helps alleviate this problem.
- Heavy seas are a problem. Speed, slowing down or speeding up, sometimes helps control the bubble sweep and improves the data collection.

Deciding which cruises to run the Simrad on is RPSC's decision. It was noted that Simrad training is fairly easy and quick; the Simrad is more user friendly. However, given the environment, some ping editing may still be required. The scientist will have to decide how much filtering software is used during those times when the weather and/or ice impact the data from the EM120.

CAPITAL  
EQUIPMENT  
PAST AND  
FUTURE  
ACQUISITIONS

Alice Doyle presented the Capital Equipment list. [Go to Capital Equipment presentation.](#)

The ARVOC members were asked to review the capital equipment list in executive session and prioritize the items, adding any capital equipment items the committee considers important. RPSC will review the list before submitting to NSF for consideration and possible acquisition..

VESSEL IT  
STATUS  
EXECUTIVE  
SESSION

Dave Leger presented the vessel IT status. [Go to IT presentation.](#)

Robin Ross presented recommendation resulting from the ARVOC executive session.

**#1 In Executive Session, ARVOC reviewed the Charter. ARVOC desires to have a closer connection with Arctic researchers and the Arctic program. ACTION: ARVOC Chair will draft changes to the ARVOC Charter to include closer association with the Arctic researchers.**

**#2 ARVOC will continue to contact the Chief Scientist of each cruise to discuss any issues arising from the cruise and will keep track of the communication, concerns, and recommendations.**

**#3 ACTION: To maintain continuity and to increase the community**



**representation during the proposed new generation Polar Research Vessel design and implementation, the ARVOC committee will permit members to be re-elected, will increase its membership to 12-15 members, and will meet twice a year. The ARVOC plus the invited members will constitute a standing committee for the duration of the PRV development program that will represent other disciplines. As necessary, guests will be invited to provide additional requisite expertise.**

The Standing Committee will meet as soon as possible with the design team to continue PRV discussion and to make recommendations for vessel requirements.

**#4 ACTION: RPSC (Jim Holik) will send status reports on Capital Equipment., IT , MG&G to ARVOC two weeks prior to ARVOC annual meeting. This Capital Equipment preview will allow for specific questions, discussions, and decisions from the scientific community during the meeting Presentations then can form primarily on questions and decisions that need to be made with input from the scientific community.**

**#5 ACTION: RPSC should investigate ways to improve the LMG human comfort level aboard the vessel.** ARVOC strongly recommends improving the environment of those sleeping in the berthing vans; in particular installation of a head, whether self contained or somehow connected to the ship's system. Following discussion and NSF support of recommendation, RPSC is directed to study costs, options, timing, and to report back to ARVOC.

CAPITAL EQUIPMENT Items considered high priority by ARVOC  
Replacement winch for the LMG dush 6  
Liquid Nitrogen 2 maker- both ships  
Positioning beacon for Shaldrill  
3 each precision GPSreceivers. Shalldrill

Forward looking sonar for the LMG- It was suggested, after discussion, that a forward looking sonar be considered for the vessel after more study. **ACTION: The sonar that was previously on the NBP will be adapted and installed on the LMG. Jim Holik will report/update ARVOC at the next meeting on the forward looking sonar options.**

Other High Priority items

- 1) ADCP phased array. (NBP first, then LMG)-Important to next phase of ADCP measurements. Estimated cost \$65,000
- 2) bathy 2000for bottom and subsurface profiling – LMG  
(Bathy 2000W is a better choice \$55,000-\$60,000, per Jim Holik

Low Priority items

Dry ice maker in Punta Arenas  
Epiflorescent dissecting microscope for ships- ARVOC needs better justification for use at sea  
**ACTION: RPSC (Jim Holik) will report back to ARVOC on the high/low priority items.**

ARVOC consensus –scheduling the executive session for the second day of the meeting versus the first day is more beneficial for the committee.. Jamie Austin also recommended having the various reports, i.e. Capital Equipment list, available to the committee members before the meeting is most useful to and allows the executive committee members to be better prepared on the first day. **ACTION: RPSC should provide committee members with reports/action updates prior to the meeting date.**

ANTARCTIC  
DATA  
REPOSITORY/  
DATABASE

Suzanne O’Hara discussed AMBS with the committee how she is archiving data- funded by the NSF and with ARVOC approval.

