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## Executive Summary

The School of Marine Affairs was an early leader in defining ‘marine affairs’ as a field of inquiry, and today it continues to be a leader in an academic field which it has played a major role in shaping. Its mission is to foster comprehensive, long term and proactive approaches to marine policy and ocean and coastal management, and its academic program has been successful in conveying those ideals—and the analytic tools necessary to transform them into practice—to its graduates. SMA’s masters’ graduates occupy positions of influence throughout the world of marine affairs practice, particularly in government. They are especially visible in the Pacific Northwest and in the federal executive and legislative branches in Washington, D.C.

The resources available to SMA have seen little growth over the past decade—and in some important respects have shrunk in relation to the needs they are intended to serve. The faculty has nonetheless continued to perform well in delivery of SMA’s academic program, in research and grant support, and in its service role. Students enjoy high levels of access to governance at SMA and, as data presented in various sections of this Self Study show, student evaluations of classes and the program as a whole are good and improving. SMA alums credit the program in very positive ways for the career preparation it provides.

The content and the conceptual approaches the SMA faculty brings to research and teaching in the field have undergone considerable transformation over the past decade, in response to shifts both in student interest and in general understanding of the nature and complexity of marine affairs problems. The SMA faculty contributes interdisciplinary, policy-oriented and “human dimensions” perspectives to the study of problems that are also embedded within the ocean science and technology that are great strengths of COFS as a whole. SMA student thesis work demonstrates repeatedly how marine affairs problems are situated within the interacting domains of ocean and social science, policy, law and natural and human history.

Research funding and publication rates have increased at SMA, but external funding has not achieved levels sufficient to offset losses in state funds. SMA is now challenged by decreases in funds for operations that support essential aspects of the delivery of its academic program and of other program elements of direct benefit to students. SMA has proactively taken on the challenge of finding ways to achieve higher levels of cross-disciplinary integration in the delivery of its academic program. Meeting this challenge appears more and more necessary as real-world problems such as declining marine biodiversity take on greater, often global, urgency. That such problems seem to demand new integrated problem-solving approaches that depart from established governance norms represents both an opportunity and a challenge to a program such as SMA.

SMA has undertaken various planning initiatives since the last review, aimed at better defining the educational needs for a changing field. In response to the challenges and opportunities identified through systematic planning SMA has added a non-thesis option, an integration element, and moved toward greater involvement with undergraduate education. The undergraduate initiatives in particular have generated gratifying, positive responses across campus.

A small program with limited resources, SMA is moving in a direction that offers prospects not only for programmatic growth but also for greater synergy across the broader communities within COFS and UW. SMA aims to preserve and build upon its successful core program through embrace of a “marine environmental science and policy” theme. Such a transformation is not only responsive to SMA’s programmatic needs but also to the difficult challenges now being presented by problems in the field. That transformation can also capture the value inherent in building stronger ties across the larger university community. Initial small steps in this direction may be easily undertaken. Beyond that, the constraints of a small program with limited resources require cooperation and new resources.

# Introduction

## What is Marine Affairs? A Brief History of the Field and SMA's Place in It

The School of Marine Affairs (SMA) is one of relatively few marine affairs programs in the United States and among the first to have been created. SMA is multidisciplinary and broad in scope, focusing on the intersection of the natural and social sciences with public policy affecting the marine and coastal domain. The School's mission is:

*The School of Marine Affairs fosters comprehensive, long term and proactive approaches to marine policy and ocean and coastal management. It promotes interdisciplinary education, scientific research and public service, and provides guidance to all levels of government in the US and abroad, to non-governmental organizations that promote resolution of ocean and coastal issues, and to industry, by training well-qualified professionals.*

— Adapted from <http://www.sma.washington.edu/about/mission.html> and *SMA Strategic Plan 2000-2001*, June 2, 2000

SMA regards itself and its predecessor Institute for Marine Studies (IMS) as having led other institutions in giving explicit definition to a relatively new field of academic study that did not begin to take shape until the mid- to late-1960s.<sup>1</sup> Today, the question "What is marine affairs?" is best answered in the following conceptualization (also see <http://www.sma.washington.edu/about/prospectus/defining.html>):

<sup>1</sup>Seven other university programs that SMA regards as its current peer institutions are listed in Appendix I.

1. What is studied in the broad field of marine affairs includes:
  - opportunities and conflicts in current and future uses of ocean and coastal environments
  - creation and exercise of authority
  - development of substantive policies
2. How these phenomena are studied involves:
  - the history and projected future of ocean and coastal uses, institutions that regulate these uses and policies that guide the institutions
  - characteristics of institutions, networks and individuals involved in ocean and coastal affairs
  - natural processes that produce and control marine environments and their biota
  - effects of technological change on the management of ocean and coastal resources

The UW Board of Regents established SMA as the Institute for Marine Studies in 1972, in recognition of the need for wide ranging and multi-disciplinary training in marine affairs. The focus was, and remains today, on contemporary problems of ocean and coastal management, broadly construed. The Director and faculty were appointed beginning in 1974. With the United Nations Conference on the Law of the Sea having been convened in New York just one year earlier and the U.S. Fishery Conservation and Management Act, Coastal Zone Management Act and other major pieces of legislation defining and extending federal control over the marine and coastal environment having also been enacted in the same general time frame, the initial emphasis at IMS was on international Law of the Sea, fisheries management, and related sea-use and coastal planning, law and management. The 1969 report of the Stratton Commission, predecessor to the U.S. Commission on Ocean Policy whose comprehensive report was released in 2004, was also very influential. Out of it came the creation of NOAA, in 1970.

IMS became part of the new College of Ocean and Fishery Sciences (COFS) in 1981, along with the School

of Fisheries, School of Oceanography, Applied Physics Laboratory and Washington Sea Grant Program. In 1990 IMS was renamed the School of Marine Affairs to give it parallel status to the College's other two schools, and in recognition of its significant teaching and research role.

SMA grants only the Master of Marine Affairs (MMA) degree; to date it has awarded 411 masters degrees. SMA's graduates and affiliates are in positions of influence throughout the field of marine affairs, and their success is one of the principal measures of the impact of SMA (See Sec. G, "Graduate Students" and Appendix E, "Opportunities following graduation"). SMA graduates are particularly prominent in the Washington, D.C. area in positions with the federal government and in the Pacific Northwest where they work in virtually every sector of government, industry and the NGO community that deals with marine and coastal affairs. SMA currently aims to recruit 20-22 students per year, with 50-60 typically in residence. A five-year review of IMS was undertaken in 1983-84, with a self-study document produced in 1983. A ten-year review of SMA was conducted in 1994-95, with the associated self-study report completed in December 1994.

Today the field of marine affairs stands at an important juncture, and SMA seeks change that will keep it in the forefront of a field in which both the challenges and opportunities loom larger than they did a decade ago. The most comprehensive stock-taking since the Stratton Commission of the state of U.S. marine and coastal resources and the federal system for managing them was completed just last year, as the work of the U.S. Commission on Ocean Policy (COP) came to an end with publication of its report, *An Ocean Blueprint for the 21<sup>st</sup> Century* (<http://www.oceancommission.gov/>). The Bush Administration has responded with an *Ocean Action Plan* that commits to change in the way ocean resources are managed, and a comprehensive study completed in 2003 by the Pew Oceans Commission that focused on the status and management of the nation's living marine resources is also proving very influential (*America's Liv-*

*ing Oceans: Charting a Course for Sea Change*, June 2003 <http://www.pewoceans.org/>).

The major themes running through the reports of both commissions are first, that many of the nation's ocean and coastal resources, including many of our most valuable commercial fisheries, are not being sustainably managed. Second, the over-arching structure for marine management in the U.S. is excessively fragmented while the increasing scope and complexity of the problems to be addressed demands ever higher levels of integration and coordination.

The recent tragedy of Hurricane Katrina underscores the interconnectedness whereby problems with different geographies, time scales, and consequences for the human and natural worlds can still flow from common root causes. The system of levees whose vulnerabilities precipitated sudden tragic consequences for New Orleans appears also to play a key role in fueling the notorious Gulf of Mexico "dead zone," a problem whose seriousness has become manifest at annual scales. The levees contribute also to wetlands loss whose significance becomes apparent at decadal scales, fueling in turn New Orleans' increasing vulnerability to coastal storms. The "ecosystem-based management" and regional ocean governance themes that emerge from the commissions' examination of such problems of failed ocean governance demand higher levels of integration in problem solving approaches than have heretofore been achieved, and by extension, approaches to graduate education that are now only just beginning to take shape.

Although SMA has long been a leader in promoting interdisciplinary approaches for the resolution of problems of marine affairs, it too is finding that higher levels of integration are necessary in its pedagogical approach if the program is to remain the vital training ground for marine affairs practitioners that it long has been. These points are pursued in greater detail at the end of the first section (in "Future Directions for SMA") and run as sub-themes throughout this report.

## Section A. SMA in Context: General Self-Evaluation

### Overview

This section opens with a discussion of changes at SMA since its last review. Factors influencing curriculum design and delivery and the research and other specialization pathways available to students are identified and will be examined in more detail elsewhere in the report. The changing character and content of the curriculum, due to shifting faculty interest and student demand, is emphasized. A brief characterization of the diversity of current students and their interests is presented, followed by a discussion of the role of certificate programs in serving specialty interests not covered or covered as thoroughly in the SMA curriculum.

The section moves next to discussion of the many SMA planning initiatives of recent years, summarizing in brief initiatives or programmatic changes that were initiated or completed. Highlighted are topical areas of interest, the non-thesis option, undergraduate enrollment in SMA classes, the 5th-year masters option, and SMA's commitment to develop the marine affairs "interdiscipline" via the integration theme. Results of SMA's last 10-year review (1994-95) are summarized in brief, leading into a discussion of SMA's future. Metrics of success valued by the faculty and strengths and weaknesses identified in strategic planning are presented, as prelude to the discussion of SMA's future that ends the section. The success metrics and SWOT analysis provide a roadmap to themes that receive more thorough treatment elsewhere in the report.

### Development and Change at SMA since the Last Review

SMA was last reviewed in 1994-95. Much additional change—or planning for change—has occurred since that review, outlined in greater detail in the sections that follow. Today SMA finds itself with virtually no growth—and little turnover—in faculty FTEs since the late 1980s albeit operating with considerably broadened

and shifting topical scope. Changes in the composition of SMA's faculty are described in Sec. B, "Faculty Role in Teaching and Thesis Supervision." As the discussion in Sec. B shows, SMA has long relied on "auxiliary" faculty (untentured or non-tenure track faculty in SMA, or faculty whose primary or sole appointments are in other academic units) for the delivery of some aspects of its academic program. It has also sought alliances with other academic units in endeavors that the small SMA faculty could not undertake on its own. These arrangements have sometimes presented organizational difficulties, however.

An example is the Joint Curriculum in Fisheries Management developed in partnership with the School of Aquatic and Fishery Sciences (SAFS) in AY 1991/92. Although still on the books, within a few years of its inception many of the key courses in the Joint Curriculum could for all intents and purposes no longer be offered—or could be offered only with very great difficulty. Key classes were designed as joint offerings that cut across the social, economic and policy dimensions that were SMA's specialty and fishery science aspects that were the province of SAFS. A key founding SAFS participant left the University, and changing personal and institutional priorities at SAFS diminished both the ability and willingness of other SAFS faculty members to continue to participate in the course selections.

SMA had formally added marine environmental protection and ports and marine transportation "areas of concentration" to its program of studies prior to its last 10-year review. Since then, it has added marine tourism and recreation and less formalized but increasingly popular topical focuses in other areas. Notable are greater emphasis on marine conservation—especially in northern Puget Sound in connection with Klinger's continuing field studies and summer teaching at UW's Friday Harbor Lab; on integrated coastal management (ICM) studies in developing nations, notably in the Western Pacific (principally Philippines and Indonesia); and on questions associated with the role of marine resources in

developing or transforming economies—to date mostly in coastal Africa (Guinea-Bissau and South Africa) with some work in the Russian Far East.

Faculty and student work in the Philippines and Indonesia has brought a focus on the international dimensions of ICM. This work has been facilitated by multi-year research funding to Christie via the Packard Foundation and NSF. There is now also considerable focus—with both domestic and international dimensions—on the role of marine protected areas (MPAs) and other marine reserves in ICM, fisheries management, and species recovery (e.g., rockfish recovery in Puget Sound). Funding obtained by Klinger has greatly facilitated this emerging emphasis at SMA in relation to declining marine resources in Puget Sound. Student field studies at Cape Elizabeth, South Africa coupled with short courses offered by several SMA faculty members at Nelson Mandela Metropolitan University (NMMU) in Port Elizabeth have led to recent new emphasis at SMA on the role marine resources can play in efforts to develop and transform South Africa's post-apartheid economy. The work in South Africa was facilitated via a recent formal memorandum of agreement between UW and NMMU, along with research and travel funding from UW sources and USAID obtained by Kaczynski. Tourism and recreation and aquaculture-related studies have been prominent elements of work to date in South Africa.

Shifts in faculty and student interest have contributed to shifting content in other areas of study as well, for example, to emphasize more the conservation biology and environmental restoration aspects of marine environmental protection. Similarly, studies focused on restoration, management and planning for coastal watersheds have become increasingly popular at SMA, the likely result of the local region's efforts at salmon recovery, precipitated by the 1999 listing of Puget Sound Chinook salmon as 'threatened' under the Endangered Species Act. Growing awareness of the implications of climate change and variation for coastal ecosystems and human dependencies on them have also played a role. The latter concerns catalyzed a major new research effort initiated in 1995 by Miles through formation of the Climate Impacts Group (CIG), whose work focuses on regional impacts of climate variation and climate change on water regimes and on coastal and nearshore environments in the region. CIG studies are framed as integrative assessments that deal with both the human and natural environmental systems affected by climate change and the feedback links between them, providing impetus for a revolution in conceptual thinking at SMA as well.

A vision of coastal watersheds and adjacent waters as

coupled physical, biological and human systems in need of study from integrative perspectives has come to the fore, and “integration” in its various meanings is now increasingly being incorporated into the SMA curriculum. Integrative perspectives emerge in jointly offered classes that combine faculty across disciplinary boundaries, examples being integrated coastal management (taught jointly by Hershman and Christie) and marine resources management (jointly offered by Miller and Gallucci, an SMA Adjunct from SAFS). The integrative perspective is the subject of a new class (SMA 501, Integrated Marine Affairs Practice) specifically dedicated to laying out principles of integration and their use in marine resources management. This on-going shift in the conceptual basis for considering problems in the marine environment is in accord with SMA's *Strategic Plan* and other recent initiatives, discussed in more detail elsewhere in this report.

Today, compared to the period leading up to SMA's last 10-year review, fewer students show interest in the evolution of international legal regimes and the mainstream elements of domestic fisheries management that were the focus of the original Magnuson Act, while there is now considerable interest in marine conservation, often with a very local focus. The increasingly localized nature of student interest is evident irrespective of whether the locale of interest is Puget Sound or coastal regions of the Philippines or Africa. Where capture fisheries are concerned, problems of sustainability associated with bycatch and the ecosystem effects of fishing are now of considerably greater interest to students than are questions of catch allocation or the achievement of optimal yield. SMA's ports and marine transportation area also shows diminished (though continued) interest, at least in part the result of the retirement without replacement at the end of the 1998-99 AY of the principal faculty member working in that area, Dowd. Dowd virtually single-handedly created the focus on marine transportation studies at SMA, even though affiliate faculty with a non-academic appointment in the Washington Sea Grant Program.

The diversity of student interest at SMA continues to be very broad. Students with Peace Corps or other international experience often desire to focus their research in the developing world where they favor community-based management approaches and community empowerment themes consonant with their prior experience. Some students with strong backgrounds in marine ecology aspire to do ecological field work in pursuit of their SMA degrees, while others with marine environmental protection interests seek training in the nuts and bolts of environmental management from either a governmental or NGO perspective. Such students might well pursue



evaluation studies in their thesis research. Some students strongly desire advanced training in the use of technical tools like GIS and remote sensing, while others, by contrast, are interested in pursuing careers in marine education, with target employment that includes such possibilities as work in natural history interpretation (e.g., as a park ranger or public education specialist). Some students with tourism and recreation interests have found employment with private sector enterprises in the rapidly growing tourism sector (e.g., the cruise ship industry). The diversity of student interest (and faculty enterprise) at SMA is evident in the list of recent student thesis titles (Appendix C.5).

### **Role of Other UW Graduate Programs and Units in Serving SMA Student Needs**

Students interested in marine transportation studies, port security or fisheries enforcement are likely to be mid-career and interested in pursuing courses of study that emphasize logistical or managerial aspects of business or government management. Graduate certificate programs and related specialized course sequences are increasingly popular with such students. Especially prominent in SMA student curriculum dossiers are Global Trade, Transportation and Logistics (GTTL), affiliated with the UW School of Business and a number of other programs, Environmental Management (EM), offered through the UW Program on the Environment and a consortium of UW academic units, and less formal course sequences in applied business administration (offered by the business school) and integrated public management (offered by the Evans School). The tsunami that devastated regions around the Indian Ocean in December 2004 has crystallized student interest in the management of relief and recovery operations in coastal areas of developing nations where historic dependency on coastal resources for basic livelihood is very strong. This has led some students to pursue the Evans School's relatively new certificate program in International Relief and Development. A revived Conservation Biology certificate program, expected to emerge through the UW Program on the Environment, can be expected to draw SMA students with interests in that area, as did the previous certificate in conservation biology policy, now terminated.

Many students are hybrids whose interests cut across topics, or that embrace still other arenas of marine affairs, and these students endeavor to plan their courses of study accordingly. The point is that another way that SMA—with its small regular teaching faculty of only

6.17 FTE—copes with the breadth of topics and methodological approaches implied by the definition of the field noted in the introduction is to rely on the great diversity of study that is available through the University of Washington taken as a whole. The strong emphasis on graduate education and environmental studies that now exists at UW gives students the means to pursue diverse topics in depth even when relatively little formal course work addressing their particular interests is available at SMA.

SMA classes and faculty provide an intellectual center from which students can launch in a variety of directions for the specialization they seek. Students from other graduate programs similarly find their way to SMA when it is a marine and coastal focus that they seek. The *SMA Futures Report* notes that about 30% of the classes SMA students take are outside of SMA, while about 20% of the students enrolled in SMA graduate classes in recent years have been from outside SMA. Forty-two percent of SMA classes are cross-listed with other departments.

### **Recent SMA Planning Initiatives and Other Actions Affecting SMA**

SMA has made considerable investments in planning in recent years. A summary is provided in Table A.1. This section lays out some of the broad themes that have emerged from these initiatives that bear on SMA's future directions, as well as recent steps SMA has taken to respond to the internal and external challenges and opportunities that it sees. The key planning documents are included with this Self Study document.

#### **TOPICAL AREAS OF INTEREST**

SMA has endeavored to express the research interests of its faculty through “topical areas of interest” that are more diverse and more specific to current faculty interests and research agendas than were the broader areas of concentration that have long defined the scope of study available at SMA (Table A.2). Lists of recommended or typical course sequences for students pursuing studies within a particular topical area, as yet undeveloped, will provide added direction in course selection to a program that some students find too open to their own or their academic advisor's judgments about the best path to follow. Such descriptions should also have value in describing SMA's content to prospective students and in attracting donor support that has in the past been fairly specific to particular emphases in SMA's program (e.g., maritime studies, tourism and recreation). The topical areas of interest derive from a commitment made in SMA's *2000-2001 Strategic Plan* (<http://www.sma.washington>).

Table A.1. Recent planning initiatives by or affecting SMA.

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*School of Marine Affairs Strategic Plan 2000-2001*  
Adopted June 2, 2000 and amended December 8, 2000

*Report to the SMA Faculty on Sustainability Science and Integrated Assessment*  
Developed by Miles, July 19, 2001

*University of Washington New Collaborative Master's-Level/Ph.D. Program in the Interdisciplinary and Science Policy Dimensions of the Earth Sciences*  
Developed by Miles, October 31, 2001

*Report of the Ad Hoc Task Force to Assess COFS Capability to Deal with Human Dimensions and Societal Responses in a Proposed UW Earth Institute*  
Miles (SMA), Chair, Gallucci (SAFS), Leschine (SMA), Heath (SOO) panel members, June 12, 2002

*Alternatives for the University of Washington School of Marine Affairs*  
Final Report, August 2002 (prepared by Ross & Associates, Seattle)

*SMA Futures Report*  
Adopted by the faculty January 10, 2003

*SMA Self-Sustaining Option Report*  
Adopted January 10, 2003

*A Proposed Curriculum for a 5th-Year M.S. Degree for UW Undergrads Pursuing B.S. Degrees*  
Memorandum to Deans Nowell and Bare, May 19, 2003

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edu/about/reports/strategic\_plan.pdf]. Their role as expressions of SMA's vision for its continued growth and development continues to evolve. Many faculty see them as the testing grounds for integration ideas being brought to teaching and research at SMA, in accord with the SMA Strategic Plan. At this point, some are more integrative in their conceptualization than others, or integrative in different ways. Some themes of importance to SMA's curriculum do not appear as topical areas per se, but rather as cross-cutting analytical models or frameworks that apply equally to all. Examples are economic and policy analysis, decision processes and institutions, and a new focus at SMA on the interface between law and science in the management of living marine resources.

