



COUNTY OF HUMBOLDT

AGENDA ITEM NO.

C-1

For the meeting of: August 15, 2017

Date: July 24, 2017
To: Board of Supervisors
From: Supervisor Rex Bohn
Subject: Humboldt County Fish & Game Advisory Commission Funding Request for Four Grants

RECOMMENDATION(S):

That the Board of Supervisors approve the Humboldt County Fish and Game Commission's recommended grant allocations in the amount of \$12,000.

SOURCE OF FUNDING:

Fish and Game (1700)

DISCUSSION:

The purpose of the Fish and Game Advisory Commission budget unit is to function as both the support unit for the Fish and Game Advisory Commission and the funding source for its grant program. Grants are awarded after recommendations are made by the Commission and after approval by the Board.

The Fish and Game Advisory Commission issued a Request for Proposals (RFP) on June 8, 2017, for the granting of State Fish & Wildlife code violation funds for RFP's meeting the requirements of Fish and Game Code 13103. The deadline for RFP submissions was a postmark date of July 10, 2017. At the Commission's July 18, 2017 meeting, requests for grants were reviewed and rated based on: benefits to priority fish and wildlife species; ability of the proposer to successfully implement the proposed project; biological soundness of the project; technical merit; and, cost effectiveness. The Commission voted to recommend funding as follows:

Prepared by Kathy Hayes

Signature [Handwritten Signature]

REVIEW: Auditor County Counsel Personnel Risk Manager Other

TYPE OF ITEM:
XX Consent
Departmental
Public Hearing
Other

PREVIOUS ACTION/REFERRAL:

Board Order No.

Meeting of:

BOARD OF SUPERVISORS, COUNTY OF HUMBOLDT
Upon motion of Supervisor Wilson Seconded by Supervisor Sundberg
Ayes Wilson, Sundberg, Bass, Bohn, Fenne II
Nays
Abstain
Absent

and carried by those members present, the Board hereby approves the recommended action contained in this Board report.

Dated: August 15, 2017
By: [Handwritten Signature]
Kathy Hayes, Clerk of the Board

<b>Amount</b>	<b>Project</b>	<b>Sponsor</b>
\$7,000	Classroom Aquarium Education Program	Humboldt County Office of Education
\$2,210	Validating fecal pellet surveys for assessing population numbers of Roosevelt Elk in Humboldt and Del Norte Counties Project	Humboldt State University
\$2,000	Redwood Creek, South Fork Eel River low-flow monitoring and water conservation education	Salmonid Restoration Federation
\$790	2017-2018 Fall Chinook Salmon Assessment and 2018 Sacramento Pikeminnow monitoring and Management	Eel River Recovery Project

**FINANCIAL IMPACT:**

The Fish and Game Advisory Commission's budget, 1700-290, allotted \$15,000 toward grant awards for fiscal year 2017-18. The Fish and Game Advisory Commission has chosen to award \$12,000 in grant awards this fiscal year. The Fish and Game Advisory Commission Fund has sufficient funds to award the recommended grants. Fish and Game Advisory Commission projects support your Board's strategic priority of advancing local interest in natural resource discussions.

**OTHER AGENCY INVOLVEMENT:**

Fish and Game Advisory Commission

**ALTERNATIVES TO STAFF RECOMMENDATIONS:**

The Board could choose to not approve the Fish and Game Advisory Commission's recommendations in whole or in part. This alternative is not recommended because the Fish and Game Advisory Commission has evaluated and recommended these grants for funding.

**ATTACHMENTS:**

Grant Funding Requests.

Humboldt County Fish & Game Advisory Commission  
 Post Office Box 922  
 Ferndale, CA 95536

Phone: 707-786-4902  
 Email: nkaytis4@gmailcom (Please note change in email address)

July 21, 2017

Ms. Kathy Hayes, Clerk of the Board  
 825 5<sup>th</sup> St.  
 Eureka, CA 95501-1153

Dear Ms Hayes:

Please place this recommendation on the next available Board of Supervisors Agenda. The Request for Proposals (RFP) was advertised in the Times Standard Legal Notices on 6/8, 6/15, and 6/22, with a "must be postmarked by" due date of 7/10/17. RFP's were also sent to all commissioners and prior recipients. During the regular July 18, 2017, the Chair John Clark Humboldt County Fish & Game Advisory Commission meeting, the commissioners discussed and evaluated five grant requests using the following "Application Evaluation Criteria".

	Criteria	Max. Points
1	Benefits to priority county fish and wildlife species	30
2	Ability of the proposer to successfully implement the proposed project	10
3	Biological soundness of the project	15
4	Technical merit	15
5	Cost effectiveness (consideration will be given to cost-benefits, pricing, match funding, proposer in-kind or funding contributions, and availability of alternative funding sources)	30
	Maximum total score	100

The Chairman announced each item and opened for Commissioner Comments. He then opened for public comment on each item. We waited until all items were discussed before bringing all items back to the Commission for discussion and decision.

These rating criteria were developed to standardize the evaluation of grant program project proposals. Numerical scores are used to measure how well projects meet each of the criteria. Proposal total scores are used to determine each project's rank in a prioritized listing of proposals.

2017.1	HCOE-Classroom Aquarium Education Program. \$7000.00	\$7000.00	93.3 points
2017.2	HSU – Validating fecal pellet surveys for assessing population numbers of Roosevelt elk in Humboldt and Del Norte Counties. \$6688 requested. Recommend \$2210 grant.	\$2210.00* (partial funding)	77.4 points
2017.3	Salmonid Restoration Federation (SRF) – The Redwood Creek, South Fork Eel River Low-Flow Monitoring and Water Conservation Education. \$2000	\$2000.00	61.5 points**
2017.4	Eel River Recovery Project – 2017-2018 Fall Chinook Salmon Assessment and 2018 Sacramento Pikeminnow Monitoring and Management. \$2000 requested.	\$ 790.00 (partial funding)	57.0 points**

\*Commissioner Ted Romo spoke with Steven Karp, Executive Director of HSU Sponsored Programs Foundation, who agreed to accept a lower amount per gallon of gasoline for travel expense, and a 10% administrative charge instead of a 25% (indirect costs) administrative charge.

Humboldt County Fish & Game Advisory Commission  
Post Office Box 922  
Ferndale, CA 95536

Phone: 707-786-4902

Email: [nkaytis4@gmail.com](mailto:nkaytis4@gmail.com) (Please note change in email address)

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**\*\*MOTION:** (Furber/Allen) Waive the 65% cutoff previously used for these two grant requests. Motion carried with one nay by Commissioner Denver Nelson. **MOTION:** (Furber/Watson) Approve HCOE-Classroom Aquarium Education Program in the amount of \$7000. All in favor. **MOTION:** (Watson/Furber) Approve HSU – Validating fecal pellet surveys for assessing population numbers of Roosevelt elk in Humboldt and Del Norte Counties in the amount of \$2210. All in favor. **MOTION:** (Furber/Allen) Approve Eel River Recovery Project – 2017-2018 Fall Chinook Salmon Assessment and 2018 Sacramento Pikeminnow Monitoring and Management in the amount of \$790 (partial funding). Motion carried with a nay from Denver Nelson. A fifth request for funding was not evaluated as it did not take place in Humboldt County.

With an estimated \$12,000 (\$15,000 - \$3,000 administrative) in the fund, the commission members present: John Clark, Casey Allen, Denver Nelson, Harry Vaughn, Kim Watson, Loren Furber, Phil Grunert and Reid Aiton voted as above to make our recommendations to the Board of Supervisors to fund the five requests for funding.

