

External Review Report for the Environmental Science and Resource Management program at CSU Channel Islands

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Introduction

On December 2-3, 2009, Daniel Fernandez, Professor and Chair of Environmental Science, Technology and Policy at CSU Monterey Bay, and Lynne Trulio, Professor and Chair of the Department of Environmental Studies at San Jose State University, visited CSU Channel Islands to provide an external review of the Environmental Science and Resource Management (ESRM) program. This is the program's first review.

ESRM offers a Bachelor of Science degree with an emphasis in either Environmental Science or Resource Management. Approximately 70% of the units in each degree are taught in other departments. There are three tenure/tenure track faculty, three lecturers in ESRM, and over a dozen "affiliates", who are instructors in other programs such as biology, chemistry, and English who teach classes in the ESRM major. There are approximately 70 undergraduate majors and the program is rapidly growing, even though the campus itself is not adding students. Program offices and classrooms are located primarily in the large central building. ESRM just recently received a wet lab and a prep room in a new portable building; they share both with an ecologist from biology.

CSU Channel Islands is less than a decade old and was founded on four principles: international focus, cultural sensitivity, community engagement, and interdisciplinarity. The strong interdisciplinary initiative has resulted in a structure where there are no departments, only programs, and all programs must demonstrate interconnectedness with others. This truly unique environment provides substantial intellectual and logistical support to the ESRM program, which is inherently highly interdisciplinary.

In this report, we discuss the ESRM program strengths and areas for improvement based on our observations, and make recommendations for program enhancement.

Program Strengths

The ESRM program has a number of strengths and very positive qualities. As noted above, CSU Channel Islands has evolved as a highly interdisciplinary campus which has resulted in a supportive setting for ESRM and produces tremendous collegiality from other campus faculty. The interdisciplinary connections between programs at CSU Channel Islands are very well developed and this environment is ideal for supporting cross-disciplinary degrees such as ESRM. An important result of this campus focus is the strong support ESRM receives from affiliated faculty. These faculty are unabashedly gung ho about the ESRM program. They stated they enjoy mentoring ESRM students and find these students have excellent critical thinking skills. The affiliated faculty found the cross-fertilization of ideas between faculty and students in different programs was valuable to all. They agreed that the program asked little of affiliated faculty but provided great benefits to faculty and the university.

The university provides strong technical support to the program, including a well-equipped computer classroom and AV support, such as turning slides into digital format. The ESRM program has space and lab needs, but it appears that the administration is responsive to these needs. For example, the administration recently provided the program with new a wet lab

plus prep space and a space for GIS students to work, although this office had only one workstation.

A key strength of the program is the incredibly dedicated and expert faculty, both tenure track and lecturers. Every student receives direct and constant attention throughout their time in the program, including good advising. Faculty take students on field trips and extended field experiences, which creates a strong bond between faculty and students and between classmates. Small class sizes also contribute to the strong sense of community among the students. Students said that Dr. Sean Anderson was energetic and inspiring and they found Dr. Chris Cogan to be creative and very talented. While students and affiliated faculty spoke in glowing terms about all the faculty, it is clear that the ESRM program has developed into such a valuable program because of the caring and visionary leadership of its chair, Dr. Donald Rodriguez. He is an invaluable asset to the program and the university.

The solid curriculum is another clear strength of the program, providing students with a strong science background and a suite of excellent professional skills including GIS, writing, research, field skills, and group skills. Students noted that the capstone course, in which they can do a wide variety of projects, prepares them for a range of careers. Students and faculty uniformly cited the hands on/applied nature of the courses as a major positive. All involved with the program also pointed to the terrific travel opportunities as unparalleled experiences that make a life-long impression on the students. While the travel away from the region is excellent, the campus location is a huge asset to the ESRM Program and the faculty are capitalizing upon it. Students take field trips and do research in the Santa Monica Mountains, on the Channel Islands, and in local wetlands—all wonderful learning environments.

Thanks to the efforts of Dr. Rodriguez, the program has strong community connections, resulting in many opportunities for students. Dr. Rodriguez is a board member for all three local community colleges, which results in direct connections to the ESRM program. The program has a formal relationship with the National Parks Service and has a community advisory board, both of which provide a range of research and career opportunities for students. Because of its physical location and the program's community connections, ESRM is well positioned to provide environmental science, management and sustainability professionals to the region. Overall, we found that ESRM splendidly incorporates the university name (Channel Islands) and its four missions throughout the program's curriculum and activities. The ESRM program is very attractive to students and is growing in size. Supporting the growth of this program directly and substantially advances the mission of CSU Channel Islands.

Areas for Improvement and Recommendations

While the review committee noted significant number of strengths of the program, several areas for improvement are described below, along with recommendations on directions for change.

