

ALASKA DEPARTMENT OF FISH AND GAME
HABITAT AND RESTORATION DIVISION

*Status of H&R Division Salmon Enhancement/Restoration Projects
Within the Norton Sound Management Area*

October 29, 1993

The ADF&G, Habitat and Restoration Division, initiated or participated in the following enhancement/restoration projects within the Norton Sound Management Area during the period 1985 to 1993. Individual activities occurred either as cooperative ventures with other state or federal agencies, private landowners, or as required mitigation specified in the permitting process for other land use activities.

Survey data, site pictures, permit applications and other supplemental information may be obtained from Habitat and Restoration Division staff biologist Mac McLean at 451-6192.

COMPLETED PROJECTS

Banner Creek Material Site: ADOT&PF - Progressive material site reclamation with concurrent construction of interconnecting channels and littoral habitat for coho salmon rearing. Pond complex connected via culvert and short creek to the Nome River immediately downstream of documented coho salmon spawning area. Project initiated in 1984; site expansion in 1990; additional remedial work (design by H&RD) completed by the ADOT&PF in 1993 to resolve a Corps of Engineers' Notice of Violation.

Approximately 20 acres of rearing habitat created; 70% littoral habitat (<2 meters) with maximum depth of 12 feet; continuous winter water flow including upwellings at upper end of pond. Potential exists for creation of small chum salmon spawning area within the upwellings. Arctic grayling, Dolly Varden juveniles, coho salmon juveniles, whitefish and a single pair of adult sockeye salmon (1992) documented in the pond.

Deficiencies: Riparian vegetation sparse - additional willow planting necessary to provide cover. H&RD to coordinate with CFMD staff to establish community volunteer or high school project to undertake the willow planting.

Kink Corner (MP 22.4 Nome-Taylor Road): ADOT&PF - New material site development constructed to provide fish rearing upon reclamation. Backwater connection through 6 foot diameter culvert to the Nome River. Design initiated in 1989; project constructed 1992-93.

Approximately 5.5 acres of rearing habitat created. Maximum depth 16+ feet; 20% littoral habitat (<2 meters). South and eastern sides have been revegetated. Excess material stockpiled along western side. Area will be rehabilitated as material is used up on road maintenance activities. Site located immediately upstream of open water (winter) area in Nome River suspected of being a coho salmon and Dolly Varden spawning area. Juvenile coho salmon and Dolly Varden observed in the pond/material site in August 1993. Fisheries survey/population estimates to be completed Summer 1994.

Deficiencies: None identified at this time. Site evaluation to be completed Summer 1994.

East Fork Solomon River: ADOT&PF - Restoration of nine miles of stream channel following removal of roadbed from active river bed. Work completed in 1986.

Dolly Varden, sculpin and grayling identified to date. No documented salmon spawning although pink and coho salmon are documented in the adjacent West Fork Solomon River. Extensive aufeis formation may limit use of stream for spawning.

Deficiencies: Bankfull stream channel was not established. Stream valley was recontoured and allowed to establish its own channel. Resulted in significant braiding which is only now beginning to gather into a single channel. Braided configuration promoted aufeis formation which delayed vegetative recovery.

Pilgrim River (MP 59): ADOT&PF - Reestablished culvert connection and fish access to several acres of side channel rearing habitat for coho salmon, Dolly Varden, and Arctic grayling. Evaluated and surveyed potential material site (20 to 40 acres) that could eventually be interconnected to the reconnected side channel rearing area. Small upwelling in adjacent man-made floodplain material site currently supports spawning chum salmon. Additional spawning opportunities may be created if/when additional material sites are developed. Juvenile Dolly Varden, juvenile coho salmon, Arctic grayling. Sockeye salmon migrate past this site but it is uncertain whether juveniles will utilize the rearing habitat.

Deficiencies: A beaver dam has periodically blocked the reestablished culvert and requires annual maintenance.

Darling Creek: ADOT&PF - Retrofit of an existing highway culvert to remove fish barrier. Completed in 1986. Rebar/rock weirs installed within the existing culvert barrel to correct velocity barrier. Adult pink salmon and juvenile Dolly Varden documented upstream of the culvert structure.

Deficiencies: None identified to date. Site is monitored annually. Bedload movement appears normal; organic debris has passed structure without blocking culvert.

Sulphur Creek: ADOT&PF, BLM and ADF&G - Retrofit of an existing highway culvert to correct perched outlet condition. Completed in 1989. Large riprap placed in outlet scour pool to reduce hydraulic scour and promote deposition of stream bedload. Deposition of bedload material has raised the stream thalweg approximately three feet (1989 to 1992) at culvert outlet and has eliminated the perched culvert barrier.