### NON-THESIS OPTION

In 2003 SMA introduced a new "non-thesis" option that permits students who enter SMA with substantial professional experience to pursue additional coursework in lieu of the master's thesis in the name of more directly aiding a professional development pathway that is already clear. To date, three students have completed the SMA program via the non-thesis track. Students in this track have made extensive use of the certificate programs noted above to augment their studies with the additional

Table A.2. SMA topical areas of interest.

- 
- Marine Environmental Protection and Restoration (pollution, marine conservation, habitat protection and restorations, invasive species mgt. and policy, etc.)
  - Integrated Coastal Management (U.S. and global program development/ evaluation, planning, decision tools, natural/social science bases, etc.)
  - Ocean Governance (law of the sea, coastal law, regime development, organizational design, etc.)
  - Living Marine Resources Management (fisheries management, marine mammals, birds, etc.)
  - Marine Recreation and Leisure (boating, beaches, tourism, waterfronts, etc.)
  - Seaports, Marine Transportation and Urban Waterfront Development (port authorities, shipping, maritime regulations, etc.)
  - Global Change and its Human Dimensions (climate change, regional and global impacts, response mechanisms, coastal hazards policy, etc.)
  - Public Education, Outreach and Awareness (marine extension/advisory services, public education, survey/focus group, network development, etc.)
  - International Applications and Outreach (applied research in LDCs, demonstration projects, educational extension, etc.)
- 

10 credits of course work required for the non-thesis option. Creation of the non-thesis option follows through on a commitment made in the 2003 *SMA Futures Report*, where the broader rationale for this move is described in more detail ([http://www.sma.washington.edu/about/reports/futures\\_report.pdf](http://www.sma.washington.edu/about/reports/futures_report.pdf)). With such an option in place, the SMA faculty has latitude to define eligibility to encourage more or fewer students to pursue the non-thesis option.

### ENGAGEMENT IN UNDERGRADUATE COURSE INSTRUCTION

Beginning in 1999, with the assistance of funding from the then-new UW Program on the Environment (PoE), SMA began to re-list selected elective classes at the 400 level to attract upper-level undergraduate students (Figure B.4, in this report's next section, shows enrollment patterns in 400-level classes offered by SMA). The rationale was that SMA offered a unique focus on environmental problems of the oceans potentially of great value to PoE students, who are currently able to pursue degree studies only at the undergraduate level. As inspection of the chart shows, undergraduate enrollments in SMA classes have increased steadily since these classes were introduced. In 2005, with the help of a competitive grant awarded by the UW Office of Undergraduate Education, SMA offered its first large-enrollment undergraduate

class, SMA 103, "Society and the Oceans," developed and offered by Christie. Enrollment in the class' initial offering was 149 and its next offering, currently scheduled for Autumn Quarter 06, is expected to have a target enrollment two or more times as large.

The SMA faculty has several times visited the question whether it should aim for greater undergraduate presence. The answer has consistently been "no" to formalized engagement at the undergraduate level, while recognizing the value involvement with undergraduate education has as a means of increasing the program's connectedness across the university (a goal of the *SMA Futures Report*), increasing enrollments in SMA elective courses, and possibly inducing greater numbers of UW undergraduates to consider graduate study at SMA.

#### **"FIFTH-YEAR MASTER'S" OPTION**

At the behest of College of Ocean and Fishery Sciences (COFS) Dean Nowell and College of Forest Resources (CFR) Dean Bare, SMA undertook in Autumn 2002 to lead a cross-colleges group in the development of a "fifth-year" master's option. Such a program would permit UW undergraduates in the natural sciences to train for careers in environmental management through studies leading to a new master's degree, obtainable in principle via judicious course selection in the last two years of undergraduate study augmented by an additional year of study entirely at the graduate level. The rationale and conceptual template for such a program was detailed in the *SMA Futures Report* ([http://sma.washington.edu/about/reports/futures\\_report.pdf](http://sma.washington.edu/about/reports/futures_report.pdf)). Several SMA faculty served on task groups or took on short-term assignments over a period of several years aimed at furthering the emergence of a 5th-year model at UW. These exploratory studies led by SMA revealed "on again, off again" interest from potential (but necessary) partners, as well as a number of difficult-to-overcome UW internal barriers to such a program, to the point where the faculty is no longer actively pursuing this option.

#### **COMMITMENT TO ADVANCE THE MARINE AFFAIRS "INTERDISCIPLINE"**

Recognition of the increasing ability of humans to affect the planet at global scales (e.g. through global warming), coupled with perceptions that changing workplace needs require that problems of policy and management be assessed in an integrated way, led the SMA faculty to renewed commitment to focus in its 2000-2001 *Strategic Plan* on the logical next steps to advance the "interdiscipline" of marine affairs:

*The SMA Faculty view the "interdiscipline" of marine affairs as one which cuts across the natural and social sciences, the humanities, and law. The field is shaped primarily by the conditions in the external world affecting human use of oceans and coastal regions, the conflicting values of the participants, and the institutional arrangements governing those uses.*

...

*Our goal is to develop and adapt a curriculum and research program of high standards and repute in the "interdiscipline." We want the practitioner world to view SMA as a vital resource because of the graduates we provide and because of our contributions to the state of the art through our applied research and service.*

*One of our special strengths, and perhaps the feature of marine affairs that distinguishes us from other fields, is our ability to understand, conceptualize and design interdisciplinary approaches to marine affairs problems. We craft specific decisional regimes, at scales from global to local, to identify, describe, analyze and resolve problems. We seek ways to integrate the knowledge and perspectives of different disciplines when addressing problems. Our goal is to improve how integration is achieved in our teaching and research, and in the practice of marine affairs.*

Concrete manifestations of this intent at SMA have to date been relatively modest, though the associated planning has been considerable. SMA 501, "Integrated Marine Affairs Practice," has offered two distinct visions of the meaning of "integration" in the practice of marine affairs: the model of integrated assessment on the one hand, and the model of integration as embodied in an interdisciplinary perspective on problems—with additional emphasis on how studies are conceived and conducted and results communicated in the world of marine affairs practice—on the other. The class has to date played to mixed reviews, and in response to student suggestions, has been made an elective class effective AY 2005-06.

As indicated earlier in this section, integrative themes and perspectives have now entered both teaching and research at SMA in numerous ways. The twin spurs for this have been the work of CIG and the personal urgings of CIG director Miles, and the focus on the need for in-

tegrative perspectives in the work of the Ocean Policy Commission, carried in part to SMA by Commissioner and faculty member Marc Hershman.

## Results of SMA's Previous Review

The 1994-95 review was very positive about SMA and the accomplishments of its faculty and students. Associate Dean of the Graduate School Jean Deitz, in her letter of February 20, 1996 to Director Marc Hershman that marked the formal completion of the review process, commented, "In summary, the faculty in the School of Marine Affairs are to be complimented on the design and implementation of an outstanding program that is a major contribution to the University of Washington.... Highlights [of the Graduate School Council's final evaluation] included the School's strong interdisciplinary connections, its responsiveness to recommendations in the program review document, and the broad base of interests among the faculty, and the quality and competitiveness of the students." The Graduate School Council advised SMA to develop a strategic plan that included two- and five-year goals and an evaluation process; to adopt a quantitative requirement; to develop a more focused student advising and tracking process together with an evaluation protocol focused on both faculty and student satisfaction; and to form a visiting committee to help address "current and projected job skill requirements and curriculum development and review." Other topics addressed how SMA prepares its students for master's thesis research and the possibility of a Ph.D. program.

Since then, each of these recommendations has been addressed at least in part, and many continue to receive attention. The planning documents summarized in Table A.1 and other initiatives have addressed most recommendations, in addition to the newer initiatives outlined above. Some, like the 5th-year master's program, have been addressed in a fair amount of detail, while others, like possible M.Sc. or Ph.D. programs, have as yet received relatively little attention beyond their inclusion among SMA's planning goals and objectives.

The SMA faculty has continued to deliberate SMA's future direction through a series of faculty retreats and other meetings. The resulting vision is laid out in the next section.

## Future Directions for SMA

### METRICS OF SUCCESS

SMA's metrics for success for now and into the fu-

ture incorporate standard, easily quantifiable measures as well as others more difficult to measure though nevertheless important to SMA's strategic vision.

### Metrics relatively easy to track and measure

Quantitative information on each of the following metrics is provided in this report:

- Research publication and funding
- Number of degrees awarded annually
- Student completion rate of thesis work & publication of results
- Job placement of SMA graduates and subsequent career advancement
- Student evaluations of SMA courses and the program as a whole; excellence in teaching and thesis supervision
- Alumni views on contribution of SMA to their careers

### Metrics relatively more difficult to quantify

These attributes of SMA's program performance are also discussed in this report (in some cases proxy measures are presented [e.g., contribution to multiple-author papers that cross disciplinary boundaries as a proxy for engagement in advancing interdisciplinary assessment]):

- Service contributions of the faculty
- Contributions to the advancement of interdisciplinary and integrative assessment of problems of marine affairs
- Interconnectedness with other UW units through research and instruction

Speaking generally, SMA's most important evaluative measures focus on its academic program, the success of its graduates in establishing careers in the field, and the impact of its faculty in shaping the field and contributing to resolution of important marine affairs problems. SMA is strongly focused on its academic program; in many years it grants more masters' degrees than either of the much larger Schools of Oceanography (SOO) and Fisheries and Aquatic Sciences (SAFS), and leads the college in graduate degrees granted per faculty member, even when Ph.D.s are included (statistics compiled for *Alternatives for the University of Washington School of Marine Affairs* (2002), hereinafter referred to as *2002 Alternatives*).

### SWOT ANALYSIS

Later sections of this report reveal both strengths and weaknesses that pertain to SMA in its present context or which present opportunities and constraints with respect to possible future programmatic growth and change.

### **Strengths of SMA**

- Success of SMA graduates in the world of marine affairs practice
- High quality students
- High impact of SMA faculty through its service function
- Consistent and improving academic publication, coupled with improving ability to obtain funding sufficient to support larger-scale, longer-time frame interdisciplinary research
- Well-established interdisciplinary makeup with relatively long history of teaching and research in interdisciplinary contexts; faculty works well together in interdisciplinary studies and in periodic curriculum review and revision to improve effectiveness
- Proven ability to grapple with marine affairs and environmental problems of great complexity, often featuring interconnected natural-world and human dimensions attributes, high levels of uncertainty, social conflict, and complex embedding in existing legal, institutional and social structures.
- SMA's programmatic location in an ocean science college, which facilitates the grounding of much SMA academic work in well developed natural science contexts

### **Weaknesses of SMA**

- Little recent faculty growth and declining state budget support
- Insufficient research funds to offset losses in program revenues from other sources
- Small size that makes independent initiative difficult
- Declining graduate applications, suggesting SMA's long-established niche is becoming less secure in the face of emerging new approaches to graduate environmental education elsewhere, or that more effort to establish the SMA "brand" in a recently more competitive market place is now necessary
- Less publication than is desirable of student research work, diminishing value to the faculty of investment in student supervision
- Occasional mismatch between student and faculty expectations vis a vis the depth of investment students will make in the research process or in learning research skills

### **A POSSIBLE PATHWAY TO THE FUTURE**

The 2002 *Alternatives* report (Table A.1) framed alternative pathways by which SMA can build higher levels

of integration into its academic program. The SMA faculty has continued to consider the options we developed in that report since its completion, and seeks to move in a direction that is a rough amalgam of options developed then. The future SMA might be called the "School of Marine Environmental Science and Policy". Its focus would be on marine environmental problems and their human as well as natural-world dimensions, and the broader themes would include the quest for sustainability and themes embedded in the notion of sustainability science.

The brief discussion here is not intended to be a complete or final description of a single well defined model, but rather a description for illustrative purposes of one among many possibilities within an envelope that encompass the kind of future the faculty hopes will crystallize for SMA. Many choices need to be made, many of which are outside SMA's ability to control, and resources ultimately determine what is feasible.

Models for the kind of program we have in mind already exist, and include the Bren School at the University of California Santa Barbara, the Nicholas School at Duke University, and the School of Natural Resources and the Environment at Michigan. Both Bren and Duke include program elements that address the marine and coastal environment. But SMA starts from a different place, is embedded in a different context, and is not likely to acquire any time soon the levels of resources those much larger and fully-fledged programs have (Bren started more or less from scratch with a private donation of \$15 million). By the same token, SMA's exclusively marine and coastal focus, the extraordinary breadth of conceptualizations that its faculty brings to problems in the marine environment, and its organizational location within COFS, a major research unit focused exclusively on the marine and aquatic environment, assures that what emerges at SMA will have its own unique stamp.

### **UW "School of Marine Environmental Science and Policy"**

The intended academic program features a high level of integration across the natural and social sciences, law and policy in both classroom instruction and in the degree work students do.

As assumed in the 2002 *Alternatives* report, SMA would keep its very successful thesis-centered model of the MMA, while adding an approach to masters education that eschews the thesis in favor of team faculty-led, student team projects. The general model could be that of the Bren School, where faculty teams, ideally composed

of both natural and social scientists (but perhaps not exclusively so) design and conduct inquiry-based capstone seminars. These, together with course work, lead student participants to the masters' degree in two years. To the extent that natural scientists (most of who would come from outside SMA) are engaged in delivery of the program, entering students are expected to have natural science in their undergraduate curriculum dossiers, as they are at Bren. This important design parameter is necessarily left incomplete as SMA cannot on its own guarantee such participation, and a natural science-rooted program is probably a COFS (or other UW science-based unit) program led by SMA rather than a creature purely of SMA.

An example capstone project could be as follows, patterned after one completed recently at the Bren School: A student team develops a comprehensive monitoring program for a marine protected area in collaboration with the community affected by the designation of the MPA and cognizant decision-making authorities. The team is challenged to generate a scientifically credible monitoring design that is responsive to both scientific and community needs, to engage the community meaningfully in development of the plan, and to produce a comprehensive write-up of their project for delivery to community leaders and decision-making authorities as well as their faculty sponsors. The project is led by a faculty team consisting of at least one social and one natural scientist.

Some course requirements that support this approach likely aim to increase science literacy while others aim to teach students how to collect and analyze data that addresses social, economic, policy and legal aspects of environmental problem solving. Neither side of this equation is addressed as fully in the current SMA curriculum as it would be under this model. Some classes would be taught by collaborative faculty teams, and some faculty teams would include both natural and social or policy scientists. Capstone projects require student team members to demonstrate through application high levels of mastery of the skills that relate to their individual contributions to the team project. Projects well embedded in real-world contexts will likely also serve to convey as byproducts nuts and bolts skills necessary to work productively and effectively with outside groups and organizations. The model extends relatively easily to encompass students seeking Ph.D. degrees, and masters' students, because they proceed through such a program in a single cohort, can enter the program with high confidence that they will be able to complete their studies within two years.

The faculty interests embodied in SMA's present topical areas of interest continue to guide those students who

arrive at SMA pointing toward individualized thesis projects. Other students are drawn to the "MESp" track for the analytic and team-building skills in the service of environmental problem solving that they will acquire, rather than for specific topical knowledge. Topical areas are also used to generate problem topics for the capstone seminars.

The needs and associated risks are many, because the program envisioned is in large part *de novo* creation that requires investment of new resources and the acceptance and cooperation of others outside SMA. One or two new faculty positions were identified as necessary investments in the 2002 *Alternatives* report. Many faculty members who provide the requisite natural science expertise would come from other academic units within COFS or elsewhere at UW, requiring commitments from other academic units that SMA could find it difficult to secure (and maintain) acting on its own. Although many students who come to SMA arrive with the skills envisioned, many do not. In effect, a new applicant pool would have to be developed and induced to come to SMA. Resources for student recruitment would likely be essential for the program to succeed. An advantage of formal linkage to the natural sciences is the ability of the natural sciences to raise the funds necessary to support graduate students in such a program.

The benefits are many as well, as such a program builds on SMA strengths while avoiding or addressing directly many of the weaknesses outlined above. It also provides significant value added to COFS as a whole, and in its fully developed form could become the most vital educational enterprise of the College, just as the Bren and Nicholas Schools have transformed graduate education in the environmental sciences at their home institutions.

### **Getting Started**

In the short run, SMA already has some ways available to start down the road toward building into its program the higher levels of integration outlined above through fairly modest steps. The graduate certificate program in the Interdisciplinary and Policy Dimensions of the Earth Sciences (IPDES) program is described in Sec. B, "Faculty: Teaching and Thesis Supervision." That program was created through the efforts of faculty member Miles and provides a vehicle for attracting "prototype" students to the existing MMA program where they could pursue studies along lines similar to those outlined above, collecting the IPDES certificate along with their MMA degrees. Funds for student recruitment specific to that option would greatly facilitate such a start.

Nearly a decade ago SMA invested funds from its Hewlett Endowment in a campus-wide discussion, in the

form of a two-day symposium, on ways to improve UW's approach to addressing environmental problems. The workshop, orchestrated by Miles, contributed directly to the emergence of the UW Program on the Environment. At its recent faculty retreat, the SMA faculty agreed to go down that road once more, this time organizing a

symposium to consider how integrative approaches like that outlined above can best be brought to marine environmental problem solving in the context of SMA and COFS. Many models exist, but the fact of their existence does not translate into the answer to the question, what model is best for SMA, COFS and UW as a whole?

## Section B. Faculty: Teaching and Thesis Direction

### Overview

The section opens with a discussion of faculty composition and recent hiring trends and strategies. The interdisciplinary character of the faculty, and the benefits and costs of a high degree of interdisciplinarity, are discussed, as is the role of auxiliary faculty in delivery of the SMA academic program. Faculty mentoring is briefly discussed, followed by the engagement of faculty members in thesis direction. Turning to classroom instruction, trends in credit hours at the 500 vs. other levels are noted, with emphasis on the effects of new course introductions at the 400-level. The role of SMA 103 in amplifying recent attention to undergraduate education also receives attention. The section turns next to student satisfaction with the academic program as measured in class evaluations and exit surveys. The trends are positive and current levels of performance high. SMA attempts to add new academic program elements developed in recent planning studies, alluded to in the report's opening section, are briefly discussed at the end of the section. The emphasis is on the 5<sup>th</sup>-year master's program and intentions to move toward future Ph.D. and M.Sc. tracks with a science-policy integration theme.

### Faculty Profile

SMA currently has seven tenured or tenure-track faculty, with 6.17 FTE assigned to the unit.<sup>2</sup> SMA has one associate professor WOT (without tenure; Fluharty) and one still-active, retired associate professor WOT (Kaczynski, whose retirement took effect May 2005). Both have regularly taught classes and supervised thesis work over many years. As a research associate, Bryant, an environmental law specialist appointed in 2002, also teaches one class annually and supervises students employed

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<sup>2</sup>0.18 FTE of Miles' full-time appointment is assigned to the Evans School of Public Affairs and half of Christie's 0.5 FTE appointment is assigned to the Jackson School of International Studies, leaving 0.25 FTE for SMA

under the NOAA Fisheries grant that also supports her. A number of adjunct and affiliate faculty also assist the program in various ways, including classroom instruction, thesis supervision, and student support via provision of research funds (Table B.1). Hershman was SMA's director during most of the period covered by this review, his appointment as Director occurring in 1994. Leschine became director in 2003.

### RECENT FACULTY HIRING

SMA has had virtually no growth in faculty FTEs—and only modest faculty turnover—since the late 1980s. SMA nevertheless operates today with considerably broadened and shifting topical scope compared to then. SMA's faculty grew to 6 FTEs (more precisely 5.82 FTE as a portion of Miles' appointment is in the Evans School) with the addition of Leschine and Huppert in the late 1980s,<sup>3</sup> but has basically stayed at that level through most of the period of this review, increasing to 6.17 FTE with Christie's hiring in 2002.

SMA's hiring strategy over this period has sometimes focused on replacing a departing faculty member with another of close disciplinary match for the sake of continuity in instruction (e.g., Olson replaced Wooster upon his retirement in 1991 followed by Klinger in 2001—all three marine scientists). At other times it has sought to add new topical or conceptual dimensions to the program as opportunities arose (Leschine's shift from research faculty to a regular FTE appointment in 1988 and Christie's part-time appointment to the regular faculty from research associate in 2002). But opportunities for faculty hiring have been limited.

Burke, followed by (and briefly overlapped with) Allen, had their primary appointments in Law but were jointly appointed in SMA (Allen through the 2000-2001 AY). Together they have long provided essential courses

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<sup>3</sup>The departure without replacement of another faculty member in 1992 in effect made Huppert a replacement economist, with the result that the net gain in faculty numbers was one.



Table B.1. Current SMA regular and auxiliary faculty.

