

49th Meeting of the NOAA Science Advisory Board
Silver Spring, Md.
15-16 April, 2014

Review Report on the Cooperative Institute for Marine Ecosystems and Climate (CIMEC)
Dawn Wright, ESRI, Member, SAB and Chair, CIMEC Review Committee (by phone)

Summary

An external review of the research, education, and outreach programs of the Cooperative Institute for Marine Ecosystems and Climate (CIMEC) at the Scripps Institution of Oceanography (SIO) was conducted on 6-7 February 2014 in La Jolla, CA. CIMEC grew out of the Joint Institute for Marine Observations (JIMO) in 2010 to expand reach beyond SIO and to take advantage of the California Cooperative Oceanic Fisheries Investigations (CalCOFI) program (supported by the NOAA Southwest Fisheries Science Center and California Fish and Wildlife) and the Argo global drifter program (supported by NOAA, other government agencies and other countries). CIMEC is a seven-member consortium, including: SIO (lead), University of California (UC) – Santa Cruz, UC – Davis, Humboldt State University, UC – Los Angeles (UCLA, unfunded), UC – Santa Barbara (UCSB, unfunded), and California State University – Los Angeles (unfunded).

CIMEC has four scientific themes that address three of NOAA’s Next Generation Strategic Plan long term goals:

1. Climate and Coastal Observations: Analysis and Prediction - Argo, gliders, drifters, radar, ocean acidification, and CalCOFI
2. Climate Research and Impacts - California current ecosystem, meridional overturning circulation, and atmospheric CO₂ measurements
3. Marine Ecosystems - fisheries ecology, marine mammals and noise, graduate education programs
4. Ecosystem-Based Management - graduate education programs and the NOAA Southwest Fisheries Science Center (this theme still emerging)

Findings and Recommendations

The Review Panel issued recommendations for CIMEC in four categories: Strategic Planning, Science, Education and Outreach, and Management. Five recommendations were issued for NOAA. The Review Panel awarded the CI an overall rating of “Outstanding.”

The Review Panel had four recommendations for CIMEC related to its Strategic Planning:

1. The Review Panel was most concerned by the fact that CIMEC does not have a strategic plan. CIMEC has strong scientists with successful, strong, and continuing research projects that could all contribute to useful discussions of the pros and cons of a strategic plan. The Review Panel recommends that CIMEC develops a strategic plan merging in “vertical integration” (e.g. ecosystem-based management) and “horizontal integration” (e.g. across all project themes).

2. The Review Panel also noted that the CIMEC Executive Board and Council of Fellows do not have substantial strategic influence on the research conducted. The Review Panel recommends that CIMEC engage the Council of Fellows.
3. The Review Panel suggested the CIMEC Director and Co-Director should be included in meetings of the NOAA Western Regional Collaboration Team to enhance communication.
4. The Review Panel commended CIMEC on its eight major goals stated in its mission statement; however, the goals are not strongly linked to metrics. It was recommended that CIMEC build metrics for these goals and report on them annually.

The Review Panel had three recommendations for CIMEC's Science:

5. The Review Panel found that the CI sponsors (the NOAA Office of Oceanic and Atmospheric Research and the NOAA National Marine Fisheries Service), expressed a high level of appreciation for CIMEC scientific accomplishments and capabilities. The Review Panel encourages more collaboration involving the full breadth of CIMEC's capabilities. For example, the CalCOFI ecosystem study could bring in researchers from UCLA and UCSB.
6. A lot of the development of observing systems is conducted in house, which is very cost effective and ensures greater data quality and a focus on science needs. The Review Panel recommends this work is recognized and continued.
7. Lastly, the Review Panel found that CIMEC should better integrate social sciences in their research, especially for ecosystem based science. The Review Panel suggested that UCSB would be a valuable contributor for integrating social science.

In terms of Education and Outreach, the primary concern was related to the lack of Task 1 funds for education, which is currently funded through Task 2 and 3. The Review Panel had four recommendations for CIMEC related to education and outreach:

8. CIMEC has an impressive record of training students. All students expressed positive experiences and receiving financial and mentoring support and were very appreciative of their opportunities. The Review Panel recommends that CIMEC should develop a new plan for using and distributing education and outreach through task 1B funding once available.
9. The Center for Stock Assessment Research (CTAR) and the Center for Advancement of Population Assessment Methodologies (CAPAM) are excellent examples of education programs helping NOAA meet its needs. These programs support integrating education and outreach with ongoing research. CAPAM is developing innovative online courses with other institutions. The Review Panel suggests that CIMEC should support the expansion of the CAPAM project.
10. The UCSC students and postdocs that are funded by CIMEC are effective, but are a large burden on a single junior faculty member. The Review Panel suggests that lead PI duties should not be put in the hands of a junior faculty member.
11. CIMEC should partner with any new cooperative science center in California (if developed) to bolster education, improve diversity, and provide a funding avenue for non-funded CI partners.