In 1990-91, BLM and ADF&G-H&R staff completed an evaluation of Sulphur Creek for possible installation of instream habitat enhancement structures (primarily to create coho salmon rearing habitat). Proposed structures were authorized by the Corps of Engineers but were not constructed due to concerns that construction of the structures might further destabilize the stream morphology which already exhibits signs of instability due to historic washouts of the road culvert. Project is on hold pending further hydraulic analysis of the stream.

Juvenile Dolly Varden documented upstream of the culvert; juvenile coho salmon and Dolly Varden documented in creek downstream of culvert.

Deficiencies: None identified to date. Site is monitored annually. Bedload movement appears normal; organic debris has passed structure without blocking culvert. No bank erosion evident within culvert outlet scour pool.

Solomon River: ADOT&PF - In response to a Notice of Violation issued by the Corps of Engineers to ADOT&PF in 1992, H&RD staff prepared a remediation plan for the COE which included construction of several boulder clusters within the mainstem Solomon River upstream of Lees Camp. Work was completed in 1993.

Target species - juvenile Dolly Varden, juvenile coho salmon, and Arctic grayling.

Deficiencies: None identified to date. Site will be monitored annually.

PENDING PROJECTS

Dexter Creek: ADOT&PF - Planned construction of a downstream rock-filled gabion and/or Class III riprap tailwater control structure at the outlet of Dexter Creek to backwater existing culvert which is perched approximately 1.5 feet. Revegetation (willow plantings) of the upper watershed also proposed subject to approval from private land owners. Activity permitted in 1992; actual work pending ADOT&PF funding and project scheduling.

Sculpins, juvenile coho salmon, and juvenile Dolly Varden documented both upstream and downstream of culvert. At this time (pre-construction) relative abundance upstream of the partial culvert barrier is substantially lower than the lower reaches of the stream.

Fox River (MP 65 Nome-Council Road): ADOT&PF - New material site proposal to support maintenance and operations activities and new highway reconstruction. Designed in two aliquot parts to provide fish rearing upon reclamation. Downstream creek connection to the Fox River. Design initiated in 1989; project permitted in 1993. Construction scheduled for 1994+ (??) dependent upon on ADOT&PF funding and project scheduling.

Approximately 8 acres of rearing habitat will be created. Target species include juvenile coho salmon and Dolly Varden. Potential for upwelling chum salmon spawning area at head of pond. Coho and chum salmon are documented to spawn in the adjacent Fox River.

Little Hurrah Creek (third order tributary to Solomon River): Thor Gold - Proposed hardrock mine would have eliminated Little Hurrah Creek and created a 240 foot deep open pit within the Little Hurrah Creek valley floor. H&RD staff worked with the developer during preparation of the Environmental Assessment to design reclamation measures that would establish a functional lake with littoral habitat features upon completion of mining activities. The primary target species included Dolly Varden, Arctic grayling and coho salmon. Juvenile Dolly Varden documented in Little Hurrah Creek. Dolly Varden and pink salmon spawning documented within Big Hurrah Creek. Permit applications were submitted in 1989 but withdrawn in 1991 for financial reasons. Future status is unknown.

Basin Creek: Engstrom Mining - In conjunction with an ADOT&PF highway project, the private landowner developed a 16 foot deep, 20 acre material site adjacent to Basin Creek. A subsequent channel breach in 1989 flooded the mine site forming a lake. Basin Creek currently flows through the pond. Water levels drop significantly during late

winter. H&RD staff are to determine whether the pond provides overwintering habitat and will make remedial recommendations to the land owner. Additionally, during dry, hot summer periods outlet channel dries up and isolates lake from Basin Creek. Lower Basin Creek also dries up during these periods isolating the creek from the Nome River. H&RD staff will evaluate the outlet barriers and provide remedial recommendations, as appropriate, to the landowner.

Arctic grayling and juvenile Dolly Varden have been documented in the man-made pond. Potential use by juvenile coho salmon.