[Go to Antarctic Data Repository presentation.](#)

AICC MEETING

Suzanne reiterated that for AMBS to succeed, ARVOC’s and the science community’s participation is essential.

Jim Swift presented the AICC meeting. AICC is modeling some of their processes after ARVOC – i.e., post cruise interviews..(get Jim’s electronic version)

MG&G REPORT

Jim Holik reported on MG&G. [Go to MC&G presentation.](#) To date, Larry Lawver is the only MG&G cruise scheduled for next year.

SHALDRIL

Jim Holik reported on Shaldril. [Go to Shaldril presentation.](#)

POLARICE

Scott Holbrook reported on POLARICE. It was noted that the stats/graphs for the POLARICE SIP submissions are based on the April 15 due date. Vessel SIP submission dates are based on cruise dates not April 15 deadline.

[Go to POLARICE presentation.](#)

LABORATORY/  
SAMPLE  
ISSUES

Bob Kluckhohn and Rebecca Shoop

Topics: LMG NBP vans, warehouse

Improvements in FY02

Uncontaminated Seawater System

Bio-lab space/snorkel

PVC furniture

Punta Arenas warehouse

FATS- fixed acquisition tracking support

Sample shipments from Palmer Station and the research vessels: RPSC asks for the researchers’ help when shipping samples back to the US. RPSC has taken steps to educate the Agunsa staff on sample labeling and packaging in an effort to ensure samples arrive at home institutions safely. Rebecca was lead on a recent Improvement Process Team (IPT) tasked with improving sample shipping. Standard Operating Procedures (SOPs) are in process.

Bob discussed the advantages of purchasing a dry ice machine for use in Punta Arenas. Following discussion, ARVOC asked for more detail/justification for a dry ice machine. **ACTION: RPSC (Bob Kluckhohn) will report to ARVOC (next meeting), the actual cost of dry ice purchased to-date in Chile for use with sample shipments. This report will be used for cost comparison between buying dry ice in Santiago and buying a dry ice machine.**

IT SECURITY

Tim Howard, Information Security Manager, RPSC reported.

The extra steps being implemented by RPSC to ensure IT security is government mandated and is for the protection of the scientists and their research. Dave Leger will be “liaison” between the vessel grantees and Tim Howard’s department. Grantees may want to identify their IT technician for Tim Howard. Tim and the tech will be able to make this security process simple and easy for the grantee.

All deploying grantees receive an advisory memo/slip in their travel packet that alerts the traveler regarding what to bring, what you can and can’t do, what virus protection is needed, etc.

ROV  
REQUIREMENTS

Steve Ackley discussed four recent projects he participated in that used AUVs. The work was very exciting and, by the time the new polar research vessel comes on line, AUVs should be well developed and usable on the new vessel, per Steve.

OTHER

The next ARVOC meeting will be June or July, 2003 and the meeting will be dedicated to discussion of the new polar research vessel. Three to five additional guests will be invited.

Meeting adjourned 1:40pm

ARVOC executive members stayed to discuss other issues.

ARVOC MEETING AGENDA

**May 1-2, 2003**  
**Arlington, VA**

*Executive Session-* (Wednesday evening- Barrister Room, Hilton Garden Inn, Arlington, VA)

Day 1, Thursday May 1 (Continental Breakfast- Chambers 2 Meeting room)

