Final Report, UNOLS PCA Subcommittee, 2004-2006
March 21, 2007

Report to UNOLS Council by the PCA Subcommittee: Curt Collins (Chair), Wilf
Gardner, Mary-Lynn Dickson and Tim Askew.

1. Statistics (as of November 2006)

        The percent return for Post Cruise Assessments (PCAs) for the UNOLS fleet is
shown for the period 1999-2005 in the figure below. The percent return for the ship's
captain and the chief scientist were greatest, 90%, in 2001 and the current level of return,
about 65%, is lower than the previous 4 years.
   A fleet average return of 70 percent might be acceptable as neither the class of the
ship nor the length of the cruise has been considered. Many of the regional and local
vessels carry out day cruises as an extension of class laboratories or for routine
observational work and returning PCAs for these short cruises is problematic, especially
if results are satisfactory. A one-day cruise was given the same weight as a 30-day
cruise. We recommend that future metrics for PCA return consider both these factors.
We would also recommend a goal of 100% PCA return from Chief Scientists for cruises
longer than one week.

Fleet Percent Return for Post Cruise Assessments 1999 - 2005 (thru 9/12/06)
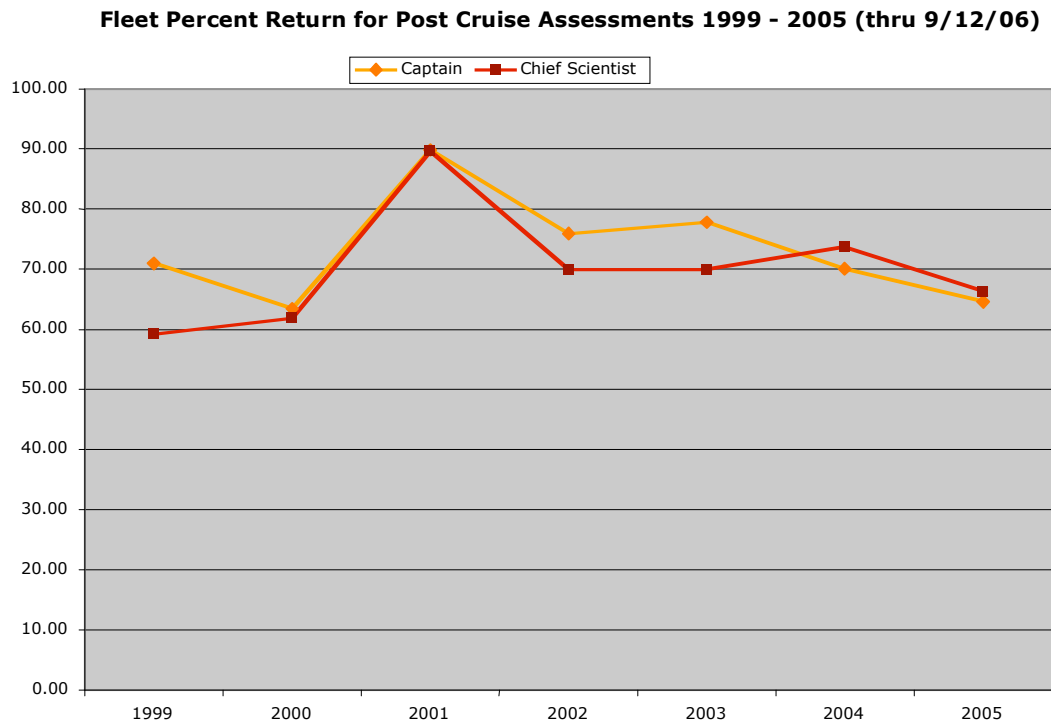
        2005 rates of return are given for individual ships in the second figure (below).
(The greater than 100% return for Captains on the WHOI ships is due to submission of

