Friday, October 16, 2020



### California Fish Passage Forum

Project Name	Mid Klamath Creek Mouth Enhancement Project
Contact Name	James Peterson
Lead Organization	Mid Klamath Watershed Council
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Date	Friday, October 2, 2020
PROJECT INFORMATION	

#### 1. Location of Project

41.30222222, 123.53805556

2. Attach a map of your project



# 3. Description of project, including, deliverables and outcomes you seek to achieve. Please clearly describe which portion of the project Forum funding would be applied to, and the specific deliverables and outcomes expected to result from this funding.

Since 2001, the Mid Klamath Watershed Council (MKWC), Karuk Tribal Fisheries Program (KTFP), the Salmon River Restoration Council (SRRC), and the US Forest Service (Orleans Ranger District, Happy Camp/Oak Knoll Ranger District) have been working together to identify and manually treat barriers to anadromous fish passage on key tributaries in the Mid Klamath Subbasin. To date, we have maintained an ongoing effort to improve adult and juvenile anadromous fish passage at the mouths of tributaries to the Mid Klamath, Salmon and Lower Scott Rivers. MKWC, KTFP, SRRC and USFS biologists have identified streams throughout the subbasin that chronically have fish passage problems at or near their confluence with the mainstem Klamath, Salmon and Lower Scott Rivers. The Mid Klamath Subbasin Fisheries Resource Recovery Plan calls for the identification and implementation of improved fish passage, as well as the assessment and evaluation of long term restoration projects. Assessments will be completed on all identified tributaries prior to implementation.

Assessments of these streams will include: identification of low flow barriers, potential long-term solutions to historic problems, presence/absence surveys, and assessments of qualitative features. Low flow barriers to these anadromous streams and temporary dams built for fire suppression and or recreational purposes (swimmers dams) will be manually reconstructed to allow for adult and juvenile fish passage, where feasible. MKWC and partners began this project in 2008 and have expanded from working on only a handful of creek mouths, to surveying up to 72 creeks in the Mid Klamath for fish passage barriers.

Barrier identification is determined using the CDFW Salmonid Stream Habitat Restoration Manual

#### Project deliverable will be

1. assessments of the first 1000 feet of up to 40 tributaries to the Klamath River to identify any barriers that would include low flow barriers, swimmers dams, debris jams, road crossings, or perched alluvial creek mouths that inhibit juvenile and adult salmonid migration. All barriers will be prescribed a treatment and if possible, manual hand work will be conducted at barrier to improve fish passage. Along with directly working on identified barriers,

2. MKWC staff will conduct fish passage improvements at all assessed tributaries. These improvements typically are the manual construction of step pools, deepening existing pools or channels by hand, concentrating flow (if feasible) to low flow channels, and adding brush bundles at creek mouths to increase cover for juvenile and adult salmonids seeking refuge.

3. Snorkel surveys will be conducted before and after any work to establish baseline fish population within reaches, and several monitoring visits will occur after manual fish passage work to determine passage effectiveness and determine if more work is needed throughout the season. Before and after photos will be taken at each site and each barrier. Each barrier identified will be mapped and included in final report. 4. All identified barriers will be mapped out and documented in final report with information on type of barrier, barrier characteristics (i.e. height, length, slope, cfs) fish counts before and after and work on barrier, and photos of barriers before and after manual fish passage treatment.

5. Final report to grantor including description of all work, photos examples of work completed, barrier identification table, fish population (from snorkel surveys) data before and after work, and any other relevant data collected during the season.

All forum funds will be used in the completion of the proposed project.

## 4. Select all components that apply to your project.

Barrier removal or remediation

Habitat restoration

Barrier assessment

Fish passage monitoring

Education/outreach

If you answered "yes" to question 6, please provide the PAD ID number(s).

18. Attach a copy of your monitoring plan\*\*, (if available) and indicate the person and/or organization that will be responsible for implementing.

If you would like to also upload a document to help illustrate the project's timeline (as described above) please do so here.





