



## LUMMI INDIAN BUSINESS COUNCIL

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### NOOKSACK RIVER GRAVEL SCALPING - Lummi Nation Issues

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#### Tribal Position

Lummi Indian Business Council (LIBC) Resolution # 93- 135 states that the Lummi Nation is opposed to "gravel removal (dredging and scalping). Opposition may be modified if a comprehensive gravel removal plan is developed and if this comprehensive plan includes documented opportunities to benefit and restore fisheries resources, subject to Lummi Natural Resources Department (LNR) review and agreement." (emphasis added).

#### Natural Resource Department Mission

1. To protect Treaty Resources including cultural resources, fish, wildlife, and their habitats from damage due to land and river management activities.
2. To restore damaged fish and wildlife habitats and populations to levels which meet tribal cultural and economic needs and objectives. This may include project level mitigations which produce a net increase in usable habitat and meet overall restoration objectives.

#### Special Concerns

Three Nooksack River salmon stocks are considered critical and have been petitioned for listing under the Federal Endangered Species Act due to the threat of stock extinction. These stocks are the North and South Fork stocks of spring chinook and the native coho. All three stocks use the reach from Deming to the mouth for adult migration to spawning grounds and for out-migration of smolts. In addition, side channel rearing by coho and chinook has been documented in the reaches downstream of Deming.

Other anadromous stocks also use reaches downstream of Deming. Spawning chum salmon have been documented by Lummi and WDFW on bars scalped in recent years (eg. Everson Bar and Cowden operations downstream from the Highway 542 bridge).

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Pink salmon have also been observed spawning in mainstem reaches between the confluence and the Nugents Bridge and probably are spawning below this point in actively scalped areas. We have concerns that salmon redds in proximity to scalping operations (up and downstream) may be lost due to adverse channel shifting as a result of altering the channel cross-section. Redd survival is affected by scour and fill of the bed material during moderate and high flow events.

In addition, chum and coho juveniles were documented on a recently (the previous week) scalped site this spring. The site consisted of a broad shallow channel where the juvenile salmonids were subject to increased predation and to increased thermal stress due to elevated stream temperatures resulting from shallow water and lack of riparian shading or other cover. Scalped sites promote a loss of habitat complexity.

In addition, WDFW staff in Mount Vernon are of the opinion that a genetically distinct stock of chum may be present in the lower river (below Nugents corner) based on a limited genetic sample, although sufficient samples have not been collected to establish this as fact. Coho salmon use tributaries and potentially side channels along the mainstem to spawn while rearing is a documented activity in both side channels, wetlands, and the lower reaches of tributaries to the mainstem.

#### Comprehensive Gravel Removal Plan Components

A comprehensive plan must address the individual and cumulative effects (positive and negative) of one or more gravel removal operations on the Nooksack and its tributaries. In order to achieve this, the current condition of the river must be evaluated to define if gravel accumulation is an issue, and if so, what the costs and benefits for action (gravel removal) or no-action (no gravel removal) may be. Projects can not continue to be considered in isolation. Factors which must be considered include the following:

1. Accurate evaluation of biological resources and habitats within, or in reaches potentially affected by, gravel removal. Specific fisheries assessments should include:
  - a. locations of historic spawning, rearing, holding, and outmigration habitat utilization. Timing of assessment is critical in sample design and must coincide with fish use;
  - b. documentation of existing habitat conditions;
  - c. assessment of historical habitat conditions to determine potential limiting factors and advisable restoration priorities;
  - d. evaluation of potential to adversely impact critical stocks as the result of gravel scalping.
2. Assessment of river morphology, hydraulics, and sediment transport patterns to identify:

- a. historical effects of gravel removal and structural flood control measures on channel pattern , channel stability (both vertical and horizontal), and net sediment yield from the comprehensive plan area;
- b. the effects on flood capacity (in terms of flood height at 1, 5, 10, 25, 50, and 100 year discharges) due to documented bed aggradation/degradation;
- c. the effects and duration of changes in flood capacity (in terms of flood height at 1, 5, 10, 25, 50 and 100 year discharges) resulting from systematic gravel removal;
- d. assessment and design needs to evaluate opportunities to positively effect long-term channel stability and fish habitat restoration;
- e. effects of riparian and bar vegetation removal on long-term sediment yield for comprehensive plan reaches.

#### Site Specific Plans for Gravel Removal

Within the context of a comprehensive plan, site specific planning and biological evaluation must occur. Key factors for consideration are listed below.

1. Detailed maps and reports are needed to document habitats and habitat usage on-site.
2. Establish existing site conditions and assess effects of gravel removal on:
  - a. local wetlands (water level, access, etc.);
  - b. side channels (access, water level, vegetation);
  - c. scour and fill of spawning gravel using existing scour monitoring techniques;
  - d. changes in particle size distribution of surface and sub-surface sediment samples on the affected bar and at control sites;
  - e. local riffle and pool ratios;
  - f. large woody debris (numbers, stability, size);
  - g. long-term sediment storage changes altered by vegetation removal;
  - h. changes in local hydraulics (bed and bank scour and fill) and channel pattern (width/depth, sinuosity, riffle/pool);
  - i. local flood heights in terms of 1, 5, 10, 25, and 50 year discharges
  - j. duration of item i. How long will increased channel capacity last?
3. Options for fisheries mitigations which provide a net gain over impacts identified in #1 and #2.
4. Contacts with Lummi Cultural Department to determine whether a formal consultation on cultural resources is required.

### Applicable References

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