<b>Regular Faculty</b>		
Christie, Patrick J.	Assistant Professor	
Fluharty, David L.	Associate Professor WOT	
Hershman, Marc J.	Professor	
Huppert, Daniel D.	Professor	
Kaczynski, Vladimir M.	Associate Professor WOT	
Klinger, Terrie	Assistant Professor	
Leschine, Thomas M.	Director, Professor	
Miles, Edward L.	Professor	
Miller, Marc L.	Professor	
<b>Research Associates</b>		
Bryant, Beth	Research Associate	
<b>Active Emeritus</b>		
Wooster, Warren S.	Professor	
<b>Adjunct Faculty</b>		
Allen, Craig	Adjunct Professor	Law
Delaney, John R.	Adjunct Professor	Oceanography
Francis, Robert C.	Adjunct Professor	Aquatic & Fishery Sciences
Gallucci, Vincent F.	Adjunct Professor	Aquatic & Fishery Sciences
Heath, G. Ross	Adjunct Professor	Oceanography
Parrish, Julia	Adjunct Associate Professor	Aquatic & Fishery Sciences
Ryan, Clare	Adjunct Associate Professor	Forestry
<b>Affiliate Faculty</b>		
Alverson, Dayton L.	Affiliate Professor	Natural Resources Consultants (ret.)
Aron, William	Affiliate Professor	AFSC/NOAA (ret.)
Canning, Douglas	Affiliate Assoc. Professor	Washington Dept. Ecology
Copping, Andrea E.	Affiliate Assoc. Professor	Washington Sea Grant Program
DeMaster, Douglas P.	Affiliate Professor	NMFS/NOAA
Dowd, Thomas J.	Affiliate Professor	Washington Sea Grant Program (ret.)
Echols, Louie S.	Affiliate Professor	Washington Sea Grant Program
Goodwin, Robert F.	Affiliate Assoc. Professor	Washington Sea Grant Program
Jones, Linda L.	Affiliate Assoc. Professor	NFSC/NOAA
Mantua, Nathan	Affiliate Asst. Professor	JISAO/SMA Climate Impacts Group
Marasco, R. J.	Affiliate Assoc. Professor	NMFS/NOAA (ret.)
Morgan, Lance	Affiliate Asst. Professor	Marine Conservation Biology Institute

in law to the SMA curriculum, effectively adding the services of an additional FTE to the SMA core faculty. Allen's joint appointment was converted at his request to an adjunct appointment after the 2000-2001 AY. Both Ocean and Coastal Law and Law of the Sea continue to be offered, with Rodgers now alternating with Allen in Ocean and Coastal Law. But SMA perceives the link with Law that provides these courses to have grown more tenuous as a result of these changes, as we have relatively little leverage with which to influence course scheduling decisions that are driven by the needs of the Law School.

## INTERDISCIPLINARITY

The SMA program is constituted to require a highly interdisciplinary faculty, evident in the breadth of dis-

ciplinary training and research interests of the current SMA "in-house" faculty (Table B.2). This aspect of SMA has been built-in from the beginning, and is emphasized in various SMA planning initiatives. The strength of this interdisciplinarity rests on an ability to view problems and opportunities in the marine environment from multiple perspectives. Specifically, SMA faculty often seek to add the human dimensions and policy components to problems otherwise defined and examined through the lens of marine natural science in the ocean science departments that surround us in COFS.

The success of SMA's graduates in the workplace discussed elsewhere in this report is in large measure due to the breadth of interdisciplinary perspective that they gain through study at SMA and take with them into their careers in marine affairs. State and federal marine man-

Table B.2. Academic training and current research interests of SMA core faculty.

Position	Year	Interests	
<b>Faculty</b>			
Patrick J. Christie Assistant Professor	PhD	1999, Nat'l Resources, Univ. Michigan	Social & ecological impacts of MPAs; community-based environmental mgmt; interactions between fisheries & tourism development in coastal areas
	MS	1993, Conservation Biology, Univ. Michigan	
	BS	1987, Zoology, Univ. Wisconsin	
David L. Fluharty Associate Prof. (WOT)	PhD	1977, Nat'l Resources, Univ. Michigan	Ecosystem approaches to mgmt; natural resource policy & mgmt; fisheries; marine minerals mgmt; MPAs; global environmental change
	MA	1972, Geography, Univ. Washington	
	BA	1968, Political Science/Swedish, Univ. Washington	
Marc J. Hershman Professor	JD	1967, Law, Temple Univ.	Ocean and coastal management; coastal and marine resources law; seaport and marine transportation policy
	AB	1964, Political Science, Temple Univ.	
Daniel D. Huppert Professor (effective 9/16/05)	PhD	1975, Economics, Univ. Washington	Marine resource economics; commercial and recreational fisheries mgmt; coastal ecosystem mgmt; salmon restoration and river mgmt; economics of climate forecasts
	MA	1972, Economics, Univ. Washington	
	BA	1968, Economics, Univ. Redlands	
Vladimir M. Kaczynski Associate Prof. (WOT)	PhD	1973, Univ. Gdansk, Sopot, Poland	Marine resource economics and internat'l cooperation in marine living resource use and mgmt, economies in transition; coastal sector development and internat'l trade
	MA	1965, Economics, Higher School of Economics, Sopot, Poland	
Terrie Klinger Assistant Professor	PhD	1989, Biological Oceanography, Scripps Inst of Oceanography, U.C.S.D.	Marine ecology and conservation biology; invasive species; marine protected areas; genetically modified organisms in the environment
	MSc	1984, Botany, Univ. British Columbia	
	AB	1979, Biology, U.C. Berkeley	
Thomas M. Leschine Professor	PhD	1975, Mathematics, Univ. Pittsburgh	Environmental decisionmaking; environmental restoration; marine pollution mgmt and policy; spill response and damage assessment
	MA	1970, Mathematics, Univ. Pittsburgh	
	BS	1967, Mathematics, Univ. Pittsburgh	
Edward L. Miles Professor	PhD	1965, International Relations, Univ. Denver	Internat'l law and organization; science, technology and internat'l relations; marine policy and ocean management; impacts of climate variability and climate change
	BA	1962, History, Howard Univ.	
Marc L. Miller Professor	PhD	1974, Cultural Anthropology, U.C. Irvine	Coastal tourism planning and development; integrated coastal zone management; marine fisheries and biological populations; marine environmental ethics/aesthetics/education
	MA	1972, Social Anthropology, U.C. San Diego	
	BA	1971, Social Sciences, U.C. Irvine	
<b>Research Associate</b>			
Beth Bryant	JD	1999, Law, Univ. Washington	Marine living resource mgmt; use of science in marine resource mgmt and decisionmaking; sociology of science and law
	MMA	1994, SMA, Univ. Washington	
	BS	1989, Environmental Policy and Analysis and Planning, with specialization in Fisheries Biology, U.C. Davis	

agement agencies increasingly seek employees with the ability to bring a 'human dimensions' and policy perspective to problems once assumed to be resolvable through processes dominated by application of natural science. In some cases employers seek these kinds of employees because of the leadership of the faculty in making the case for this evolution in management approach. In some cases agencies have learned through their experience with SMA graduates already hired the desirability of having more such individuals among their employees. These points form important subtext for the next section

of this report, where research and service activities of the faculty are discussed.

Interdisciplinarity comes with disadvantages as well. A small faculty collectively carries a broad agenda of topics and methodological approaches that is easily interpreted as lacking coherence by outsiders. Opportunities to add complementary social science or human dimensions perspectives to problems that have already been defined as problems for the natural sciences to solve remain very limited for a number of structural and practical reasons.

## WOT, ADJUNCTS AND AFFILIATE FACULTY

One way that SMA has managed an academic program of broad and shifting topical scope with a relatively small regular teaching faculty has been through extensive use of supplemental teaching and assistance with thesis direction provided by its auxiliary faculty. SMA's WOT faculty, Fluharty and Kaczynski, have made regular contributions to teaching, thesis direction, and financial support of students throughout the period covered by this report. SMA's ports and marine transportation (PMT) concentration was largely the creation of Dowd whose regular position was with the Washington Sea Grant Program (from which he retired at the end of the 1998-99 AY). Significant assistance to PMT was provided by Fleming of Geography (now also retired).

The benefits to SMA of its informal association with the Law School, primarily through the teaching of ocean law courses by Allen, have already been noted. Beth Bryant has been able to teach a legal research methods class popular with students from numerous campus environmental programs annually under the terms of her research appointment. Copping has taught ocean science at SMA and has provided thesis guidance for students pursuing marine education themes. DeMaster has provided internships at NOAA and thesis direction for students pursuing fisheries management and marine mammal conservation themes. Numerous other adjuncts, affiliates and lecturers have taught courses at SMA, perhaps just one or two offerings of a particular course, for example, Ph.D. students or recent graduates of the Economics Department who have taught SMA 536, Introduction to Microeconomics. In short, members of SMA's auxiliary faculty are regularly engaged in SMA's academic program at some level (perhaps no more than supervision of an independent study) (Figure B.1).<sup>4</sup>

While SMA's regular teaching faculty delivers the great bulk of the credit hours offered on an annual basis, the contribution to regular classroom instruction of auxiliary faculty—who in some cases require extra compensation for their services that must come from funds for operations—has nevertheless been substantial. Two illustrative snapshots in time—AY 2000/01 and AY 2003/04 (Figure B.2)—reveal contributions from auxiliary faculty of roughly 20-25% of total credits offered on an annual basis. On the one hand this is healthy for SMA, inviting wider diversity of views and expertise into the classroom and providing SMA students with exposure to

faculty they might not otherwise encounter. On the other hand, to the extent that services of WOT faculty and others must be compensated, this diversity comes at a real cost to the program—one increasingly difficult to cover out of funds for operations that have diminished in recent years as a result of a series of budget cuts. This point is discussed more fully in Section H, "Administration and Financial Support."

## MENTORING JUNIOR FACULTY AND OTHERS BELOW THE RANK OF FULL PROFESSOR

SMA has no formalized system of faculty mentoring. The director aims to meet several times a year with junior faculty on an informal basis to discuss progress and strategies for tenure and promotion. Leschine was himself promoted to full professor in 2003, and as director assisted Huppert in developing his successful case for promotion in 2005. Both of SMA's assistant professors will undergo their tenure reviews in the 2006-07 AY. With a small faculty, opportunities for faculty promotion have been relatively rare.

## Thesis Direction

Thesis supervision is a major responsibility for SMA faculty, and for many, one of the principal ways they invest the time they commit to the academic program. For most students (until recently, all), an individually researched and written master's thesis is the most significant product and accomplishment of their time at SMA. As noted in SMA's Program of Studies (Appendix C.2), "an acceptable thesis

- demonstrates independent thought and research
- contributes to understanding or potential resolution of a problem in marine affairs, and
- communicates effectively to a relevant audience."

SMA master's theses take a variety of forms, most being *scientific* (understood to include social as well as natural science), *policy analytic* or *descriptive* in character. Students chose their committee chairs, but faculty members are free to decide the role they want to play with respect to the work of individual students when asked. The total count of thesis committees chaired by each SMA faculty member over the past five academic years is shown in Table B.3. For a sense of the ebb and flow of students across different faculty advisors over time, examine Appendix D.3. Appendix C.5 reveals how the topics that students pursue relate to the research interests of their thesis chairs.

<sup>4</sup>Auxiliary faculty is considered to include anyone engaged in classroom instruction who is not tenured or tenure-track faculty with a full, partial or joint appointment in SMA.

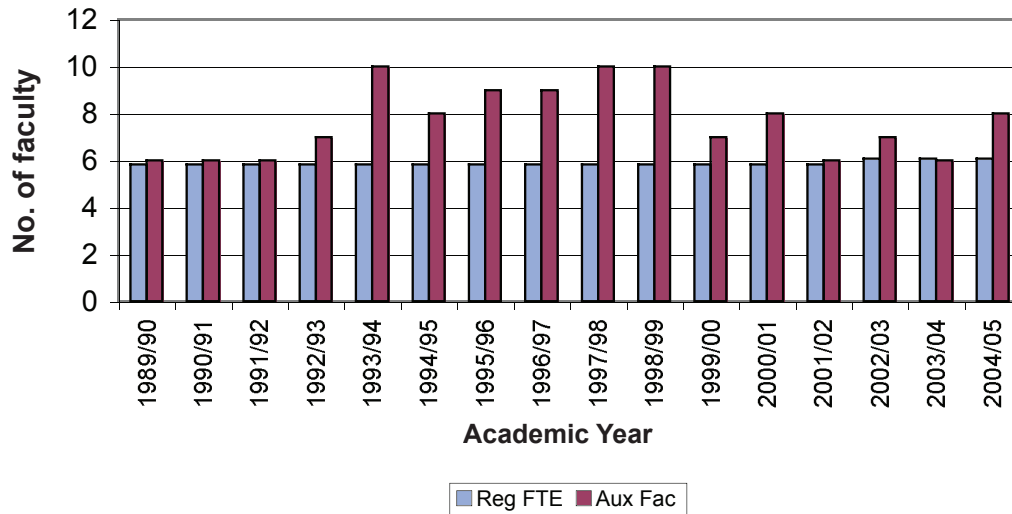


Figure B.1. Regular and auxiliary faculty engaged in SMA academic program.

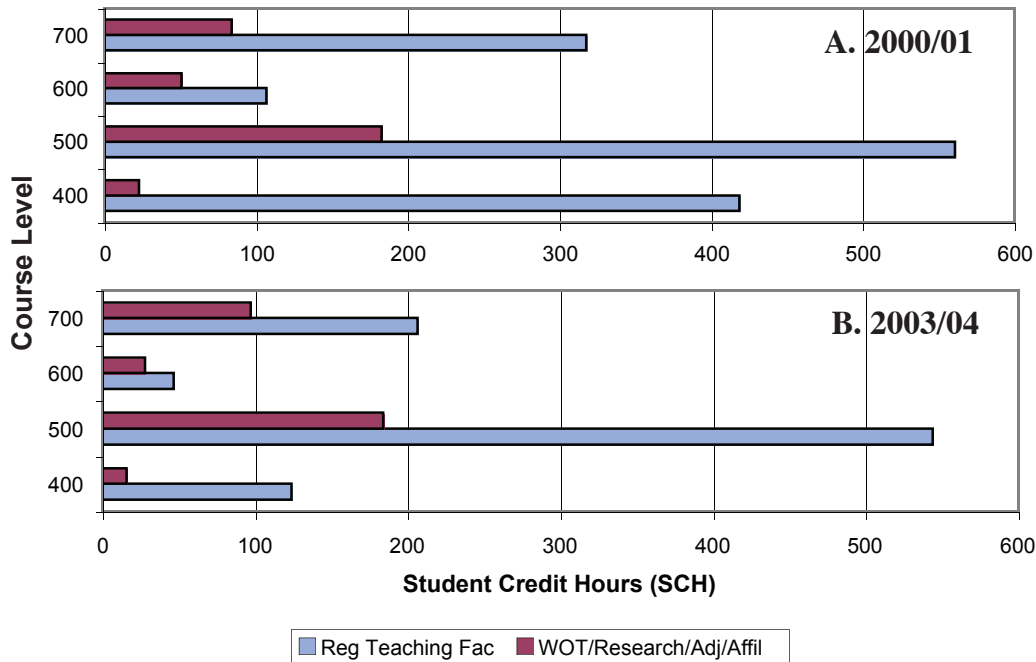


Figure B.2. Credit hours offered by regular versus auxiliary faculty: (A) 2000/01, (B) 2003/04.

Table B.3. Number of thesis committees chaired by faculty member, AY 2000/01–2004/05.

Faculty member	Total	Faculty member	Total
Leschine (Assoc=> Full Prof)	20	Fluharty (Assoc Prof WOT)	13
Miles (Prof)	12	Miller (Prof)	11
Klinger (Asst Prof)	8	Hershman (Prof)	7
DeMaster (Affil Prof)	5	Huppert (Assoc Prof)	5
Christie (Asst Prof, 0.5 FTE)	4	Kaczynski (Assoc Prof WOT)	4
Gallucci (Adj Prof, SAFS)	3	Copping (Affil Assoc Prof, WSG)	1
Fleming (Adj Prof, Geog.)	1	Non-thesis (commencing AY 2003/04)	3
		TOTAL (both columns)	97

## Classroom Instruction

### STUDENT CREDIT HOURS

SMA's total student credit hours offered over the past six years have shown moderate growth, with growth at the 500-level similar to growth in total credits (both about 23% over the period shown; Figure B.3). What is relatively new at SMA is the offering of courses at the 400 level, an evolution that began in 1999, with the assistance of funding from UW's then new Program on the Environment (PoE). Initially, such classes emerged as re-listings of 500-level courses at the 400 level. More recently, new SMA classes have been designed specifically to be offered at that level, usually under joint listings with units that have undergraduate programs (SMA/SIS 433, Root Causes of Environmental Degradation in the Tropics and SMA/ENVIR 476, Environmental Law and Process). The recent decline in credits offered at the 700 level depicted in the chart reflects another change, the introduction of a non-thesis option at SMA in AY 2003/04. To date three students have graduated under SMA's non-thesis option. These changes, though modest, reflect planning objectives developed in SMA's *2000-2001 Strategic Plan* and *2003 Futures Report*, to increase SMA's connectedness to other UW academic units through teaching and research, and to begin a longer-term process of refocusing graduate education at SMA.

Not shown in the chart is the impact on student credit hours of an even more radical departure for SMA, the offering in Spring 2005 of SMA's first ever large-enrollment undergraduate class, SMA/ENVIR/SIS 103, Society and the Oceans, developed and taught by Christie. The class

came about as the result of a competitive grant awarded to SMA by the UW Office of Undergraduate Education, and involved an innovative new "linked learning" approach to undergraduate education.<sup>5</sup> The SMA proposal to develop and offer this class was selected by OUE as the initial offering of a planned four such classes. OUE will provide financial assistance for one more offering of SMA 103, scheduled for Autumn 2006. After that, the future of the class is uncertain, as SMA currently has little ability to fund the teaching assistants necessary to offer a large-lecture class.

SMA's engagement with undergraduate education is contributing to change in the way SMA serves its twin constituencies of marine affairs graduate students and the rest of the university community (Figure B.4). These classes are a mixing ground where, in 2004/05, graduate enrollment (about 2/3 of which was SMA students) reached parity with undergraduate enrollment. SMA's 500-level classes also typically draw 20% or more of their total enrollment from outside SMA.<sup>6</sup> SMA increasingly plays a niche role with respect to the broader UW community, providing a unique marine policy or social-science perspective on marine environmental issues and other topical areas of interest with appeal to many students at UW—a major research university located in a region that has historically had a strong focus on its marine and coastal environment.

The very positive reception that SMA 103 received this past year (news coverage in Appendix J article from UW Week) reveals a potentially much larger pool of undergraduate students who could benefit from what SMA has to offer in numerous ways, ranging from continuing ex-

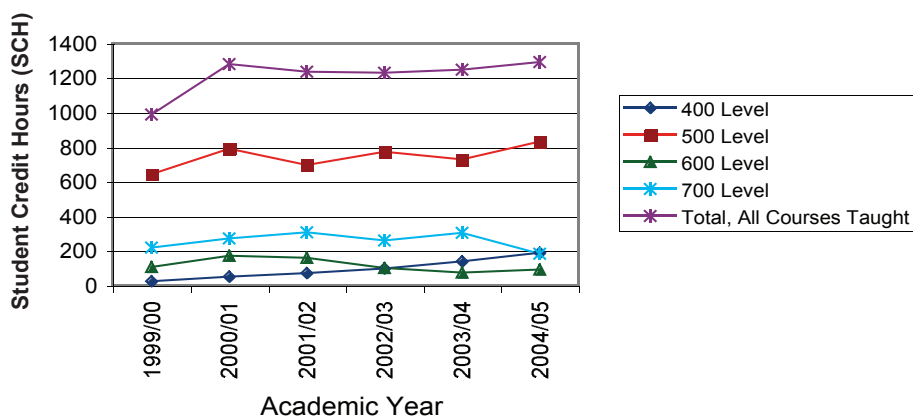


Figure B.3. SMA student credit hours taught at 400-level and above, academic years 1999/00–2004/05.

<sup>5</sup>SMA 103 had an enrollment of about 150, and thus, at 5 credits, generated about 750 SCH. The linked learning aspect means that students are able to enroll in additional courses in writing, public speaking and research methods offered through other academic units but drawing upon the central lecture class for topical material.

<sup>6</sup>Over the five most recent academic years, SMA's non-cross-listed 500-level classes drew on average 20.5% of their total enrollments from outside SMA. Cross-listed classes generally show higher percentages of students from other UW graduate programs.

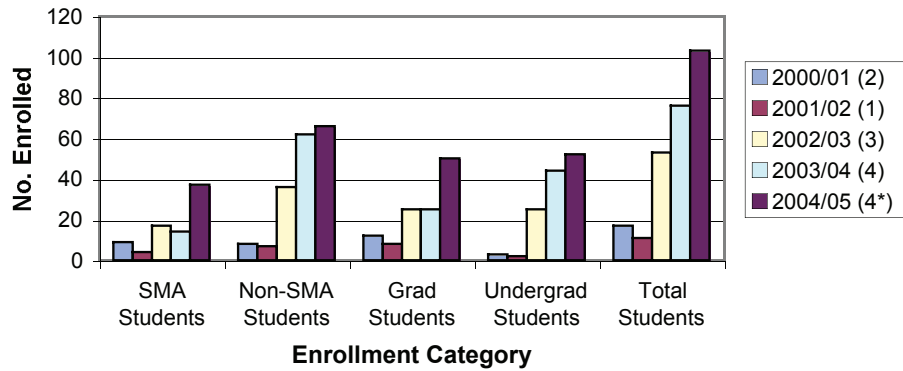


Figure B.4. Enrollments at the 400 level by academic year, 2000/01–2004/05. Numbers in parentheses indicate number of undergraduate courses offered each year. \*Count omits SMA 103, which had an undergraduate enrollment of 150. SMA adopted a policy to selectively re-list elective classes at the 400 level in 1999.

posure to ocean affairs through a lower-level, large-lecture format class or two (SMA 103 model), to a minor or undergraduate major in marine affairs or to an amalgam of ocean science and ocean policy provided jointly by all three COFS academic units.