reports for transit legs which are not counted as cruises by UNOLS; it would be best to exclude these transit reports from future statistics.) Larger ships tend to have longer cruises and experience a greater rate of PCA return. Only one ship, *R/V Kilo Moana*, stands out as unsatisfactory in its rate of PCA return which has been less than 20% for the past two years (3 out of 18 in 2005, 4 of 29 in 2006). This might have been due to fact that she was a new ship and FIC was conducting post cruise assessments by interviewing chief scientists. But the FIC program stopped more than a year ago. We request that the University of Hawaii and the UNOLS Office work to bring the rate of return of PCA for the *R/V Kilo Moana* up to fleet standards as soon as possible. [Note from UNOLS Office: Kilo Moana returns have already improved considerably, with over 50% of cruises reported on by Chief Scientists in 2006 as of March 2007 and most of the missing cruises are short one to five day cruises.]

Fleet Average Percent Return for Post Cruise Assessments 1999 - 2005 (thru 9/12/06)
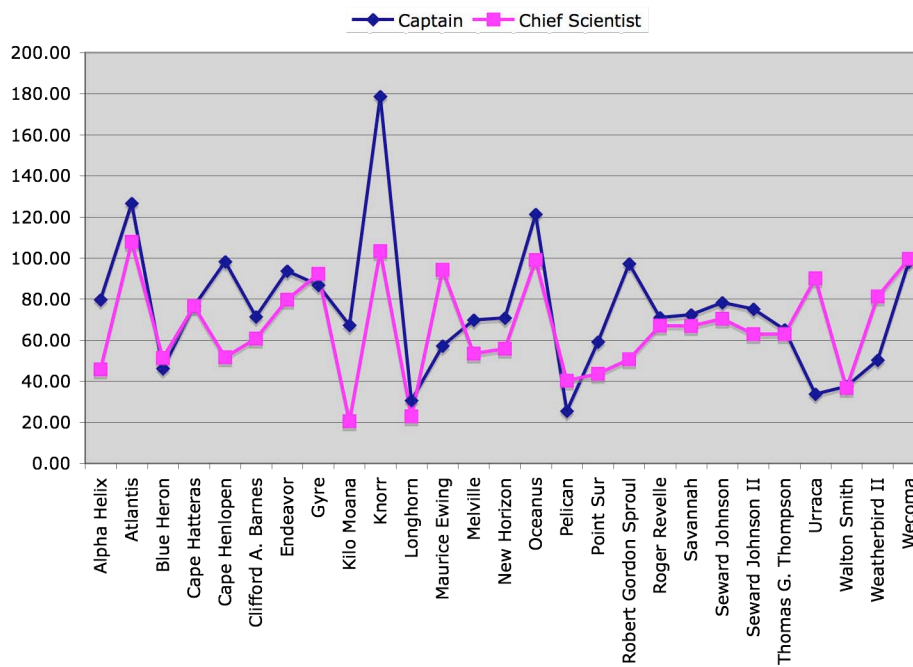
2. Activities

The principal activity of the committee has been to review PCAs submitted for each of the regional and larger class ships. Each year a different third of the fleet was covered and PCAs submitted by Chief Scientists, Captains, and Marine Technicians for cruises conducted during the previous year for those ships were examined. Members of the committee wrote short summaries of these reviews which are available from the UNOLS office. Our conclusion is that the PCAs were useful in soliciting critical comments on ship operations and associated science and education missions and have lead to an improvement in the quality of support provided to academic science and education by the UNOLS Fleet. Our principal recommendations is that the PCA process be continued with emphasis on soliciting critical comments, e.g. what worked well on the

cruise and what needs to be improved. Changes to current PCA procedures are recommended as follows:

(a) Report Distribution. The reports should be treated as privileged communications and not distributed beyond those to whom they are addressed (Chief Scientist, Principal Investigator, Marine Superintendent, Technical Services Manager, Ship's Master, Ship's Technician, Agency Ship Manager, Agency Science Manager, UNOLS Office). The practice that most concerns us is the posting of PCAs on a ship's bulletin board which should cease as it discourages a Chief Scientist from making any negative comments.

