

Crater Lake National Park Science & Learning Center

2016 Student Fellowship



Oregon **TECH**



Announcing the 2016 Student Fellowship request for proposals

Background

Crater Lake National Park preserves America's natural and cultural heritage, is a source of public enjoyment and inspiration and provides an outstanding outdoor laboratory and classroom. With more than 74,000ha encompassing 1300m of elevation, the park includes vast mixed conifer forests, aspen glades, alpine meadows, and freshwater streams and springs. Thousands of years of volcanic activity have created a complex landscape of craters, cones, pumice, ash, and pinnacles in addition to the Lake's caldera. Furthermore, the park sits atop the watersheds of both the Klamath and Rogue River Basins. More than 88Km of hiking trails, in addition to 53Km of the Pacific Crest Trail provide access throughout the park.

In 2006 the National Park Service established the **Crater Lake Science and Learning Center** (SLC) to expand research and educational programs and to promote technology to aid park management. The Center is operated through a partnership between the National Park Service, Oregon Institute of Technology and Southern Oregon University and is funded through an endowment from the Oregon Community Foundation.

In 2016 the Crater Lake Science and Learning Center will offer up to four fellowships to support undergraduate or graduate student investigations. Each fellowship may be funded up to \$4,000.

Who is eligible?

Senior undergraduate and graduate students currently enrolled in a degree-seeking program at a college or university are eligible to apply. Research Fellows must be self-directed individuals, have a dedicated faculty advisor in the field of the proposed research, and propose research that will contribute to issues of management concern at Crater Lake National Park. A Fellow must be able to complete the proposed project within one year from receipt of the fellowship award.

What types of projects will be funded?

The objective of the fellowship is to support student research at Crater Lake National Park that can inform and advance the needs of management and decision making at the park in four general areas: aquatic resources, terrestrial resources, social science, and applied technology.

Applicants are encouraged to contact the SLC Science Coordinator and/or those individuals listed as contacts under the four areas of research interest listed below. These contacts will answer questions regarding research topics of interest, complexities, and logistical concerns.

The "Hot Topics" listed under each general research areas below have been identified by park staff as current priorities. However, project proposals are *not limited to these topics*. Projects with matching funds or that leverage outside resources will also have high priority. Such matches may be in-kind but must be bona fide and clearly defined in the proposed budget. Collaboration is highly desirable, especially if the partnership can bridge to future projects.

The Crater Lake Science and Learning Center will award student fellowships of up to \$4,000 in the following “Hot topic” areas of interest:

Aquatic Resources

Contact: Mark Buktenica, Aquatic Ecologist, 541-594-3077, mark_buktenica@nps.gov

- **Occurrence and distribution of Oregon ensatina salamanders (*Ensatina eschscholtzii oregonensis*).**
- **Life history or captive rearing of Mazama newts (*Taricha granulosa mazamae*).**
- **Search for rare native fish species in Annie Creek using molecular tools (eDNA).**
- **Quantify the effects of nonnative fish on headwater streams**
- **Identify amphibian pathogens in park habitats**
- **Quantify life history characteristics of bull trout**
- **Characterize discharge or annual thermal regimes of park streams**
- **Test assumptions of PIT-tag telemetry or efficacy of nonnative fish exclusion barriers**

Terrestrial Resources

Contact: Sean Mohren, Terrestrial Ecologist, 541-594-3074, sean_mohren@nps.gov

- **Examine the overall distribution of mule deer in the park.**
- **General species inventories *excluding* song birds, black bear, or black-tailed deer**
- **Expand on park’s Northern Spotted Owl monitoring.**
- **Analyze fire effects on wildlife.**
- **Use repeat photography to examine vegetative change.**

Social Science

Contact: Marsha McCabe, Chief of Interpretation, 541-594-3091, marsha_mccabe@nps.gov

- **Effects of changing visitor demographics**
- **Visitor use of park and concession facilities**
- **Visitor expectations of park and programs**
- **Effectiveness of interpretive media**
- **Management implications of changing cultural values**
- **Management implications of changing technologies**

Technological Applications to Natural Resource Management

Contact: Chris Wayne, GIS Specialist, 541-594-3076, chris_wayne@nps.gov

- **Convert CAD drawings of park utilities to GIS database**
- **Convert historic and current imagery into a mosaic**
- **Process and analyze acoustic data for amphibians or other wildlife**
- **Prepare archaeological data to import into GIS database**
- **Enter and analyze historic fire records into GIS database**

What expenses will the fellowship cover?