We are attaching a copy of the recommended grant requests. As soon as we have the Board of Supervisors' approval, the grant recipient will begin submitting bills to Karen Clower (the county) as money is spent on the project. If the grants are approved, please let us know so we can notify the grant recipients.

Sincerely,

Nancy Kaytis-Slocum  
Secretary

File: Grants 2017  
Correspondence  
Attached: 1 copy of the grant requests  
Copy: Karen Clower, Administrative Services Manager  
Grant requesters by email

2017.1



\$7000

1. **Name of Project:** Classroom Aquarium Education Program (CAEP)
2. **Name of Organization:** Humboldt County Office of Education
3. **Contact Person/Information:** Dr. Beth Chaton, After School and Redwood EdVentures Program Coordinator, HCOE 901 Myrtle Avenue Eureka, CA 95501 707.445.7179
4. **Project Background Description and Location:** *"When salmon and trout go to school, students have a unique opportunity to witness their birth and care for them during their early life stages. In the process, your students will learn important concepts, while developing caring attitudes about the fish and their habitats."* (Higgins, D. "Salmon and Trout Go To School", January, 1996 & DFG, September, 2003)

"Fish in the Classroom" programs originated in Humboldt County in the early 1980's by a Eureka elementary school science teacher who observed the program in Washington and immediately understood the program's value to his students, local fisheries, habitats, and economies. This successful program enjoyed explosive growth during its early days and has steadily grown as part of the curriculum in classrooms across the country. Humboldt County's CAEP has grown, spawned by the energy, enthusiasm and support of community partners that include government agencies, private businesses, non-profit groups and foundations. The basic premise of this program is: students study aquatic habitats, ecosystems and salmonid lifecycles by operating a chilled aquarium in their classroom, receiving eyed-eggs from the CDFW hatchery to raise to the fry stage. The fish are then released into Mad River at a designated site within weeks of the hatching. A tour of the hatchery is encouraged as part of the CAEP to help students learn about and understand the role the Hatchery plays in conservation and preservation. This past year, HCOE's CAEP served 863 students from 33 classrooms at 23 schools in 19 Humboldt County School Districts. 1130 Steelhead eggs were distributed, with an average survival rate of 61.5% resulting in 697 Steelhead fry released into the Mad River between April 21 to June 1, 2017 by the students from the thirty-three classes that had release field trips. Thirty of those classes received a tour of the Hatchery facility led by Hatchery staff. Teachers indicate that the value of this program is extremely important in teaching young people about the salmonid lifecycle, the importance of maintaining healthy ecosystems and very real consequences of negative human impacts and invasive species on our fisheries. Teachers continue to express high levels of (unsolicited) program satisfaction, especially with the increased science education provided by the CAEP staff. The teachers appreciate the opportunity to be part of this conservation program and the support HCOE offers for education, equipment and field trips. Parents share that their children come home talking about the CAEP, with the field trip activities a highlight of the school year as a result of the organized activities conducted. Overall, our CAEP has grown tremendously as a result of the funding received to date from the HCF&GAC and the

support our qualified staff have provided to the classrooms and at the hatchery tour and release field trips. Additional new elements include an increasingly active presence on social media through the CAEP-Humboldt FaceBook page, a new Edmodo educational discussion site for teachers, participating in local environmental education (EE) community events with fish-related art activities for children and EE/CAEP resources for teachers, two live PORTS videoconferences with a CAEP in Canada and another in Turlock, CA and increasing the connection between CAEP and the Salmon Lifecycle PORTS program's unit of study by encouraging teachers to schedule a presentation sometime during their CAEP experience.

**5. Project and Work Procedure Description:** According to the California Department of Fish and Wildlife, the overall mission of the CAEP is to:

*"improve teacher and student understanding, appreciation, and stewardship of fishes, while creating an awareness of the needs of the aquatic environment through the use of classroom aquaria. This is accomplished by the California Department of Fish and Wildlife (CDFW) working with and supporting the efforts of locally based groups who provide the teacher training and support necessary to make this program a reality." (<http://www.dfg.ca.gov/caep/overview.html>, accessed May 5, 2014)*

Each year the CAEP activities remain constant for the most part, with few changes. CAEP will benefit Humboldt

County fish and wildlife through the following activities:

- Secure and provide necessary training for CAEP staff in program planning and implementation.
- Support and schedule a system of training conducted by CDFW to provide teachers with adequate information, resources, and teacher certification to successfully hatch and raise fish to the fry stage in the classroom.
- Support and promote existing and new school community partners and/or classroom teachers to be involved in classroom aquarium projects with goals aligned with the requirements of CDFW.
- Work with partners to offer an expanded training and certification process for new/returning educators interested in participating in CAEP in order to increase knowledge about CDFW regulations guiding our program.
- Develop and implement water/egg delivery and fin-clipping schedules to participating classrooms.
- Provide needed technical and educational support to classrooms involved in CAEP, as requested by teachers.
- Promote public awareness of the importance of maintaining and protecting aquatic habitats through community events and social media.
- Link CAEP to the California State Parks Parks On Line Resource for Teachers and Students (PORTS) Program's Salmon Lifecycle Unit that targets about 5,000 students/year across the state.
- Link local CAEP across California, other states and/or Canada through live PORTS Videoconferencing to learn about fisheries and habitats outside of Humboldt County.

- Help students recognize the contributions of hatcheries and wild fish programs to the enhancement of fisheries through field trips to the Mad River Hatchery.
- Conduct educational activities at fish release site that support enhanced awareness and knowledge of salmonid lifecycle, habitat, ecosystems and the importance of disease and invasive species prevention.
- Further develop Social Media (Facebook & Edmodo) to promote Humboldt's CAEP, linking to other CAEP efforts.

**6. Project Objectives:** The overall goal of the HCOE CAEP is best stated by CDFW's Chris Ramsey, the former CAEP coordinator for the California Department of Fish and Wildlife's nine-county North Coast Region that includes Del Norte to Modoc to Lassen and Mendocino with Humboldt County her home office base:

*"This program is an opportunity to connect students with aquatic environments.....Hatching fish in the classroom and then releasing them gives the students a reason to care about their local streams and lakes. They want to protect their fish."* Chris Ramsey, who still facilitates the training and authorizes the requests to participate for the Humboldt County CAEP, says *"This is viewed as an educational program, not a restoration or stocking program. Success is measured by the learning experience of the students-not how many fish are put into the water."* (*Hatching Stewardship, as quoted to Ethan Rotman, Outdoor California, March-April 2008*). Overall Program Objectives include:

1. Through a classroom experience of hatching live fish, CAEP will introduce students to the value of aquatic environments, the balance that must be met to maintain, protect and enhance Humboldt County's fisheries and aquatic habitats and enable students to understand how their actions affect these valuable resources.
2. Implement and support the HCOE CAEP programs by supporting teacher partners and nurturing partnerships to best support the program, both educationally and fiscally.
3. Instill in students a sense of awareness and personal responsibility for aquatic organisms and all ecosystems.
4. Protect the state's genetic integrity of anadromous and resident fish populations in accordance with existing CDFW and NOAA Marine Fisheries regulations, with adjustments made to the type of eggs, location of release, and any other requirements stipulated by CDFW.