#### 5. List all partner organizations.

Karuk Tribe, US Forest Service, Salmon River Restoration Council

6. Does the barrier(s) being addressed through this project have a Passage Assessment Database (PAD) identification number(s)?

NO

7. Describe the barrier(s) under "average" conditions, if it is a complete, temporal, or partial barrier, how often passage is provided for both adult and juvenile anadromous fish, and if the information is available (e.g., meets fish passage criteria for adults 45% of the time and 0% of the time for juveniles). Please specify which species you are referring to when describing barrier status.

Typical barriers encountered during MKWC's annual creek mouth enhancement project are low flow barriers, perched alluvium, swimmers dams, debris jams, or culverts. These barriers are mostly considered anthropogenic seasonal barriers that affect adult and juvenile salmonid migration into cold water refugia tributaries. This project takes place during the summer months, starting in July and finishing in late august and early September. Low flow conditions in the summer, along with stressful to lethal mainstem temperatures, typically creates passage issues into tributaries until the flows begin to rise in the late fall or early winter.

8. Indicate how you determined that this barrier is a high priority project and/or addresses a high priority barrier. (Please check all that apply.)

Local knowledge/conversation with local representatives

# 9. List the name(s) of the recovery plans and the specific task that name this barrier/project as a high priority, the agency that endorsed this project, or the local representative that names this project as a priority.

Mid Klamath Subbasin Fisheries Resource Recovery Plan (Karuk Tribe, U.S. Fish and Wildlife Service, and Mid Klamath Watershed Council) includes an "On-the-Ground-Restoration Action" B3. This action reads, "Improve fish passage and in-stream habitat at thermal refugia areas and near tributary mouths."

This project is endorsed by the Karuk Tribe and US Forest Service. Past funding for this project has come from USFWS, Pacificorps, and CDFW.

#### 10. The California Fish Passage Forum (Forum) has seven (7) overall objectives. Please check each objective your project will help to address. (check all that apply)

1. Remediate barriers to effective fish migration.

6. Promote state and national policy and actions that support fish passage improvement in California.

7. Implement education and outreach activities, targeting both the general public and fish passage practitioners.

## 11. Provide a brief explanation of how your project addresses all of the checked boxes in question 10.

MKWC's fish passage enhancement crew uses manual construction techniques and native material (i.e. rock, wood, gravel) to treat seasonal fish passage barriers and enhance passage into cold water tributaries.

MKWC typically plans several volunteer events to encourage hands on stewardship of our important

natural resources. These events involve school aged children, local community members, or outside groups that frequently visit the Klamath River Watershed. Participants are trained in fish identification, fish passage issues, and manual restoration techniques to assist in improving fish passage.

12. Select each anadromous f	<b>ish</b>
species that will benefit from	your
project (select multiple if appl	icable).

Coho salmon	Chinook salmon				
Steelhead/rainbow trout					

13. Provide all relevant data on anticipated outcomes of implementing this project. \*

- up to 7 miles Stream miles restored or enhanced
- NA Acres of habitat restored
- typically 8-15 Number of barriers removed/remediated
- **10-20 volunteers recruited** Outreach accomplishments (number of presentations given, materials produced, individuals reached etc.)

14. Provide the location and distance in stream miles to downstream river structures, and whether each structure represents an insignificant, partial, or total barrier to fish passage.

15. Provide the location and distance NA in stream miles to upstream river structures, and whether each structure represents an insignificant, partial, or total barrier to fish passage.

16. Indicate which of the Forum's priority habitats that will be enhanced or restored as a result of this project (choose all that apply).

17. Has the owner and/or responsible organization/agency of the barrier(s) proposed for removal and/or remediation been identified, notified, and given permission for this project to proceed as proposed? Rearing habitat

YES

NA



## If YES, please provide the name of the entity that owns/is responsible, and describe how consent to proceed was obtained/documented, and their role (if any) in any monitoring.

This project takes place on two US Forest Service Districts, Orleans Ranger District and Happy Camp/Oak Knoll Ranger District. Both district fisheries biologists are part of the consulting team for the Creek Mouth Enhancement Project. This project has been approved by the USFS since its conception in 2008.