8:00	Welcome, Introductions	R. Ross
	Review/Approve 2001 minutes	
	Review of current agenda	
	Executive Session report	
8:30	NSF Report	A. Sutherland
9:00	Raytheon Report	S. Dunbar
9:15	Action Items from last meeting	J. Holik
9:40	Major Changes/ Improvements to the ships	J. Holik
10:15	Break	
10:30	RPSC Metrics	J. Holik
11:00	NBP Replacement	A. Sutherland/ D. Voelker
12:00	Lunch (working lunch supplied by Hilton Garden Inn)	
12:45	NBP Replacement (continued)	A. Sutherland/ D. Voelker
1:30	Multibeam Update	S. O'Hara
2:00	Capital Equipment Past and Future Acquisitions	A. Doyle
2:30	Vessel IT Status	D. Leger
3:00	Antarctic Data Repository/ Database	S. O'Hara
3:30	Break	
3:45	MG&G Update	J. Holik
4:00	Adjourn	

*Dinner for Attendees- Cosmos Club 6:30 pm*

Day 2, Friday May 2, 2003

8:00	Any items continued from May 1, 2003	
8:30	Laboratory/Sample Issues	B. Kluckhohn/R. Shoop
9:15	Polar Ice	S. Holbrook
10:00	Break	
10:15	Shaldril	J. Holik
10:30	AAIC Report	J. Swift/L. Clough
11:00	IT Security	T. Howard
12:00	Lunch	
1:00	ARVOC Business	R. Ross
	Next Meeting Date/Location	
1:30	Open Forum, Other items, other committee business	
2:00		
2:30		
3:00		
3:30	Adjourn	

OCTOBER 15-16, 2001 ACTION ITEMS/STATUS

Recommendation	Status
<p><b>#1: NSF (AL SUTHERLAND) WILL INVESTIGATE HAZARDOUS WASTE REMOVAL OPTIONS AND DISCUSS FINDINGS WITH ARVOC.</b></p>	<p>General discussion: Per Antarctic Treaty, hazardous materials must be moved out of Antarctica every two years. The materials on the stations have not been extremely dangerous or in massive quantities in the past. Next year there may be a need to move more than in prior years and the vessel schedule may not be conducive to this plan. Alice Doyle commented that RPSC Environment, Health, and Safety department is investigating alternatives, i.e., commercial carrier. This action#1 is an on-going item and will be discussed at future meetings.</p>
<p><b>#2: ARVOC/RPSC WILL DEVELOP A MORE SYSTEMATIC PROCESS FOR DISTRIBUTION OF VESSEL OUTBRIEFS. THE “CHIEF SCIENTIST” LETTER WILL BE AMENDED BY RPSC AND THE NSF TO MORE CLEARLY INSTRUCT THE MPC AND CHIEF SCIENTIST IN THE DISTRIBUTION OF OUTBRIEFS. ARVOC (CHAIR) WILL DESIGNATE AN ARVOC MEMBER TO CONTACT THE CHIEF SCIENTISTS DIRECTLY TO DISCUSS ANY ISSUES ARISING FROM CRUISES. RPSC SCIENCE AND IT DIVISIONS WILL WORK TOGETHER TO CONSOLIDATE OUTBRIEF AND METRIC PERFORMANCE FORMS TO MAKE THEM LESS REDUNDANT.</b></p>	<p>Done- Chief Scientist letter has been amended; outbriefs are posted on the web and are available to ARVOC members. Re: consolidation of forms: IT is under an NSF mandate for a different type of information that is not conducive to combining with the outbrief forms.</p>
<p><b>#3: AGUNSA WILL HAVE AN AGUNSA EMPLOYEE FROM THE WAREHOUSE BOARD THE VESSELS TO “CHECK IN” CLOTHING AFTER THE VESSELS GET TO PORT AND BEFORE THE GRANTEEES LEAVE THE VESSELS FOR CONUS.</b></p>	<p>With the improvements to the Agunsa warehouse and the CDC, clothing issue will continue to be from the warehouse as in the past.</p>
<p><b>#4: ARVOC WILL POLL THE SCIENCE COMMUNITY OF USERS IN THE SPRING (APRIL/MAY) BEFORE THE NEXT YEAR’S BUDGET IS FINALIZED. ARVOC WILL PRIORITIZE THE VARIOUS SUGGESTIONS AND FORWARD THIS LIST TO RPSC (JIM HOLIK) IN TIME FOR EFFECTIVE INPUT AND CONSIDERATION BY RPSC AND THE NSF. RPSC (JIM HOLIK) WILL PROVIDE ARVOC THE STATUS OF THE MULTI-USE CAPITAL EQUIPMENT SUGGESTIONS/PRIORITIZATION AT THE NEXT REGULARLY SCHEDULED ARVOC MEETING.</b></p>	<p>Capital equipment items will be discussed later in today’s meeting.</p>
<p><b>#5: ARVOC (BILL DETRICH/ROBIN ROSS) AND PAUC (TAD DAY) WILL FORMULATE, FOR COMMITTEE REVIEW AND POSSIBLE PRESENTATION TO DR. ERB, A LETTER THAT FORMALIZES ARVOC’S SUPPORT FOR A WORK BOAT IN</b></p>	<p>The workboat suggestion was not endorsed by ARVOC. However, as PAUC is in favor of a workboat, Bill Detrich intends to go forward with a</p>