Personnel Workload Issues

Faculty Workload. The culture at CSUCI, to its credit, has reflected the need and desire to have input from as many faculty as possible on as broad a range of decisions as possible. This makes sense for a new and rapidly-growing university. However, this level of committee work places an enormous burden, particularly on new faculty who need to establish a strong record of teaching and initiate research programs. Excessive engagement in governance can be particularly burdensome for science faculty who also often need to procure external funding and, as in the case of ESRM faculty, do extensive field work and multi-year studies. The stated load

of 6-7 committees which most faculty participate in at one time (down from 10-11) is much too high, particularly for junior faculty. This is an issue that is being addressed by the CSUCI President, but one worth mentioning nevertheless.

While the level of committee work expected of faculty is a university-wide discussion, sheltering new ESRM faculty from participation in committee work for at least their first 2 years at CSUCI will help provide them time to establish teaching and research directions for their RTP portfolio. University-wide, establishing trust in representation within the governance process and simplifying the path in which some decisions are made will reduce the committee burden on faculty overall.

Chair Workload. ESRM, while a relatively small major with 70 or so students, has much of the same overhead workload burden as any other major, including those that are much larger. This work includes scheduling, programmatic planning, program review, and participation in governance. However, the ESRM chair receives only 3 units (one class) buyout per year and has only 9-month appointment.

The review team acknowledges the economic burden that all of the CSUs face; however, to ensure the sustainability and vitality of the major, its chair, and the faculty who serve it, additional chair buyout is critical. At ESRM's present size, we suggest an additional 3 units buyout and a 12-month chair position to adequately compensate the chair for time required over the summer months needed to manage the program.

Staff Workload. The ESRM program only has the services of one portion (effectively about 25%) of one staff member. While this individual has demonstrated a great degree of talent in her support of multiple programs, it is clear that particularly with the current and expected growth of the program, that this is far too little support in the long run. The effective growth and success of programs at CSUCI will be determined by the degree of staff support available. A dedicated staff member to this growing and flagship program at the university is in order within the next 5 years as numbers are expected to grow to 150 or more. Shorter term, increasing staff support to 50% of one person would greatly assist the program's development. At CSUMB talented undergraduate students have provided crucial assistance to full-time staff members. Perhaps at CSUCI some upper-division ESRM students can assist existing staff to fulfill some of the tasks required at lower cost to the university.

Program Mission and Assessment

As a program at a new institution, ESRM's mission is very much embedded in the mission of the university. Now that the program is developing distinct areas of expertise, we recommend ESRM faculty develop a more specific mission statement for the program that is distinct from that of the university. The mission should both make clear the goals of the program and the areas of expertise.

Also, on the program level, assessment for ESRM needs development. While impressed with the commitment evident during the review for the assessment of the program's outcomes, the Program Review Team, did not see program assessment information described in the self study or the accompanying documentation. Having a well-defined means of assessment of both program and course learning outcomes, of tying program learning outcomes to course learning outcomes, and of adjusting learning methods is an important component of the program to develop and to include within future documentation.

The program review team recommends that the ESRM faculty work with Dr. Ed Nuhfer on the assessment cycle of program outcomes. Faculty need to generate a plan to revisit program LOs and assess them on a multi-year cycle coordinated with program review. Link course learning outcomes with program learning outcomes and reassess different aspects of this connection every year of each cycle. An excellent use of one-time funds is to pay faculty for a few consulting days to establish a plan for future program review, including the necessary criteria and protocols for review of each of the major learning outcomes and their ties to course outcomes. This review could then be implemented during regular faculty meeting times throughout the academic year.

As part of program review data, the program review team suggests including more direct evidence of student retention that tracks individual students rather than overall numbers, since influxes of students at the junior or senior years can result in inflated estimates.

Administrative Support and Seeking External Funding

Another area of improvement is the need for additional administrative support for development of the ESRM program. For example, several of the faculty outside of ESRM noted that ESRM major is exemplary among programs on campus for making connections to the community, but this is a result of their own work and not because of administrative or university advancement support. If connections to National Parks and other regional organizations could be further strengthened at the administrative level, the success of the program would be further bolstered.

In addition, we recommend bringing more resources to this program perhaps through better alignment to pursue external funding, both private and public. For example, University Advancement could look at sustainability and have this program be the core of proposals seeking funding for sustainability. We suspect that there must be substantial potential donors in the local community who would be willing to contribute to the objectives of the ESRM Program, but the program needs help from the University to seek such funds. A unified effort through University Advancement may be able to align regional private resources with the ESRM program. At CSUMB faculty are asked to complete "Needs Statements" that define what sources of private funding they are interested in pursuing and give some background on their projects of interest. This is used by University Advancement to prioritize their time and efforts and it keeps them informed of faculty expertise and interest. Perhaps something similar could be set up at CSUCI.