(b) Discontinue Self Rating. Self rating should be discontinued and reports from the Captain and Marine Technician simplified. The Captain is in the best position to estimate time lost due to weather, failure of the ship's machinery, restrictions to navigation, etc. The Marine Technician should report on problems with the ship's scientific equipment. Both the Captain and Marine Technician could also provide suggestions to the Chief Scientist on improvement of the operation and conduct of the science party. Similarly, the Chief Scientist should not be asked to rate himself, e.g. respond to question 14 on the current PCA, but it is useful to continue to ask the chief scientist to estimate loss of time due to weather, etc (question 21).

(c) Rating Scale. In conjunction with implementation of (b), the rating scale should be changed. The main change that is needed to provide for a more balanced set of grading criteria between 100% and 50%. Any standard grading system should work.

(d) Question 13 should continue to focus on the extent to which the service and support of the ship contributed to the achievement of science objectives. It should be recognized that the primary factor effecting cruise success is usually weather which is beyond the control of those on board. Chief scientist descriptions of cruise objectives should be limited to one sentence. Possible revisions to the PCA form used by the Chief Scientist have been suggested by Mike Reeve and Wilf Gardner and are appended for possible future use.

3) Council's PCA Role

It is recommended that the Council continue the activities of the PCA subcommittee and continue to monitor the utility of the PCA, its use by agencies and academic laboratory managers, and methods to encourage greater participation by the Chief Scientist.

Respectfully submitted, Curtis Collins, Naval Postgraduate School, Tim Askew, Harbor Branch Oceanographic Institution, Mary-Lynn Dickson, University of Rhode Island, Wilf Gardner, Texas A&M University

Appendix: Recommendations for changes to PCAR form used by Chief Scientist

After reviewing the PCA reports and looking at the questions as presently constituted on that form, a basic question is whether we are assessing the success of the cruise or performance of the UNOLS fleet and crew. Question #13 is: "To what extent were the planned science objectives of this cruise met?" This is a quantitative question for which there should be a quantitative answer – in percentages, though they could be converted to the NSF scale for convenience, but we all agree that the percentages need changing. The following is suggested because it is also in line with what is normally accepted by academics for grades:

    91 - 100%   = E
    81 - 90%   = VG
    71 - 80%   = G
    60 - 70%   = F
    Below 60% = P

Definitions for these ratings were proposed by Mike Reeves as follows:
- Poor: Objectives not met, crew and/or techs poorly trained or uncooperative, ship poorly outfitted.
- Fair: Some objectives met, no major conflicts between scientists and crew, mediocre support.
- Good: Most objectives met, crew and techs were mostly cooperative and helpful.
- Very Good: All objectives met, crew and techs went out of their way to assist, all equipment operational, calibrations current.
- Excellent: All objectives met easily or exceeded, data quality outstanding, crew and techs performed at a superior level

The problem with these definitions is that they assume meeting objectives is a function of the crew. We all know that less than 60% of the objectives could be met, for example due to terrible weather conditions, yet the crew could have been wonderful. In that case one can't give an honest answer to "Have the objectives been met?" without dissing the crew in the process. Conversely, on a multi-institutional cruise long ago the ship's crew was not cooperative at all, yet the objectives were met well despite the crew. In this case a single answer would "reward" the crew despite poor performance.

Other discussion:

1. Use the NSF or other 5 point scale for rated sections would be ok.

2. Include a brief explanation at the beginning of the form for the rating scale. No explanation is needed beyond the percentages if you are evaluating the completion of objectives.

3. Indicate reason for not meeting cruise objectives. Ship, crew, tech, science party, weather, etc.

    One could still indicate reasons in the comments for this question, and specific evaluations in later questions.

4. Make the first question (#13) an overall rating indicating whether a PI was pleased with the service and support.

    Two years ago Steve Rabalais suggested the following question for an overall evaluation of the ship experience: "Were you pleased with the service and support provided by the ship and crew?" The definitions proposed by Mike Reeves (see above) could be used here, modified by removing reference to objectives of the cruise. Make this a new question.