\*\*The Forum recommends, as a bare minimum, applicants use the <u>California Fish Passage Forum's Fish Passage</u> <u>Barrier Removal Performance Measures and Monitoring Worksheet</u>, and one year minimum pre- and post-project monitoring.

19. Will your project be implemented within 12-18 months?

YES

# 20. Describe below the project's timeline (including permits), as well as implementation and monitoring dates. Please describe any issues that exist, if any, that could delay project implementation.

This project has not required permits because of the seasonal, low impact nature of the work. All work is completed with manual hand crews and is non-permanent.

Timeline:

May: Obtain all necessary gear and conduct project training day with fish passage crew

Early June: begin initial assessments of priority tributaries. Survey first 1000 feet(if possible) of all identified tributaries and create fish passage improvement plan. Conduct initial snorkel surveys at all tributaries.

Mid June to Early August: Conduct juvenile fish passage improvements on all identified tributaries. Treat any barriers encountered.

July -August: Conduct follow up monitoring visits at all tributaries. Visits will include touch up of prior work, and snorkel surveys of first 1000 feet of tributary. Barrier monitoring will happen no more than two weeks after initial work has been completed. Visit popular swimming and river access locations to look for impassable swimmers dams.

Mid August-early September: Switch out juvenile fish passage to adult fish passage at spawning tributaries.

September-November: Complete any follow up monitoring visits and enter all data into master database. Compile final report for CFPF about seasons achievements.

## 21. Attach any designs of your project as well as any photos.



### **PROJECT COSTS & BUDGET**

22. Total Project Cost. 44870.88
23. Total funding amount being 41215.88
requested from the Forum.



24. Total matching contributions (cash 1155 and in-kind) that will be included in your project. Include all matching contributions that have been secured and that are anticipated/requested.

**25. Total matching funds or in-kind** 2500 support secured at time of application.

#### 26. List all partner contributions (cash and/or in-kind) using the table below:

	Match Source	Cash Contribution	In-Kind Contribution	Total Contribution
Partner 1	Karuk Tribal Fisheries Program		2500	2500
Partner 2	MKWC		1155	1155
Partner 3				
Partner 4				
Partner 5				
Partner 6				
Partner 7				

# 27. Will the project be fully funded if funding being requested from the Forum is awarded?

YES

28. Attach a project budget sheet below that describes the overal project budget. Budgets MUST include:

- Total cost of project
- Total funding request from the Forum clearly indicating how/on what those funds will be spent.
- Monitoring costs
- Accompanying narrative explaining budget categories, amounts listed, what will be accomplished, and what deliverables are expected, etc. as needed.

If you do not have a detailed budget for your project, you can find a template and other resources on the <u>Funding page</u> of the Forum's website.

Attach a project budget, including a narrative that describes the overall project budget and a detailed budget breakdown. (Word, .pdf, or .xls)



### **PROJECT TEAM CAPABILITIES**



# 29. Describe the experience and capabilities of up to three of the project leaders relative to their ability to implement this project. Please also describe any other Forum-supported projects project leaders have been involved with.

Charles Wickman, MKWC Fisheries Program Director: . Charles has been

planning, designing, implementing, and monitoring fisheries restoration projects within the Middle Klamath River Sub basin since 2005. In 2008, Charles was hired by the Mid Klamath Watershed Council to co-direct their Fisheries Program with Executive director Will Harling, and has since worked in coordination with MKWC staff, Federal and State agencies, the Karuk Tribe, and many local landowners to develop and implement sixteen large scale habitat restoration projects, as well as dozens of small scale, nonmechanical projects directly benefiting State and Federal ESA listed Coho Salmon.

James Peterson, MKWC Fisheries Project Coordinator:James graduated from the University of Minnesota Duluth in 2010 with a B.A in Environmental Studies. He has over nine years of fisheries experience working for various agencies along the west Coast. He has been a fisheries project coordinator with MKWC since 2015 and has successfully implemented both small and large scale in stream restoration projects along the Klamath River including a reach scale channel reconfiguration, installation of engineered log jams, off-channel pond construction, and has coordinated the creek mouth enhancement project since 2015.