HCOE's CAEP not only provides students with the classroom experience of hatching fish eggs, but also provides integrated educational activities tied to Next Generation Science Standards, core academic subjects, and career explorations. Students learn about the scientific principles of conservation while learning about the lifecycle of salmonids. One of the essential elements in this program is how students' own personal actions can either positively or negatively affect the delicate balance of these essential resources. Through the HCOE CAEP, students gain knowledge and greater awareness of what constitutes a healthy aquatic ecosystem and raise salmonids for release which contributes to an increase in fish stock, while encouraging conservation and preservation of fish and wildlife. Our CAEP staff support strict

adherence to CDFW requirements with a strong collaborative working relationship with the Mad River Hatchery Director and other CDFW staff.

**7. Work Schedule:** CAEP runs between October and June. Participating teachers are recruited in the fall, with new and returning teachers to participate in a CDFW required training in early January to certify teachers. After the confirmation of participating teachers who have a CDFW-approved "Form 772-Authorization to Transport and Rear Eggs and Fish for Classroom Aquarium Education Projects" in early January, the CAEP staff duties include picking up and delivering water from the Mad River Fish Hatchery to classrooms in early February, delivering eyed eggs to aquaria with starter food for emergent fry by late February, marking of fry (fin-clipping) between April-May, and coordination of fish release and/or hatchery tour field trips between January-May (tours can happen any time). All water and egg delivery, rearing and release activities are in accordance with protocols stated in Form 772. Fish release field trips are held at the Mad River Fish Hatchery or appropriate downstream release site (i.e. Warren Creek Park, Essex Park) between mid-April and May. Teachers are asked to conduct a student assessment of their choice in order to capture student impact and learning after the fish releases. A post program survey is sent via email in June to teachers to assess program successes and any challenges encountered. New to the program over the past 2 years are three unique activities: A Facebook page to be updated throughout the school year with local, regional, state and national fisheries-related content; Edmodo discussion board for teachers; a live video conference between one or more local classrooms and school(s) in another area to occur between February and May (depending on the ability to schedule this by the California State Parks PORTS program and our local teachers); Redwood EdVentures participation in Humboldt Steelhead Days Family Fun Day in January, and participation in the CREEC Take A Child Outside Day/Teacher Resource Fair hosted by the Arcata Marsh in March.

**8. Proposer's Qualifications:** Since its inception, HCOE has coordinated the county-wide efforts of CAEP, is a leader in Environmental Education and received the DeWitt Partnership Award from California State Parks in September 2015 by supporting local PORTS programs. HCOE operates numerous educational services for schools, with a high level of program integrity. There have been no audit findings in annual, independent audits. Our CAEP staff work closely with CDFW and the Mad River Hatchery director to facilitate legal compliance with all aspects of the permit process.

**9. Amount Requested:** \$7,000.



Humboldt County Office of Education – Classroom Aquarium Education Program

10. **Other Funding Sources:** A grant for \$5,000/year is being provided by NOAA Marine Fisheries for the next 2 years (2017-19). These funds cover a minimum amount of hours for CAEP staff and essential program elements. HCOE provides in kind support estimated to be about \$8,400 for the administration of the project.

11. **Annual Project Budget:** Budget for Period October 1, 2017 to June 15, 2018

a.	<b>Salary/Wages</b>	<b>\$4298</b>
	• Wages for contracted service agreement employee to coordinate all aspects of the CAEP (\$15/hour for up to 225 hours)	3375
	• Personnel Benefits (Social Security Medicare, State Unemployment, Workers Comp, Retirement)	923
b.	<b>Materials/supplies</b>	
	Educational materials and/or supplies for aquaria	<b>\$151</b>
c.	<b>Operating Expenses</b>	<b>\$2026</b>
	• Travel Expenses/Mileage UHaul rental for water delivery (1 week of truck rental fees \$275, \$436 mileage + gas @ \$184 = \$895)	
d.	<b>Indirect Costs (7.5% of \$7000)</b>	<b>\$525</b>
e.	<b>TOTAL</b>	<b>\$7000</b>

12. **Volunteer Participation:** CAEP partners with the CCC Watershed Stewards Project (WSP) AmeriCorps members who volunteer at the fish releases facilitating games and activities with the students that enhance/supplement student learning about fish life cycle and habitat. WSP also teaches the "Wonders of Watersheds" (WOW) curriculum in Title 1 Eligible schools (low income) supporting the educational component of CAEP in some classrooms. Additional volunteers are to be recruited to support water/egg delivery schedules as needed and if available. Some teachers have volunteer experts as guest speakers who conduct educational presentations or help with aquarium set up. Parent volunteers also attend the release field trips. Depending on the class size, there may be between 2-5 parents helping out per trip. With another grant from the HCF&GAC, we can continue to operate CAEP and support Humboldt County classrooms in the raising of Steelhead from egg to fry. Over the past year we have again increased the capacity for CAEP by increasing the science content and support for teachers. Surveyed teachers indicated that this year was the best ever for organization, educational and equipment support. We hope that funding from the HCF&GAC is again available so that we can continue to educate our youth and their families about the value of maintaining healthy watersheds and fish.







2017.2  
Gunther, Micaela  
\$ 2210 partial

- 1. Name or title of project: Validating fecal pellet surveys for assessing population numbers of Roosevelt elk in Humboldt and Del Norte Counties**
- 2. Name of organization, business or individual submitting this application: Humboldt State University, Sponsored Programs Foundation**
- 3. Name, address and phone number of contact person:**

Program Contact / Project Director	Contracting Officer
Micaela Szykman Gunther Department of Wildlife Humboldt State University 1 Harpst Street, Arcata, CA 95521, USA Phone: 707-826-3520 Email: ms147@humboldt.edu	Steven Karp, Executive Director Sponsored Programs Foundation Humboldt State University 1 Harpst Street, Arcata, CA 95521, USA Phone: 707-826-4189 Email: karp@humboldt.edu

**4. Project background description and location:** North American elk (*Cervus canadensis*) are perhaps the most iconic game species in the United States. Enormous herds once roamed throughout California, but due to overexploitation were nearly extirpated in the early 1900s. Even after a century of impressive conservation efforts, hunting opportunities for elk in California still lag far behind demand. Recent work and anecdotal evidence suggest that elk in the Northwestern Hunt Zone have increased dramatically over the past two decades, with some even calling the population "irruptive". In 2015, over 10% of all elk tags available in California were offered in the Northwestern zone. Despite the unique hunting opportunities available in this rugged part of our state, continued increase in elk numbers has caused conflicts with private landowners throughout Humboldt and Del Norte Counties. While multiple stakeholders see a clear need for increased take of this iconic species, little data exist on which to make basic management decisions. Collecting data on these herds is particularly difficult due to the complex terrain and thick canopy cover. It is therefore vital to both collect baseline data and develop more robust, efficient methods for monitoring these herds.

Specifically, Roosevelt elk (*Cervus canadensis roosevelti*) will be surveyed in the following areas:

Del Norte County: Tolowa Dunes State Park, Smith River bottoms, Crescent City surrounds;  
Humboldt County: Orick, Prairie Creek State Park / Davison Rd lookout / Gold Bluffs Beach, Bald Hills Road, and Redwood Creek area.

