



R & E Grant Application 17-19 Biennium

Project #: 17-008

Chub Removal Internships in Deschutes High Lakes 2

Project Information

Requested Cycle: 17-1
R&E Project Request: \$7,064
Other Funding: \$9,260
Total Project: \$16,324
Spending Start Date: 6/12/2016
Spending End Date: 9/4/2017
Project Start Date: 6/12/2016
Project End Date: 9/4/2017
Organization: Oregon State University

Fiscal Officer

Name: Sandy Cobb
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Applicant Information

Name: Matt Shinderman
Address: Office of Sponsored Programs B308 Kerr Administration Bldg
Corvallis, OR 97331-2140
Telephone: 541-737-4933
Email: matt.shinderman@osucascades.edu

Past Recommended or Completed Projects

This applicant has no previous projects that match criteria.

Authorized Agent

Name: Jennifer Luke
Address: 61374 Parrell Road
Bend, OR 97702
Telephone: 541-388-6350 x225
Email: jennifer.a.luke@odfw.oregon.gov

Location Information

Where is it?

The project will occur on public land owned or managed by another party

Landowner Information

Name: US Forest Service, Deschutes National Forest

Site Description

Street Address, nearest intersection, or other descriptive location.

East Lake and Paulina Lake, Deschutes National Forest/Newberry National Volcanic Monument
Big Lava Lake, Deschutes National Forest

Directions to the site from the nearest highway junction.

Following project completion, public anglers will be allowed the following level of access to the project site:

Full access

Please describe what leases, easements, agreements are in place to ensure angler access to the project site, and what is the length of each agreement.

Dominant Land Use Type:

Forest

Project Location

General Project Location.

County: Deschutes

Town/City: N/A

ODFW Dist: Deschutes

Stream/Lake/Estuary East/Paulina

Name:

Sub-basin: 17070302

Specific Project Location.

Latitude

Longitude

Project Summary

Project Summary

Please provide a couple sentence summary of the proposal.

East Lake, Paulina Lake and Big Lava Lake are popular trout-producing waters which are unfortunately infested with invasive chub. If left un-managed chub have a detrimental effect on trout, and consequently recreational fishing. If funded, OSU interns will work with ODFW to remove chub and improve these fisheries.

Overall Project Goals

Describe the primary goals or outcomes of the entire project, including elements not requesting

funding from R&E.

Remove invasive chub to improve trout condition and abundance in East, Paulina and Lava Lakes. Continue to monitor effects of chub removal. Provide opportunity for OSU Cascades Natural Resources students to gain experience in recreational fisheries management.

Primary objectives of R&E funding

Please describe the measurable objectives for the R&E portion of the funding request.

R&E funds would provide an internship stipend for two student interns to work 12 weeks, approximately 900 hours. Students would trap and remove invasive chub, collect biological data monitor lake conditions, analyze data and provide a summary report.

Current Situation/Justification

Please describe the current situation and explain why this funding is needed.

Declining fisheries in the Deschutes High Lakes led ODFW staff to write a 5-year management plan for East Lake, which included mechanical removal of chub (trapping) and monitoring. Initial chub removal efforts were conducted by ODFW staff with volunteer support, but high costs made that approach impractical. In 2012 the R&E Board funded interns to remove chub from three lakes and evaluate results for three years. Data collected through 2014 indicated chub removal had a significant positive impact on trout and recreational fishing in all three lakes, but most notably in East Lake.

Chub removal efforts were discontinued after 2014, but chub population dynamics warrant a new round of trapping. Trapping impacts adult chub staging to spawn, but younger chub remain. While the density of spawning adults was reduced by 2014, fecundity of untrapped juveniles at maturity may have tripled, necessitating removal.

In addition to enhancing recreational fisheries, this project provides an opportunity for students to gain experience in the field with Oregon Department of Fish & Wildlife. Four of the interns funded by R&E in 2012-2014 currently have natural resource related jobs, and for many of them this was their first field experience collecting and summarizing field data.

Recreation and Commercial Benefit

This project will provide benefits to:

Recreational fisheries

Explain how this project will contribute to current (and/or potential) fishing opportunities, access, or fisheries management.