Jason Reed, MKWC Fisheries Project Coordinator/Crew Leader: Jason graduated from Humboldt State University with a B.S in Fisheries Biology in 2018. He worked as a fisheries technician for the Karuk Tribe from 2011-2013. He has been the crew leader for the annual creek mouth enhancement project since 2018. His cultural knowledge of the area as a member of the Karuk Tribe is invaluable to the successful completion of this project.

James and Charles have been involved with two projects previously funded by the forum. In 2018, the forum funded the Mid Klamath Creek Mouth Enhancement Project, and in 2019 funded the Seiad Creek Fish Passage Improvement Project that was recently completed.

### **OUTREACH**

# 30. Does your project have a public and/or community outreach component? If so, please describe (e.g., public workshops, tours, signs, scientific journal articles, scientific conference presentations, educational forums, professional photo/video development, website, press release, newsletter, social media outreach, volunteers, schools, etc.)

An important component of our annual creek mouth enhancement program is to provide local youth and community members with an opportunity for hands on stewardship of their watershed. MKWC staff accompany the local outdoor school on their yearly raft trip and train the local youth in fish identification, ecology and guide them in a creek mouth enhancement project at several creeks along the raft trip. Along with engaging local youth, MKWC typically employs up to six restoration interns (ages 16-21) who spend approximately 25% of their six week internship working with experienced fisheries technicians on our creek mouth enhancement program. MKWC staff also actively recruit local volunteers throughout the season to assist with the project. Due to the corona virus pandemic, these volunteer activities have been canceled until the public health threat is diminished. In place of these educational opportunities, MKWC staff has plans to install informational signs at popular swimming holes and river access points to highlight our projects and educate the public on fish passage issues on the Klamath River.

### **ALIGNMENT WITH NATIONAL PRIORITIES**

31. Which National Fish Habitat Partnership (NFHP) National Conservation Strategies will be addressed by your project? (select all that apply)

- 1. Protect intact and healthy waters.
- 2. Restore hydrologic conditions for fish.



- 3. Reconnect fragmented fish habitats.
- 4. Restore water quality.

#### Review the NFHP National Conservation Strategies.

32. What U.S. Fish & Wildlife Service (USFWS) Climate Change Strategies will be addressed by your project? (select all that apply)

3.1 Take conservation action for climate-vulnerable species.

3.2 Promote habitat connectivity and integrity.

Review the <u>USFWS: Rising to the Urgent Challenge – Strategic Plan for Responding to Accelerating</u> <u>Climate Change</u>.

## 33. Provide specific information about how your project addresses the climate change strategy you checked in question 32.

With warmer winters and summers, less precipitation, and diminishing snow packs, mainstem conditions in the Klamath River and some of its tributaries are reaching more stressful and lethal conditions earlier in the year, and lasting for several weeks longer than historically recorded. Coming out of several years of intensive drought, and diminishing returns of adult salmonids connected to human caused activities, poor ocean conditions and unhealthy river conditions, this project becomes essential to ensuring that out migrating juvenile salmonids and returning adult have access to high quality cold water refugia habitat. Studies by the Karuk Tribe and USFWS have shown that access to cold water refugia habitat is critical for salmonids when mainstem river or tributary temperatures become inhospitable. By having a small mobile crew of well trained technicians on the ground during the summer season, MKWC can use real time data to guide our restoration decisions and track fish health and activity.

# 34. Would an existing tribal, commercial, recreational, or subsistence fishery be enhanced as a result of the project? If yes, please describe. If not, is there a future fishery that would potentially be restored through increased habitat as a result of this project? If so, describe.

MKWC's service area falls almost entirely in within the historical boundaries of Karuk Tribal land. Salmonid species are an integral part of tribal history and culture. MKWC works in partnership with the Karuk Tribe to restore damage to the unique ecosystems of the Klamath River caused by European settlement, clear cut logging, fire exclusion, gold mining, and homesteading. The proposed project would directly benefit the Karuk Tribe by increasing survival potential of both out migrating juvenile and in migrating adult salmonids.

