

National Marine Fisheries Service Findings on Gualala River Gravel Mining

Excerpts from National Marine Fisheries Service (NMFS; National Oceanic and Atmospheric Administration, NOAA) Biological Opinion, concluding formal consultation with U.S. Army Corps of Engineers regarding federal authorization of gravel mining on the Gualala River, dated August 18, 2008. Contact: John McKeon, NMFS, 707-575-6069 (john.mckeon@noaa.gov)

NMFS issued its biological opinion – the official determination of impacts and “take” of steelhead and coho salmon under the federal Endangered Species Act – for gravel mining on the Gualala River. Highlights of the 58 page document are excerpted below.

Many criticisms and recommendations Friends of the Gualala River (FoGR) has issued in past public comments to Sonoma County Permits and Resource Management Department and the Regional Water Quality Control Board, (copied to NMFS) appear to be matched by NMFS findings and opinions.

The NMFS biological opinion resulted in negotiations that modified the gravel mining permit application, and significantly improved environmental protection, monitoring and regulatory agency supervision, and mitigation.

The NMFS biological opinion is not itself a permit, but it contains terms and conditions that are mandatory for the Corps of Engineers permit’s compliance with the Endangered Species Act.

The NMFS biological opinion closely matches most text and terms of the California Department of Fish and Game’s Streambed Alteration Agreement, one of the principal state permits required for gravel mining.

One of the most significant findings of the authoritative NMFS Biological Opinion was that past Gualala River mining effects “likely occurred such as....destruction of spawning areas....direct mortality of juveniles [listed salmonid species]”; see Impacts of Gravel Mining, below.

Another outstanding (but not surprising to FoGR and its scientific advisors and consultants), finding of the authoritative NMFS Biological Opinion was that **“vineyards in the Gualala River watershed are likely responsible for reduced summer flows....”**

HISTORY OF PRE-PERMIT CONSULTATION AND COMPLIANCE ACTIONS (Biological Opinion, pp. 2-3)

On November 4, 2003, ...(NMFS) staff met onsite at the Gualala river with representatives and consultants for Bed Rock Products Inc. (BRPI), Gualala Redwoods,

the California department of Conservation, the Sonoma County Permits and Resource management Department (PRMD) and members of the Gualala River Watershed Council to view field conditions and discuss applicability of alternative mining methods...

On May 4, 2005, NMFS staff met on site at the Gualala River with representatives and consultants for BRPI for a pre-application (Corps 404) permit discussion of gravel extraction locations and methods...

On October 20, 2005, the U.S. Army Corps of Engineers (Corps) San Francisco district sent a Notice of Alleged Violation to Mr. Henry Alden of Gualala Redwoods regarding the installation of culverts restricting flow and impeding fish passage....The Notice advised that all discharge of dredged or fill material below the plane of ordinary high water required a permit under Section 404 of the CWA. The Notice requested cooperation with an investigation of the alleged violation.

[Note: Friends of the Gualala River originally reported the violation to all federal and state agencies with jurisdiction over gravel mining. Enforcement actions by the Regional Water Quality Control Board provided corrective measures and fines.]

VARIABILITY OF NATURAL GRAVEL REPLENISHMENT

(Biological Opinion, pp. 4-5)

The Corps permit is for extraction of up to 40,000 cyds annually. However actual extraction volumes will be determined and governed by the natural replenishment rate of the river depositing new aggregate above a baseline level on the designated extraction area of each bar surface each winter season...

There is significant uncertainty associated with estimating replenishment rates over a five year period based on average annual rates. Annual replenishment rates can vary by orders of magnitude. In addition, basing volume projections on limited numbers of survey channel cross sections and extrapolating across an entire reach is an imprecise measure. Therefore, extraction will be limited to that surveyed volume that has accumulated above the minimum elevations established under the existing county permit conditions for the designated extraction area *of each bar mined* for aggregate. [emphasis added]

...To insure protection of aquatic species and habitat, this variation in physical and biological characteristics requires site-specific planning for each bar rather than a uniform prescription for all bars.

[Note: Friends of the Gualala River strongly objected to the original proposed permit limits of gravel extraction based on average rates estimated from outdated survey data and crude assumptions, consistent with the old Sonoma County ARM plan (Aggregate Resource Management Plan and mid-1990s EIR). This was unacceptable to FoGR because of significant year-to-year variation in gravel supply among gravel bars at different locations. FoGR advocated individual annual gravel bar measurements to correctly estimate contemporary local gravel supply, and prevent artificial bar and

channel instability due to imbalance between extraction rates and local supply, which causes impacts to steelhead habitat. NMFS biological opinion appears to concur with FoGR's long-standing public comments on this issue.]

ANNUAL MONITORING AND EXTRACTION PLAN APPROVAL CYCLE

(Biological Opinion p. 11-12)

In each year, gravel extraction shall not occur or commence until the following occurs:

The applicant submits an annual gravel extraction plan to CDFG and NMFS;

CDFG provides the applicant provides the applicant written approval of the annual gravel.

The proposed plan represents a departure from the standard instream mining techniques described in the Sonoma County ARM Plan....The mining strategy will take into account unique landforms, vegetation patterns, salmonid spawning and rearing habitat, tributary stream locations, bedload transport, and other factors...