There are also substantial grant opportunities, particularly stimulus money. A one-time semester buyout may provide the time required for a faculty member to write one or several grant proposals that could more than compensate the university for the buyout time.

Physical Resource Issues

The program review team found the program has at least two physical resource challenges, the need for van pools and the need for new research space.

Transportation and a Van Pool. Travel and field education is a priority for the ESRM faculty. Currently, faculty do not have access to vans to transport students, who end up taking personal vehicles to get to the field sites. This arrangement poses a disadvantage on several fronts for both faculty and students of the ESRM Program, including:

- increased personal hazards from students in multiple cars versus if they were to all be in two vans.
- greater difficulty in coordinating instruction during field trips as the instructor cannot easily communicate with more than a few students directly during the trip.

- a much greater carbon footprint from multiple cars versus a few vans for the same number of students.

At CSUMB, the Division of Science and Environmental Policy faculty has access to three vans and uses them very frequently. Two of them are leased from the state and one of them is owned by the Division and was purchased new with one-time funds. Admittedly, there is an overhead with owning or even just long-term leasing of vehicles. Ownership entails addressing regular servicing and repair of the vehicles. Leasing entails monthly fees. Either approach also requires a staff member or a faculty member to maintain proper paperwork and driver permissions to operate the vehicles. CSUCI could consider a lease of state vehicles, or even from local rental agencies. This could also be an opportunity for the university to express its identity as a “Green Campus” by purchasing appropriate alternative fuel or even plug-in hybrid types of vehicles for ESRM use.

Research Space. This review team acknowledges the new research space made available to both the ESRM and the Biology programs. This is critical for faculty in the sciences to maintain their scholarship as well as a location for students to pursue research projects. The program review team recommends that, particularly with the expected addition of a Professional Science Masters program in ESRM (expected in 2012), additional research space would need to be available to support both graduate research, undergraduate work, and faculty scholarship.

Web Page. The ESRM web page, while clearly laid out, lacks some information that would greatly assist current and prospective students, community members and potential collaborators. We make these recommendations that will enhance the existing pages:

- Link learning outcomes to courses.
- State how learning outcomes are assessed
- State course descriptions, link to catalog.
- Link to faculty web pages.
- Link to research, student projects, job opportunities, travel!
- Newsletter, dynamic link to update regularly.

Environmental Sustainability and its Connection to ESRM and the University

CSUCI takes pride in considering itself a green campus. There are points that can be used to justify this assertion, such as its re-use of existing facilities and its new centralized co-generation plant. The ESRM program, by its very nature, could become a centerpiece for campus sustainability efforts. However, such efforts need to be matched by other overt actions of the university. For instance, many students and faculty noted that the library is very brightly lit at night and was not developed to any LEED standards. Many faculty and students also noted that grass is typically over-watered and that, in a number of areas, grass and other plants requiring irrigation could be replaced with drought resistant native plants. A campus energy audit, a task that could be undertaken by ESRM capstone students with assistance from both faculty and facilities managers, would provide a baseline from which improvements could be measured and would link faculty to efforts in facilities and make the topic of sustainability one that is more visible to the community. We recommend that ESRM and the university undertake such an endeavor.

Along similar lines, the university is to be commended on its efforts to create and sustain the four centers. The challenge is that the centers currently are not revenue generators and may prove challenging fund in and of themselves to potential off-campus sources of support. In line with the preceding paragraph, a center that addressed issues of environmentalism and sustainability would help the campus to live up to the “Green Campus” moniker, it would attract students, many of whom claimed that they came to this campus because of its commitment to sustainability, and it would help to unify otherwise disparate entities on campus, such as university advancement, facilities and ESRM faculty. While this goes beyond the scope of what ESRM faculty can do, it is a point worth mentioning and one that the program review team thinks will help the campus overall, as well as the ESRM Program.

Curriculum Issues

Interviews with ESRM students proved most helpful and informative. Some of the areas of improvement that they noted were that there were not enough classes from the catalog offered in a given semester and, according to them, those that were offered often conflicted with other required courses. According to the ESRM faculty, this is perhaps at least partly a transitional problem due to significant recent changes in the curriculum. This is also normal for a small university that can only offer a limited number of courses given finite faculty workload and limited funding to support lecturers. However, it is worth evaluating whether there are significant conflicts amongst required and elective courses as well as examining whether curricular pathways, for instance that offer management options, realistically give students an appropriate number of management courses to meet the program outcomes.

Program Growth and Directions for Future Growth

Assuming growth as evidenced over the past 5 years, the university should prepare for the program to grow to 150 majors in about 5 years. This includes having an appropriate number of faculty lines to allow for sufficient course availability, advising of ESRM majors, and having sufficient staff support to help to manage the program. Even under these trying times of limited enrollment growth and restricted state budgets, ESRM has expanded. The university should be prepared for further growth, particularly once normal enrollment growth for the university commences. In the short term this may mean hiring more lecturers to teach classes. In the longer term, the program review team recommends more tenure track faculty be hired in ESRM.