Thank you for your interest in the Forum, and for taking the time to submit this proposal. You will be contacted by the Forum to discuss the outcome of this funding process.





#### 2011 Klamath River Tributary Fish Passage Improvement Project Assessment Protocol

#### **Introduction**

The purpose of these tributary creek mouth assessments is to identify, describe, and make recommendations for remediation of both juvenile and adult salmonid fish passage barriers in the Middle Klamath, Scott and Salmon River subbasins. On site field recommendations are a key component of the assessment that allows for fish passage remediation action to occur quickly, and ideally within the same day or week. The assessment protocol was developed in coordination with the Karuk Tribal Fisheries Program, the Mid Klamath Watershed Council, the Salmon River Restoration Council, the Six Rivers National Forest, and the Klamath National Forest to provide necessary information to guide restoration and/or enhancement actions. A copy of our field assessment form is attached.

#### **Field Survey Protocol**

The assessment form consists of data on temperatures, basic habitat typing data, fish passage barrier data, and notes describing photos taken, restoration needs, fish counts, and unique site characteristics.

#### Temperatures

Temperatures are taken:

- 1. In the mainstem above the mouth of the tributary.
- 2. In the main mouth of the tributary where it meets the mainstem.
- 3. In the mixing area.
- 4. In the tributary above its intersection with the floodplain of the mainstem (capturing tributary temperature before it crosses the mainstem floodplain).

#### Habitat Assessment

Upon first visit to each tributary, surveyors will measure out 1000 feet of tributary, marking each 200 foot interval with a flag. These reach points will be used in biological monitoring of fish usage throughout the year. At tributary mouths where braiding is significant, the two largest braids are used for main channel. All braids are surveyed for juvenile and adult fish passage barriers.

At tributary mouths where the channel migrates across the floodplain (i.e. Sandy Bar, Independence Creek,O'Neil,), an additional 200 feet beyond the floodplain should be surveyed in order to delineate floodplain habitats from the dominant tributary type. The top of the floodplain should be noted on the data sheet at the appropriate habitat unit.

#### **Site Photos**

During each visit, photos should be taken of creek mouths and barriers **before any work is done**. This is incredibly important. Photo sites should be selected that best show features. Always take **before** and **after** photos from same location and document photo #, whether it's **before** or **after**, and camera used in taking the photo. Recommended photos during visits are

#### **Tributary Mouth**

- 1. Upstream, looking downstream
- 2. Downstream looking upstream
- 3. Looking down tributary towards mouth
- 4. If possible, a shot from an elevated position that clearly shows features of work site.

#### **For Barriers**

- 1. Photo with stadia rod/tape clearly visible showing height of barrier
- 2. Photo with crew member near barrier to give perspective of barrier
- 3. Any photo that can be used to clearly show the barrier above and below

#### **Fish Barriers**

The following data is collected on potential fish barriers:

- 1. Distance from mouth
- 2. GPS Point (Barrier Naming is first three letter of Creek, barrier #, and date: *Red\_*#1\_62719)
- 3. Height
- 4. Pool depth at base of barrier (take depth before and after any treatment)
- 5. Slope
- 6. Descriptive photos
- 7. Physical description of barriers
- 8. Barrier type: Perched alluvium, Swimmer Dam, Cascade, Sub-Surface Flow, Road Xing, Small Debris Jam, Log Jam, Other

For definition of a fish barrier, consult CDFW field guide in making assessment.

#### **Biological Monitoring**

Fish Counts (snorkel surveys) will be taken prior to the assessment to avoid disturbance of the snorkel sites. Number, species, and developmental stage of observed fish should be recorded for the mainstem mixing area as well as every 200 foot interval up to 1000 feet from mainstem mixing area. Fish counts will be recorded as 1. Mixing Area, 2. 0-200 feet, 3. 200-400 feet, etc.... If tributary has unique habitat feature such as a pond or significant pool (i.e. Dillon, Stanshaw, O'Neil) fish within the pond should be counted in a separate unit. If a barrier is identified within tributary, counts above and below the barrier should be separated in order to determine if fish passage work was successful. For example, while diving unit 0-200 a barrier is identified at 75 feet, count would stop at barrier and then restart above. Datasheet would then read, 0-75ft (Barrier), next unit would be 75-200ft. Fish counts, along with notes describing restoration needs, unique site characteristics, and upstream habitat, should be recorded at the bottom of the data sheet.