5. Make the other questions opportunities for further explanation, ratings not necessary.

    It is necessary to decide between this suggestion and using a rating. It is ok to use the NSF ratings without further definitions. No one seems to have a problem when they use these ratings in the questionnaire. That is not to say there won't be differences as to what constitutes good versus very good, even if you add definitions.

6. Review the question and prompts for each of the other questions.

    Questions 19 and 20 become a subset of the Rabalais question above, but with more definitions. Otherwise the questions are ok as they are.

7. Emphasize short narratives, and limit the amount of text that can be entered.

    The form emphasizes brevity already. The current reports were much briefer than those reviewed two years ago. Scientists get the point this is not a science report. But limiting the space will lead to frustration when extenuating circumstances need explanation.

8. List PI as well as Chief Scientist

    This (and item 9 below) seems to be something the agencies are requesting to aid in linking cruises with grants. Trying to remember (or find) the NSF/NOAA/ONR/etc number when filling out the report may be harder than one might imagine (institutions often use their own numbering system and that is the one PIs are most familiar with), but I can understand the agencies' desire to more easily link grants and cruises.

9. List Grant # with PI

Post Cruise Assessment Rate of Return Update
Prepared for the UNOLS Council Meeting – March 21, 2007

Based on the recommendations of the PCAR review committee the UNOLS office made some changes to the way percent return for Post Cruise Assessment Reports (PCAR) was calculated. We also created a percent return based on operational days rather than number of cruises in order to give greater weight to the longer cruises. The changes in method are:

1. For cruises, we carefully evaluated each "cruise" on the posted schedules and identified those that were truly research or educational cruises as opposed to transits, engineering test cruises, inspections and the like. Only the cruises supporting research and educational activities were used to determine rate of return.
2. For rate of return based on the cruises, a cruise is counted as having a report if one was received from a "chief scientist" or "scientist." This is because many times a chief scientist is different than the PI and does not identify themselves as the "chief scientist" or the job of completing the PCAR is given to someone other than the "chief scientist." For this reason, we felt that if a PCAR was prepared by someone in the scientific party, the purpose was served for the most part. Also, we are now only tracking whether or not a cruise received at least one report for the purpose of these rate of return statistics. This way, we get a more precise evaluation of how many cruises did not receive any report at all.
3. We added a graph showing the rate of return based on operating days. In this method, if a 1 day cruise receives at least one report, then 1 operating day gets credit for a report. If a 30 day cruise receives at least one report, then 30 operating days get credit for a report. The denominator in this case is the total operating days for cruises identified as true research or educational cruises.

The point of this is to see the trends in how well we are receiving post cruise feedback for research and educational cruises supported by the UNOLS fleet. The following two charts show the rates of return for the entire fleet for that past seven years.

The first graph shows the percent return based on the number of cruises for which reports were received from either a chief scientist or science party member along side the percent return from Captains. Percent return from Technicians is not shown because the data does not go back as far and is far more variable because institutional emphasis on obtaining reports from Technicians is not uniform. For Scientific Party returns the trend was a gradual increase from 50% in 1999 to nearly 75% in 2004, followed by a downturn and a rather significant drop in 2006.

The second graph shows the rates of return based on operational days for which reports were received. The overall trends are nearly the same, although the rate of return is approximately 10% higher, reflecting a bias towards higher returns from the longer cruises. The rate went from nearly 60% to as high as 80% in 2004 and then the same drop to around 65% in 2006.

This drop is worrisome and will be addressed at the upcoming RVOC and RVTEC meetings and should be evaluated by the Council sub-committee for possible solutions. In general, the rate of return is not bad, but could clearly be a lot better.