### Monitoring and Measuring Teaching and Academic Program Effectiveness

SMA supplements student course evaluations with peer evaluations of teaching effectiveness. The SMA Faculty Affairs Committee considers teaching performance and the contributions that individual faculty members make to the thesis process at SMA in its annual merit reviews, along with research productivity and public service. The director includes discussion of the quality of these and other contributions to the academic program in annual merit review discussions, and takes performance in the academic program into account in assigning merit increases.

Annual student evaluation summaries provided by the UW Office of Educational Assessment give a basis

for comparison of SMA teaching performance with that within COFS and at UW as a whole (Appendix C.4). Values for those years for which comparative data are available (Figure B.5) show considerable variation in SMA’s evaluation scores compared to the other units, perhaps attributable in part to differences in the sizes of the populations being compared. The statistic plotted, “average of questions one and two”, weighs equally student assessments of the overall quality of courses and of the instructors’ contribution to the course, a measure employed by our sister unit SAFS in its recent self-study report. There are likely no statistically significant differences between SMA and COFS as a whole in the scores for most years plotted. If one chooses to ignore the effects of variability, then the conclusions are a) that SMA’s teaching effectiveness has improved over the past five years, and b) is now holding constant at a high level comparable with teaching effectiveness in other COFS units.

Data for evaluating program effectiveness at a higher level are compiled annually by the Graduate School in questionnaire surveys of exiting graduate students (Appendix A.2). An average of the two survey responses

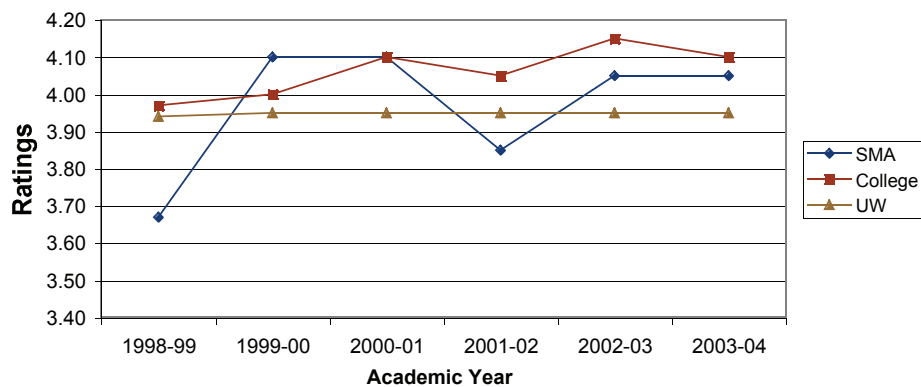


Figure B.5. Comparative Composite Scores on Student Course Evaluation Annual Summaries. Statistic plotted is average of “overall quality of course” and “instructor’s contribution to the course”.

judged most relevant to assessing overall quality — “overall quality of the program” and “quality of the faculty” — again show considerable variation that could relate to the relatively small numbers of SMA students polled each year in comparison to the other units analyzed (Figure B.6.) The overall pattern is somewhat similar to that in Figure B.5. Subject to similar cautions as above, one sees a pattern of decline in student ratings that hit their nadir in 1999-2000 and a pattern of steady improvement since then to the point where SMA again (marginally) leads COFS in the quality assessments rendered by graduating students. No simple explanation for the turnaround in student satisfaction that occurred in 2000-2001 is evident, but the hiring of both Christie and Klinger occurred in that period. Both have consistently received high evaluations for classroom instruction and their hiring has had a rejuvenating effect on SMA.

### Other Efforts to Extend the Reach of SMA’s Instructional Program

Efforts to reach out to UW undergraduates through classes at the 400 and 100 levels were discussed above. Beginning in 2002, at the urging of COFS Dean Nowell and College of Forest Resources (CFR) Dean Bare, SMA convened a group of faculty from SAFS and CFR to consider the feasibility of a “5<sup>th</sup>-year master’s” program at UW. This program would aim to provide UW undergraduate science majors the option of seeking a non-thesis masters degree that could be obtained in as little as one year beyond their four-year baccalaureate studies. Patterned after a successful “co-terminal” master’s program for students in Earth and Planetary Sciences at Stanford University, the program would have provided policy, social science, and technical skills through directed course

work in the student’s last two years together with a capstone project.

SMA led efforts to develop the program’s conceptual model and to garner participation by other academic units. But the effort soon strung out, proceeding in fits and starts as interest waxed and waned in other academic units and at higher administrative levels. Perceptions that other changes at UW, including the emergence of numerous graduate certificate programs and a substantial curriculum overhaul at CFR, coupled with lingering unresolved structural impediments, led to abandonment of this effort in the 2004/05 Academic Year.

The *SMA Futures Report* outlined intentions for other evolutionary changes in SMA’s academic program, including a move toward introducing Ph.D. and M.Sc. degree options as complements to the MMA, combined with investments in more focused attention to research aimed at science-policy integration themes. This option is considered to remain live by the SMA faculty and is discussed in more detail in Section A and in the conclusion of this report.

The most tangible product to date has been the emergence, under the leadership of Miles, of a new graduate certificate program—Interdisciplinary and Policy Dimensions of the Earth Sciences (IPDES), administered through PoE. Miles’ Climate Impacts Group has been a testing ground for the integrative science-policy approaches around which the IPDES conceptual model is built. While SMA is one of several participating units, it has exerted relatively little direct effort to secure the resources necessary for other than marginal participation (a grant application submitted this past summer to NOAA’s Office of Global Programs by an SMA faculty group led by Miles could help support SMA graduate students interested in pursuing the IPDES option).

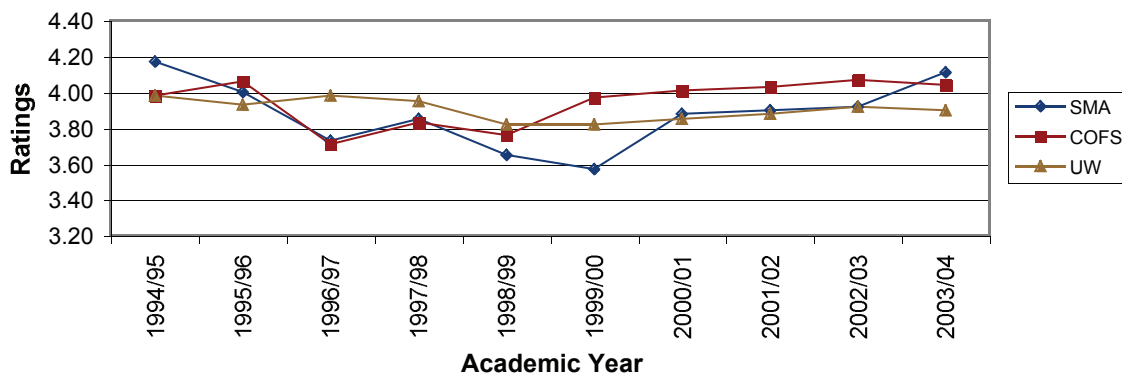


Figure B.6. Comparative composite scores on annual graduate student exit surveys conducted by the Graduate School. Statistic plotted is average of ratings on “overall quality of the program” and on “quality of the faculty.”

## Section C. Faculty: Research and Service Contributions

### Overview

The section begins with a summary of the collective peer-reviewed publication history of the SMA faculty over the period of the review, emphasizing publications involving multiple SMA faculty authors and publications with students. Positive trends are evident in overall publication rates and these other measures. The influence of funding success in these publication trends is discussed. The section moves next to the SMA faculty's extensive engagement in public and other professional service, providing numerous examples from recent years. Twin themes in this work are "interdisciplinarity" and the highlighting of the human dimensions aspects of problems in the marine and coastal environment. The section ends with examples of what may be considered SMA "institutional" events, the Hewlett Symposium on fisheries science and management, the Magnuson celebration honoring Knauss Sea Grant Fellows in Washington D.C. this past spring, and the SMA panel on an integrated assessment of Puget Sound held at the recent Puget Sound Research Conference.

### Peer-Reviewed Publication

Peer-reviewed publications by the SMA faculty have

shown steady increase through the period covered by this review (Figure C.1). Equally or more significant, the number of jointly authored papers with other SMA faculty or professional staff colleagues has also increased, as has publication with students. SMA students have for many years shown some ambivalence about the value of academic publication, given their intentions to pursue careers as marine affairs practitioners. The relatively short duration of student residency at SMA, coupled with a general lack of research support, have also worked against even excellent student work finding its way to publication beyond the thesis itself.

The trends evident in Figure C.1 are likely attributable in part to the relatively greater success in recent years of SMA faculty in garnering multi-investigator research support of multi-year duration. In the best of circumstances, funding levels have been sufficient to engage numerous SMA graduate students in the core work supported by the grant, who then take on aspects of project work as thesis or other research work. Notable in contributing to these trends that began to take shape in the late 1990s are:

- The PNCERS project (Pacific Northwest Ecosystem Regional Study) which, though centered on ocean science, involved significant participation by SMA through Huppert and Leschine;
- CIG (the Climate Impacts Group) headed by Miles

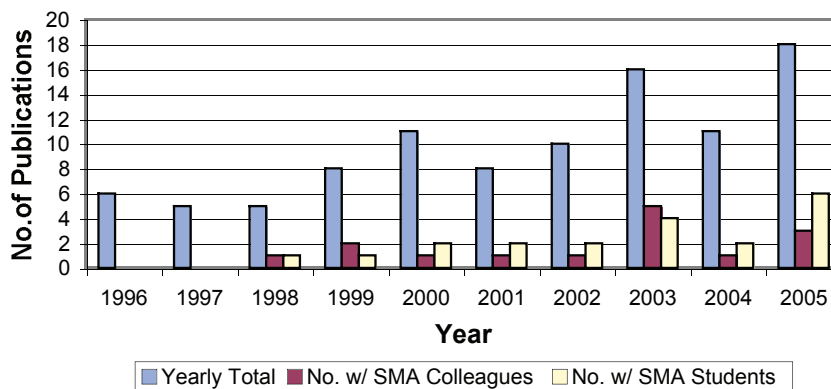


Figure C.1. Peer-reviewed faculty publication by calendar year, 1996–2005, highlighting papers authored with other SMA faculty and with SMA graduate students.



and funded principally by NOAA's Global Climate Program;

- Multi-year funding to explore integrated coastal management in the Philippines and Indonesia obtained from the Packard Foundation and NSF by Christie;
- The Coastal Zone Management Effectiveness Study, funded by NOAA's Office of Coastal Resource Management and headed by Hershman; and
- CRESP (Consortium for Risk Evaluation with Stakeholder Participation), which though non-marine in orientation, still funded Leschine (for several years CRESP's policy director) along with SMA students willing to take on projects on the boundary between marine affairs and concern for nuclear contamination associated with U.S. defense-waste sites.

In some cases, the publications resulted because research funds were sufficient to support students for the additional quarter or two that proved necessary to turn essentially complete thesis work into submission-ready manuscripts.

## Considering Impacts Beyond the Paper Count

SMA's leadership in the field of marine affairs has manifested itself in numerous ways over the years, some through traditional academic scholarship, much through the direct engagement of faculty members in public service activities that further SMA's mission to address important ocean and coastal policy issues of local, national or international concern. Activities of the faculty during the period covered by this review maintained this tradition.

Especially notable among service achievements or professional acknowledgements of the SMA faculty in recent years are

- Miles' election to the National Academy of Sciences in 2003
- Hershman's appointment to the U.S. Commission on Ocean Policy in 2001
- Fluharty's appointment to the NOAA Science Advisory Board in 2005, coupled with being awarded a Wakefield Professorship in Ocean and Fishery Sciences in 2004
- The creation in 2000 by the PICES (North Pacific Marine Science Organization) Governing Council of the Wooster Award for outstanding contributions to North Pacific marine science, in honor of Prof. Emeritus Wooster, who was PICES founding

Chairman, having worked for more than a decade to establish the organization.

Other examples follow, intended to highlight the extensive ongoing engagement of SMA faculty members in service to the profession and community at all levels.

Christie's work on integrated coastal management in the Philippines led to his being special editor of a recent issue of the journal *Ocean and Coastal Management* dedicated in its entirety to the research findings of his project team (Vol. 48, nos. 3-6 2005, "Sustainability of Integrated Coastal Management", in which a number of the papers in the 2005 publication count above appear). Three SMA students and two other faculty members contributed to papers in this special issue. Christie's academic work has illuminated the human dimensions issues attendant with the design of marine protected areas, and resulted in his being one of two experts invited to testify before the Federal Marine Protected Areas Advisory Committee on this topic at its recent meeting.

Hershman's team that conducted the national Coastal Zone Management Effectiveness Study on behalf of NOAA's Office of Ocean and Coastal Resource Management (OCRM) similarly published its findings as a special issue of *Coastal Management* (Vol. 27(2-3) 1999). Hershman has been editor-in-chief of *Coastal Management*, a journal he founded, for many years. As noted above, he also served as the only academic policy and management specialist appointed to the U.S. Commission on Ocean Policy. The Commission's 2004 report, *An Ocean Blueprint for the 21<sup>st</sup> Century*, represents the most far reaching re-examination of U.S. policy toward the oceans in more than 30 years. His recent appointment by Governor Gregoire to the new Washington Ocean Policy Working Group means he will continue to play a significant role on the state level as recommendations of the COP are considered for improving Washington's marine management.

The work of Miles' Climate Impacts Group has received very wide notice, both in the Pacific Northwest through frequent news coverage and reports at local conferences and workshops organized by CIG, and in the wider world. Much of their work aims to understand the implications for the region of global environmental change. The core of CIG's efforts of the past decade to delineate climate impacts and their human dimensions consequences is moving toward publication in a comprehensive volume authored by CIG researchers, *Rhythms of Change: Climate Impacts on the Pacific Northwest* (Cambridge, Mass: MIT Press). Five former SMA students and three SMA faculty members in addition to Miles are chapter lead or contributing authors. Miles

was invited to join a distinguished international panel organized in 2004 by Sir David King, Chief Scientific Advisor of the United Kingdom, with the intention of carrying a message on impending societal impacts of global warming to the international press corps and to a major convocation organized by the AAAS. In another arena, an earlier book produced through a collaboration of Miles and colleagues in Norway is considered to have made an important advance in understanding how to account for the effectiveness of international environmental regimes (*Environmental Regime Effectiveness: Confronting Theory with Evidence* (2002, Cambridge, Mass: MIT Press).

Colleagues of SMA faculty members at Inha University (Korea) launched efforts in the early 2000s to establish a global consortium of universities (now called the U-8 Consortium) to parallel the Group of Eight (G8) major industrial democracies whose annual summits are now of major influence to national macroeconomic and trade policies. Faculty at SMA and in the UW GTTL program spearheaded efforts that led to UW's entry into the U-8 group. Several UW faculty and students joined a team assembled by SMA and GTTL that traveled under NSF funding to a 2003 conference in Korea on the subject of sustainable port development in the Northeast Asia region, an area rapidly emerging as one of the world's major economic hubs. The U-8 group was officially born at that meeting. The corresponding theme issue of *Korea Observer* (Vol. 34(3), Autumn 2003) was co-guest edited by Fluharty with Korean colleagues and contained articles with contributions by four UW faculty members (two from SMA) and two SMA students, as well as colleagues from other U-8 universities.

In a similar vein, Kaczynski has led efforts over the past several years to establish a UW–Nelson Mandela Metropolitan University (Port Elizabeth, South Africa) memorandum of agreement which has facilitated numerous faculty and student exchanges involving SMA and other campus units in recent years. He was nominated in 2004 for UW's S. Sterling Munro Public Service Teaching Award for his efforts on behalf of the UW–NMMU partnership.

Miller is Commentary and Research Notes Editor of *Tourism in Marine Environments*, a journal launched in 2004, and has long been Associate Editor of Sage Publications' *Qualitative Research Methods Series*. He and colleague Jan Auyong of Oregon State's Sea Grant Program have now co-edited three volumes of the International Symposium on Coastal and Marine Tourism; the most recent, which appeared in 2002, also involved former SMA student Nina Hadley as co-editor. The group

also will edit the proceedings of the 2006 Congress, to be held in New Zealand. Miller was invited in 2005 to the Galapagos Islands as part of a team led by USAID to assist international organizations in understanding the underlying dimensions of social conflict that has led to a long-running dispute between local fishermen and researchers and members of the NGO community seeking more effective protection of the Galapagos' unique flora and fauna.

Leschine chaired the National Research Council's Committee on Buried and Tank Wastes for four years, lead-authoring a major and much-cited study released in 2000, *Long-Term Institutional Management of U.S. Department of Energy Legacy Waste Sites*, which laid out institutional, scientific and technical requirements for successful long-term stewardship of nuclear and other long-lived contaminants in the environment. At a conference held in Denver to coincide with the report's release he shared the stage with the Department of Energy's Assistant Secretary for Environmental Management and the Colorado Governor's Office chief representative for long-term care of nuclear wastes in that state. Leschine has also worked extensively on policy and management concerning oil spill prevention, response and cleanup, and was appointed in 2004 to the Science Advisory Panel of the Coastal Response Research Center, a partnership between NOAA's Office of Response and Restoration and the University of New Hampshire. He was one of eight witnesses invited to testify on the subject of reducing the risk of oil spills at field hearings held in Seattle in August 2005 by the U.S. Senate's Subcommittee on Fisheries and Coast Guard.

Fluharty chaired the Ecosystem Principles Advisory Panel for the National Marine Fisheries Service whose 1999 report on ecosystem-based fishery management and subsequent work has done much to focus the national agenda for revamping fishery management policy on principles of ecosystem-based management (EBM). His many years of exemplary public service in fisheries and other marine resource management issues earned him the Wakefield Professorship of Ocean and Fishery Sciences in 2004 and a 2005 appointment to NOAA's Science Advisory Board (pending confirmation).

Bryant organized and spoke at the symposium "The Steller Sea Lion Dispute: Lessons Learned from the Interface of Science and Law in Fisheries Management" at the February 2005 meeting of the AAAS (American Association for the Advancement of Science) in Washington, D.C. and has organized well-attended workshops for research scientists at NOAA Fisheries and elsewhere that focus on how environmental law and regulation in-

fluence the use made of scientific information in regulatory decisions.

Huppert has long been Associate Editor of *Marine Resource Economics*, and his work as a member of the Northwest Power and Conservation Council's Independent Economics Analysis Board is widely recognized for illuminating the tradeoffs inherent in salmon restoration versus power generation in the Columbia River Basin. He is also a member of a committee of the National Research Council Committee on the Protection and Restoration of the Louisiana Wetlands.

Klinger is Chair of the Olympic Coast National Marine Sanctuary Advisory Committee and Science Representative to the San Juan County (Wash.) Marine Resources Committee. She and her students have contributed both ecological field studies and management analysis toward understanding the role of marine protected areas in marine resource conservation in northern Puget Sound. She was the keynote speaker at the *Pacem in Maribus* Conference in Kiev in 2003 and was an invited participant at the recent White House Conference on Cooperative Conservation, convened by the Council on Environmental Quality.

Washington State's Northwest Straits Commission (together with its supporting Marine Resources Committees) represent a much heralded evolution in community-based marine resource management that figured prominently in the work of the Ocean Policy Commission on approaches to regional ocean governance, one of its principal areas of focus. Although created by federal legislation, the original model was developed by a local group established by U.S. Senator Patty Murray and then Representative Jack Metcalf in 1997 of which Fluharty was a member (the Northwest Straits Citizens Advisory Committee). The legislation that set up the Commission mandated that an evaluation of its performance be undertaken after five years, and both Huppert and Fluharty were members of the panel that completed that review in 2004. SMA faculty members have participated in numerous National Research Council (NRC) studies, and Fluharty's involvement with marine protected areas includes membership on the NRC panel that produced the influential report, *Evaluation, Design and Monitoring of Marine Protected Areas and Reserves in the U.S.* (2000).

A theme running through nearly all of the activity reported above is its interdisciplinary character. The public policy problem or opportunity of concern is defined in a way that requires the attention of experts from multiple academic disciplines for effective address, and members of SMA's faculty are called upon to assist. In some cases, they lead in defining the problem as one that requires an

interdisciplinary perspective. This attribute of the SMA faculty is recognized and valued in the university community as well. A very recent example is the selection of Christie (a social scientist with training in the natural sciences) and Klinger (a marine ecologist) to lead the latest in a long-running series of UW Faculty Workshops on Teaching and Learning, on the subject "Teaching Across Disciplines" (September 2005).

Many other examples of service activities of the SMA faculty in recent years could be cited (Table C.1).

## **Institutional Promotion of Science-Policy Integration and Outreach Activity**

A number of events of the past year have been specifically promoted and supported for their value in creating greater coherence across SMA faculty and students in interdisciplinary work or other work that elevates science-policy integration themes articulated in recent SMA planning documents. Three examples are briefly noted.

### **HEWLETT SYMPOSIUM**

SMA has endowment funds from the Hewlett Foundation whose purpose is to advance environmental discourse at the University of Washington. Funds have been used in the past to help develop and promote a framework for environmental education at the University—contributing ultimately to creation of the Program on the Environment and for ancillary activities intended to advance the cause of improved ocean governance in association with Hershman's recent tenure on the U.S. Commission on Ocean Policy.

In late 2004 SMA held a major two-day symposium, *Melding Fisheries Science and Governance* (Appendix J.2), with the assistance of funds from the Hewlett Endowment and a number of government and industry sources. Fluharty organized this symposium with assistance from SMA student Jessica Quinn and the help of a number of student volunteers from SAFS and SMA. The symposium engaged speakers from management agencies, regional fishery management councils and the academic community in a systematic consideration of the basis in experience with West Coast and North Pacific fisheries for recommendations of the Pew Oceans Commission and the U.S. Commission on Ocean Policy in their reports released earlier that year. It attracted more than 300 registered participants from fishery management agencies, the fishing industry, the NGO community and the public, in addition to considerable attention from

Table C.1. Recent service to the marine affairs profession and community by SMA faculty members: some further examples.