Fellowship funding may be used to pay for direct project expenses including: student stipend (up to a maximum of \$2,500), room, board, project travel, supplies and analytical costs. Requests for capital equipment will be considered if appropriate and warranted by the proposal. Approved equipment will be purchased by Science and Learning Center and become the property of the National Park Service. The equipment must be returned at the end of the project. Fellowships will not fund tuition, fringe benefits, institutional overhead, thesis preparation, publication of results, or costs associated with attendance at professional meetings.

How do the fellowships work?

Eligible students must submit an application and project proposal by the application deadline (see application process). Incomplete applications will not be considered. The applications will be reviewed and judged by a panel based on:

1. Significance to park management issues
2. Scientific and scholarly merit
3. Feasibility and the ability of the student to complete the work
4. Reasonable and realistic budget and timeline

The SLC Science Coordinator will contact the Fellowship award winners and grant provisional acceptance **pending approval of a research permit** granted by the National Park Service, which the Fellow is responsible to obtain *prior to initiating their project*.

Research permit information can be found at <https://irma.nps.gov/RPRS/>. The Science Coordinator will administer the fellowship awards for approved expenditures ensuring that students meet the benchmarks for agreed upon products.

In addition, a park employee will be identified as a mentor for the Fellows. The **Park Mentor** will be the primary park point of contact for the award winner. They will provide advice and direction throughout related to park access, management activities, facilities, and resources, and assist with logistical needs while at the park. It is the responsibility of the student's faculty advisor for assisting the student with project design, data analysis, and production of final products.

Is there other support available for Fellows?

Yes. The National Park Service can also provide Fellows with:

- Free entrance to the park
- Short term housing (up to several weeks) at no cost
- Shared office space
- Internet access
- Access to park libraries
- Access to GIS data
- Use of limited park laboratory facilities
- Use of sampling and analytical equipment
- Access to Crater Lake on park research vessels

Make sure to provide clear details of all project needs in your application and budget.

What are the requirements of award winners?

Each Fellow is expected to provide the following deliverable within approximately *six months* of the end of their fieldwork, with the exception of item 1:

1. Brief summary of results with clear and specific implications to management within the park. This first item should be provided by **January 15, 2017**.
2. One hard copy and one electronic copy of a final report, thesis, dissertation or publication as appropriate
3. A one page summary in electronic and hard copy format of research results for a general audience
4. One educational outreach product such as a presentation to park staff or the visiting public.
5. Digital copies of all data collected along with the UTM coordinates of sample locations.
6. Three or more digital photographs (with captions and credits) of field research in progress and permission for use by the SLC and National Park Service.

How do I apply?

Interested candidates must submit the following for application:

- 1) A cover letter that identifies your student status and explains your interest in conducting research at Crater Lake National Park
- 2) A research proposal which includes:
 - a) Project Title
 - b) Research objectives, questions, and hypotheses
 - c) Statement of significance to park management issues
 - d) Methods including data analysis
 - e) Itemized project budget showing any in-kind or additional support
 - f) Project timeline
 - g) Annotated list of project deliverables
- 3) A curriculum vitae or resume
- 4) A letter of support from an academic advisor or principle investigator

Applications must be emailed (preferred) or postmarked to Dr. Jherime Kellermann by March 31, 2016 to:

Email: jherime.kellermann@oit.edu

Phone: 541-851-5156

Mailing address:

Oregon Institute of Technology

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Klamath Falls, OR 97601