East Lake, Paulina Lake and Lava Lake are popular family fishing destinations because of the excellent fishing history, good campgrounds, resorts and aesthetics. When chub levels are high, gamefish are negatively impacted and the fishing experience declines. Removing spawning chub on a regular basis will maintain a good to excellent trout fishery, which results in higher and sustained angler satisfaction. With regular management all of these lakes have the potential to provide excellent, "blue ribbon" trout fishing for anglers of all abilities.

After five years of chub removal and monitoring, data shows chub removal by trap netting is an effective way to improve trout conditions, growth rates and abundance. Angler reports have been positive and ODFW no longer receives complaints from anglers about poor fishing or "we can only catch chub."

Percent benefit split between Commercial and Recreational anglers:

0 % Commercial

100 % Recreational

Please explain, or justify, how the percentage split was determined:

The Deschutes High Lakes are not commercial fisheries, although they are used heavily for guided fishing trips by licensed/permitted guide services.

This project has been identified as an ODFW priority for:

Local/watershed

Does this project directly support implementation of the ODFW Strategic Plan and/or current Fish Division priorities?

Please briefly explain when this was identified as a priority and what process or workgroup was used to identified this as an ODFW priority.

Identify any plan or other document that identifies this priority.

Supports Goals 1 and 2 of ODFW's 25 Year Angling Enhancement Plan.

Is this project part of an approved Salmon-Trout Enhancement Program (STEP) activity?

No

This project is intended to benefit the following species:

Other Fish Species

brown trout and kokanee salmon

Rainbow Trout

This project will benefit anglers or fishery by providing:

Angling Opportunity

Monitoring/Research

Angling Opportunity

This project will:

Improve the opportunity for anglers to catch fish (better stocked fish, trapping)

Enhance natural production of fish stocks to levels that allow for recreational fishing opportunities

Restore a degraded fishery

Monitoring/Research

This project will be used to evaluate:

Population composition (i.e age, species, survival, size, or genetics)

Distribution (i.e. presence, absence, abundance)

Has this project been reviewed or developed by an individual with appropriate qualifications (i.e ODFW biometrician, research professor)?

No

Is this study critical to fishery management decisions?

Yes

Information developed by the removal project is used to determine management options for

maintaining current target species populations.

Yes

As has been done in the past with this project, data are used to determine the extent and frequency of chub removal efforts and to identify alternatives actions for reducing chub populations.

Is there a plan to repeat this monitoring or research in the future?

Yes

At present it is believed that periodic (every 2-3 years) chub removal is necessary to maintain the viability and quality of the fishery.

Will the data be reported or published?

Yes

This project will involve a summary report upon completion of field work and data analysis. Past reports have been distributed internally, and student interns have used data from the project to develop poster presentations.

Project Description

Schedule

Activity	Date	RE Funding
Interview applicants	May 1 2017	No
Trap equipment prep	June 1 2017	No
Begin trapping and data collection	June 12 2017	Yes
Remove trap nets and clean equipment	August 15 2017	Yes
Enter data and develop summary report	August 15-30 2017	Yes

Permits

Permit	Secured?	Date Expected
	No	

Project Design and Description

Please describe in detail the methods or approach that will be used to achieve the project objectives.

The primary purpose of these position(s) is to remove invasive tui chub from East, Paulina, and Big Lava lakes and improve the trout and kokanee salmon fisheries. The interns will be responsible for trapping chub using large fyke nets. The position requires driving a boat, setting large fyke or trap nets, emptying fyke nets of fish and lifting barrels of fish onto a truck bed. All trout and salmon will be released unharmed. Loads of chub will vary from 400-2,000 pounds a day and some days may require multiple trips to a dump site. Interns will travel to Big Lava, Paulina and East Lake on alternating days to work trap nets.

Biological monitoring will include collection of trout lengths and weights to determine condition factors and relative weights. Several hundred chub will be marked with floy tags and released into the lake. Tagged fish captured in trap nets will be enumerated for a population estimate. Nets of various mesh sizes will be used to collect zooplankton samples for East Lake. Size and abundance of zooplankton will be analyzed. In conjunction with the mechanical control, ODFW will implement a modified fish stocking program to enhance biological chub control through the use of piscivorous game fish.