RECLAMATION PLAN REQUIREMENT

(Biological opinion pp. 13-14)

No mining will be permitted until a revised Reclamation Plan has been approved by the Sonoma County PRMD. The Plan will include a detailed planting plan, a planting and implementation approach, a detailed monitoring and remediation plan, management guidelines and schedule. A vegetation expert will develop procedures for how trees and shrubs will be planted...At a minimum, the final Reclamation Plan will include the following:

- 1) ...size and locations of annual and final planting areas...where woodland, conifer forest, chaparral and riparian habitat shall be created.
- 2) All....will be native species...locally indigenous...
- 3) ...reclaimed areas will be seeded ...and mulched...to provide erosion control...
- 4) A final reclamation plan with post project monitoring provisions will be included that describes parameters to be monitored, methods, success criteria, monitoring schedules and performance time-frame (five years minimum), contingencies for problems....and likely remedial measures...
- 7) Reclamation or stabilization of all roads and access points will be completed by November 1 of each year...

MITIGATION

(Biological Opinion p. 15)

Mitigation measures required by California Law will be implemented according to an annual mitigation plan. In each gravel year, gravel extraction will not occur until the following have occurred: No later than 14 days prior to the annual pre-extraction meeting, the applicant submits an annual mitigation plan to CDFG; CDFG approves the annual mitigation plan. ...

DIVERSIONS AND DEFICIENT FLOWS OF THE GUALALA RIVER

(Biological Opinion pp. 29, 33, and 42)

Lack of summer flow within the Gualala River appears to be an increasing problem over the last 20 years according to J.W. Dehaven (2004). Stream surveys conducted throughout the Gualala river watershed by Dehaven in the summer of 2004 noted that surface flows in streams have been reduced compared to conditions observed during extensive surveys conducted in 1976-1977. Dehaven (2004) states that summer drying of fourth and fifth order streams was both surprising and disturbing because 2004 was a normal water year in which he observed streamflows lower than during the historic drought of 1976-77. Reduction in surface flow that has been documented in the Gualala River watershed likely affects the action area of the Wheatfield Fork and South Fork Gualala River, thereby reducing the rearing space available for the summer rearing of salmonids. (p. 29)

Water Diversions

Summer flow in the Gualala River has been identified as a limiting factor for salmonid production (Higgins 1997, Dehaven 2004)...Intensive logging and roading, along with recently developed vineyards in the Gualala River Watershed are likely responsible for reduced summer flows that have been noted by biologists conducting surveys during the summer months.

Roading and logging change the annual hydrograph by removing forest cover, allowing more runoff during storm events and less water stored in watershed groundwater supplies for release during summer flows (McDonald *et al.* 1991).

...Very low summer flow conditions were noted by Dehaven in the extreme drought condition years of 1976-77 in larger streams of the Gualala River watershed. Three decades later many reaches of the same larger streams were observed to be dry even in normal water years, resulting in the loss of summer rearing habitat, which is attributed to increased water diversions (both legal and illegal) and other anthropogenic activities (Dehaven 2004). (pp. 33-34)

The development trend in Gualala River basin has been an overall increase in permanent residences...This is likely to continue...As the human population in Gualala River basin increases, so too will the demand for water.

Both authorized and unauthorized withdrawal of water from riparian wells (and potentially from wells throughout the watershed) for residential or agricultural use can lower groundwater levels and thus reduce contribution of cold groundwater flows to surface water, and decrease the level of or eliminate surface water flows, particularly during the summer months when flow is at a minimum. (p. 42)

Conversion of timber lands to new vineyard development in the basin are of particular concern for both sediment runoff and water usage because agricultural water use is highest during summer, when sufficient flow is essential for providing rearing space and ameliorating high temperatures. (p. 42)

Reduced summer flows throughout the watershed due to human uses and the likely effect of logging on the annual hydrograph have greatly diminished the amount of suitable rearing habitat and are likely affecting the quality of the rearing habitat in the Gualala River Lagoon during the summer through reduced freshwater inflows. (p. 43).

IMPACTS OF PAST GRAVEL MINING ON THE GUALALA RIVER

(Biological Opinion p. 32-33, 35)

Although extraction rates in the past have been roughly in line with sediment production rates, continuing these same extraction rates into the future may hinder the recovery of salmonid habitat within the action area streams if replenishment rates begin to decline. *[emphasis added]*

Higgins (1997) reports that monitoring conducted in the Garcia River found that the system was no longer oversupplied by gravel, and that continued gravel extraction may substantially impede channel recovery.

The Gualala River may be in a similar situation with continued extraction impeding the recovery of these channels. *[emphasis added]*

Among the likely negative effects of past gravel extraction in the action area are potential channel and habitat simplification, and reduced effectiveness of geomorphic processes such as pool maintenance and sediment sorting (NMFS 2004).

Detrimental physical and biological effects from past gravel extraction have also likely occurred such as destruction of spawning areas, low velocity refuge habitat, reduced water quality, and direct mortality of juveniles.

...mining methods used in that 15 mile reach likely resulted in a diminished ability of river processes to form a topographically complex channel that can contribute to the quality of salmonid habitat by forcing deeper scouring of pools, formation of steeper riffles, and better sorting, storage and distribution of sediment sizes

Absent gravel mining in these reaches, fluvial geomorphic processes would likely naturally create these beneficial changes at a more advanced rate than if mining is permitted to occur. (p. 35).

[Note: The NMFS opinion on effects of past Gualala gravel mining is consistent with the conclusions of Dennis Jackson, a consulting fluvial hydrologist FoGR retained in 2007 to provide independent scientific review and criticism of the Mitigated Negative Declaration for Gualala Instream Gravel Mining prepared by Sonoma County PRMD. The County and applicant's consultants rejected Jackson's assessment, but NMFS appears to vindicate (indirectly) his conclusions.]