The review panel had three additional findings related to CIMEC's science management:

12. The CI and CI director have few resources to support innovation. The Review Panel thought this was an important finding; this CI is in good financial health but they do not have any discretionary funds for important innovation projects. The UC system should consider providing a portion of returned overhead to the CI for seed funds.
13. A large problem is that there is lack of participation of major partner institutes, especially partners receiving less funding. Less funding provides no incentive for participation. CIMEC should sponsor forums that would allow new PIs to share ideas and inform NOAA of their capabilities.
14. CIMEC should explore ways to better function as a catalyst for integration of science between NOAA and the universities, and between multiple research areas. Key mechanisms for this success include development of a strategic plan and continuing to conduct workshops. CIMEC has hosted a lot of interesting and useful workshops: two on tropical research and one on climate impacts on California ecosystems. These workshops are good opportunities to develop new collaborations/partnerships, etc.

Overall, the Review Panel cited excellent accomplishments in ocean observing, working with stakeholders, and educating the next generation scientists. During the Review, there was open acknowledgment of CIMEC's challenges, including strategic planning, constrained budgets, and the lack of funds for all seven partners. However, CIMEC is seeking new opportunities for networking and collaboration. The Review Panel awarded CIMEC with an overall rating of, "Outstanding." They found that CIMEC is an extremely valuable member of the CI community and they see the opportunity for CIMEC to reach a transformative status.

Additionally, the Review Panel had several NOAA-specific recommendations:

1. NOAA should use CIMEC and other CIs to systematically identify cutting edge science, develop new integrative approaches, sponsor pilot projects, and support leadership in outreach and education.
2. CIMEC brings in new partners to address NOAA's workforce and research needs, but they are unfunded. NOAA must develop approaches that align the RFPs with the actual financial resources available.
3. NOAA should support actions and strategies that encourage participation and networking of CIMEC unfunded and/or young PIs with NOAA programs, scientists, and research networks (e.g. visits to NOAA headquarters).
4. NOAA must work with the collaborating California universities to encourage their partnership.
5. NOAA's western regional collaboration team should include the CIMEC co/director in their meetings.

Discussion

David Checkley, CIMEC Director, thanked Dr. Wright and the Review Committee for a thorough review and said that CIMEC will take their recommendations to heart. He stated that some of the problems are not CIMEC-specific, such as issues with the Task 1 funding and unfunded partners; he will be participating in a meeting in the near future with other west coast CIs and NOAA leadership to discuss these issues. CIMEC is making progress, but there are certainly some challenges ahead. Dr. Wright thanked Dr. Checkley for his comments and for

mentioning the Climate Impacts on California Ecosystems Workshop occurring at Scripps in the following weeks. This will be a significant meeting as it includes participants from academia, management, and government (three CI's, two NOAA Fisheries Centers, etc.).

Eric Barron asked whether the “Outstanding” ranking was warranted because the Review Panel had more recommendations than he has seen for CI reviews. Although it is apparent that the science is outstanding, it almost seems as though CIMEC is not a CI: there is no strategic plan; there are partners without funding or support; there is not empowerment of the board; and there are minimal opportunities for leadership from the Directors. Dr. Barron’s interpretation is that there is outstanding science but this is not functioning as a Cooperative Institute. Dr. Wright replied that these are fair comments. The “Outstanding” ranking was chosen because CIMEC is in its first five years; coordinating among all seven partners is challenging. The Review Panel found that the science, education and outreach, and potential are outstanding given the challenges CIMEC does face. The Review Panel found it helpful to include a lot of recommendations given the potential they see; the recommendations provide ways for CIMEC to continue to grow and be more cohesive moving forward. The Review Panel did not want to see CIMEC’s funding challenged or put in jeopardy; instead, they wanted to let the CI grow and develop for the next five years.