**5. Project and work procedure description:** Some observations on the behavior of elk in this region were conducted several decades ago, and most recently, during the summer of 2016, with generous support from the Humboldt County Fish and Game Commission Grant of 2016. CDFW is interested to learn more about the herds that range in this region, and more specifically, how many elk there are in each herd and overall, what mortality factors are important to influencing recruitment, where they range, and in which habitats they spend most of their time, and on which vegetation types and land use areas they will have the most impact. Some questions we aim to answer include: 1) What is the recruitment in this population? More specifically, a) what proportion of females produce calves each year, and b) what mortality factors influence calf survival? Graduate student Erin Nigon has worked closely with CDFW to radio-tag mothers and their calves and is monitoring calf survival and movements very closely via radio telemetry. 2) What survey methods are most appropriate to count elk in the region? Graduate student Rudy Mena is conducting intensive fecal pellet counts in areas of high and low use – established from known accurate locations obtained via satellite collars on 17 cows – to evaluate non-invasive methods that can be used to count elk in the future when intense monitoring via satellite collars by CDFW and HSU may not be available or desirable.

**6. Project objectives:** The main objective of this work is to collaborate with CDFW (Carrington Knox, Elk Biologist, and Dave Lancaster, General Biologist) on increasing the efficiency of methods used to determine population demographics of Roosevelt elk in northwestern California. With this overarching goal in mind, the work proposed here is designed to obtain information on local elk herds while supporting field research experience for wildlife biologists in training (graduate and undergraduate Wildlife students at HSU).

Students are currently in the field on a daily basis monitoring radio tagged calves for survival and

conducting fecal pellet counts on the known herds in Humboldt and Del Norte Counties. Three graduate students and over two dozen undergraduate students are collecting data on:

- a. herd composition, locations and numbers of individuals at each herd sighting;
- b. calf survival, by monitoring mortality signals on radio-tagged calves and investigating mortalities to determine cause of death;
- c. habitat characteristics where elk deposit scat to understand what habitats elk prefer and where are best areas to survey for scat; and
- d. scats are being collected for future genetic mark-recapture analysis to determine estimates on elk numbers, and to compare these estimates to information collected from the collared herds in this region.

**7. Work schedule:** 1 July – 1 September 2016: students will conduct elk surveys 5-7 days/week for ~10 weeks. 1 September – 30 December: students will conduct elk surveys 3-5 days/week for ~16 weeks. Surveys will be organized by region/county and will be conducted at times when elk activity is highest, around early morning and evening times. Surveys will be more intense in summer months and more limited during Fall when students are back in school. However, we are interested to follow animals during the rut period (Sept-Oct), so we will continue regular, but less frequent surveys during that time.

After December, we will collate data and conduct analyses on herd composition and movements around Del Norte and Humboldt Counties. We aim to inform CDFW regarding numbers and location of elk herds as they prepare to radio-collar additional animals over winter (estimated November 2017 through February 2018). We will estimate calf mortality at the end of summer (August-Sept) and winter (Feb-Mar) and plan to prepare our final report in May 2018.

**8. Proposer's qualification:** Micaela Szykman Gunther is a wildlife biologist and Professor at Humboldt State University (HSU). She has conducted field research on mammals for 20+ years and has been supporting and supervising students conducting field projects through HSU since 2006. She

Gunther, Micaela

has published dozens of peer-reviewed papers on mammal ecology and behavior over the years (many co-authored with students) and successfully graduated 10 Masters (and 1 PhD) students. She is collaborating with professors Tim Bean and Rick Brown from HSU Department of Wildlife for this elk work.

Last year, HCF&GC supported a related project for HSU students, with great success. Three students completed honors theses that were supported by the travel funds provided by your organization, and an additional 8 students conducted surveys in the field, some getting the opportunity to assist CDFW with cow captures in spring 2017. CDFW biologist C. Hilson sent the following summary in an email dated 22 Aug 2016: "To date, 147 elk observations have been performed by HSU, CDFW, and Green Diamond Resource Company. HSU alone performed 115 observations, accounting for 78%. Your participation in the elk project is invaluable."

**9. Amount requested:** \$6,688

**10. Other funding sources:** We are requesting travel for summer surveys. HSU and CDFW are providing in kind support in the form of salaries for PIs and graduate students.

**11. Annual project budget:** \$6,688

**a. Salaries:** PI and graduate student salaries supported by HSU; undergraduate students are volunteers;

**b. Materials and supplies:** binoculars, range finders, GPS units, measuring tapes, flagging, etc. have been provided by the HSU Wildlife Department stockroom

**c. Equipment:** \$0

**d. Operating expenses:** \$6,688

**i. Equipment lease/rental:** \$0

**ii. Transportation costs:** \$5,350 for travel costs: Round trip travel to Crescent City/Tolowa Dunes State Park from Arcata = 175 miles. Round trip travel to Orick/Prairie Creek/Gold Bluffs Beach/Bald Hills from Arcata = 100 miles. Average of 100 miles per day for 2



Gunther, Micaela

vehicles x 5 days/wk x 10 weeks = 10,000 miles; 10,000 miles @ \$0.535/mile = \$5,350 to cover multiple volunteers for summer surveys

iii. **Building/storage rental:** \$0

iv. **Support services:** \$0

v. **Other:** \$1,338 to cover 25% indirect costs (required)

e. **Budget total:** \$6,688

**12. Volunteer participation:** HSU Wildlife undergraduate students are keen to gain experience conducting applied field work, and have volunteered to visit elk herds on a regular basis throughout the summer, usually accompanied by a mentoring graduate student. Thirty-six undergraduate students are signed up on our volunteer calendar to participate in our work this summer, with over half of those planning to visit elk herds 3-5 days/week using personal vehicles. Routes will be decided ahead of time. Students will be properly trained on data collection methods and observation protocols to minimize disturbance to study animals. This worked very well for us last summer, and logistics are proceeding even more smoothly this summer. At this time, volunteers understand this is on their time and dime, but are willing to work for the experience. Last summer, we were able to reimburse travel expenses with support from this group, and we hope to be able to do this again this summer. Reimbursement funds will enable students from under-represented and fiscally underprivileged backgrounds to participate who would otherwise not be able to get involved and gain these valuable experiences. We expect additional theses to benefit from this support in the coming months.

2017-3

\$ 2000

**1. Name or title of project:**

The Redwood Creek, South Fork Eel River Low-Flow Monitoring and Water Conservation Education

**2. Name of organization, business or individual submitting this application:**

Salmonid Restoration Federation (SRF)

**3. Name, address and phone number of contact person:**

Dana Stolzman  
425 Snug Alley, Unit D  
Eureka, CA 95501  
(707) 923-7501

**4. Project background description and location:**

Since 2013, Salmonid Restoration Federation (SRF) has been engaged in low-flow monitoring as well as water conservation and water rights education in Redwood Creek, a critical tributary in the South Fork Eel watershed. SRF's low flow study has been paired with a feasibility study to determine the social and environmental feasibility of transferring Sanctuary Forest's successful Mattole headwaters water storage and forbearance program to Redwood Creek.

The Redwood Creek watershed spans 26 square miles and has historically supported strong runs of coho, Chinook and steelhead. Juveniles of these species are routinely found throughout the watershed in spring and early summer, with coho and steelhead rearing in the watershed until migrating to the ocean the following spring. Today, the watersheds, tributaries, and drainages of the South Fork Eel River basin are suffering from the legacy impacts of industrial timber management, extensive road networks, parcel sub-divisions, and hundreds of unregulated water diversions. Native salmon populations are now endangered and rural communities have virtually no baseline information or data about historic flows in the small creeks that many local residents depend on.