<b>Coastal Conservation and Education Foundation of the Philippines</b>	Christie is a member of the Board of Directors.
<b>The Coastal Society</b>	Goodwin is President of TCS's Cascadia Chapter, ex officio TCS Board member and is advisor to UW's very active student chapter of TCS.
<b>Council on Foreign Relations, NYC</b>	Miles is a member of the Council.
<b>Elsevier Publications</b>	Leschine is editor of a forthcoming volume of Research in Social Problems and Public Policy, titled, "Long-Term Care of Contaminated Sites."
<b>Council on Environmental Quality</b>	Klinger was an invited participant at the recent White House Conference on Cooperative Conservation.
<b>Exxon Valdez Trustee Council</b>	Wooster is a member of their Scientific and Technical Advisory Committee.
<b>The H. John Heinz III Center for Science, Economics and the Environment</b>	Miles is a member of the Board of Trustees.
<b>National Academy of Sciences</b>	Miles was inducted into the National Academy in 2003 and appointed to the NAS Oversight Division of Policy and Global Affairs.
<b>National Center for Ecosystem Analysis and Synthesis</b>	Fluharty is a member of the NCEAS Working Group on Ecosystem Modeling and the Working Group on Practical Marine Protected Area Design.
<b>National Ocean Economics Project</b>	Hershman is on the Advisory Board of the NOEP.
<b>National Oceanic and Atmospheric Administration</b>	Miles serves on the Advisory Panel for the Climate and Global Change Program and Fluharty is a member of NOAA's Science Advisory Board.
<b>National Research Council, Ocean Studies Board</b>	Huppert is a member of the committee to review plans for the restoration and protection of Louisiana's coastal wetlands.
<b>North Pacific Research Board</b>	Fluharty is a consultant to the NPRB in the development of its strategic plan.
<b>Northwest Hawaiian Island National Marine Sanctuary</b>	Fluharty and Christie are consulting with the sanctuary in developing options for management.
<b>Northwest Power Planning Council</b>	Huppert is a member of the Independent Economics Analysis Board of the Council.
<b>Northwest Straits Commission Review</b>	Fluharty and Huppert were members of on the Northwest Straits Commission Review Panel, whose work concluded in 2004.
<b>Oceans Blue Foundation</b>	Miller is a member of the Foundation's Board of Directors and Goodwin is on their advisory committee.
<b>Olympic Coast National Marine Sanctuary</b>	Klinger is Chair of the Sanctuary Advisory Council and its Research Advisory Committee.
<b>PICES (North Pacific Marine Science Organization)</b>	Wooster was a principal founder of PICES and its first Chairman. In 2000 PICES established the Wooster Award in his honor, given annually "to an individual who has made significant scientific contributions to North Pacific marine science."
<b>Puget Sound Nearshore Partnership</b>	Leschine is a member of the Science Advisory Board.
<b>Sage Publications</b>	Miller is an Associate Editor of Sage's Qualitative Research Methods Series. He also serves as Commentary and Research Notes Editor for Tourism in Marine Environments and is on the Editorial Board of the Silliman Journal.
<b>San Juan County Marine Resources Committee</b>	Klinger is a member of the San Juan County MRC.
<b>U.S. Commission on Ocean Policy</b>	Hershman was a member of the Commission, whose final report was submitted to the President and Congress on September 20, 2004. Miles served as a member of the Commission's Scientific Advisory Committee.
<b>Upper Yuba River Studies Program, California Bay-Delta Authority Technical Review</b>	Huppert was a member of the technical review panel for this program.
<b>Washington Ocean Policy Working Group</b>	Hershman was recently appointed by Governor Gregoire to membership in this newly formed group.

the trade and local press. This led to a follow-up academic symposium organized along similar lines by Fluharty and held at the AAAS Annual Meeting in Washington, D.C. in February 2005.

#### **REMEMBERING THE LEGACY OF WARREN G. MAGNUSON**

The success of the Hewlett Symposium led the College of Ocean and Fisheries Sciences to conceive a follow-up event to honor the 100<sup>th</sup> birth anniversary of Senator Warren Magnuson, lead architect of the Magnuson-Stevens Fishery Conservation and Management Act and a number of other major marine initiatives of the 1970s and 80s. The event, held in Washington, D.C. in May 2005, was jointly sponsored by COFS and the office of Western Washington Congressional Representative Norm Dicks. Several members of Sen. Magnuson's former staff, the so-called "Bumblebees," were in attendance along with senior NOAA officials and others. Many of the NOAA senior personnel present were SMA alumni. Knauss Sea Grant Fellows from SMA were honored at the event, and 2004 SMA graduate Brie van Cleve, a Knauss Fellow

working in the office of Senator Maria Cantwell, gave one of the featured presentations.

#### **TOWARDS INTEGRATED ASSESSMENT OF PUGET SOUND: AN SMA FACULTY PANEL PRESENTATION**

The SMA faculty organized and presented at the 2005 *Puget Sound/Georgia Basin Research Conference* held in Seattle in March a symposium on the subject "Getting Started on an Integrated Assessment for the Puget Sound Ecosystem" ([http://www.sma.washington.edu/news/ps\\_georgia.html](http://www.sma.washington.edu/news/ps_georgia.html)). Seven faculty members gave presentations aimed at elucidating how multiple direct and indirect stressors from the human and natural environmental systems interact in the Puget Sound ecosystem. Natural and social-scientific and institutional dimensions of the Puget Sound ecosystem were presented to illustrate how an integrated assessment approach could be employed. The faculty is committed to following up on this work, and it may emerge as a testing ground for developing approaches to integration, as discussed elsewhere in this study.

## Section D. Relationship to Other Units at the University of Washington

SMA values highly the relationships that it has with other campus units, to the extent that the 2003 *SMA Futures Report* listed as one of its primary objectives:

*Improve SMA's resilience through stronger ties University-wide and via an increased mix of educational tracks leading to degrees and/or certificates through SMA.*

SMA's relationships with other units are for the most part described in other sections of this report. This section is therefore presented in the form of a summary.

- SMA's only formalized concurrent degree program is with the Jackson School of International Studies. The tie with JSIS has additional force with the joint appointment of Christie between the two units in 2002. His jointly listed class, SMA/JSIS 433, "Root Causes of Environmental Degradation in the Tropics," draws students from both programs and other campus units.
- Although there is no formal program between SMA and the Evans School of Public Affairs for students to pursue concurrent degrees, this option has nevertheless been pursued on an ad hoc basis by a number of SMA students. A fraction of Miles' appointment is assigned to the Evans School, and he teaches classes each year as joint listings between SMA and Evans.
- As noted in Sec. B, "Faculty Teaching and Research," virtually all SMA classes below the 500 level are cross-listed with other programs. Especially popular in cross-listings are JSIS and the UW Program on the Environment (PoE). The process of re-listing classes at the 400 level was begun in 1999 in partnership with PoE and has continued to the present time. Most recently, SMA 103, "Society and the Oceans," was developed in partnership with the UW Office of Undergraduate Education (OUE).

Many members of SMA's faculty have adjunct appointments with other units, including Anthropology,

SAFS, Economics and Political Science, reflecting the interdisciplinary makeup of the faculty.

- Many SMA faculty members have team-taught with faculty members from other units, especially the School of Aquatic and Fishery Sciences (SAFS). A current example is FISH/SMA/ENVIR 480, "Marine Resources Conservation and Management," taught jointly by Miller and Gallucci (SAFS; SMA adjunct).
- SMA faculty members have contributed teaching outright to other academic units. A current example is the teaching Klinger contributes to the undergraduate marine biology program, through FISH/OCEAN 350, "Structure and Process in Marine Organisms," which she has offered annually for several years. Leschine for several years participated in team-teaching the course QERM 550 "Applied Ecological Modeling" with faculty in SAFS and the College of Forest Resources (CFR), a core requirement of the Quantitative Ecology and Resource Management Program. Klinger teaches summer courses in marine ecology at UW's Friday Harbor Lab, and a number of SMA students are drawn to take those classes as a result.
- Several SMA faculty members have supervised undergraduate capstone projects in SAFS, Biology, and PoE's undergraduate environmental studies major.
- SMA faculty members sit on the Board of PoE and the University's Earth Initiative (UWEI) and on the Steering Committee for PoE's Environmental Management Certificate Program. Miles is lead faculty member in the graduate certificate program in Interdisciplinary and Policy Dimensions of the Earth Sciences (IPDES).
- SMA faculty members are frequent committee members on masters' and Ph.D. committees in other departments, occasionally chairing Ph.D. committees in departments in which they have adjunct appointments.

## Section E. Diversity

Many details of SMA's diversity profile have been reported in other sections. This section therefore is part summary and part additional information.

### Students

Aspects of student body diversity are described in detail in Sec. G, "Graduate Students." It is noted there that ethnic minorities compose about 10% of SMA's student body on a year to year basis. There has been some modest growth in that percentage over the 10-year period of this review. The topical focus at SMA has relevance for students of Asian-Pacific Islander (API) and Native American ancestry, and these two groups in fact are the best represented minorities among SMA's graduate students, with students of Hispanic ancestry next. This suggests that active minority student recruitment efforts (which have not been undertaken) might well focus on these two groups. One faculty member, Miller, has on his own initiative induced API students to enroll in a class he teaches that focuses on Pacific Islands marine tourism by advertising the class to API student groups on campus.

Figure E.1 echoes the composition of the SMA student body, although it includes all students taking SMA classes, about 20% of who are from other academic units. The largest block of non-Caucasian students taking SMA classes is composed of foreign students, many from Asian nations.

Gender balance at SMA has favored females over males in recent years, perhaps reflecting a shift in student interest away from areas of study that were dominated

by males when they were more popular at SMA, notably port and marine transportation studies.

Available funds for student recruitment have generally been directed toward students judged to be of outstanding academic merit. In years past some minority applicants were attracted to the program with the aid of Patricia Roberts Harris Fellowship support. SMA has not been active with campus bodies designed to enhance the recruitment of minorities, such as GO-MAP (Graduate Opportunities and Minority Achievement Program).

### Faculty

The SMA state-funded faculty (6.17 FTE held by seven individuals) includes one African-American senior faculty member and one female junior faculty member. Faculty recruitment opportunities have been rare. The last two hires that involved national searches included efforts to attract female applicants, including placement of the job ad in publications of the Association for Women in Science (AWIS) and the American Association of University Women (AAUW). The ad employed wording intended to invite minority and female applicants. The three finalists for the last hiring opportunity were women; a woman was hired for the position. SMA's lone Research Associate is a female.

### Staff

SMA's senior administrator is African-American and its Fiscal Specialist is Asian-American. The entire staff is female.

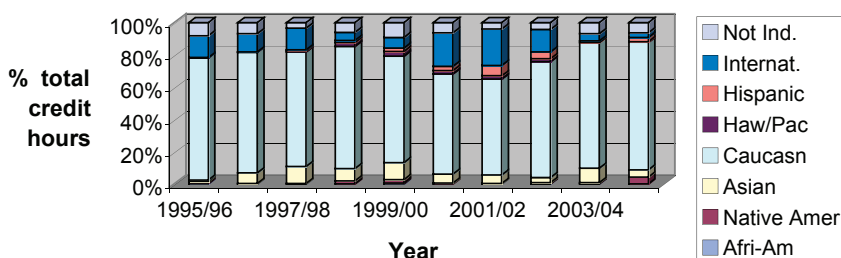


Figure E.1. Ethnicity of students taking SMA classes by credit hours, AY 1995/96–2004/05.

## Section F. The MMA Degree Program

### Overview

The section opens with a discussion of SMA's educational mission in relation to its broader mission to promote comprehensive and interdisciplinary problem solving in marine affairs. It characterizes SMA's pedagogical approach as oriented toward preparing students for careers in marine affairs practice, and goes on to lay out in a general way the content of the SMA program of studies. Sample two-year curricula for thesis and non-thesis students are provided, as students follow a great many individual pathways to their degrees. Interdisciplinary as well as critical thinking skills are emphasized, and dependence on courses outside SMA, especially graduate certificate programs, is noted. Next numerous curriculum changes over the past decade are summarized. This is followed by a discussion of student participation in curriculum review and revision, highlighting this past year's efforts to revamp curriculum that incorporated student-conducted internal surveys on curriculum needs and perceptions. This is followed by results of a different survey conducted by Career Services, providing the more distanced perspective of our alumni and affiliates. The emphasis is on the value these individuals now see SMA having contributed to their careers, and the training they think current students need to prepare them for future careers. The alumni survey results seemingly validate SMA's overall approach. A broader view from the perspective of both surveys and other inputs suggests a) inherent difficulties in delivering content that satisfies a student constituency of very broad interests and backgrounds, b) the importance of maintaining SMA's interdisciplinary perspective, and c) the ongoing need to address the skills demands of the workplace through curriculum or other aspects of SMA.

### **Educational Objective: A Pedagogical Oriented Toward Marine Affairs Practice**

SMA offers a single academic degree, the Master of

Marine Affairs (MMA). The Graduate School authorized the MMA degree program in 1978, and the first degrees were awarded that year. To date, 411 MMA degrees have been awarded.

The educational objectives of the MMA degree program flow directly from SMA's mission,

*To foster comprehensive, long term and proactive approaches to marine policy and ocean and coastal management. The School promotes interdisciplinary education, natural and social scientific research and public service, and provides guidance to all levels of government in the U.S. and abroad, to industry and to nongovernmental organizations, in the name of resolving important ocean and coastal issues.*

The mission of SMA's degree program is to train well-qualified professionals who further the School's mission through their own work as marine affairs practitioners. Because the emphasis is on marine affairs practice, SMA also supports a career services component designed to prepare students for the job market and to assist them with entry into the workforce. The majority of SMA students end up in jobs in government.

SMA's greatest and most enduring success has been in the way its students have become established in positions of importance throughout the field of marine affairs. Relatively few SMA graduates have gone on to Ph.D. degrees, and only a few marine affairs programs grant the Ph.D. The program at East Carolina University that is exclusively oriented to Ph.D. training still trains its students for careers in practice rather than in academe. SMA's success in preparing students for careers in marine affairs practice is discussed in more detail at the end of this section. Details on employment and careers of SMA's graduates are further developed in Section G, "Graduate Students," and in supporting materials in Appendix E.



## The MMA Curriculum in Brief

The SMA Program of Studies (Appendix C.2) emphasizes analytical skill and critical thinking, and the ability to view marine affairs problems from interdisciplinary perspectives. The curriculum is designed to be completed in two years, including the masters' thesis, although it is not uncommon for students to need an additional summer quarter to finish, and some to take longer still (See Section G, "Graduate Students"). Prior to 2003, all MMA students were required to complete a master's thesis. That year a non-thesis option was introduced for mid-career students, fulfilling a goal of the *SMA Futures Report*. All students currently must complete 59 credits. Table F.1 outlines the basic structure of the MMA degree program.

The core curriculum spans eight substantive areas:

- Introduction to Marine Affairs*
- Economics*
- Marine Law*
- Policy Analysis*
- Policy Processes*
- Marine Science*
- Quantitative Skills*
- Social Science Data Collection and Analysis*

A ninth area covers the required marine affairs seminar noted in Table F.1.

Students come to SMA with a diversity of interests and backgrounds, highlighted in Sec. G, "Graduate Students." Once beyond the core classes, they will fairly predictably disperse across the topical areas of interest that represent the substantive foci of most of the program's academic work (Table A.3). SMA compensates for differences in initial preparation among students who arrive with quite varied undergraduate training and life experience via a suite of basic preparatory requirements covering ocean science (SMA 591), microeconomics (SMA 536), and quantitative and qualitative research skills. A variety of statistics courses, and law and social science classes that emphasize methods, serve to satisfy the latter requirements. Most are outside SMA, but SMA courses in legal research (SMA 476) and on interview and participant ob-

servations as research tools (SMA 512) satisfy the Social Science Data Collection and Analysis core requirement. Courses in any of these areas can be waived with evidence of adequate prior preparation. While most students typically waive at least one requirement, the net effect is that nearly all students begin their SMA careers challenged to fill gaps in their training through the remaining mandatory courses. There is relatively little focus in the SMA curriculum on the "nuts and bolts" of managerial practice, though students express desires for these kinds of classes (provided elsewhere at UW, e.g., the Evans School).

### THESIS AND NON-THESIS TRACKS TO THE MMA DEGREE

The SMA faculty has long regarded the master's thesis as key to instilling into SMA graduates the basic analytical and critical-thinking skills that form the foundation of the SMA curriculum. The faculty however has recently acknowledged with its creation of the non-thesis track that, for sufficiently experienced students, additional focused learning through classroom instruction beyond the core requirements can provide an alternative path to high levels of skill and understanding tailored to the positions they will return to upon completion of their studies. Students who elect the non-thesis track are expected to be mid-career. They apply to the Graduate Program Coordinator for admission to the track in the Winter Quarter of their first year. Applicants are required to define career goals, identify the classes they will take in furtherance of those goals, and argue the appropriateness of the proposed classes to the goals.

Beyond the attention to the core curriculum that tends to be the primary focus of the first year of study, the expectation is that students will follow divergent paths consistent with individual interest to completion of their studies. As noted in Section B, the early experience with our non-thesis students is that they rely on certificate programs outside of SMA to provide focus to their areas

Table F.1. Structure of MMA degree program.

	Min. Credits	Remarks
Core Curriculum ( <i>courses in 8 areas plus required seminar; specific requirements depend on prior prep.</i> )	28 thesis track 27 non-thesis	Marine Affairs Seminar is 2 cr. for thesis students, 1 cr. for non-thesis
Electives ( <i>min. six credits from SMA regular courses</i> )	Typically 21 thesis track, 32 non-thesis	Non-thesis take 9 focused credits in lieu of thesis
Thesis Research and Thesis Presentation	10 thesis track	Non-thesis present in Marine Affairs Seminar
Career Skills	—	Required annual mtgs. w/ Career Services Coordinator
Total credits required	59 thesis and non-thesis	

of additional study. Graduate certificates that supplement study in marine affairs are increasingly popular with all SMA students. For example, among students in residence in 2004/05, five non-thesis and 6 thesis students (roughly 20%) were pursuing certificate programs concurrently with their degree requirements at SMA. Popular choices were Environmental Management; Global Trade, Transportation and Logistics; and International Relief and Development. (Conservation Biology, a popular choice in the recent past, is not currently being offered as a graduate certificate.) Two students were pursuing concurrent master's degrees with the Evans School of Public Affairs and two pursuing joint Law School degrees along with their MMA studies.

Illustrative typical curriculum plans followed by SMA students (thesis and non-thesis tracks respectively) are shown in Table F.2. The SMA website can be consulted for additional details regarding the Program of Studies. ([http://www.sma.washington.edu/students/admissions/MS\\_program.html](http://www.sma.washington.edu/students/admissions/MS_program.html)).

## Program Changes since the Last Review that Affect Curriculum and Student Opportunity

The SMA faculty invests considerable attention in the quality of academic training and other career preparation that graduate students receive at SMA. One result of this effort is the large number of changes affecting curriculum and other matters relating to student preparation and training summarized below. SMA has also sought opportunities to increase its reach across campus through joint hires, and curriculum changes designed to increase undergraduate access to SMA classes.

Highlights include the following:

- Introduction of **non-thesis option** (discussed above).
- Re-introduction of **thesis methods seminar** (SMA 550A) in conjunction with non-thesis seminar that serves as capstone for the non-thesis track. This class features a thesis prospectus preparation requirement that appears to be accelerating student thesis work.
- Introduction of **faculty mentoring** for all graduate students, with mentors assigned at new-student orientation. Thesis-track students often switch to a different thesis supervisor by or during their second year. A few faculty mentors formalize the mentoring requirement, one requiring students to register for independent study credit. But the quality and approaches to mentoring are varied, and student feedback suggests this should be addressed.

- Introduction of **thesis prospectus statement requirement**, with uniform template that requires all students to confront the research process via a standard approach. Prospectus statements are approved by the thesis supervisor and become part of the student's permanent record maintained by the Graduate Program Assistant. (Appendix C.3)
- Improved **student progress tracking** with the creation of individual tracking forms on each student, maintained in permanent files by the Graduate Program Assistant. An "Independent Study Agreement" is also used to provide better control of use of 600-level independent study credits and to assure thesis research credits are coupled to work based on the thesis prospectus. (Sample forms are included in Appendix C.3.)
- Introduction of a one-credit **thesis presentation requirement** (SMA 570). Because SMA students do not present a traditional thesis defense, written approval by the thesis chair that the student is ready to present is now required (Appendix C.3).
- New "**integration**" class (SMA 501) introduced to SMA curriculum, in furtherance of SMA Strategic Plan goal of refocusing on the marine affairs "interdiscipline." This class has had difficulty finding its voice and as of the 2005-06 AY is being offered as an elective rather than the new core requirement originally intended.
- Introduction of a **qualitative research methods requirement** (now social science data collection and analysis), with concurrent introduction of a new class (SMA 512) on the use of interview and participant observation methods in thesis research.
- With the help of grant support from the NOAA Alaska Fisheries Science Center, a new focus on the integration of fisheries science and environmental law affecting fishery-marine mammal interactions has been added with the hiring of Research Associate Bryant. **Legal research skills for marine environmental problems** are now available to SMA students and others across campus through SMA 476, which satisfies the social science data collection and analysis requirement for SMA masters students.
- The retirement without replacement of SMA Affiliate Dowd in 1999, coupled with the retirement two years earlier of SMA Adjunct Fleming (Geography) necessitated **re-evaluation of the Ports and Marine Transportation track at SMA**. Students continue successfully to pursue studies in that area through use of graduate certificate programs, especially the GTTL certificate, but SMA's reputation

Table F.2a. Example course schedule for an SMA thesis student.