CONCEPTUAL PROJECTS (Preliminary Field Assessment Completed)

Anvil Creek (Alaska Gold, Inc.): Two separate gold mining operations (operating under lease from Alaska Gold) located immediately north and west of the Nome-Beltz High School have created seven ponds totalling over 20 surface acres. Three of the ponds are presently connected to Anvil Creek and support documented populations of juvenile coho salmon and Dolly Varden. The ponds were surveyed in 1993 to establish relational elevations and facilitate preparation of a plan for interconnecting all of the ponds with Anvil Creek. Additional remedial activities may include riparian revegetation with willow cuttings and potential coho salmon fry releases from the Nome-Beltz High School Educational Hatchery. The Division of Commercial Fish Management and Development (formerly FRED) has the lead for coordination with Alaska Gold and the Nome-Beltz High School. H&RD staff are providing technical support and are developing the proposed reclamation plan.

Hastings Creek: Vezey/Martinson Dredge - A gravel mining operation initiated in 1993 will remove approximately 25,000 cubic yards of material. Total estimated gravel reserves could eventually affect up to 15 acres of creek, floodplain, and downstream tidal estuary. The site was evaluated and surveyed in 1993. A conceptual plan was developed in conjunction with the contractor and includes provisions for developing up to 20 foot deep off-channel excavations in aliquot parts. Upon depletion of the gravel reserves, each cell will be interconnected with a final downstream connection to the tidal estuary. The reclaimed site is intended to provide waterfowl and seabird nesting habitat; rearing habitat for Dolly Varden in the upper freshwater portion; and estuarine habitat for outmigrant pink salmon in the lower brackish water section.

Center Creek: Alaska Gold, Inc. - An on-going mining operation will divert the upper headwaters of this creek into Little Creek and excavate several large off-channel pits that are expected to fill with ground and surface water upon completion of mining. The current assessment focuses on the potential for interconnecting these lake features to Center Creek and/or Little Creek to provide summer rearing and overwintering habitat for juvenile coho salmon, Dolly Varden and potentially Arctic grayling. Juvenile coho salmon, juvenile Dolly Varden, sculpin and blackfish have been documented at the road crossing.

Dry Creek: Alaska Gold, Inc. - Fisheries evaluation and site inspection completed in 1993. Several options identified for construction of rearing ponds within or adjacent to active stream channel in conjunction with proposed gold dredging operations. Juvenile coho salmon and juvenile Dolly Varden documented adjacent to Icy View Subdivision.

Glacier Creek Road: ADOT&PF - Culvert survey completed in 1992. Remedial recommendation transmitted to the ADOT&PF in a January 1993 report. Potential material sites were surveyed in 1993 to evaluate potential fish and wildlife habitat

enhancement potential. Sculpins, juvenile coho salmon, and juvenile Dolly Varden documented (not necessarily all in each stream) in tributary streams to the Snake River. Pink, chum and coho salmon spawning documented in Glacier Creek.

Nome-Taylor Road (MP 26 to 28, Nome-Taylor Road): ADOT&PF - Maintenance and Operations staff requested H&RD staff to complete an evaluation of potential material sites with fisheries enhancement potential between Mileposts 26 to 28 along the Nome River. A site survey was completed in 1992. Several potential sites for development of fish rearing ponds (similar to Kink Corner - MP 22.4) were identified. One spring also was identified which potentially could be utilized to establish a chum salmon spawning channel. Further evaluation of flow rates and temperature regime is required. Preliminary site plans are under development. Target species include juvenile coho salmon and Dolly Varden.

Sinuk River: Bering Straits Native Corporation - Historic, shallow, surface-scrap of gravel along the west bank resulted in extensive riparian disturbance and shifts in the river channels. The site was evaluated and surveyed in 1988-89. Conceptual plans have been developed for stabilization of the existing river channel and creation of a deep backwater pond. Target species include Arctic grayling, Dolly Varden and coho salmon.

Rocky Mountain Creek: ADOT&PF - The existing culvert is perched approximately four feet at the culvert outlet. H&RD staff have prepared a corrective plan for ADOT&PF which includes the placement of a series of large riprap groins downstream of the culvert outlet to backwater the perched outlet. It is anticipated that bedload deposition within each of the groin pools will eventually reestablish a normal stream gradient similar to that observed with remedial actions in Sulphur Creek.

Solomon River (MP 37): - Martinson Dredge - At the request of the contractor, potential material sites at Milepost 37 of the Nome-Council Road were evaluated. A site development plan is in preparation that will create an inter-connected off-channel rearing pond within the Solomon River floodplain.

Pilgrim River (MP 60.5): ADOT&PF - Preliminary site evaluation and survey of an existing material site to evaluate the potential for establishment of an eight to ten acre off-channel rearing pond. Baseline assessment completed; however, further work placed on hold pending resolution of adjacent private landowners (native allotments) concerns regarding access restrictions and potential hydraulic river bank alterations.