

FAQ: Hydraulic Dredging *By Outset Advisors; summarized by Katy Gurin*

In response to inquiries from the community about sediment remediation methods, CalTrout asked a member of our technical team, Outset Advisors, to compare feasibility, cost, and environmental impacts of hydraulic/suction dredging and mechanical excavation, both methods that could be used to remove excess sediment from the Elk River. The following is a summary of OA’s technical memo.

“Hydraulic dredging” involves agitating sediment in water, creating a slurry that is transported via pump or barge, while “mechanical excavation” refers to digging on land or in waterways that have been dewatered. Equipment for hydraulic dredging commonly includes a high solids pump, with some form of agitator (e.g. a ‘cutter head’) at a pump intake pipe. This method requires a large area to allow the sediment to settle and the water to be removed. Mechanical excavation in a river like the Elk could be performed with an excavator, which, unlike hydraulic dredging equipment, can excavate to an exact desired elevation. Removed sediment could then be loaded into a truck or stockpiled for pickup and removal with a loader. Equipment for dewatering the channel is also generally necessary when grading occurs in the channel itself.

Outset Advisors found that hydraulic dredging poses serious logistical challenges, would not allow contouring of the channel as engineering designs require, and would likely be more costly than conventional mechanical excavation techniques. A coarse analysis suggests that although fuel usage between these two techniques is roughly similar, hydraulic dredging would likely have a greater environmental impact due to the space and water requirements. Under ideal dredging scenarios, an 8-hour day of excavation would require between 288,000 to 800,000 gallons of water, and acres of slurry containment ponds may be needed (in addition to access to the channel for hydraulic equipment). Alternately, mechanical excavation could be performed using between 4,000 and 8,000 gallons of water per day (mainly for dust control) for a comparable soil transport distance, and the area of disturbance would be much more limited.

We appreciate being able to discuss the project and construction methods with you and your neighbors. Please reach out to us if you have any follow-up questions or comments. If you’d like to see the full memorandum created by Outset Advisors, you can email Katy at kgurin@caltrout.org.

FOR MORE INFORMATION

Visit the RWB Elk River TMDL web site:
https://www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/elk_river/

or the CalTrout Elk Recovery Project website:
<https://caltrout.org/projects/elk-river-recovery-project>

Email questions, comments, or other information to:
dmierau@caltrout.org
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ELK RIVER WATERSHED STEWARDSHIP PROGRAM

Staying Safe in Humboldt County: Tools and Tips for Emergency Preparedness
by Ryan Derby

Emergencies can strike without warning, and being informed and prepared is essential for the safety of our community. Humboldt County’s Office of Emergency Services (OES) offers tools and systems to help residents stay informed and take proactive steps before and during crises. Here’s an overview of three key resources: Genasys Protect, Humboldt Alert, and personal emergency plan development.

Genasys Protect: Real-Time Emergency Mapping
Genasys Protect is an innovative system that provides real-time emergency information through an interactive map. This platform allows residents to:

- View Critical Updates: Access real-time information on emergencies within Humboldt County, including an interactive evacuation map with links to preparedness and emergency-related information.
- Stay Informed: The map is updated continuously, offering a reliable source for accurate and timely information.

To access Genasys Protect, visit the protect.genasys.com. The platform is user-friendly and accessible on both desktop and mobile devices, ensuring you’re always connected to the latest information.

Humboldt Alert: Personalized Emergency Notifications
The Humboldt Alert system is a powerful tool that sends emergency notifications directly to your phone, email, or other devices. By signing up, you can:

- Receive Immediate Alerts: Get warnings about severe weather, evacuation orders, and public safety threats.
- Customize Your Preferences: Choose the types of alerts you want to receive and the locations that matter most to you, such as your home, workplace, or school.
- Stay Connected: Ensure you’re informed about emergencies in real-time, even when you’re away from home.

Signing up is simple and free. Visit humboldtgov.org/alerts to create an account and tailor your notification preferences, or call Humboldt County OES at (707) 268-2500 for assistance.