Dr. Checkley said that much of what has been recommended regarding integration depends on resources; CIMEC was given one-third of what was requested and advertised in the Federal Funding Opportunity (FFO). CIMEC does not have the resources to do what they would like to do to acknowledge these recommendations. Additionally, it takes time to know the players in the institute. He believes the upcoming workshop will allow players on West Coast to discuss collaborations going forward to address NOAA needs. Dr. Checkley thinks CIMEC is a strong institute, but funding from NOAA is mostly through individual Principle Investigators. There are two sides to the issue of what a Cooperative Institute is and how a CI moves forward collectively. The funding issue is a big concern.

Bob Winokur complimented the Review Panel on the report. He had same reaction to the “Outstanding” rating as Dr. Barron. Many of the recommendations are process-oriented; maybe a way to move forward is to have a categorization of recommendations to differentiate between process and science recommendations. He found the most troubling finding to be the unfunded partner institutions. If the CI only receives one-third of the money that it expects, it may need to reset its expectations for those institutions.

Dr. Wright said that the Review Panel did not know how to separate the recommendations in terms of the four categories they were charged with reviewing. To help the review panel, it would be instructive to have a different ranking arrangement for CIs. The Review Panel tried to separate the recommendations for NOAA specifically, which was a diplomatic way of asking NOAA to assist with difficult issues such as the lack of funding.

Dr. Checkley said that the discrepancy between the funding amount advertised in the FFO and actually awarded, along with the amount of Task 1 funds the CI receives as a portion of the total award, makes it difficult for the CIs to address organizational and/or strategic planning actions that are needed.

Dr. Wright noted that the Review Panel did hear from all seven partners and understood their constraints, yet given the four categories upon which to assess the CI, the Review Panel came to an “Outstanding” rating unanimously. Susan Avery said that there is an issue of managing expectations for CIs, especially for regional CIs. Furthermore, managing of expectations is critical in terms of performance metrics, but the CI will fail if the budget is limited. Dr. Avery recommended that NOAA should take a hard look at its expectations for regional centers in order to deliver what is needed.

Secondly, Dr. Avery asked whether the Review Panel was suggesting that there is a need for more fundamental social science within the CI, or whether there needs to be more interfacing with the social science capabilities among the CI members. Dr. Wright replied that the Review Panel would like CIMEC to integrate with existing specialists and experts already members of CIMEC (*i.e.*, UCSB), and interface with other organizations such as the Leopold Leadership Program, the National Center for Education Statistics, etc. The recommendation should be worded as interfacing with social science activities that are already ongoing. In terms of managing expectations, the Review Panel implied its concerns in the recommendations to NOAA. As first time reviewers, the Review Panel did not know how to say that the expectations of regional CIs should be managed according to funding. This was implied by their recommendation for the CI leadership to be included in the NOAA Western regional team.

Ray Ban said that the Review Panel put forth an excellent report that is concise and complete, with straightforward recommendations. The significant disconnect is the “Outstanding” rating when it is looked at in the light of the four topics of the review. The strategic plan is completely absent although there may be a good reason for this. For approval, the SAB does need to come to a comfort zone with the rating, given that the recommendations are not necessarily in line with the findings. For better or worse, CI reviews have all been based on this rating system and it would not be fair to CIMEC or other CI reviews to change the criteria for the ratings on the fly. To focus the discussion, the group should discuss the discrepancy between the findings and the actual rating.

Michael Donahue said that he is new to the CI review process, but the process is reminiscent of the Sea Grant review process. He wondered if the “Outstanding” rating is a matter of great inflation or the result of an unclear rating system. Five of thirteen findings point out weaknesses in CIMEC; is this appropriate for an “Outstanding” rating? Perhaps the SAB should review the Review criteria and come up with some sort of numerical scale. Jeremy Jackson agreed that there seems to be a problem with grade inflation and the SAB has been derelict in the grades they have provided. Dr. Jackson reminded the group that Jerry Schubel presented a review of a CI that was in perilous condition, in no way comparable to the CI of discussion; a “Satisfactory” rating seemed to be inflated in that case. In that context, it does not seem fair to award an institute facing great challenges a rating comparable to an institute that is arguably unsatisfactory.

Lynn Scarlett suggested that a number of important recommendations were about integration and substantive science issues. In respect to the reviewers and CIMEC, she suggested NOAA may want a different funding model to achieve more integrative research.