During the extended drought, the California Water Action Plan identified five priority watersheds in the state for flow enhancement projects including the South Fork Eel river. Since this area is undammed and lacks much municipal water infrastructure, there is virtually no way to control flows in the summertime. Most of the rural landowners in our project area are responsible for water stewardship on their land so there is a critical need to educate and provide guidance to landowners about winter water storage options and facilitate community-based dialogue about water conservation strategies to protect fish including coordinated diversions, forbearance, and conservation measures.

The issue of water rights and coming into compliance with California water law poses a significant challenge and opportunity for rural residents of the Redwood Creek watershed who want to engage in water conservation practices that will benefit people and fish. SRF is uniquely qualified to provide landowners with the technical assistance and educational resources that they need in order to come into compliance with state water laws so that they can legally and efficiently install winter water storage that will improve stream flows for fish and other aquatic species. Since the State Water Board is in the process of establishing instream flow requirements for the SF Eel, this is an imperative time to collect accurate data about water usage and instream flows.

SRF has already successfully completed several phases of this project including initiating landowner outreach, conducting water usage surveys and low-flow monitoring, hosting community house meetings, organizing water conservation workshops and water rights clinics, providing technical assistance for landowners, and building capacity for community-based water conservation projects.

#### **5. Project and work procedure description:**

SRF is seeking funding to complete our final monitoring season and to develop and distribute educational materials that will help foster a community-led water conservation and ecological restoration program in the watershed. Based on the low flow data and public outreach that we have already conducted, SRF believes that it is imperative to share flow data to encourage landowners to voluntarily forbear from water diversions in the dry season when juvenile salmonids are most threatened by lethal water temperatures and lack of instream flows. Additionally, SRF would like to continue our educational campaign in order to build capacity for water conservation projects as well as educate landowners about the regulatory requirements associated with various forms of water storage.

The current Redwood Creek Water Conservation Project has three components: 1) Bi-weekly low flow monitoring to gage flows throughout the summer; 2) Targeted education and outreach to rural landowners regarding water conservation opportunities and requirements; 3) Capacity building for water conservation projects in coho bearing streams. The work procedures are described below:

##### **Task 1: Low Flow Monitoring**

Monitoring Coordinator, Bill Eastwood, will conduct discharge monitoring of five Redwood Creek mainstem sites and four tributary sites in the watershed on a bi-weekly basis. Data loggers will be deployed at RC1, RC2, RC2.5 RC3, MC2 and URC1. The loggers will be downloaded monthly and the continuous data will be compared to the bi-weekly spot measurements. (Please see the attached map).

Flow monitoring procedures include setting up the sites, collecting discharge measurements, and data logger downloads. The monitoring coordinator will enter the stage and discharge measurements (and ancillary information) into a spreadsheet that translates the measurements into Gallons Per Minute (GPM) which is the most convenient way to translate flows for landowners who are diverting water. SRF will update educational signs in the Redwood Creek watershed with the bi-weekly measurements so landowners can easily see the current flows. Additionally, SRF shares this information on a real time graph on our website and on a Redwood Creek facebook page that we maintain in order to share information with residents.

At the end of our monitoring season, we will compile and send the HOBO data logger files adjusted for barometric pressure to our consulting hydrologist, Randy Klein, who will develop stage-discharge rating curves from the manual data and compute logger discharge. He will also generate graphs of both data sets (manual and logger), and write a brief report on the 2017 data collection.

##### **Task 2: Targeted Education and Outreach about Water Conservation Opportunities and Requirements**

SRF has developed several educational brochures and modules over the last several years in order to educate rural landowners in Humboldt County about the need to conserve water, store water for use in the summer months, and the regulatory requirements associated with various water storage methods. Our educational

brochures have included a *Know Your Water Rights* brochure that outlines the steps to filing for riparian and appropriative rights or a Small Domestic Use registration. We have also developed a Best Management Practices (BMP) brochure that provides valuable checklists for various types of activities (water system, water storage, pest control, chemical storage, catch-basin, roads and crossings, developed sites, soils, stream banks, water management, habitat enhancement and protection) as well as a land self-assessment checklist.

Although we have developed, vetted, and printed these brochures with support from the State Water Board, we currently lack the funding to distribute and disseminate this information. SRF has identified dozens of venues for distribution including schools, institutions, agencies, Resource Conservation Districts, consultants, gardening supply centers, and realty offices so we believe it would maximize our educational efforts if we could renew distribution of these materials and online resources.

Additionally, SRF is in the process of developing a *Navigating Water: Regulations for Small-Scale Water Storage Projects in California's Five County Region* pamphlet that outlines the county, regional, and state regulatory requirements especially pertaining to Humboldt County, the North Coast Regional Water Quality Control Board, and state mandates administered by California Department of Fish and Wildlife and the State Water Board. In the wake of cannabis legalization and water rights compliance sweeps, it is more important than ever to educate residents about Humboldt County permitting and state water reporting requirements for landowners who are striving to accurately calculate their water budget and voluntarily forbear from diverting water.

The sub-tasks associated with the educational campaign include developing educational materials, distribution and dissemination of these materials; informing residents of the area about low-flow conditions and the need to forbear from water diversions; and providing educational opportunities including an upcoming greywater workshop, water rights clinics, and online webinars.

### **Task 3: Capacity Building for Water Conservation Projects**

SRF is engaged in identifying priority water conservation projects as part of our Redwood Creek Water Conservation Monitoring and we have developed planning grants for this watershed that have been submitted to CDFW's Fisheries Restoration Grant Program, CDFW's Watershed Branch under the Prop 1 solicitation, and we are currently preparing a design proposal that will be submitted to the Wildlife Conservation Board for a large-scale off-channel groundwater recharge project in the headwaters of Redwood Creek.

### **6. Project objective(s), (What is the purpose of the project?):**

The purpose of the project is to restore instream flows to Redwood Creek and the South Fork Eel River. Recovery of coho salmon in the South Fork of the Eel River is critical to the recovery of the Southern Oregon Northern California Coast (SONCC) Evolutionary Significant Unit of Coho Salmon. Despite tens of millions of dollars of state and federal dollars spent on worthwhile habitat restoration projects in this region, salmon are suffering from historic low flows. The cumulative impacts of thousands of illegal water diversions coupled with environmental stressors are diminishing remaining habitat and particularly impacting spawning and rearing habitat in the tributaries.

Our goals are to encourage landowners to conserve water and invest in sustainable, legal, and properly-sited water storage in order to enhance stream flows in Redwood Creek for juvenile salmonids. The objectives of the Low-Flow Monitoring and Water Conservation Education Campaign are as follows:

- 1) Complete a final year of low-flow monitoring in Redwood Creek, SF Eel River
- 2) Distribute educational materials and resources to rural landowners to provide information on Best Management Practices, water conservation planning, water rights, and regulatory requirements;
- 3) Issue low flow advisories via signage along Redwood Creek, updating the Redwood Creek facebook page, and updating the low-flow graph on the SRF website. [www.caisalmon.org/programs/redwood-creek-low-flow-monitoring](http://www.caisalmon.org/programs/redwood-creek-low-flow-monitoring)
- 4) Write and distribute articles, press releases, and announcements regarding water conservation educational resources and opportunities.
- 5) Work with the County to create incentives for landowners to increase water storage legally and according to environmental standards that benefit fish and wildlife.