Adding faculty with expertise in sustainable agriculture and coastal management (to support Dr. Cogan) would support program directions requested by students, faculty and the community. For example, establishing a course or suggested area of capstone study in sustainable agriculture would set the stage for future growth in this area within ESRM. Eventually this beginning could blossom into an emphasis or concentration, particularly if relationships with local agriculture and agricultural firms, such as Dole, could be generated and nurtured. Faculty research connected to sustainable agriculture, as well as university intentions to generate organic citrus groves would promote this direction. Coastal management is another important area of growth for ESRM as programs that address this field are rare. With enough resources ESRM could eventually encompass courses or possible emphases or concentrations in coastal management. This may involve (and would benefit from) collaboration with other programs, such as Biology or others, as well as with other universities. Given the interdisciplinary nature of the university and of the program, such collaborations would be natural and aligned with current practices.

The program review team supports and encourages the development of the Professional Science Masters (PSM) Program, slated for Fall 2012. Particularly if it is run as a self-supporting program, the PSM will generate revenue and will provide opportunities for members of the local workforce to obtain an advanced degree in two years. Such a program will further support ESRM's unique position in the region as a leader in producing sustainability professionals.

The Self Study

One area of improvement for the future would be in the structure and presentation of the self study. The faculty and ESRM chair noted that the self study was done on their own time with no additional support. As a result, there were some significant gaps in the information and on the program details and the document as it stood was not as informative about the program as we would have liked. Some of the conclusions drawn, for instance, on student retention, did not make sense (retention cannot exceed 100%) and were based on inadequate data. The program review team understands that this is partly a result of a significant personnel turnover in Institutional Research. We anticipate that future reviews and conclusions will be based on more direct evidence from Institutional Research. More information on specific program outcomes and requirements, how they are linked to courses and duly assessed, and how they are improved through a regular assessment cycle will be very useful to the program and very helpful to future program review teams. Based on interviews with the faculty and institutional assessment expert, Dr. Ed Nuhfer, we anticipate improvements in the near future.

Summary of Recommendations

Here we summarize our recommendations, provided in the previous section, for enhancing the ESRM program.

1. Personnel Workload Issues.

a) *Faculty Workload.* The ESRM Chair should consider having junior faculty participate less (if at all) on university committees and have them focus on developing their teaching and research. If they do participate in some service, it should be related to the development of the program itself.

b) *Chair Workload.* We suggest an additional 3 units buyout and a 12-month chair position to adequately compensate the chair for time required over the summer months needed to manage the program.

c) *Staff Workload.* Increase staff support to at least 50% of a person in the short term and an eventual full-time person. Consider supplemental student staff support for some activities.

2. Program Mission and Assessment. We recommend ESRM faculty develop a more specific mission statement for the program that is distinct from that of the university's mission. The program review team recommends that the ESRM faculty work with Dr. Ed Nuhfer on the assessment cycle of program outcomes. The University can provide funds specifically for faculty to develop the assessment program.

3. Administrative Support/External Funding. To develop the ESRM program, pursue external funding, both private and public, that directly supports ESRM concentrations and brings more resources to this program.

4. Physical Resource Issues. Procure or find a means to utilize university-owned or leased vehicles for field-based classes. Plan for future needs for additional computer and research lab space and enhance existing web pages to include more information about the program.
5. Environmental Sustainability. Consider teaming up with university advancement and/or facilities to discuss means of greening the campus and seek funding to pursue it. Also, encourage and promote recycling, recycled water re-use, and energy conservation. Begin student projects (in conjunction with facilities) on measuring and tracking the campus carbon footprint. Even the vans procured for student research and field classes can address environmental issues by being low emission, alternative fuel, or even plug in, if they become available near term. Make public the steps you take in the direction of sustainability.
6. Curriculum Issues. Examine the link between courses offered and the available concentrations (Environmental Science and Resource Management) to ensure that the courses required for students are available. Work to minimize conflicts in course scheduling.
7. Program Growth and Directions for Future Growth. ESRM has expanded and the university should be prepared for further growth, particularly once normal enrollment growth for the university commences. Specifically:
 - a) Plan for the program to grow to 150 students.
 - b) Add faculty to support growth. In the short term, hire more lecturers to teach classes. In the longer term, hire more tenure track faculty into ESRM.
 - c) Add foci on sustainable agriculture and coastal resources management when budget and workload permit.
 - d) Add a Professional Science Masters Program. The program review team supports and encourages the development of the PSM Program, slated for Fall 2012, especially if it is self-supporting.
8. Self-Study. Provide more details on the program, its mission and its outcomes including how they are assessed and refreshed on a cyclic basis. Also, include relevant data from Institutional Research that address key questions, such as student retention.