Developing Your Personal Emergency Plan
While technology is a crucial tool during emergencies, having a personal emergency plan is just as important. Here are some steps to get started:

- 1.**Create an Emergency Kit:** Assemble essentials like water, non-perishable food, medications, flashlights, batteries, and a first aid kit.
- 2.**Plan for Evacuation:** Identify multiple evacuation routes and designate a meeting place for family members.
- 3.**Stay Informed:** Familiarize yourself with the Genasys Protect map, “Know Your Zone” and sign up for Humboldt Alert.
- 4.**Practice Regularly:** Conduct family drills to ensure everyone knows what to do in various scenarios.
- 5.**Communicate with Neighbors:** Build a network of support by sharing plans and resources with those around you.

A “Personal Emergency Plan” template is available at humboldtgov.org/personalemergencyplan.

Be Ready, Stay Safe

Humboldt County OES is committed to providing residents with the tools they need to stay informed and prepared. By leveraging systems like Genasys Protect and Humboldt Alert and taking steps to develop a personal emergency plan, you can ensure you’re ready for whatever challenges may arise.

Restoration Update by Katy Gurin

CalTrout and our technical team, including Northern Hydrology and Engineering and Stillwater Sciences, are currently working on restoration and sediment remediation designs stretching from Highway 101 to the confluence with the North and South Forks. With funding from NOAA, we’re also gearing up for construction to begin along Swain Slough.

In the 857-acre Elk Estuary (between the 101 and Showers Rd), CalTrout worked with river-adjacent landowners to finalize 30% design. This means that engineering drawings were made of the design, cut/fill volumes were generated, and hydraulic modeling was performed to confirm the desired impacts on habitat and flooding. In the new year, these 30% designs are being advanced to 65%. In coordination with landowners, the team will identify fill sites and access routes, and a report and engineering plans will be developed. Within two parcels along Swain Slough, detail will be added to the 65% plan set to ready it for construction, specifications and bid contracts will be developed, and the site will be constructed in the 2026-27 timeframe. CalTrout is pursuing funding for construction of other areas that are at or near the 65% design level as well.

In the Elk mainstem, CalTrout is working with landowners to finalize conceptual designs. Concepts were first developed with landowners as part of the Recovery Planning process. In 2023 and 2024, additional concepts were developed in the Elk mainstem based on field studies funded by the National Fish and Wildlife Foundation. Conceptual designs typically include an overview sketch of the design but not a formal engineering drawing sufficient to produce a cut/fill volume, display on a plan sheet, or use for construction. Hydraulic modeling will be performed at this stage and then again as the design progresses to 30%. Concepts that have been approved by landowners will be finalized in a report that will be completed in 2025. In early 2025, CalTrout also received funding from the National Fish and Wildlife Foundation to continue mainstem design work. We’ll hve more details about this grant in our next newsletter.

Health and Safety by Elizabeth Pope

Elk River Road Flooding: Work continues on the technical engineering, or project study report (PSR), to develop designs for potential road improvements to reduce flooding along Elk River Road. Funded by the Regional Water Board, the project is being led by Humboldt County Department of Public Works and local engineers at GHD and NHE. The project is expected to be done by December 2025 when a technical report with preliminary engineering designs for potential road improvements at Berta Rd, Zanes Rd, and Elk River Road flood curve (postmile 3.3) will be completed.

Flood Water Monitoring: CalTrout submitted a funding request to the DWR CalSIP Program to install a “stage-only” stream gauge on Elk River. Having a local gauge will provide important real-time conditions that local officials and the community can use in emergency preparedness and response. The gauge is expected to be installed in summer 2025. Additionally, the Stewardship Program is working to purchase and install depth paddles (similar to those at Hookton Road) at 6 locations that will help make crossing in rainy conditions safer by clearly showing water depths.

Drinking Water: In December 2024, the Humboldt County Department of Public Works submitted a formal request to the State Water Board’s Division of Financial Assistance to assess the feasibility of extending municipal water service into the Elk River valley through their Technical Assistance (TA) Program. If selected for the TA program, the feasibility study would be conducted at no cost or obligation to residents, the county, or the Humboldt County Community Services. The study would help inform future decisions by developing accurate technical and cost information but would not be pre-decisional on whether water service would be extended.