## **7. Work Schedule**

### Summer 2017

- Conduct low-flow studies on mainstem Redwood Creek and adjacent tributaries
- Update water rights and water conservation educational materials
- Distribute educational materials through appropriate channels (educational institutions, Resource Conservation Districts, garden supply stores, libraries, hardware stores, public meetings);
- Submit a Wildlife Conservation Board grant for a large-scale flow enhancement project in the Redwood Creek watershed

### Fall 2017

- Synthesize low flow data for hydrologic analysis
- Continue distribution of educational materials
- Work to establish a framework for collaborative voluntary water conservation programs

### Winter 2017

- Submit final hydrologic report
- Share results of the feasibility study of the "technology transfer" of the Mattole's forbearance program
- Make County recommendations to increase water storage opportunities for landowners
- Present findings to agencies, Eel River Forum, Board of Supervisors, and the California Department of Fish and Wildlife

## **8. Proposer's qualification (re: ability to successfully carry out the project).**

Salmonid Restoration Federation was formed in 1986 to help stream restoration practitioners advance the art and science of watershed restoration. Salmonid Restoration Federation promotes restoration, stewardship, and recovery of California native salmon, steelhead, and trout populations through education, collaboration, and watershed capacity building. Our goals are to restore and recover California salmonids, improve water quality in California watersheds, and enhance watershed restoration efforts in California.

Salmonid Restoration Federation is uniquely qualified to perform the proposed work based on our long and successful history of providing public forums for community engagement and best available science regarding the restoration of critical salmonid habitat. SRF produces the largest salmon restoration conference in California as well as other regional events including the annual Coho Confab, the Spring-run Chinook symposium, a Steelhead Summit, and several North Coast educational events including water conservation workshops, water rights clinics,

sediment and erosion control field schools, and an upcoming greywater workshop. SRF has had a strong presence in this watershed over the last four years and a long history of working cooperatively with local non-profit restoration groups and the agencies mandated to oversee fisheries recovery and protect water resources.

This year, SRF completed the *Flow Enhancement Feasibility Study* for a portion of Redwood Creek (funded by CDFW's Drought Solicitation and prepared by Stillwater Sciences) and the *Low Flow Stream Discharge Monitoring Report* (funded by the North Coast Water Quality Control Board and prepared by consulting hydrologist Randy Klein). We have successfully completed four years of low-flow monitoring and education.

The Redwood Creek Low Flow Monitoring, Planning, and Education grant from the NCWQCB funded SRF to conduct low flow monitoring in 2015 and 2016 with the addition of data loggers that enabled us to collect continuous data and develop discharge curves. SRF requested an extension of this grant so we could conduct streamlined monitoring during the 2017 low-flow season so we can compare the extended drought years' data set with data collected in the 2016-2017 high precipitation year. This extension was granted that will partially fund the streamlined monitoring and conduct targeted landowner education. SRF is hoping to secure additional funds in order to be able to complete the monitoring effort and corresponding landowner education and outreach.

**9. Amount requested:** \$2,000

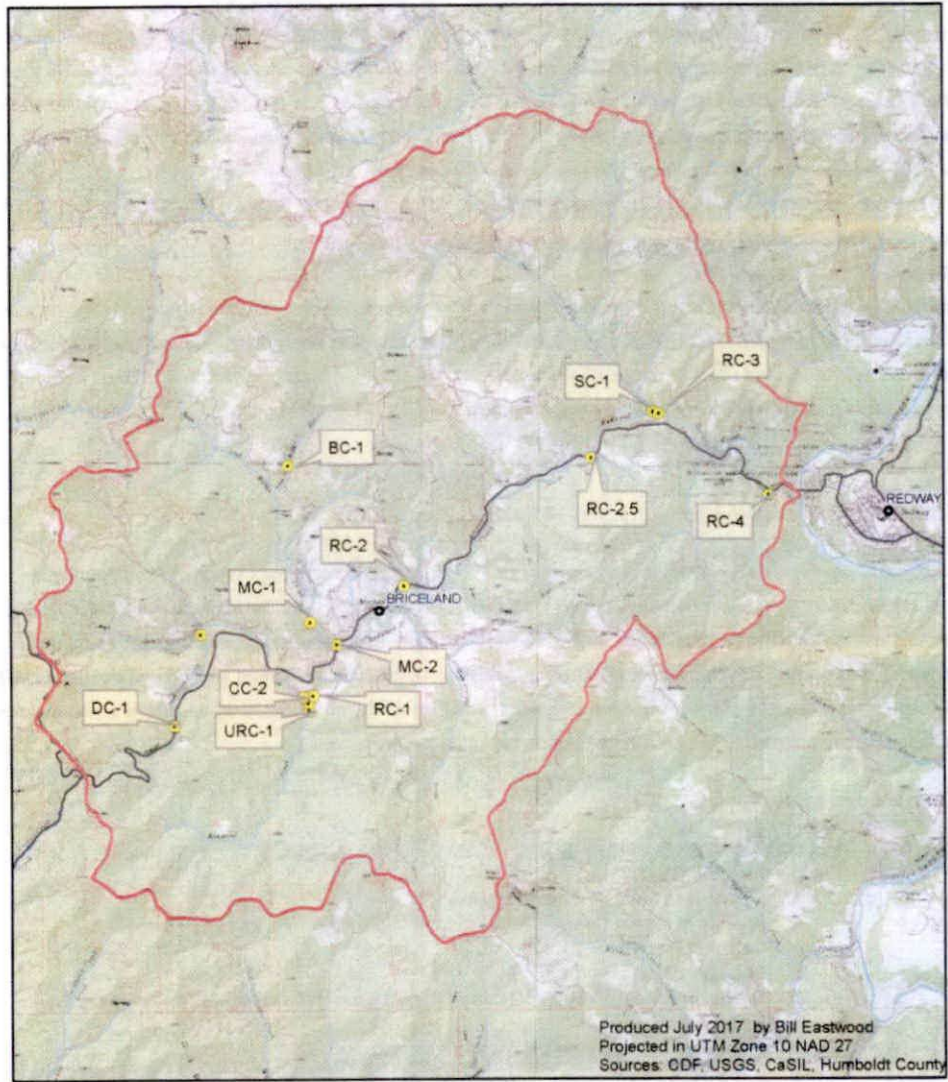
**10. Other funding sources and amounts of funding they are providing:**

This project has previously received funding from the CDFW's Drought Solicitation, Humboldt Area Foundation, McLean Foundation, Bella Vista Foundation, and the NCWQCB's 319h program. Currently, we only have \$5,500 remaining funding from the NCWQCB for this final streamlined monitoring season. A grant from the Humboldt County Fish and Game Commission would enable us to complete this final monitoring season and do much needed continued outreach about water conservation strategies and the importance of legally storing water in the winter to be able to improve instream flows for fish and residents during the dry season.

**11. Annual project budget:** \$25,000

- a. Salaries (total): \$8,000
- b. Materials and Supplies (total): \$2,800
- c. Equipment (total): \$5,000
- d. Operating expenses (total, and itemize below):
  - i. Equipment lease / rental: in-kind equipment provided by Sanctuary Forest
  - ii. Transportation costs: \$1,200
  - iii. Building / Storage rental
  - iv. Support services: \$8,000 (Monitoring Coordinator, Hydrologist, Stillwater Sciences)
  - v. Other
- e. Budget grand total. Use and Sales taxes must be paid: \$25,000

**12. Volunteer participation** (if any). Volunteer participation includes landowners who are assisting with posting low-flow advisories, Trees Foundation who is assisting in graphic design of educational materials, and HSU graduate students who are collecting additional Redwood Creek data as part of a State Water Board instream flow assessment in the South Fork Eel River. Additionally, Trout Unlimited's California water project attorney reviews our educational materials to ensure that information pertaining to California water law and associated regulatory requirements are legally vetted and accurate.