Year One			Year Two		
Quarter	Course	Cr.	Quarter	Course	Cr.
<b>Autumn</b>	SMA 500 Intro Marine Affairs	5	<b>Autumn</b>	SMA 501 Integrated Marine Affairs Practice	3
	SMA 536 Intro Microeconomics	3		Q Sci 381 Statistics	5
	SMA 591 Marine Science in the Coastal Zone	4		SMA 476 Introduction to Environmental Law	3
<b>Total Autumn Credits</b>		<b>12</b>	<b>Total Autumn Credits</b>		<b>11</b>
<b>Winter</b>	SMA 506 International Law of the Sea	3	<b>Winter</b>	SMA 433 Environmental Degradation in the Tropics	5
	SMA 508 Nat'l Marine Policy Processes	3		SMA 600 Independent Study	3
	SMA 519 Marine Policy Analysis	3		FISH 513 Ecosystem Based Mgmt	2
	SMA 480 Marine Resource Conserv. & Mgmt	3		SMA 700 Thesis	2
<b>Total Winter Credits</b>		<b>12</b>	<b>Total Winter Credits</b>		<b>12</b>
<b>Spring</b>	SMA 512 Interviewing Methods	3	<b>Spring</b>	SMA 700 Thesis	3
	SMA 510 Topic in Marine Ecology	3		SMA 570 Thesis Presentation	1
	SMA 525 Management of MPAs	3		FISH 439 Sustainable Society	1
	SMA 550A Thesis methods	2			
<b>Total Spring Credits</b>		<b>11</b>	<b>Total Spring Credits</b>		<b>5</b>
<b>Summer</b>	<b>SMA 700 Thesis research</b>	<b>4</b>	<b>Grand Total</b>		<b>67</b>

Table F.2b. Example course schedule for an SMA non-thesis student also pursuing the GTTL certificate.

Year One			Year Two		
Quarter	Course	Cr.	Quarter	Course	Cr.
<b>Autumn</b>	SMA 500 Intro Marine Affairs	5	<b>Autumn</b>	SMA 476 Intro to Environmental Law & Processes	3
	SMA 536 Intro Microeconomics	3		SMA 540 International Strategic Planning for Marine Resources	3
	SMA 591 Marine Science in the Coastal Zone	4		GTTL 501 Global Trade Seminar	4
	FISH 513 Topics in Management, Conservation, and Restoration	2			
	<b>Total Autumn Credits</b>			<b>14</b>	<b>Total Autumn Credits</b>
<b>Winter</b>	SMA 506 International Law of the Sea	3	<b>Winter</b>	SMA 515 US Ocean & Coastal Law	4
	SMA 508 Nat'l Marine Policy Processes	3		SMA 600 Independent Study	3
	SMA 517 Maritime Commerce & Policy	3		SMA 433 Environmental Degradation in the Tropics	5
	SMA 519 Marine Policy Analysis	3			
<b>Total Winter Credits</b>		<b>12</b>	<b>Total Winter Credits</b>		<b>12</b>
<b>Spring</b>	SMA 501 Integrated Marine Affairs Practice	3	<b>Spring</b>	I BUS 490 Special Topics	4
	SMA 485 Pacific Recreation & Tourism Issues	3		SMA 550 B Non-Thesis capstone	1
	SMA 525 Management of MPAs	3		GTTL 502 Global Trade Seminar	4
	PB AF 565 Transportation Policy	3			
<b>Total Spring Credits</b>		<b>12</b>	<b>Total Spring Credits</b>		<b>9</b>
			<b>Total</b>		<b>69</b>

has been hurt with constituencies in the local marine transportation industry who perceive that the PMT program has been “dropped.”

- The appointment of Christie to the faculty with a

joint appointment tied to the Jackson School of International Studies, together with the signing of MOUs facilitating exchanges between the University of Washington and Nelson Mandela Metropoli-

tan University in Port Elizabeth, S. Africa and between COFS and Silliman University, Philippines, have greatly expanded **opportunities for SMA students to pursue thesis research through study abroad**. Kaczynski was instrumental in developing the NMMU agreement, which was signed by the presidents of the two universities. Eight students have traveled to the Philippines and the fifth student is about to depart for Africa.

- In furtherance of a plan developed in 1997 by an SMA faculty member teamed with a student, SMA greatly increased its attention to **career services** through the hiring of a part-time career and alumni services coordinator in 2000. SMA's current conception of career services and the range of services offered are detailed in Appendix E.2. Additional discussion can be found in Section G, "Graduate Students."
- Guidelines on academic integrity and procedures for resolving academic disputes involving students have been clarified and strengthened, and a position for a **graduate student ombudsman** (currently Klinger) has been created.
- The **SMA Program of Studies** has undergone frequent revision over the years, at least two major revisions over the past decade. The 2005/06 Program of Studies (Appendix C.2) constitutes a substantial revision that consolidates a number of recent curricular changes as well as the outcome of a planning effort launched by the SMA Academic Affairs Committee augmented by an ad hoc student group. More details of this effort are described immediately below.

## Student Participation in Curriculum Planning

Student participation in unit governance is a tradition at SMA, discussed in more detail in Section G, "Graduate Students." Curriculum revisions in particular are an arena where the faculty has tried to be responsive to student wants and needs. In 2004/05, the Academic Affairs Committee, under the leadership of Miles, convened an ad hoc committee of students to work jointly with the AAC on how best to address through curriculum changes a number of student concerns about the fit of SMA academic training with their perceived needs. As part of this work, the group undertook a curriculum survey of all current students, dealing with a full gamut of curriculum issues, from details of course scheduling to the major themes that students would most like to see emphasized at SMA. A second survey conducted by a single student on behalf of the student chapter of the Coastal Society

(2005 graduate Heather D'Agnes) focused on skills delivery in the SMA curriculum. Both have proved very useful to the latest round of curriculum review and revision.

Also underscored in these survey results are the continuing difficulties of serving a very diverse student audience with a small faculty and limited resources. Especially striking are student ratings of the nine topical areas of interest developed by the faculty over the past year (Table A.3), from the perspective of individual students' own interests. The topical areas of interest developed by the SMA faculty are intended to represent mature areas of individual specialization ripe for student thesis work. None of the nine were listed by a majority of student respondents as a primary area of interest, however. While four of the nine emerged with 70% or more respondents rating them as of at least secondary interest (marine environmental quality, coastal management, ocean governance, and living marine resources), four other areas had 50% or more of respondents indicating that they were "not interested" in the area of study (marine recreation and leisure; seaports, marine transport and urban waterfront planning; global change and human dimensions; and international applications and outreach). Almost all areas found 20% or more of respondents expressing the view that "too few courses" were available in the area.

Next we turn to the views of SMA's graduates on the value of SMA's academic program from the more distant perspective of their work as practitioners in the field. These views were also assessed by means of a survey, in this case undertaken by SMA's Careers and Alumni Coordinator.

## Alumni and Affiliate Views on SMA's Program

In preparation for this review, SMA conducted an email survey of nearly 400 alumni and affiliates (i.e., students who had not graduated but who work in marine affairs and consider themselves part of the SMA alumni family). Forty-nine alums or affiliates completed and returned the survey. The survey returns are fairly representative of the full history of the program as well as the relative distribution of our graduates that exists today across broad categories of employment.<sup>7</sup> The survey had two main goals: to obtain the views of SMA alums and affiliates who were now established in the field on

<sup>7</sup>Sixty percent of those who answered the question on present employment reported that they were working in government, 25% in a private or public sector business (e.g., public ports or private for-profit companies, such as consulting firms) and 3% in the NGO sector.

how well SMA's graduate program had prepared them for their careers, and what they thought SMA needed to emphasize in its program to best prepare current students for the marine affairs careers of the future. Summary themes, together with a sampling of responses to the two key questions asked, are shown in Tables F.3 and F.4.

The results coupled with the discussion above suggest first of all that there is great value in SMA's broad interdisciplinary approach to examining problems in the marine domain—that is, providing substantial input from the social sciences, law and policy while also encourag-

ing the acquisition and use of foundational knowledge of marine science in addressing marine problems. At the same time there is continuing need to deliver the interdisciplinary aspect in ways that do justice both to the content of individual disciplines and to the integration across disciplines increasingly necessary for effective problem solving. In addition, there is need for continued emphasis on the “skills” side of the equation, including workplace skills in addition to the analytical skills that have long been emphasized at SMA.

Table F.3. Responses from SMA alums and affiliates to the question, “How did the SMA degree program help you to achieve your professional goals?”

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**Summary Response Categories**

- **SMA’s reputation and high credibility**, based on
  - course content of the degree program and
  - utility of a master’s level credential.
- **The interdisciplinary nature of the degree program** and
  - corresponding wide and varied background of courses that form its backbone, as well as
  - broad exposure to policy, issues and management of marine environments; and
  - wide range of knowledge covered.
- **The additional skills gained** beyond the specific content of Marine Affairs
- **Career-related elements**, such as
  - alumni and industry contacts and network, and
  - importance and encouragement in finding internships, jobs, experience and other opportunities to learn about the “real world.”

**Representative Comments**

“Gave me the ‘other side’ of fisheries management, which is lacking for people who receive training and education in just the science of resource management. I’ve found fisheries managers must know as much about economics, policy and politics as biological science to be successful in this field.”

“The interdisciplinary approach allows me to understand where the stakeholders come from and their positions, so I can be a better negotiator/mediator.”

“SMA helped me develop a professional goal: to be the translator between scientists and policy makers.”

“Many people that I encountered that work with MPAs are only trained in biological sciences. However, there is much more to MPA management than that. ... I recently attended an MPA workshop for the west coast states and territories where I heard a number of managers praising the SMA program. A lot more attention in being paid to the social science aspect of MPAs now, and a program like SMA prepares you to think across disciplines.”

“...being able to articulate scientific and economic principles in a policy context is the most unique skill the SMA program has to offer. Most scientists by training feel most comfortable talking within their own field, and being able to carry on a conversation with both scientists and lawyers is the only way you can be a successful policy analyst.”

“...the tangential skills developed during the program (writing/planning/speaking/organization) proved more valuable [than] curriculum knowledge.”

“Learning how to scope a problem, establish benchmarks and deadlines taught me project management skills that take quite a while to learn in the working world.”

“SMA connected me to people, programs, and opportunities in the fisheries policy field that I had not had as an undergraduate.”

“[SMA] introduced me to researchers, government officials, and programs that I would likely not have known about without going through the degree program

“The confidence (and competence) I took away from the MMA mid-career experience made me a much more viable candidate for responsible positions in [government agency].”

“In addition to the excellent classroom training, students were given opportunities to work in the field, and gain experience and contracts. In my case, an internship with [government agency] led to a permanent position...”

“The networking aspects of SMA, through faculty and alumni, have gone a long way in my search for jobs.”

“SMA helped create a community of professionals that continues to amaze me in terms of where fellow SMA-ers have gone and what they do. I meet fellow graduates in all manner of government positions, at the local, state and federal level.”

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Table F.4. Responses from SMA alums and affiliates to the question, “What do students most need to know or be able to do to prepare for the marine affairs careers of the future?”

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#### Summary Response Categories

- **SMA Content and Curriculum**, including
  - education on broad policy issues, and
  - strong interdisciplinarity with
  - an international perspective.
- A focus on **Skills Development** (beyond specific curricular content), including
  - leadership,
  - communications,
  - analysis, technology,
  - problem-solving and possibly,
  - business and/or law.
- **Practical Experience** that exposes students to “real life” in their chosen area of interest. The most common suggestion was
  - internships, and/or related employment. Also considered desirable is
  - an exposure to “politics” within their field, and possibly
  - cross-cultural adventures for those whose focus is international.
- **Career Skills** – “Career skills” may include a broad range of
  - self-knowledge and management skills, as well as
  - job search strategies,
  - networking and
  - positioning.

#### Representative Comments

“SMA students fill niches within the field that are not being met by degree holders in more specialized or traditional fields (e.g., straight science). ... The idea of SMA, which I believe still needs to be fully realized, is to break down pedagogical barriers that exist primarily in academia but prevent organizations from producing optimal results in the real world.”

“Students need to develop a competent familiarity with the range of disciplines likely to be encountered in their work environment. ... In my case, adding economics and law as well as oceanography and applied fisheries biology were immensely helpful. SMA should consider how to offer simplified access to courses {students} feel would help them maintain or re-focus the breadth of disciplinary exposure needed to enhance their careers.”

“Students need to understand issues of Ocean Policy are not US specific issues and all countries are faced with similar issues. ... Politics both international and national are a major driving force in the development of ocean policies and even the best science doesn’t always beat politics.”

“SMA had a distinct niche market as one of the few graduate programs in the nation focused on transportation policy [that should be re-emphasized]. ...As [Seattle is] the second busiest port in the nation, there should be a natural tie-in between SMA and the waterfront community.”

“Students most need analytical and communication skills. Whatever their specific field of interest, a student should develop an ability to prepare and defend an analysis of complex issues in clear concise prose understandable to non-professionals.”

Another emphasized the need for “learning how to work in teams, and how to manage conflict within teams working on a tight time schedule.”

“Students need to get experience doing a variety of things – facilitating, planning, grant writing, managing people, etc....It is best to get an internship that requires you to use and build these skills while still in school.”

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## Section G. Graduate Students

### Overview

The section begins with a profile of current students in residence, intended to give a sense of the variety of experience, backgrounds and academic training, and why these students are attracted to SMA. It goes on to discuss graduate student recruitment and retention, noting that SMA has historically done little to promote the program, and may be experiencing declining numbers of applications as a result. Resources available to attract and retain the best students are described, as well as RAs, TAs, internships that become available to students once enrolled. Student organizing and entrepreneurial activity are described next. A discussion of the thesis process includes estimates of time to thesis completion and rates of non-completion. The section goes on to brief discussions of advising, mentoring and career services, the latter including details of recent student employment (as appendices) and a sampling of the longer-term career success of SMA graduates in a table. The section ends with brief discussion of student involvement in unit governance and grievance procedures.

### A Student Body of Diverse Backgrounds, Interests and Experience

SMA has maintained fairly constant numbers of master's students over the period of this review, averaging about 51 students in residence, about 80% of whom are full time (Appendix A.1, "Graduate Student Statistical Summary").

#### STUDENTS IN RESIDENCE PROFILED

To give a sense of who SMA students are and what they bring to the program, fifty-four students who were resident at SMA during some portion of the 2004/05 AY were profiled.

Three of these students had been Peace Corps volunteers and one a volunteer with Earth Corps/YMCA. Three have Native American ancestry; two are Asian American,

one Hispanic. Thirty-eight of the fifty-four (70%) list international travel in their graduate school applications, many referring in their application essays to their international experience as reasons why they now wanted to study marine affairs. One mid-career student (graduated this past year under SMA's new non-thesis option) came as a retired Navy captain who had commanded nuclear submarines around the globe (and to destinations he refused to reveal). A Merchant Mariner in the group estimates that he has visited 40 countries via voyages on ships on which he has worked, and that he could name them all only with great difficulty.

Thirteen of the 54 took their undergraduate degrees from schools in Washington State—seven from UW, four from Western Washington University, one from Evergreen College, and one from Whitman. The rest did undergraduate studies out of state (76%). As many spent their undergraduate years in California schools as at UW, coming from the UC campuses of Berkeley, Santa Barbara and Santa Cruz, from Cal State Monterey Bay, from USC and from Stanford. Mid-career students in the mix have degrees from the Naval Academy, Coast Guard Academy, the Merchant Marine Academy, from a U.S. business program with a strong international focus and from a major Korean university's program in public administration.

Schools along the eastern seaboard are well represented in the SMA student mix. They include Colby College, MIT, Boston University (2 students), Williams, Smith (2 students), Vassar, Georgetown, Johns Hopkins, Wake Forest, Duke (2 students), Vanderbilt, Georgia State, and Bucknell. SMA draws approximately equally from the U.S. east and west coasts (with lesser numbers from Gulf Coast and Great Lakes states not mentioned above). Of the 54 students in the tally, 19 came from eastern seaboard schools compared to 22 from schools on the west coast or in Hawaii.

Nearly half of our most recent group of students in residence (24, or 44%) came with majors in the life sciences, most with a marine biology, oceanography or ma-

rine fisheries orientation. Eight others had majors in earth sciences, or in chemistry or chemical or civil engineering. The boundary spanners, among the students trained in natural science as undergraduates, are a few with double majors that include social science or other non-natural science studies coupled with natural science degrees. Eight students had majors in political science or international relations, and the rest in various social sciences and humanities (including history, anthropology, English, foreign languages, American ethnic studies, business, decision sciences, computer sciences, and for one student, performing arts). This diversity in the academic training and life experience of entering students is very much in the interdisciplinary spirit that is emphasized at SMA (see also Sections A and B).

### **GENDER DIVERSITY**

Females have outnumbered males in the SMA student body in recent years, and the disparity between females and males was on the increase during the 5-year period AY 2000/01–2004/05, when the F:M ratio averaged approximately 1.4:1 among students in residence. But the 2005/06 entering class will be approximately evenly divided between males and females.

### **MINORITY STUDENTS**

Ethnic minorities have comprised 10% of the SMA student body over the 10-year period analyzed for this review. This percentage has shown modest growth, averaging something under 9% of the total during the first five years, and something over 11% during the second five-year period. SMA has had a long-standing focus on marine affairs problems of the Western Pacific as well as a Pacific Northwest region that is defined to include Alaska. We believe this is serving to attract Asian and Pacific Islander (API) and American Indian students to the program now and that the situation is ripe for more intensive recruitment efforts among these two groups.

### **INTERNATIONAL STUDENTS**

International students have constituted about 8% of SMA's student body over the period of this study. This important subgroup of SMA students has gone through something of a "boom and bust" cycle of late, possibly as a result of tightened visa requirements in response to the 9/11 attacks. After many years of having 2-4 such students in residence per year, the numbers jumped to 9 in 2000/01, 11 in 2001/02, but then fell to 6 the year after that, further retreating to just one such student by 2004/05. Foreign students at SMA have come largely from Asia, especially from Korea; initially SMA's fo-

cus on ports and marine transportation was the principal draw for such students. Today, marine fisheries management, marine environmental protection and integrated coastal management are also popular areas of study for foreign students. Nearly all of SMA's Korean students have been mid-career government officials from agencies in South Korea's highly developed maritime administration, especially KORDI (Korea Ocean Research and Development Institute), KMF (Korea Maritime Federation) and MOMAF (Korea Ministry of Maritime Affairs and Fisheries).

Another aspect of student diversity important to SMA is the proportion of students enrolling in SMA courses from other units, typically running 20% or more of class enrollments (see also Sec. B, "Faculty Teaching"). The distribution of SMA credit hours taught over ethnicity of students enrolled in classes is discussed in Sec. E, "Diversity."

### **OTHER ASPECTS OF A DIVERSE STUDENT BODY**

Other subgroups of importance to the makeup of SMA's student body are mid-career students sent to SMA by the USCG (under scholarship) or by NOAA, especially the NOAA Corps. NOAA students have more frequently been local compared to Coast Guard students (NOAA has a very large presence in the Seattle area) and are more likely to be attending without scholarship aid (but with work supervisors willing to rearrange or reduce work schedules to permit school work). These students are apt to be older, and an important aspect of SMA's admissions strategy is to seek to maintain a mix of older students with experience in the marine affairs workplace and younger students, typically just a year or two beyond their undergraduate studies. The effect is to have a student body rather high in average age. Over the past five years the average age of entering students has ranged from a low of 27 (cohort of 2000/01) to a high of 37 (cohort of 2001/02). Faculty members believe, and students report, that this type of diversity in the classroom enhances learning for both groups, perhaps most directly when students work in teams that are mixed across these two groups as well as across academic specialization.

## **Graduate Student Recruitment and Retention**

Two distinct aspects of SMA's efforts to recruit new graduate students are discussed in this section—first, efforts to induce students to apply to SMA in the first place, such as might be aided by a broad-based advertising campaign, and second, efforts to induce students who



have been accepted to the program to enroll, such as might be aided by offers of financial aid or other assistance.

SMA has historically invested relatively little in efforts to induce applications to the program. We have expected that prospective applicants will find us mainly by reputation. This hope has not been without foundation, since we frequently hear that word-of-mouth from program graduates and the many others in the field who know us is the reason why a prospective student has decided to apply to SMA. Some faculty members in marine-oriented programs in other universities have fairly reliably steered their best undergraduates our way, and when Dowd led our Ports and Marine Transportation area of concentration, he worked with considerable effectiveness to recruit students to that track.

In recent years the recruitment effort has been more passive. While effort has been put into maintaining an up-to-date and informative website (<http://www.sma.washington.edu/>), it has been many years since a glossy promotional brochure was produced for wide distribution. By contrast, the Nicholas School of Environmental Management at Duke, one of our chief competitors, recently placed a series of quarter-page ads on the “op ed” page of the New York Times, and UW's Evans School of Public Affairs sometimes runs local radio spots that promote their “executive” degree programs.