FEMA Flood Mapping: In December 2024, FEMA initiated a process to update the Flood Insurance Rate Map for the Elk River valley to better represent current flooding conditions. This update was requested based on a technical study of Elk River flooding completed in 2021 with funding from the Regional Water Board. FEMA’s Flood Insurance Rate Map depicts the Special Flood Hazard Area, which is the area that is likely to be inundated by a flood event having at least a one-percent chance of occurrence in a given year. The 2021 technical study indicated that the Special Flood Hazard Area on the existing FEMA Flood Insurance Rate Map was outdated and did not represent current conditions. FEMA contractors will be conducting land surveys in the watershed this winter/early spring to support the update of the Flood Insurance Rate Map.

Emergency Response Community Meeting: On December 11th, the Elk Stewardship Program hosted a community meeting focused on emergency planning and response. A general update on restoration and recovery efforts along with an overview of their efforts to work with DWR to install a stage only gauge and depth paddles was provided by CalTrout. Humboldt County Department of Public Works provided an update on their Elk River Road flooding study. The bulk of the meeting was focused on the information provided by the Office of Emergency Services and the programs that they have to assist in emergency response and how the community can prepare for flooding and/or other emergencies.

Frequently Asked Question by Elizabeth Pope

Lake and Streambed Alteration Agreement or “1600-Permit”

How does one get a California Department of Fish and Wildlife (CDFW) “1600-permit to remove instream vegetation on personal property? The following information is summarized from the CDFW Lake and Streambed Alteration (LSA) website (wildlife.ca.gov/Conservation/Environmental-Review/LSA). It is intended to help answer initial questions and not to replace formal CDFW consultation or requirements. LSA questions can be answered by CDFW staff at 707-441-2075 or by emailing R1LSAEureka@wildlife.ca.gov.

Q: I want to remove vegetation on my property that is near or in the river. I heard I might need a 1600 permit but I’m not sure if I need one, or what it is.

A: A Lake or Streambed Alteration (LSA) Agreement, often referred to as a “1600,” is a type of CDFW permit to protect existing fish and wildlife resources. Commonly used in installation, repair, or maintenance of water diversion, culverts, stream crossings or any other modification of a lake or stream bed, bank or channel including extraction of material from them or deposition of material into them.

You may need an LSA “when a project may substantially adversely affect fish and wildlife resources.” To find out if you will need an LSA for your project, contact CDW LSA Line at 707-441-2075 or R1LSAEureka@wildlife.ca.gov well in advance of starting work. CDFW has the sole authority to make the determination whether the activity is considered “substantial”.

Q: When is an LSA Agreement required?

A: Fish and Game Code requires an LSA Agreement when an activity may: substantially divert or obstruct the natural flow of any river, stream or lake OR substantially change or use any material from the bed, channel or bank of any river, stream or lake OR deposit debris, waste or other materials that could pass into any river, stream, or lake.

Q: If I need an LSA is there a fee?

A: Yes, but the fee amount depends on the type of activity or project, its size/scope, and how long it will take.

Q: How do I notify CDFW to start the process?

A: The type of notification depends on the type of work being done. It’s best to contact the CDFW Regional Office that serves the county where the activity will occur before you start work, and they can tell you what type of notification to submit. The Eureka Field Office is located at 619 2nd Street. You can also call 707-441-2075 or email R1LSAEureka@wildlife.ca.gov.

Q: What happens if it’s an emergency situation?

A: Fish and Game Code section 1610 exempts CERTAIN types of emergency work from notification before work is started. However, CDFW must be notified in writing within 14 days after the work begins. It is best to contact CDFW before starting any work even if you think it is an emergency.

Q: When is a project considered an emergency?

A: When the work is necessary to protect property or life OR Immediate repairs to public service facilities are necessary to maintain service as a result of a disaster in an area the Governor has proclaimed a state of emergency OR the project is done by a state or local governmental agency to maintain, repair, or restore an existing highway, within the existing right-of-way of the highway, that has been damaged as a result of fire, flood, storm, earthquake, land subsidence, gradual earth movement, or landslide, within one year of the damage.

Q: I still have questions, where can I find more information about an LSA?

A: Check out the CDFW LSA webpage: <https://wildlife.ca.gov/Conservation/Environmental-Review/LSA>