**REDWOOD CREEK LOW FLOW STUDY MONITORING STATIONS, JULY 2017**

SALMONID RESTORATION FEDERATION

Legend

DC = Dinner Creek, CC = China Creek  
 URC = Upper Redwood Cr., RC = Redwood Creek  
 MC = Miller Creek, BC=Buck Creek, SC = Seely Creek



2017.4

\$790 partial

**Application for Humboldt County Fish and Game Grant Program – July 2017**

1. **Project Title:** Eel River Recovery Project 2017-2018 Fall Chinook Salmon Assessment and 2018 Sacramento Pikeminnow Monitoring and Management
2. **Organization:** Eel River Recovery Project
3. **Contact Person:** Eric Stockwell, ERRP Outdoor Coordinator, c/o PO Box 214, Loleta, CA 95551. Phone: 707 845-0400.

**Background:** The Eel River Recovery Project (ERRP) is a grassroots organization formed in 2011 in response to problems with Eel River water quality and flow and concern over the possible disappearance of native salmon and steelhead runs. ERRP is a solutions based group that does not get involved in advocacy but instead supports citizen science and conducts outreach and education to involve the community in restoring the Eel River ecosystem. After operating as a sponsored group of the Trees Foundation from 2011 to 2016, ERRP became its own tax exempt non-profit organization (IRS # 47-4811332). Since 2012 ERRP has been conducting a citizen-assisted fall Chinook salmon population assessment, which allows trend monitoring but also detection of fish disease outbreaks and identification of problems like organized poaching and driving through salmon redds. Sacramento pikeminnow monitoring began in 2016 and baseline and trend data have been collected on a South Fork Eel River reach from Rattlesnake Creek to Standish Hickey State Recreation Area. Citizens have expressed concern at ERRP public meetings since 2011 about this non-native fish that poses a risk to Pacific salmon species and other native fishes. ERRP is working in cooperation with Dr. Bret Harvey at Redwood Sciences Lab, who has studied Eel River pikeminnow and is encouraging ERRP to pursue permits for removal of large adults. ERRP press accounts, social media posts, scientific reports, radio and TV coverage, and streaming video content raise awareness of Humboldt County citizens and get them excited about and in touch with their native Eel River fall Chinook run and provide them more information on the pikeminnow problem and how to cope with it.

**Work Plan:** What follows is a narrative of what the fall Chinook assessment and pikeminnow monitoring and management projects will accomplish, although performance of the tasks will be funded mostly from other sources:

**2017-2018 FALL CHINOOK SALMON ASSESSMENT**

**Planning Meeting/2017-2018 Monitoring Plan:** ERRP will convene a meeting in cooperation with the Wiyot Tribe and Humboldt Redwood Company that have been co-sponsors of the fall Chinook salmon assessment. The California Department of Fish and Wildlife, U.S. Fish and Wildlife Service and National Marine Fisheries Service and other non-profit organizations will be invited to participate. Prospective dive dates will be set for October and November and lead organizations for each dive will be established. A written *2017-2018 Fall Chinook Monitoring Plan* will result from the meeting.

**Holding Pool Surveys:** In late August or early September, pool depths from Weymouth Bluff Pool to the Creamery Pool below Fernbridge will be measured from a kayak using a depth finder. Location of measurements will be captured using GPS, which will allow mapping of pool depths and contours, which will serve as baseline data to allow trend monitoring of this very important indicator of fall Chinook adult holding capacity. Electronic maps will be created in ArcGIS and graphics showing depths will be made for final report and all data will be shared with agencies and Tribes.

**Public Outreach:** Outreach will begin in late September with press releases and internet and social media used to inform the public about river conditions as the fall Chinook run begins to stage, and will also help to recruit dive volunteers. ERRP's website ([www.eelriverrecovery.org](http://www.eelriverrecovery.org)) will post press releases and reports on dives as



well as video when dives begin. ERRP also has a Facebook page that creates excitement using social media and will also be used to recruit volunteers. Dive results will be shared on-line and a final press release will be sent out in conjunction with publication of the final report. Videos of fish and dives will also be shared on the internet via the ERRP Vimeo channel.

*Lower Van Duzen Reconnaissance:* Historically the lower Van Duzen was suitable for holding adult fall Chinook and jacks and these fish entered the river in late August. Today this section of the river loses surface flow in late summer and early fall and there is a major hazard with fish stranding above the convergence of the Van Duzen and the main Eel River. A survey during September will photo document conditions, measure pool depths and characterize fish present. If flows rise sufficiently for salmon to pass up the Van Duzen and then flows drop below levels needed for further migration, the same reach will be surveyed in October or November. A drone with video capacity may be used to supplement information about this reach.

*Video Drone:* The Friends of the Van Duzen River is currently carrying out a U.S. Forest Service More Kids in the Woods grant that will be using a drone for assessing riparian conditions with student scientists throughout the watershed. The drone is available on loan to ERRP and will be used to document and possibly enumerate holding fall Chinook salmon in shallow pools in the lower Eel River. The best results are anticipated on calm mornings when there is no wind. If drones can successfully provide sufficient resolution for counting fish, it would reduce the stress levels from those of dives.

*Organize Dives:* ERRP has a list of all dive volunteers that have participated since 2012 but new recruitment is always desirable. Previous divers will be called, new volunteers calling in response to outreach will be screened, and recruitment will also be conducted from the Humboldt State University fall 2016 scientific dive class. Additional equipment needed by volunteers will be rented prior to the dives.

*Conduct Dives:* Convene fisheries professionals and volunteers and conduct dive census of pools in the lower Eel River using standard dive techniques used elsewhere in northern California by CDFW and the USFS. Record dive results and use as basis for final report.

*Kayak Surveys:* If flows increase enough for Chinook to migrate upstream from lower Eel River holding pools, but not enough for migration above Dyerville, ERRP will use kayaks to survey holding and spawning Chinook salmon. GPS locations will be recorded and maps made of locations of concentrations of fish.

*Migration and Spawning Documentation:* Generally the second half of the Chinook salmon run after December 1 passes upstream under the cover of high water, but low flow conditions may also allow observation of migrations or mainstem spawning. Often ERRP focuses late season efforts on spawning in tributaries like Little Larabee Creek on the Van Duzen, Dobbys Creek near Ft Seward, and tributaries of Bull Creek on the lower South Fork. Late season flows may necessitate ERRP following Chinook in Dos Rios, Covelo, Branscomb, and even in headwater tributaries of Outlet Creek above Willits.

*Organize Data, Photos, and Videos:* To capture the findings all data will be transferred to Excel format for archiving and sharing. High grade photos of pools, dives and from the drone will be selected, archived and shared. Videos will be reviewed and edited for posting to the Internet on the ERRP website and Vimeo channel.

## SACRAMENTO PIKEMINNOW TREND MONITORING AND MANAGEMENT

**2018 Trend Monitoring:** The trend monitoring pikeminnow dive will take place in the last week in June or first week in July 2018 in the South Fork Eel River index reach from Rattlesnake Creek to Standish Hickey Recreation Area.

**Expand Pikeminnow Monitoring Reaches:** ERRP would also assist volunteers throughout the Eel River basin in identifying large concentrations of pikeminnow and would join them in the field to photo and video document such occurrences.

**Pikeminnow Management:** In 2017, ERRP will be attempting to get permits from the California Department of Fish and Wildlife and the National Marine Fisheries Service to experimentally remove large adult pikeminnow (>16" or 400 mm). In the event that these permits are granted, ERRP will support these management activities as well as trend monitoring.