Engineering

Does the project involve capital improvement, engineering, site grading or other construction?
No

Project Management and Maintenance

What is the life expectancy of R&E funded construction, structures, equipment, supplies, data or fishery?
N/A

Who is responsible for long term management, maintenance, and oversight of the project beyond what is funded by R&E.
N/A

Will the project require ongoing maintenance?
Yes

As explained above, periodic chub removal will be necessary to maintain quality fisheries in these lakes. The estimated maintenance interval is every 2-3 years (at present).

Is there a plan to collect baseline data and to conduct monitoring efforts to measure the effectiveness of the project?
Not necessary

Project Funding

Funding

Have you applied for OWEB funding for this project?
No

Has this proposal, or similar proposal for this project location, previously been denied by OWEB or other funding source?

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[{"source":"OSU-Cascades, Faculty supervision, student recruitment","type":"In-Kind","secured":"Secured","dollarValue":1120,"comments":""},{ "source":"ODFW Staff, Jen Luke, Step biologist","type":"In-Kind","secured":"Secured","dollarValue":3200,"comments":""},{ "source":"ODFW Staff, Brett Hodgson","type":"In-Kind","secured":"Secured","dollarValue":500,"comments":""},{ "source":"ODFW Staff, Erik Moberly","type":"In-Kind","secured":"Secured","dollarValue":640,"comments":""},{ "source":"Sunriver Anglers","type":"Cash","secured":"Pending","dollarValue":1000,"comments":""},{ "source":"Central Oregon Anglers","type":"Cash","secured":"Pending","dollarValue":1000,"comments":""}]
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Other Funding Source	Type	Secured	Dollar Value	Comments
OSU-Cascades, Faculty supervision, student recruitment	In-Kind	Secured	1120	
ODFW Staff, Jen Luke, Step biologist	In-Kind	Secured	3200	
ODFW Staff, Brett Hodgson	In-Kind	Secured	500	
ODFW Staff, Erik Moberly	In-Kind	Secured	640	
Sunriver Anglers	Cash	Pending	1000	
Central Oregon Anglers	Cash	Pending	1000	
		Total	7460	

Budget

Item	Unit Number	Unit Cost	In-kind or non-cash contributions	Funding from other sources	R&E Funds	Total Costs
PROJECT MANAGEMENT						
BUDGET CYCLE 15-7	0	0.00	0	0	0	0
Matt Shinderman, OSU-Cascades, PI Salary	10	70.00	700	0	0	700
Jen Luke, ODFW STEP Biologist, Salary	40	40.00	1600	0	0	1600
Brett Hodgson, ODFW, District Bio, Salary	10	50.00	500	0	0	500
BUDGET CYCLE 17-1	0	0.00	0	0	0	0
Matt Shinderman, OSU-Cascades, PI Salary	6	70.00	420	0	0	420
Jen Luke, ODFW STEP Biologist, Salary	40	40.00	1600	0	0	1600
		SUBTOTAL	4820	0	0	4820
IN-HOUSE PERSONNEL						
BUDGET CYCLE 15-7	0	0.00	0	0	0	0
Erik Moberly, Assistant Dist Bio, Salary	8	40.00	320	0	0	320
BUDGET CYCLE 17-1	0	0.00	0	0	0	0
Erik Moberly, Assistant Dist Bio, Salary	8	40.00	320	0	0	320
		SUBTOTAL	640	0	0	640
CONTRACTED SERVICES						
BUDGET CYCLE 15-7	0	0.00	0	0	0	0
Sponsored Program-OSU Internships (12 weeks)	2	0.00	0	1000	0	1000
BUDGET CYCLE 17-1	0	0.00	0	0	0	0
Sponsored Program-OSU Internships (12 weeks)	2	0.00	0	530	6670	7200
		SUBTOTAL	0	1530	6670	8200
TRAVEL						
			0	0	0	0
		SUBTOTAL	0	0	0	0
SUPPLIES/MATERIALS						
wood chips for dump site	1	300.00	300	0	0	300
new fyke net	1	1500.00	1500	0	0	1500
For BUDGET CYCLE 15-7	0	0.00	0	0	0	0
		SUBTOTAL	1800	0	0	1800
EDUCATION/OUTREACH						
			0	0	0	0
		SUBTOTAL	0	0	0	0
EQUIPMENT						
			0	0	0	0
		SUBTOTAL	0	0	0	0
FISCAL ADMINISTRATION						
BUDGET CYCLE 15-7	0	0.00	0	0	0	0
Intern OPE (8%)	2	144.00	0	288	0	288
BUDGET CYCLE 17-1	0	0.00	0	0	0	0
Intern OPE (8%)	2	288.00	0	182	394	576
		SUBTOTAL	0	470	394	864
		BUDGET TOTAL	7260	2000	7064	16324