Possibly as a result, annual applications for admission that had been fairly constant for many years showed a step decrease in AY 2001/02 from which they have not recovered. They ran roughly 65–75 completed applications per year before then, but have run in the mid- to high-50s since, an approximately 20% drop. The percentage of offers of admission made relative to applications has increased proportionately, albeit with no apparent decrease in the quality of entering students. No convincing explanation for this decline in applicants has emerged, though some note that 2001/02 is the year that the UW graduate application process went online, possibly to the detriment of the visibility of our small program in the application process. There is broad agreement that efforts are needed to increase SMA's visibility in an increasingly competitive world in which new marine-oriented programs with conservation biology and marine environmental management themes are constantly emerging.

Turning to the second theme, SMA has limited fellowship funds available with which to induce students who are offered admission to actually enroll in the program. The arena of academic programs that a student interested in a marine affairs degree might also reasonably be attracted to is an increasingly competitive one. Programs focusing on marine conservation and marine environ-

mental management, often with an emphasis on marine science—and sometimes formally embedded within a marine science department—have seen the greatest growth. To get a sense of who the competition is and where students who refuse offers of admission to SMA go instead, we compiled, for a recent SMA cohort of accepted students, the other programs they listed on their applications for admission as ones to which they had also applied (Table G.1).

## RESOURCES FOR RECRUITMENT

For several years in the early part of the period covered by this review SMA was able to provide from annual operating funds three 2-quarter “recruitment” RAs to incoming students. But the decade covered by this review has been marked by university-wide budget cuts that commenced in the 1995/97 biennium, substantially reduced SMA's ability to continue that practice (additional details are provided in Sec. H, “Administration and Financial Support”). Currently, a single such fellowship is provided from operating funds and one—reserved for a student whose study interest promises to advance the cause of science-policy integration—is provided from SMA's Hewlett Endowment. SMA applied for assistance to the Graduate School's “Top Scholar” program in 2004, and was granted a third such fellowship award for AY 2005/06 and the following year. While this is clearly helping, we have direct evidence that we are losing top applicants to other schools from the list above, who make offers of full RA support, or travel and relocation assistance that we are unable to provide.

Table G.1. Other universities to which students applying for Au 2004 admission to SMA also applied.

Antioch University	University of Hawaii
Brown University	Lewis & Clark JD Program
California State University	University of Maryland
Columbia University	University of Massachusetts*
University of Delaware*	University of Miami*
Duke University*	University of Michigan
Humboldt State	University of Minnesota
Indiana University	Monterey Institute of International Studies
University of British Columbia	Oregon State University*
University of California–Davis	Portland State University
University of California–Los Angeles	University of Rhode Island*
University of California–Santa Barbara	University of Washington (other programs)
University of Florida	Yale University

\*University with a marine program considered a peer to SMA. The only SMA peer program to which at least some applicants do not typically also apply is at East Carolina University, where only a Ph.D. is offered. For a complete list of peer institutions, see Appendix I.

Unlike the science departments in COFS, SMA, with its practitioners' orientation, is not necessarily seen as a place where entering students can expect to enter with fellowship or RA support. Nevertheless, our close ties to marine science, the fact that many other competing programs are embedded in larger science programs where funding support is more plentiful, and the fact that many applicants are applying to straight marine science programs as well as to SMA, puts a premium on the ability of SMA to offer research or other funding support if we are to continue to attract the best students.

Once in the door, many SMA students succeed in finding financial assistance in the form of research or teaching assistantships, or paid internships outside the university. Employment data compiled for the 2002/03–2004/05 show that SMA students found a total of 45 quarters of paid research assistantships and 14 quarters of paid teaching assistantships over that period. Two thirds of the RAs were employed on research grants obtained by SMA faculty members, while 80% of the TAs were employed outside SMA.<sup>8</sup> The total employment picture is much better than these figures alone indicate, due to the diverse employment opportunities that SMA students find beyond the standard graduate assistantships that are counted here.

SMA of course has many other competitive advantages, one being the attention we give to career services. Accepted students who choose SMA often report that a factor in their personal decisionmaking was the advantage they believe they will have in the job market upon completion of their studies at SMA compared to other programs to which they have applied. Career services are described in more detail below.

### Scholarships and Fellowships Available to SMA Students

Along with the Knauss Sea Grant Fellowships, a number of other scholarship or fellowship award funds are available for SMA students (Table G.2). The national awards, the Knauss, the NOAA Coastal Management Fellowships and the Presidential Management Fellowships, have proven to be valued pathways to careers for SMA graduates. The other funds listed are available to assist students while in residence, including scholarship money that helps facilitates travel to professional conferences (Wendy Graham Memorial Scholarship) or for the con-

<sup>8</sup>Lacking an undergraduate program, SMA does not receive TA-ship allocations from Central Administration. Because most students in COFS science departments have research funding, TA-ships for their large-enrollment undergraduate classes often go to science-trained SMA students.

Table G.2. SMA awards and scholarships.

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#### Departmental Awards

The **Sidney and Barbara Campbell Maritime Studies Endowment** supports students pursuing careers in the maritime field.

The **Wedell O. Foss Fellowship** is given annually to a student whose thesis work promises to advance understanding in the field of maritime studies.

The **Alan N. Blankenship Memorial Fund** provides student support for marine recreation and marine ecotourism studies.

The **Wendy Graham Memorial Scholarship** provides travel awards to assist students in presenting their research at a professional conference.

The **Donald L. McKernan Award** is SMA's "best thesis" award, given annually through a competition judged by a faculty panel.

#### Nationally Competitive Awards from Outside SMA

The **Knauss Sea Grant Fellowship Program** was established by NOAA in 1979 to provide year-long fellowships in the legislative branch or in executive agency offices in Washington, D.C. that focus on ocean affairs. SMA students have done very well in the national competition for these awards over the years. The 2005 brochure printed by the National Sea Grant Federal Fellows Program lists 52 recipients of the Knauss Award, 44 from SMA.

The **NOAA Coastal Services Center Coastal Management Fellowship** provides on-the-job education and training in coastal resource management and policy by placing recently graduated master's, professional and doctoral students in state coastal zone management programs for two-year stints. To date, four SMA students have received these awards.

The **Presidential Management Fellows Program (PMF)** is intended to attract to the federal service outstanding recent graduates with a master's degree or Ph.D. to careers in the analysis and management of public policies and programs. Fellows receive a two-year assignment with a federal agency. Eleven recipients have been from SMA, most taking assignments in NOAA branches.

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duct of thesis research in the field (Alan Blankenship Memorial Scholarship).

#### Other Resources Available to SMA Students

SMA students draw extensively upon the resources of the other schools in the College for classes and specialized training. Courses that train students in the use of GIS and remote sensing technologies are available through the School of Oceanography, and many specialized courses with fishery management or marine biology themes are available through the School of Aquatic and Fishery Sciences. Some students take intensive summer classes at UW's Friday Harbor Laboratory (FHL), or otherwise conduct research studies there under the direction of SMA faculty member Klinger or other FHL affiliates. Other places at UW where students often go for specialized classes directly related to their SMA studies include the Evans School of Public Affairs, the Jackson School

of International Studies, the College of Forest Resources, the Center for Water and Watershed Studies, the Department of Urban Design and Planning, the School of Law, and the Business School. The College has its own library with extensive holdings in ocean and fishery sciences, and SMA has an up-to-date computer laboratory. SMA typically employs a part-time student with high levels of computer skill to assist others in the program—students, faculty and staff—with their computer needs.

The entrepreneurial spirit that many students bring to their graduate studies at SMA has long been an important element that helps make the SMA whole greater than the sum of its individual parts. Among recent examples,

- SMA students have competed very well with proposals they've developed and submitted to the UW Student Technology Fee Program for SMA student computer laboratory upgrades. This past year, SMA's student computer coordinator, Ben Brigham, who came with an undergraduate computer technology degree, developed largely on his own a proposal for a substantial upgrade to SMA's computing facilities that was awarded nearly \$100,000 by the STF Program.
- Hershman, long-time editor of Coastal Management, annually convenes a panel of student editors who run an international competition for student papers, with winners going through peer review and publication in an issue of CM.
- SMA houses the monthly newsletter MPA News, which now has an international circulation to ninety countries. This newsletter was founded by SMA alum John Davis (graduated 2001), who used his own thesis research to develop the business model for MPA News.
- Several years ago a group of UW graduate students in marine and coastal natural resources studies organized a symposium series called FAME (Fisheries and Marine Ecosystems). FAME's annual students-only research symposia are hosted by a different university in the Pacific Northwest states or Western Canada each year. A succession of SMA students moved into leadership positions over several years to get FAME established. This past year, with UW hosting the meeting, SMA second-year students Heather D'Agnes and Summer Morlock took on conference organization (while also working to complete their masters' theses). They raised \$8600 for this year's event, which attracted 66 graduate students from five U.S. and three Canadian universities who presented 38 papers and posters at the conference (see Appendix J.5). On their way out of

town, D'Agnes and Morlock secured an additional \$600 from the Canadian–American Studies Center in the Jackson School, to be put toward travel expenses for UW students next year when the FAME conference is scheduled to be held in Canada.

## Completing the SMA Academic Program

The number of master's degrees awarded annually by SMA over the period of this study is shown in Table G.3.

For a variety of reasons, about half of SMA students who complete the program do not do so within the program design period of two years (considered to include the summer following the second academic year).<sup>9</sup> As Figure G.1 shows, 52% of students had completed their degrees within two years, 63% within two years plus an additional quarter (i.e., the following Autumn), 70% with an additional 2 quarters, and 77% in an additional 3 quarters. SMA's course requirements are typically completed by full-time students within the six principal quarters of their two years of residence. Reasons for extended time to completion include 1) students having taken an internship or begun work locally following completion of their formal course work but before completing their thesis work, and then moving to thesis completion at a slower pace; 2) students having traveled abroad or elected to conduct field studies for their research; and 3) that they have taken on very ambitious thesis projects that simply require more time to complete than the typical thesis project. By contrast, students who complete quickly often do so by compressing the entire research and writing process into two quarters.

Table G.3. Number of degrees awarded annually, 1995/96–2004/05.

1995/96	17
1996/97	21
1997/98	24
1998/99	19
1999/00	16
2000/01	20
2001/02	21
2002/03	20
2003/04	22
2004/05	16

<sup>9</sup>Opinion is divided among faculty and students as to whether completion during summer quarter should count as “normal”. Some students elect deliberately not to rush to completion in Spring—when they in fact could—for varied, often pragmatic, reasons. Examples include, “wanting to do a better job” with the thesis itself, or wanting to keep a paid internship or RA-ship that would otherwise terminate.

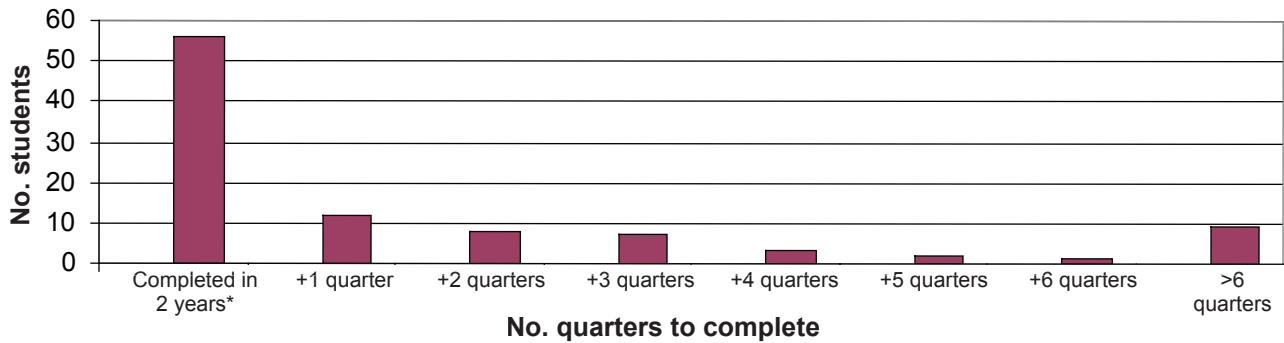


Figure G.1. Time to thesis completion, AY 2000/01–2004/05 (n=108). “Two years” is defined to include the summer following the second AY.

Some students have left SMA without the degree but then returned years later to complete. The outlier in the sample we examined took 80 quarters beyond his initial two years to complete; having risen to a position of prominence within NOAA headquarters in the meantime, and interested in following his supervisor—about to become the president of a major research university—as a special assistant, he needed the degree to do so. Nine students in this sample (8%) eventually completed their studies despite having taken over 6 additional quarters to do so.

### Non-Completion Rates

The percentage of students not completing their studies at SMA was also examined (Figure G.2). To establish what might be considered the base non-completion rate, we went back to the entering class of AY 1997/98 and counted the number of students in that and each subsequent class who had not completed their studies as of summer 2005. Students in the 2003/04 entering class

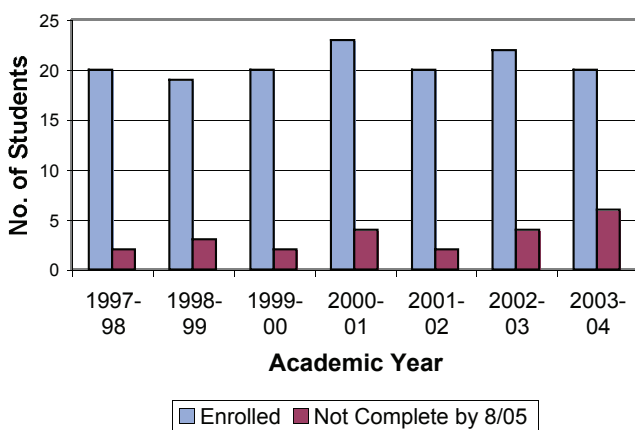


Figure G.2. SMA non-completion rates, AY 1998/99–2003/04. Note: SMA’s values for the number of students entering the program each year do not coincide with those of the Graduate School (Appendix A.1). SMA values are used in the chart.

who have not yet completed the program are actively pursuing thesis research and are not included in the calculation. The average calculated across the other years shown in the figure suggests a non-completion rate of about 14%. This could be considered an overestimate, as two of the students who entered in 2002 are still enrolled at UW and pursuing concurrent degrees, and one other student from the class of 2000 who is a full time employee of a state agency is continuing thesis work that both he and his academic advisor expect him to complete in the coming year. The highest non-completion rate for the years surveyed is 18% (2002/03), the lowest is 10% (three of the seven years surveyed).

Completion rates and time to completion do not translate in any simple way into a measure of program success, in the view of the SMA faculty. Many students who did not complete their studies at SMA have nevertheless gone on to successful careers in the field. We refer to these students as “affiliates” and include them in the alumni group with which we endeavor to maintain contact. Many of these former students value their connections to the program, and some are regular attendees at SMA alumni events.

### Advising and Mentoring

Entering graduate students are assigned mentors from among SMA faculty members. Attempts are made to match each student to a faculty member likely to become his or her thesis advisor, but students are free to shift to a different thesis supervisor if interest shifts or if another faculty member seems a better match. The goal of mentoring is to steer students through initial course planning to the point where they are actively weighing thesis topics or whether or not to apply for the non-thesis option. Students choosing to enter the non-thesis track are expected to apply by mid-Winter quarter of their first academic year, and a highly desirable goal for thesis students is for them to complete a thesis prospectus and have

it approved by their thesis advisor by the end of Spring Quarter their first year. Experience has shown that thesis students who meet this schedule can usually complete the program by the end of Spring Quarter in their second year. Preparation of the thesis prospectus is an element of SMA 550A (required Spring Quarter seminar).

The approaches SMA faculty members take toward student mentoring and advising vary. Only a few schedule regular individual or group meetings with advisees. One faculty member conducts a seminar in which he and all his advisees meet regularly as a group. Those students are exempted from some requirements of SMA 550A for doing so, since thesis prospectus development is part of that seminar.

## **Career Services and Student Careers as Marine Affairs Practitioners**

SMA employs (half time) a Career and Alumni Services Coordinator (CASC). This position was established at SMA in response to student desires and following a comprehensive plan for Career Services developed in 1997 by a former faculty member and student. The coordinator conducts two annual meetings with each student for purposes of career counseling, resume review and strategy development for internship or job searching (See Appendix E.1 “Career Services at SMA”) Intern or externships are not required of SMA students. As noted in Section F, “MMA Degree Program,” these counseling sessions are formal non-credit program requirements. The CASC also maintains an electronic bulletin board on available jobs in the field, conducts periodic workshops for students on various elements of career planning, and maintains relations with SMA's alumni and affiliates. She is available for counseling at any time, and alumni and affiliates are also invited to use her services.

An alumni newsletter is published and distributed electronically on a regular basis, and “mixers” with alumni or alumni-current student groups are scheduled several times a year. Alumni may be called upon from time to time to provide mentoring to students on an individual basis. Workshops and panel discussions on marine affairs careers or job searching strategies are held periodically (Appendix E.2). When the opportunity arises, alumni events are held in the Washington, D.C. area where a large number of SMA graduates are located and pursuing careers in the field.

The most recent such event, in May 2005, was held in conjunction with a COFS event organized jointly with local House of Representatives Member Norm Dicks to honor the late Senator Warren G. Magnuson for his

contributions to national and regional ocean policy. SMA graduates who had gone on to become Knauss Sea Grant Fellows were featured at that event. The Knauss Fellows are selected through a competitive process on an annual basis and work either in the U.S. Congress or in the offices of Executive Branch agencies, principally NOAA, in the Washington, D.C. area. SMA has had more Knauss Sea Grant Fellows than any other academic institution, to date 44 (Table G.2).

The success of our graduates is one of our most important outcome indicators. A sampling of positions currently held by SMA graduates reveals positions of influence and high responsibility that span the gamut of marine affairs practice and in realms from local governments and Indian Tribes in Washington State, to work in international organizations (Table G.4). The employment is as varied as the studies that students undertake for their degrees. One student whose current position is listed—Xan Augerot (1987 SMA graduate), Science Director for the non-profit Wild Salmon Center—led the team that recently published the *Atlas of Pacific Salmon* (2005: University of California Press, Berkeley) in partnership with another regional non-profit, Ecotrust. Another, Tim Farrell (1991 SMA graduate), recently became Executive Director of the Port of Tacoma, the Pacific Northwest's busiest container port. The positions of many other graduates could have been listed to spotlight work in still other realms, for example, students who have in recent years taken strengths in marine biology coupled with knowledge of resource management acquired at SMA to positions with Pacific Northwest Indian Tribes.

Figure G.3 shows the general breakdown of employment across the major areas in which SMA student find positions, highlighting the dominance of the government sector. More details on employment of SMA's graduates are to be found in Appendix E1.

## **Student Involvement in Governance**

SMA students serve ex officio on standing committees of the faculty that deal with matters affecting student welfare (notably Academic Affairs, Computer Facilities and Space, Career Services and Alumni). The students are asked annually to designate one first-year and one second-year student to serve as non-voting representatives of student interests at monthly faculty meetings. Students are also called upon to join committees of the faculty on an ad hoc basis as the need arises. For example, students have served on all search committees for faculty or professional staff positions in recent years (e.g., the 2003 hire of the current CASC).

During AY 2004/05 a group of students undertook on

Table G.4. SMA alumni at work—a sampling of positions currently or recently held.

- 
- Alaska Department of Fish & Game—Deputy Commissioner
  - Alaska Department of Fish & Game—Oceans Policy Coordinator
  - California Sea Grant College Program—Deputy Director
  - Conservation Council of New Brunswick—Executive Director
  - Environmental Protection Agency (Washington, D.C.)—Chief, Coastal Mgmt Branch
  - EPA Region 10 (Seattle)—Idaho Water Quality Standards Coordinator
  - European Commission—Administrator/Scientific Officer, Fisheries
  - Jean-Michel Cousteau’s Ocean Futures Society—VP of Exploration
  - King County (Wash.) Department of Natural Resources and Parks—Performance Measurement Lead
  - Korean Ministry of Marine Affairs and Fisheries—Director General, Marine Safety Management
  - Massachusetts Water Resources Authority—Director, Toxic Reduction & Control
  - NMFS Alaskan Fisheries Science Center—Deputy Director
  - NOAA Climate and Societal Interactions Division (Washington, D.C.)—Director
  - NOAA Office of Ocean Exploration (Washington, D.C.)—Deputy Director
  - North Carolina State Ports Authority—Executive Director
  - Oregon Dept of Land Conservation and Development—Manager, Ocean & Coastal Division
  - Port of Olympia—Director, Engineering and Planning
  - Port of Tacoma—Executive Director
  - Salish Sea Expeditions (Seattle)—Executive Director
  - Skagit Fisheries Enhancement Group (Skagit Co., Wash.)—Executive Director
  - The Aspen Institute—Executive Vice President
  - The Nature Conservancy—Director, Prairie Wings
  - The Nature Conservancy—South Florida/Florida Keys Conservation Planner
  - The Ocean Conservancy—Ocean Governance Program Manager
  - The Wild Salmon Center (Portland, Ore.)—Director of Science Programs
  - Triton Container International—Director, Business Design Analysis
  - University of Washington, Global Trade, Transportation and Logistics Program—Director
  - University of Washington, Program on the Environment—Associate Director
  - Washington Department of Natural Resources—Assistant Manager, Aquatic Resources Division
  - Washington Department of Natural Resources—Port Program Manager
- 

their own initiative a survey of views of students in residence on the fit of the SMA curriculum with their needs. The results were summarized and presented to the faculty at a monthly faculty meeting. This led the Academic Affairs Committee to undertake an extensive revision of the

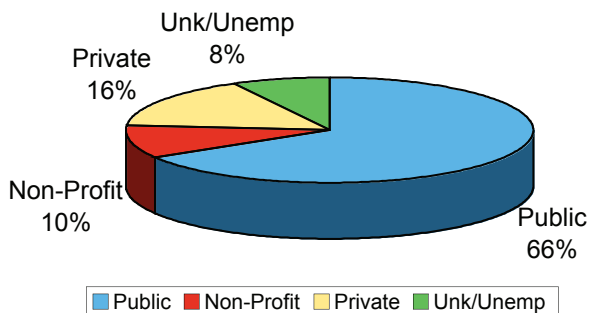


Figure G.3. SMA graduates' five-year employment distribution, 2001–2005 (n=89).