**Purpose of Project:** The primary purpose of the ERRP fall Chinook assessment project is to make sure the community understands run trends and guards against extirpation of the species. Knowing that fall Chinook runs are exhibiting resilience gives people hope and also helps build enthusiasm for conservation and restoration efforts. Other benefits of the ERRP project are early detection of fish disease problems, such as in 2015 when fall Chinook blindness was diagnosed in lower Eel River holding pools. ERRP then assisted CDFW in capturing specimens that were then sent to UC Davis for analysis. In 2016 the fish disease problems did not occur, but having ERRP and its volunteers keep tabs on fish health and welfare is needed every year. Poaching in the lower Eel River during periods of low water can be very systematic and significant and ERRP documents problems and alerts CDFW. Driving through redds with 4 wheel drive vehicles during periods of drought remains a problem and ERRP will continue educational efforts to try and discourage such behavior. The ERRP Sacramento pikeminnow monitoring and management project is aimed at increasing our understanding of pikeminnow behavior, population levels and the location of large adults so that the species can ultimately be managed, reduced, and controlled. The long-term objective is to prevent pikeminnow from again rising to a dominant position in the Eel River fish community and to allow native salmon and steelhead, as well as other native fishes like suckers and sculpins, to rebound. Dr. Peter Moyle suggests that since the pikeminnow has co-evolved with similar fish communities in nearby basins like the Russian River, once their population is suppressed an ecologically balanced and stable Eel River fish community will result.

7. **Work Schedule:** The 2017-2018 fall Chinook salmon assessment will begin in September 2017 and go through January 2018. Chronological phases will be 1) lower Eel River pool and lower Van Duzen reconnaissance, 2) planning meeting, 3) lower river paddle board/hook and line surveys, 4) dive organization, 5) dive execution, 6) migration tracking/main river spawning checks, 7) tributary spawning documentation, 8) data, photo and video organization, and 9) analysis and reporting by late January 2018. The pikeminnow South Fork Eel River trend monitoring dive will take place in late June or early July 2018, but the timing of basin-wide tracking will be dictated by the flows next summer. A lower than average rainfall year may allow pikeminnow observations in late May, but suitability for diving may diminish due to risk of exposure to swimmer's itch or cyanobacteria starting in mid-July in such years. The wet year window for pikeminnow observation would be mid-June through September. The optimal period for removal of pikeminnow, if management is permitted, remains undecided. The full pikeminnow report would be produced by September 2018.

8. **Qualifications:** The contractors to ERRP that will perform this work have proven experience and appropriate qualifications. Their ability to perform is demonstrated in the reports, data, videos, and photos that are readily available to the public at [www.EelRiverRecovery.org](http://www.EelRiverRecovery.org).

*Eric Stockwell:* Eric is an avid outdoorsman, a licensed outdoor guide, and an excellent photographer with a passion for the Eel River and a knack for exciting people with social media. He began assisting ERRP with kayak surveys in December 2013 and went on to greatly assist the project in the 2014-2015 season when he along with other key ERRP volunteers surveyed all reaches of the Main Stem Eel from Fortuna to Dyerville multiple times. Eric's work to document, map and report on over 200 salmon redds on the Main Stem filled a data gap among agencies, as CDFW and others do not survey spawning salmon in low flows on the Main Stem. These efforts and a continuing dedication to Fall Chinook monitoring activities put Eric in a position as our lead surveyor in the 2015-2016 season, and he continues as our lead on the lower river surveyor in the 2015-2016 season, and he continues as our lead on the lower river. Eric has the equipment and skill set to collect data on pools and the capability to master using a drone for assessing holding fish in lower Eel River pools. His boating skills and organizing ability insure that lower Eel River spawning surveys will be carried out, should conditions prevail that allow. In support of the pikeminnow dives, Eric demonstrated capacity as a gourmet camp chef, fueling dive teams both after a hard days work and in the morning before surveys. Driving the gear boat on the pikeminnow dives (our water Sherpa), collecting GPS points, or slapping on the mask and snorkel to dive to 25 feet deep to spy on pikeminnow, he is ready to contribute to all aspects of the projects he is involved in and always enthusiastic in his work.

*Patrick Higgins:* Pat is the Managing Director of ERRP and has a 30 year career as a consulting fisheries biologist and watershed scientist. He leads the ERRP basin-wide water temperature and flow monitoring project and coordinates with UC Berkeley and Santa Cruz on cyanotoxin monitoring. Pat has written Eel River fall Chinook salmon reports since 2012 for ERRP and has now published four reports on Eel River pikeminnow.

*Dr. Paul Trichilo:* Paul specializes in spatial data analysis and GIS and is proficient in ArcGIS and ArcView. He will produce maps for posting to the internet and for illustration of reports of pool depths, locations of spawning salmon, pikeminnow distribution and other themes.

*Diane Higgins:* Diane maintains the ERRP website ([www.eelriverrecovery.org](http://www.eelriverrecovery.org)) and the ERRP Facebook page as well as being a professional copy editor. She will post information on the web and serve as editor of press releases and reports.

9. Amount Requested: \$2,000

10. Other Funding: The Eel River fall Chinook salmon assessment and the pikeminnow monitoring and management activities will be funded from diverse sources like the Patagonia World Trout fund, Salmon Restoration Association, other grants, private businesses, patrons and ERRP membership dues.

11. Budget:

Contractor	Hourly	Planning	Dives/Surveys	Reports_PR	Maps	Total
Eric Stockwell	\$50	\$2250	\$4000	\$750	\$200	\$7200
Pat Higgins	\$75	\$1500	\$6000	\$3500	\$750	\$10500
Paul Trichilo	\$75				\$1500	\$1500
Diane Higgins	\$50			\$1500		\$1500
Travel	\$0.54/mi					\$2000*
ERRP Admin	10%					\$2270
<b>Total Cost</b>						<b>\$24970</b>

\* Only item for which HCFGAC funding is being requested.

- a. *Contract Services (total):* \$20,700
- b. *Materials and Supplies (total):* \$0
- c. *Equipment (total):* \$0
- d. *Operating expenses (total, and itemize below):* Administration \$2270
- i. *Equipment lease/rental:* \$0
- j. **\*Transportation costs: \$2,000 (3,704 miles @ \$0.54/mile)**
- k. *Building/Storage rental:* \$0
- l. *Support services:* \$0
- m. *Grand Total:* \$24, 970

n. *Volunteer Participation:* ERRP has benefitted from hundreds of volunteer hours donated by people throughout the Eel River watershed since its inception in 2011. Dozens of those volunteers have joined dive teams, kayak surveys or become independent fish watchers relaying information to ERRP about salmon migrations and spawning concentrations and joining in pikeminnow dives. We expect at least 200 volunteer hours to be donated as a match for this grant and we also intend to pursue additional resources to support volunteers throughout the watershed in the latter portion of the run and in pikeminnow observations during the summer. We will be looking for a few high quality divers for our 2018 pikeminnow trend monitoring but hope the response from the public is also high, which would stimulate ERRP volunteer coordinators to visit additional locations with volunteers. Several dive clubs whose members are spear fishermen are available to ERRP, but whether their volunteer services will be needed is dependent on whether permits for pikeminnow removal are granted in 2018. In the event that fundraising does not cover the full amount of the project, mission driven ERRP contractors will make sure all deliverables described above are accomplished, even if it means volunteering instead of getting paid.