Fleet Percent Return for Post Cruise Assessments 1999 - 2006 (thru 3/15/06)
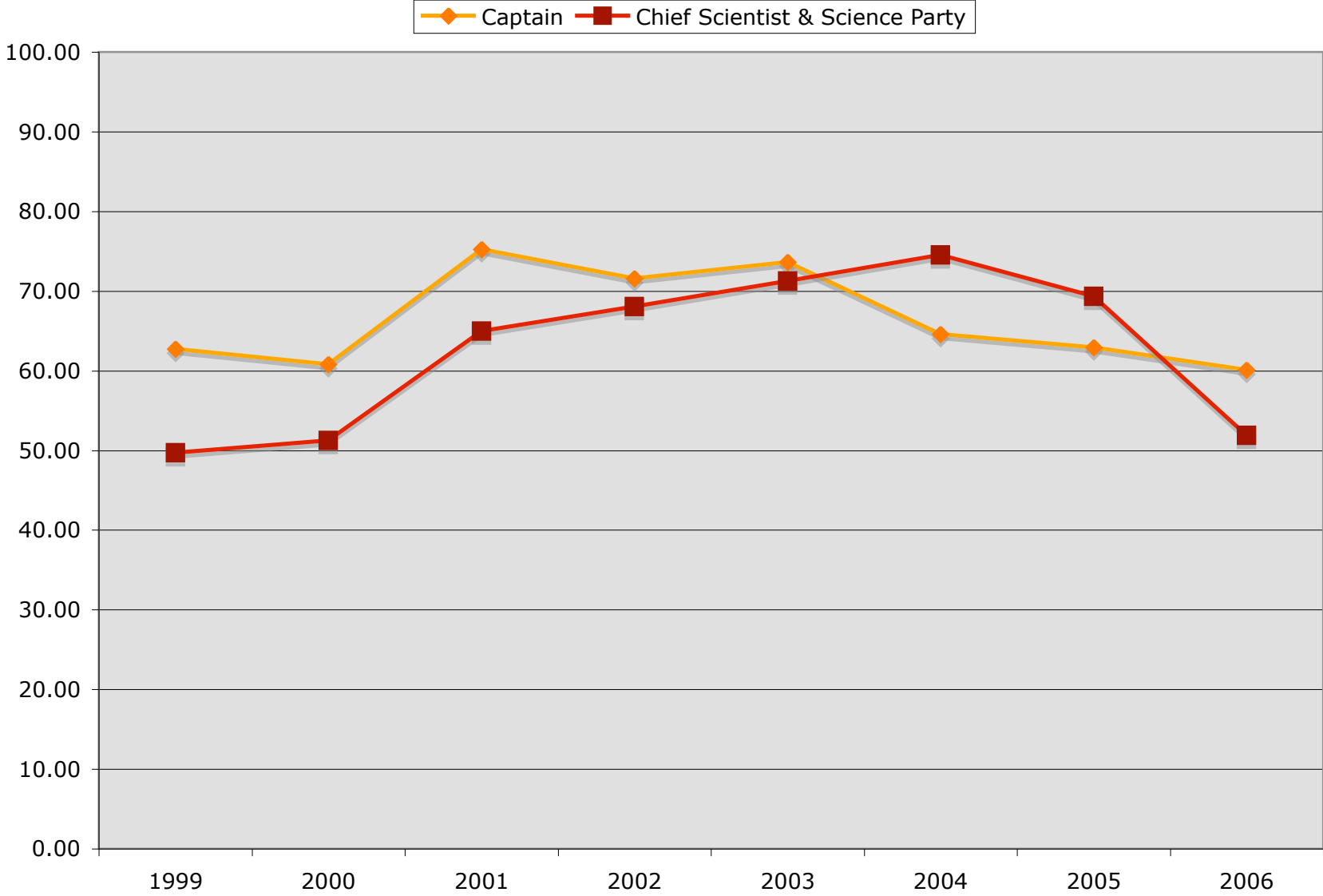
Fleet Percent Operational Days for Post Cruise Assessments 1999 - 2006 (thru 3/15/06)