SMA Program of Studies through a process that involved participation by members of the student group that initiated the original survey (additional details of this effort can be found in Sec. F, “MMA Degree Program”).

SMA students also undertake on their own to organize student events or create entities that facilitate student “networking” with the outside world of marine affairs. As might be expected, many SMA students are naturally drawn to participate in governance at a variety of levels. They are frequently the college representatives to the UW Graduate and Professional Student Senate (GPSS). SMA students several years ago formed a student chapter of The Coastal Society–Cascadia Region, which has been active in sponsoring events that bring outside professionals—frequently SMA alums—to the School to meet with current students. SMA students founded the FAME organization whose activities were discussed above. SMA provided the sole graduate student representative on a high-level review committee created by the UW Faculty Senate and Provost's Office to review the site-selection process in relation to a controversial proposal to locate a high-security biological research laboratory on the UW campus.

## Grievance Procedures

SMA students are advised of university and SMA guidelines on disciplinary actions and the airing of grievances. Each year's entering class is provided with written rules and procedures with respect to academic honesty and the filing of grievances. In response to a student-student conflict over academic honesty that occurred some three years ago, SMA's expectations with respect to academic honesty have been strengthened and clarified. Director Leschine created a position for a Student Ombudsman in 2003. The post is currently held by Klinger. SMA policies and procedures in this arena generally follow those established by the University.

## Section H. Administration and Financial Support

### Overview

This section highlights budgetary issues, focusing on SMA's short- and longer-term fiscal health. SMA's operating budget supports the academic program, including day-to-day operations. Some aspects of operations, such as the maintenance of academic records and career services, are also important aspects of students' overall welfare. The principal message is that SMA's funds for operations are under increasing stress, the result of repeated budget cuts and levels of external funding that are insufficient to offset these cuts. SMA has had relatively greater success in grant and contract funding in recent years compared to the earlier part of the period under review, and recent modest increases in its level of endowment support as well. The need for redoubled efforts in both arenas is nevertheless apparent, a point amplified by comparison with the funding profiles of science departments with high levels of external support and more robust fiscal health. The section ends with a brief discussion of space issues and SMA's visitor's program.

### Administration

Being a small unit, SMA has a relatively uncomplicated administrative structure (Figure H.1).

The standing committees of the faculty advise the director on matters in their assigned areas or carry out such essential functions as admissions. Most committees are established in accord with university governance rules that require their existence and delineate their areas of responsibility. Those committees whose areas of responsibility directly impinge on the life of students (e.g., Academic Affairs) have ex officio student members. The SMA faculty has a long tradition of monthly faculty meetings and two appointed student representatives attend the meetings ex officio. Staff members are invited to attend faculty meetings (and usually, faculty retreats) but are in any case represented by the program's Administrator at faculty meetings.

### Staffing Levels

Budget reductions over the past decade have led to reductions in SMA's staff. There are currently two professional staff positions, a full-time Administrator and half-time Career and Alumni Services Coordinator. Two classified staff positions provide a full-time Fiscal Specialist and half-time Graduate Program Assistant. The Administrative Assistant position, formerly full-time, has shrunk to a 0.5 FTE position. It is currently occupied by a retired former SMA staff person who is paid hourly under arrangements that permit the limited re-hiring of retirees. The position is paid out of funds for operations.

Having a computer support person available is increasingly important to SMA. This was formerly a function provided by professional staff hired by the college. SMA now relies on students, ideally with work-study qualifications that defray the costs of the half-time RA position that we currently maintain out of funds for operations. The teaching assistant for SMA 500, our five-credit introductory course that all students take, is paid out of funds for operations, as is one recruitment RA position that goes to a highly qualified incoming graduate student.

SMA's one professional staff Research Associate has a full-time salary paid from funds provided by NOAA Fisheries. Her duties include teaching a legal research methods class built around the themes of her research appointment.

### Operating Budget

SMA's operating budget has been stressed to the breaking point over the period covered by this review, as a result of repeated budget cuts. These cuts were the result either of University-wide cuts mandated by the legislature or of internal reallocation under policies of the UW Central Administration (the so-called UIF tax; Table H.1). Concurrent reductions in staff FTEs during the same period shifted some staffing costs to funds for operations. At the same time, expenses for auxiliary teaching and necessary services such as computer support were also increasing.

## SMA Administrative Organization

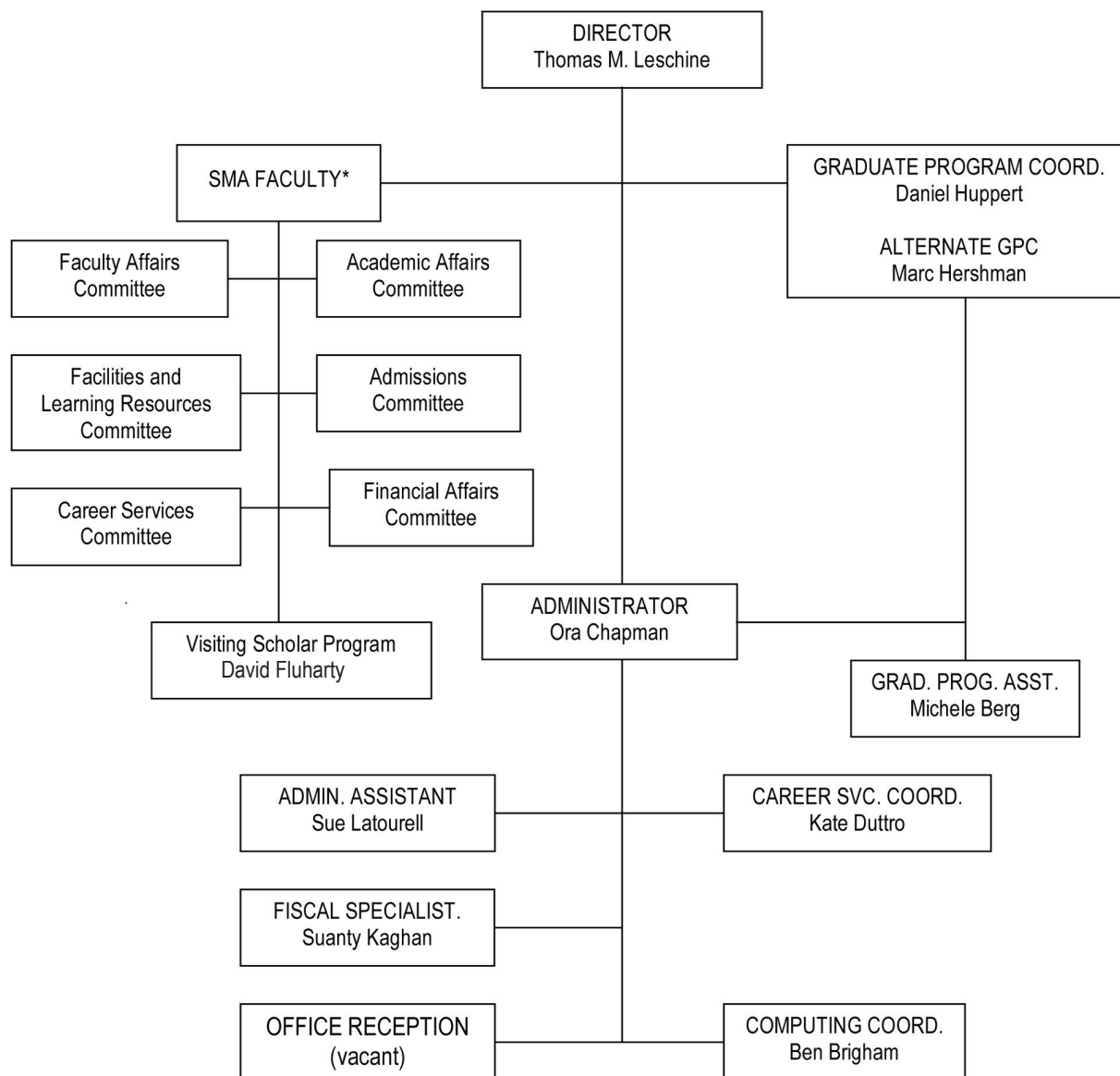


Figure H.1. SMA administrative organization. Faculty includes teaching, research, affiliate and adjunct appointments. See Table B.1 for the SMA faculty list.

Table H.1. Permanent reductions in SMA's operating budget.

Biennium	Budget reduction incurred (in dollars)
1995-97	-45,544 (state-mandated)
1997-99	-8,100 (UIF)
1999-01	-15,951 (UIF)
2001-03	-17,681 (UIF)
2003-05	-37,172 (state-mandated)

The result is that a simple projection of the spending patterns established in the 2003-05 and earlier biennia onto the 2005-07 biennium lays about \$95,000 in total estimated expenditures for operations against funds for operations of only about \$40,000. Saving elsewhere in the budget, the availability of carryover funds (SMA's "bank account" as it were), and recent increases in indirect costs returned to SMA would still be sufficient to avoid a budget deficit in the current biennium. But the spending rate from reserves would be so great that a deficit that could no longer be covered with funds on hand would be very likely in 2007-09. The expendi-



ture categories that account for the great bulk of excess spending beyond budgeted funds for operations are auxiliary teaching and staff time not covered by state-funded FTEs. Absent dramatic increases in SMA's income, these two categories are the ones most in need of reduction if a deficit beyond SMA's ability to cover is to be avoided. Figure H.2 places these budgetary issues in the broader context of the entire SMA budget.

Looking beyond cost cutting, the strategy best able to improve SMA's financial viability in the short run is improved success in grant and contract funding by the faculty. In the longer run, SMA needs to greatly increase its endowment support. Grant and contract support at SMA has improved in recent years (Figure H.3), but total funds remain insufficient to offset level or diminishing funds from other sources. SMA's financial plight is typical of campus units dependent on state funds that have generally not been increasing.

Figure H.3 is instructive in the way it illustrates SMA's dependency on state funds. Comparative charts for the science programs which surround SMA in COFS—units with very high levels of external funding—would show a

near-complete reversal in the relative heights of the bars. The one after which Figure H.3 is patterned appears in the SAFS 2002 Self Study Report. SAFS annual grant and contract funding is nearly three times its state funding in the corresponding year, and in most years expenditures from indirect costs are at least 50% of expenditures from state funds. Departments in the UW Medical School, where external funding levels are higher still, may have as little of 3% of their total annual budgets coming from state funds. SMA's grant and contract funds have increased respectably in recent years, to the point where, in 2003-04, they were in rough parity with state funds (state funds compared to sum of direct and indirect G&C expenditures). But higher levels of G&C support are necessary before the program sees benefits that extend into the area of operations per se, an area especially under stress at SMA.

## Endowment Support

SMA has endowment funds that support, among other things, student awards and scholarships (Table G.2 in

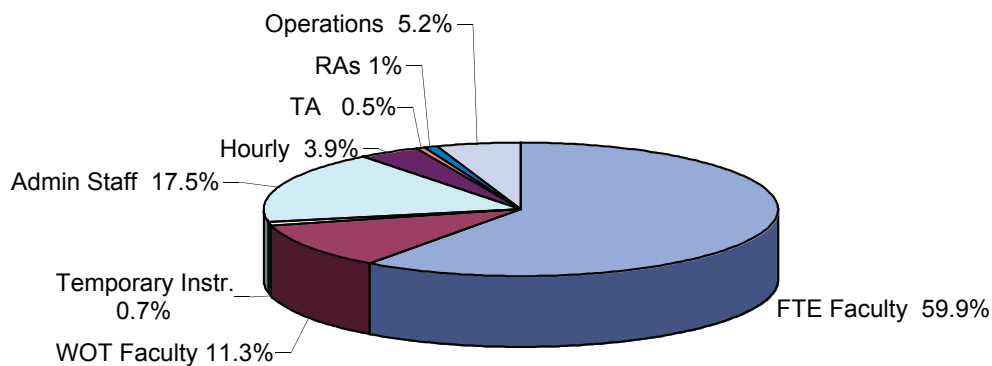


Figure H.2. SMA budget breakdown, FY 2003/04.

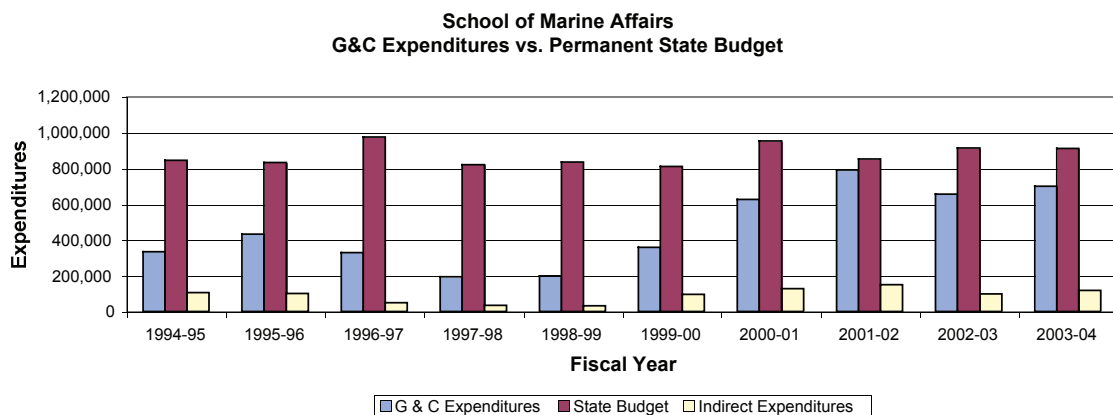


Figure H.3. Expenditures by source of funds, 1994/95–2003/04.

Sec. G). SMA's largest endowment account, the Hewlett Fund, is intended to support conferences, workshops and other activities that advance understanding of environmental problems or approaches for their resolution. As Table H.2 shows, endowment funds have grown 17.5% over the past seven years. Important to this growth has been the generosity of the Campbell family, descendants of Wedell Foss, who founded the Foss Tugboat Company (now Foss Maritime) in Seattle more than 100 years ago. The Campbells have established the Wedell O. Foss Fellowship and recently, The Sidney and Barbara Campbell Maritime Studies Endowment in honor of their late parents. Also recently, Dr. Hugh Merriman of Las Vegas, Nevada has established an endowment fund at SMA in honor of his late uncle, Alan N. Blankenship, an avid recreational fisherman and traveler.

SMA has not undertaken a serious campaign to increase its endowment funding in a great many years. A reasonable campaign goal might be to seek to double over a period of four or five years SMA's level of endowment funds—through a campaign aimed at donors like the Campbells and Dr. Merriman whose interests might similarly center on supporting student work in particular topical areas. The launching of a substantial new initiative that changes the nature of what is being done at SMA in some qualitative way, as discussed in numerous SMA planning documents and outlined briefly at the end

of Sec. A, could present an opportunity for substantially greater levels of funding from private foundations. Targets could include the Luce, Moore, Packard, Pew, or other foundations with a record of funding path-breaking ocean science or environmental problem-solving at academic institutions like the University of Washington.

## Space

SMA has less space than it should according to calculations using formulas developed by Central Administration. The quality of space available for students and to house faculty research projects is an issue in particular, as SMA has recently had to return space to Oceanography that it has occupied for a number of years. The Dean has committed to reconstruction over the next year of the student carrel area on the second floor of MAR so that it can better accommodate students. Major new research or endowment support, as might come with the hiring of new faculty or the establishment of a new program direction, would likely require space that would be very difficult to provide under the current situation.

## Visitor's Program

SMA has maintained a Visiting Scholars Program for many years. The majority of visitors have been scholars from other nations, especially Korea, with a few from universities in Western Europe, and recently, South Africa. SMA has typically had from one to three visitors in residence at any given time. Visitors have varied in their research productivity and extent of interaction with faculty and students while in residence, but jointly authored papers with faculty members have resulted from some visits. Two recent visitors have written books in which they have acknowledged the support of SMA in providing them with office space and other amenities during their visits. A Korean visitor currently in residence, a legal scholar whose specialty is maritime boundary delimitation in East Asia, is working to complete a book on the subject while at SMA.

Table H.2. School of Marine Affairs endowment funds.

Calendar year	Endowment gift value	Endowment interest
1999 CY	\$596,812	\$34,602
2000 CY	650,629	40,762
2001 CY	656,738	53,894
2002 CY	657,238	55,263
2003 CY	684,258	54,722
2004 FY	694,333	50,970
2005 FY	701,483	51,842

CY=calendar year, FY =fiscal year

## Conclusions

### Resources Needed for SMA to Meet the Challenges Ahead

This report has delineated many ways in which the SMA faculty continues to deliver a high quality academic program that produces well trained graduates who go on to successful careers in the field of marine affairs. At the same time, it has shown that the challenges are mounting. In the external world, many marine affairs problems appear to be more global in scope, more complexly embedded in existing social and institutional contexts, and more imbued with a sense of urgency than was apparent or appreciated a decade or so ago. Academic approaches are needed that feature high levels of integration and that highlight the interplay between natural and social science and other disciplines necessary for effective environmental problem solving. SMA's movement toward an overarching marine environmental science and policy theme could represent an effective and highly innovative, even path-breaking, response to that need.

Internally, budget cuts and a lack of program growth have rendered substantive responses to these challenges more difficult. Attempted new initiatives of the last few years have made it apparent that SMA moves forward best when it does so in partnerships that enlarge and enhance the efforts of a small unit. The challenge from our perspective is to embrace more effectively both the scientific and technical strengths and participation of COFS as a whole, and the strengths of other academic units across campus that are the other disciplinary homes of a highly interdisciplinary faculty. Selective partnership is highly desirable, especially where it helps "globalize" SMA's reach or where it taps additional disciplinary expertise that helps SMA address emerging new problems.

SMA's past planning efforts bring it to the brink of transformation into a future of enhanced possibilities that should stimulate growth in many areas of its current program. Change must occur in ways that preserve and enhance SMA's very successful core MMA program. SMA will likely see a number of faculty retirements in

the next five or so years, and these additional opportunities require that SMA continue a dialogue already begun about the nature of change in our field and how best to respond to it. It also requires that the needs of SMA's current MMA program be constantly reappraised as retirements occur.

The resource needs most apparent now include:

- A fully realized "School of Marine Environmental Science and Policy" requires an additional one or two faculty lines, needs pointed to in the *2002 SMA Alternatives* report.
- SMA suffers generally from a lack of funds for graduate student recruitment. Funds that would support student entry into a prototype "SMESP" model would considerably facilitate this initiative.
- FTE equivalents able to increase the effectiveness of participation in SMA's academic program of its under- or unfunded faculty members are needed, and the situation that put Asst. Prof. Christie into an appointment with 0.25 FTE assigned to SMA and 0.25 FTE to the Jackson School is in especially urgent need of redress. SMA can claim only a quarter of his time, while its vision of the road ahead suggests a future program in which he and the research themes and perspectives he represents would play important roles. His joint appointment with the Jackson School provides a valued link that should continue and SMA should be able to contribute an additional 0.25 FTE to his appointment that keeps that arrangement in place, with his primary affiliation continuing to at SMA.
- SMA's available funds for operations have been hit hard by permanent reductions in funds and have had to absorb costs that should not have had to be placed on these funds. Increased budgetary support of even a few tens of thousands of dollars per year could make a huge difference in the short run in SMA's ability to provide necessary support to its students (through career services and on-going technical support) and faculty (through support that

enhances research productivity). SMA should be in a position to contribute to the support of Research Associate Bryant, whose work at the interface between environmental law and marine environmental management has great yet untapped potential in SMA's research programs.

- SMA strongly desires to continue its recent successful foray into lower division undergraduate education, through the offering last year of SMA 103, "Society and the Oceans." This class became the first in a series of innovative "linked learning" courses developed through UW's Office of Undergraduate Education. SMA sees additional opportunity in partnership with the School of Aquatic and Fisheries Science and the School of Oceanography as well as the Office of Undergraduate Education in the coordinated offering of the "101" classes of all three academic units. Vital to SMA's ability to continue to operate at the 100 level is support for

teaching assistants however. OUE supported three SMA students who assisted with SMA 103 last year, but cannot continue support at this level as it turns its own limited resources to spinning up the other linked learning classes in its planning portfolio.

- SMA has faced space contraction of late. While COFS Dean Nowell is attempting to accommodate the space needs of both SMA and the ocean science units with which it shares space, the recent space reshuffling that has occurred has made us realize the value of space where graduate students working on similar topics can sit and work together and interact easily with their supervising faculty. SMA's space was never designed around this kind of organizational premise, common though it is in the laboratory sciences. A future with an SMESP orientation will make it even more important for SMA to be able to organize its work life in similar fashion.