<b>THE PALMER STATION AREA.</b>	letter to Dr. Erb re: Palmer Station workboat.
<b>#6: JIM DOLAN WILL PREPARE A COMPARISON REPORT ON EMAIL STATS OVER THE NEXT YEAR AND HAVE THIS AS A PART OF HIS PRESENTATION AT THE NEXT ARVOC MEETING.</b>	Dave Leger will have presentation later in the day. It appears that cost containment has been successful and inmarsat budget is within target.
<b>#7: NOMINATIONS FOR ARVOC MEMBERSHIP WILL BE REQUESTED (ROBIN ROSS) FROM THE SCIENTIFIC COMMUNITY AND FROM THE ARVOC. EFFORTS WILL BE MADE TO SELECT NOMINEES THAT COMPLEMENT THE SCIENCE DISCIPLINES ALREADY REPRESENTED IN ARVOC. ROBIN ROSS WILL CONDUCT ELECTION BY EMAIL.</b>	Done- new members have been elected.
<b>#8: THE ARVOC CHARTER WILL BE AMENDED (ROBIN ROSS) TO INCLUDE A STATEMENT THAT WILL ALLOW CLOSER INTERACTION WITH AICC AND ARVOC. THE DRAFT WILL BE AVAILABLE AT THE NEXT ARVOC MEETING FOR RPSC AND THE NSF REVIEW AND APPROVAL.</b>	Done

## CHARTER

### ANTARCTIC RESEARCH VESSELS OVERSIGHT COMMITTEE (ARVOC) DRAFT DRAFT CHARTER DRAFT DRAFT

**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. The ARVOC will maintain liaison with the Arctic Icebreaker Coordinating Committee (AICC) to address issues of mutual concern. ARVOC will provide advice and make recommendations to RAYTHEON POLAR SERVICES (RPS), who is responsible for making recommendations in turn to the National Science Foundation (NSF) Office of Polar Programs (OPP). RPS 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, RPSC 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) RPSC 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 RPS and NSF/OPP representatives to the ARVOC.
5. Membership nominations will be prioritized in Executive Session, and then presented to the Chairperson, and RPS 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.



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Term Limitation: January 01, 2002-December 31, 2004

**Others in attendance:**

**National Science Foundation (NSF/OPP):**

4201 Wilson Boulevard  
Arlington, Virginia 22230 703-292-8030 F 703-306-0139  
Bernhard Lettau, Polly Penhale, Al Sutherland

**Raytheon Polar Services**

7400 South Tucson Way 303-790-8606 F 303-790-9130  
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Alice Doyle, Steve Dunbar, Bob Farrell, Scott Holbrook, Jim Holik, Tim Howard, Bob Kluckhohn,  
Dave Leger, Suzanne O'Hara, Skip Owen, Dawn Scarboro, Rebecca Shoop

**Woods Hole Oceanographic Institute**

Mr. Barrie Walden

**MARAD and STC**

Alex Iverusalimskiv, David Karnes, Jim St John, Dick Voelker

**Edison Chouest Offshore, L.L.C.**

Captain Joe Borkowski