#### **Fish Health and Disease**

During all visits to tributaries, fish health and behavior should be assessed and documented. This entails making note of large numbers of fish in mixing area, including notating various age classes, and looking for signs of stress or disease. Discoloration, bloating, erratic swimming on side or upside are all signs of stress or disease. If mortalities are found, photos should be taken of gills (if possible) and of whole fish. Large amounts of mortalities should be reported to supervisor **immediately!** 

#### **Recommendations and Prescriptions**

When making recommendations for passage improvement, consider the effect your work will have on the mixing area. Preserving or increasing the size of the mixing area is critical for migrant survival. Also keep in mind the objectives of the proposed work, i.e. juvenile passage or adult passage. Juvenile fish prefer reduced velocity and jump heights, while adults generally prefer increased velocity (at base flows) and longer, straighter fish ways and step pools.

When recommending prescriptions for fish passage, try to use a common language to describe the work that needs to be done, i.e. Fish Way, Step-Pool, Concentrate Flow, By-Pass Notch of Dam, Reduce Jp Height, Increase Jump Pool Depth, Add Cover, etc.

### **Examples of Prior Fish Passage Improvements**

Step Pool Construction and Flow Concentration for Juvenile Fish Passage





#### Juvenile Step Pool Construction



#### Boulder Cascade, Juvenile Barrier





### **Project Budget Template**

#### PLEASE ENSURE YOU PROVIDE THE OVERALL PROJECT COSTS, AND HOW YOU INTEND TO SPEND THE FORUM'S CONTRIBUTION TOWARD YOUR OVERALL PROJECT

#### Name of Project:

Mid Klamath Creek Mouth Enhancement Project

Category	CFPF Funding Requested	Partner Contributions (cash)	Partner Contributions (in-kind)	Total
Salaries and Wages	\$23,020.00			\$23,020.00
Employee Benefits Supplies	\$6,816.00 \$850.00		\$1,155.00	\$6,816.00 \$2,005.00
Professional Services	\$0.00		\$2,500.00	\$2,500.00
Administrative Overhead Contracted Services	\$7,942.38 \$0.00			\$7,942.38 \$0.00
Travel Grand Total	\$2,587.50 \$41,215.88	\$0.00	\$3,655.00	\$2,587.50 <b>\$44,870.88</b>

#### **Budget Narrative**

**Salaries and Wages:** All funds spent for this line item will go towards paying project cordinators and field crews conducting all tributary assessments and fish passage work. This will also include all monitoring costs, data entry, and report generation required for the grantor

**Employee Benefits:** Employee benefits inlcude paid time off, workers compensation, sick leave and retirement benefits for full time employees.

**Supplies:** Supplies will include two sets of wading boots at \$150 a pair, two pairs of waders at \$150 a pair, and \$250 in general field supplies. General field supplies will include; rite-in-th-rain paper, pencils batteries, neoprene gloves, work gloves, rock bars, and general office supplies. \$1155 of in-kind match comes from supplies and gear provided by MKWC. This gear includes; wetsuits, masks and snorkels, two pairs of wading boots, an underwater/waterproof camera, a Garmin series 65 GPS, stadia rod, 300 foot tape measure, and clinometer

**Professional Services:** This line item is in-kind match from the Karuk Tribal Fisheries Program for consultation and planning as well as monitoring of specific sites.

Administrative Overhead: All funding in this line item goes to aministrative oversite, reporting, and invoicing. Admin rate is set at

**Travel:** all travel costs associated with the proposed project go towards vehicle fuel and maintenance. Mileage rate is set at \$.575/mile for a total of 4500 miles. Average daily round trip is approximatley 90 miles.

