

A Proposed Graduate Certificate in River Restoration:

FACT SHEET

June 12, 2006

Introduction: This proposal recommends a plan to graduate Masters or PhD-level students at the University of Washington with professional-quality, interdisciplinary training in the principles and practice of river restoration. Despite high student and societal interest, no single academic department at UW fully meets the needs for well-trained professionals and researchers in this field. The collective expertise of UW faculty, however, could be coordinated in a multi-college initiative to satisfy this growing need and to address the high level of student interest that already exists in this subject area. This field presents an ideal opportunity for the UW to move quickly into a role of national prominence, because interest and attention in this subject is high nationwide, but we are not aware of any institution that has yet created such a program. Several, however, are moving rapidly, although none as yet are in the Pacific Northwest.

This proposal responds to a unique set of circumstances facing the Pacific Northwest, and more broadly the nation as a whole, with respect to the degradation and renewal of our water resources. Even after more than 20 years of attention (and funds) paid to river health, we are little wiser in how to improve these systems; examples of ineffectiveness or outright failure are much commoner than documented successes. Nationally, week-long short courses now constitute the professional standard for certifying river-restoration practitioners, despite abundant documentation that the results of their subsequent work provide little lasting ecosystem benefit. The University of Washington has a unique opportunity in this particular area of environmental studies, by virtue of our existing intellectual resources, regional needs and opportunities, and our preexisting national recognition.

Program Description: This program is recommended as a graduate certificate program, following the framework established by the Graduate School at the University of Washington. Under this framework, each student completes both the departmental degree and a concurrent certificate program, designed to develop both background and selected technical skills in the field. Coursework is custom-tailored to the individual student but must include at least 15 credits, with a minimum of 9 credits in courses numbered 500 or higher. As part of the required course credits, all students will complete a to-be-designed capstone course of two or three quarters.

Any student enrolled in or entering a graduate degree program in one of the following academic units is eligible to apply: Earth and Space Sciences, Civil and Environmental Engineering, Aquatic and Fishery Sciences, and Forest Resources. An administrative home is also needed for the Certificate program to provide guidance and other resources for prospective and ongoing students, and to help organize the capstone course (see below) and any seminar series. The [Program on the Environment](#), which already administers two other graduate certificate programs, is recommended for that role. Some level of additional resources will be required for this administration, regardless of location.

Five existing courses form the core of the River Restoration curriculum. They have been selected to provide students a fundamental background across the range of disciplines and perspectives important in the theory and practice of river restoration, and they take advantage of existing strengths and offerings of UW faculty. For most students, all would be required:

Risk Analysis and Decision Theory: QERM 514 *or* Q SCI 482 (Quantitative Science)

Hydrology: CEE 476 (Civil & Environmental Engineering) *or* CFR 525 (Forest Resources)

Fluvial Geomorphology: ESS 426 (Earth & Space Sciences)

Restoration Ecology: ESRM 473 (Forest Resources)

Stream Ecology: FISH 547 (SAFS) *or* FISH 438 (SAFS)

As part of the program, students in the program will participate in a two- or three-quarter capstone course on River Restoration. The capstone course will be designed to integrate state-of-the-art research findings in combination with ongoing examples from the region. During the development of this proposal, students and outside professionals have been strong in their support of a field-oriented aspect to this experience, and so this course is anticipated to include both a focused literature-review seminar and a design project on an actual site. Such an integrative course is a requirement of the Graduate School for any certificate program, but it does not currently exist for this topic in any department at the University of Washington; it represents the single largest need for new resources if this program is to be successful.

Required New Resources: Although the core curriculum (and many ancillary courses) already exists in the UW Course Catalog, this program cannot move forward without some allocation of dedicated resources:

- 1 faculty FTE for development and teaching of the capstone course and for academic advising and leadership;
- 1 faculty FTE to support departments that will contribute to the core curriculum, but that have no particular institutional support or incentive to maintain that curricular contribution in the face of changing priorities and faculty departure;
- Some (to-be-determined) modest level of staff support to whatever unit provides administrative functions for this program.

This program demonstrates one of the greatest challenges facing any interdisciplinary program: despite unmatched opportunity for innovation, its dependence on multiple faculty from multiple departments offers it no institutional “home.” As a result, there is no overarching commitment to maintain each of the necessary pieces. Faculty departures or redirection of teaching/research interests could leave such a program without one or more of its key courses, and with no departmental incentive to replace them. Therefore, although the “nominal” needs of the program are for one additional faculty FTE (to develop and teach the capstone course and to provide an overall intellectual coherence to the program), a second FTE is almost certainly necessary to provide resources to maintain the critical core courses.

In summary, this program takes advantage of an unusual, and probably temporary, confluence of circumstances both inside and outside of the University of Washington. Social interest and support of environmental restoration, particularly of water resources, have never been stronger, and the University is renewing its commitment to both environmental education and to the health of our region’s waterways, be they salmon-bearing streams or Puget Sound. Most of the necessary resources are already in place, and the level of expressed interest in this effort—from students, faculty, and outside professionals—is quite high. We believe this program can take full advantage of these opportunities and provide a high level of service to the community, both inside and outside of the university itself.