David Lodge said that there is a question about whether the CI is being judged against its original proposal (which was not funded completely), or its revised scope of work from its actual received funding level. This may represent a “process” problem between the CIs and NOAA. Dr. Wright replied that the Review Panel was only given the original proposal and there was not a revised scope of work; CIMEC provided information on what they were actually doing. The Review Panel had to consider what the CI was able to do given the reduced funding, but the Review Panel also did not want to reward “business as usual” by individual PIs. The partner institutions should be expected to connect the science to management. Much of the science was excellent and the reviewers saw the potential links with other themes in the CI. However, the CI is not well connected at this time.

Eric Barron recommended that the review panel should not change its recommendations and rating. The recommendations were very honest. The “Outstanding” rating says what the reviewers saw has to continue in order to be funded. The CI should not be at risk when the Review Panel identifies a high quality of science and relevance to NOAA. One interpretation of this is that, in a low-budget environment, CIs have been created for NOAA to disburse funds for certain topics but it is not acceptable to impose metrics on collaborations or elements of a CI that are not funded. He recommends the SAB accept this report and rating but provide a qualifier on why the Review Panel gave the “Outstanding” rating. If the “Outstanding” rating is awarded to facilitate funding, the SAB should clarify that. If NOAA wants more from a CI, or has other expectations for a CI, the CI needs greater funding and those expectations must be stated.

Dr. Schubel said that the other CI that received a “Satisfactory” rating had a number of factors that were not satisfactory, but NOAA needed a Great Lakes CI. The present rating system is a rather blunt instrument, and forces the Review Panels into things they might not want to do.

Mr. Ban wanted to know if a “Satisfactory” rating puts future funding for the CI in jeopardy. Philip Hoffman replied that in the particular case of the Great Lakes CI, the rating did put funding in jeopardy. A lot of positive changes have been initiated for that CI based on that rating.

The review system is based on 10-year old recommendations from the SAB; it may be time to revisit the process with a decade of data. NOAA instituted a recompetition schedule and has closed two institutes in the past year. In the next year, NOAA will be looking at what it wants to do with CIs in the future. If the SAB has strong recommendations about the review process, they should be addressed to NOAA. This focus is essential to the success of the CIs.

Kathryn Sullivan said issues like this will be considered by the Chief Scientist. She appreciates the work of the Review Panel, the realities of the CI review process, and of making CIs successful in the current funding climate. In these budget times NOAA may not be able to support all the CIs and so must be cautious and clear-minded in the renewal and recompetition process.

Mr. Ban asked for a motion to direct NOAA, in cooperation with the CI Office and the SAB, to open up reviews of ratings of CIs. A motion was made by Dr. Jackson and was seconded by Jean May-Brett, and passed unanimously.

Mr. Ban then asked for a motion to accept the CIMEC review panel report as written. Dr. Barron motioned to accept, but with an amendment that clarifications be added to the transmittal letter that the rating given was based on the science. Mr. Ban agreed the “Outstanding” rating is being given based on good science being performed and the Review Panel’s desire for the science to continue, despite some of the findings and recommendations. This should be captured in the transmittal letter. Dr. Jackson seconded the motion. Mr. Ban suggested that the Review Panel could provide some language in the transmittal letter consistent with the discussion. Dr. Wright agreed to supply the language for the transmittal letter. The motion passed unanimously.

Additional Discussion April 16

The SAB members held additional discussion of the CIMEC review on April 16. Upon discussion of the action items for the April 2014 SAB Meeting, Michael Donahue mentioned that the SAB could address the CI review issue with a subcommittee, and that this deliberation would be separate from the CIMEC review submission. After discussion of this suggestion, the SAB agreed that Philip Hoffman should present the current CI review process and its problems at the summer meeting. At that time, the SAB will further discuss the CI review process and whether the SAB has recommendations to make changes to it.

Furthermore, some concern was expressed as to the seriousness of CIMEC’s lack of a strategic plan. Dr. Barron thought that perhaps there should be a time frame set for the strategic plan to be completed. This comment will be discussed at a teleconference meeting in June, with Dr. Wright leading the discussion. Dr. Donahue suggested that perhaps the SAB should approve CI’s strategic plans. Dr. Sullivan reminded the SAB that there is no formal requirement that CIs must submit strategic plans for approval. Dr. Avery mentioned that there are other planning documents that are required, and the five-year proposal is the backbone of the strategic plan. Every year an annual work plan is established. Cynthia Decker said she would work with Philip Hoffman to set up this discussion at the teleconference meeting, Mr. Ban said that this action item would be put on temporary hold until the discussion during the teleconference.