Internal Review Results

Review Score: 2 out of 3

(0 = Do Not Fund, 1 = Strengthen Proposal, 2 = Recommend, 3 = Strongly Recommend)

Summary of Review Team Comments

Overall the review team is supportive of this proposal but does have some concerns about the lack of information relating to the planning, funding, and priority of this effort in the long term. Scores include one 1, seven 2s, and one 3.

Specific Review Team Comments

Seems like a good opportunity to give students resource management experience and the department to help improve a fishery.

Additional information on how this is an agency or District priority, including a letter of support from the district, should be included.

Should we continue to throw resources at these sites into perpetuity or are we wanting to better manage the issue by investing into more long-term solutions at these locations? If it is a long term project, then long term funding sources need to be located. RE is not appropriate for long term funding commitments.

Specific Review Team Questions

Why is there no travel included?

OSU Cascades or ODFW provides a truck for the 3 month period. Gas money is provided by ODFW district.

What is the long-term plan for this invasion by Tui Chubs? What other options have been considered? What sort of cost benefit evaluation has been done?

Currently, the only feasible method, without significant trout bycatch, is using trap nets for chub removal. Using a piscicide such as rotenone is not feasible due to East Lake's large volume and thermal springs that would provide refuge to chub. There would be significant mortality with gill nets. The Blackwater trout may help control chub by foraging on chub juveniles.

Unfortunately, a 3 year old chub is 5-6 inches in length, and we have seen chub as large as 10 inches, once they get too big they are not a significant source of prey for trout.

Long term funding is needed to continue trapping however determining the most efficient timeframe and schedule will reduce costs. For example, chub could be intensely removed for two years followed by a 2-3 year hiatus. Also, we may only need to trap in July which is the peak spawning time at East Lake, although it varies depending on water temperature and water body.

Has the district looked into incorporating this into the existing ODFW intern program? What about using inmates or other programs?

It may be possible to incorporate this project with the existing OSU intern program however we would like see OSU-Cascades students have an opportunity to apply to the OSU intern program. Also, at least two interns are necessary and typically the OSU intern program provides one intern per district maximum.

Prison inmate crews may be an alternative, but they would need to use ODFW boats and trucks which may not be feasible. ODFW staff will look into this alternative.

Supportive of the intent of the project and realize the fishery benefit as it relates to angler

opportunities, but aren't there better ways to manage this issue? If so, what are they and why aren't we paying OSU interns to study alternatives. No doubt this project will be valuable for the interns doing the work, but is this the best use of limited R & E funds?

Currently, the only feasible method, without significant trout bycatch, is using trap nets for chub removal. Using a piscicide such as rotenone is not feasible due to East Lake's large volume and thermal springs that would provide refuge to chub. There would be significant mortality with gill nets. The Blackwater trout may help control chub by foraging on chub juveniles.

Unfortunately, a 3 year old chub is 5-6 inches in length, and we have seen chub as large as 10 inches, once they get too big they are not a significant source of prey for trout.

We have not conducted a cost benefit analysis, however, since the trout fishery recovered (2012-2016) feedback from anglers and fishing guides has been overwhelmingly positive. ODFW district staff are confident that an investment of \$10,000 annually or bi-annually, to control invasive chub is contributing well over that amount in license sales, angler fishing days, associated amenities (campground, rv and resort stays, travel expenses) and purchase of fishing related equipment. ODFW staff is currently analyzing 2016 creel data which incorporates East and Paulina lake. There is also East Lake creel data from 2010. The creel data will shed light on numbers of anglers, angler days, catch rates, species and sizes caught and other preferences.

Additional Files

Budget Information

[Budget addenda](#)

Maps

Photos

Design Information

Management Plans and Supporting Documents

[Racial and Ethnic Impact Statement](#)

see above

Permits and Reviews

Partnerships

Public Comment

[District Letter](#)

District Support Letter Brett Hodgson

Administrative Documents

[signature page](#)

Completion Report

A completion report has not been submitted for this project.