

## NEZ PERCE TRIBAL HATCHERY REVIEW

The Nez Perce Tribal Hatchery (NPTH) project is presently in its third phase of development since 1980. The third phase of NPTH development has paralleled the development of Subbasin Planning and the Integrated System Planning processes and is an integral part of those plans. NPTH was authorized by the Northwest Power Planning Council (NPPC), through its Columbia River Basin Fish and Wildlife Program (1987), when it developed measures to plan for mitigation of the losses of steelhead and salmon in the Columbia basin under the Northwest Power Planning Act. A master plan and ammendment of the original measure are presently being developed for presentation to the NPPC and will be completed early in 1991.

NPTH will use a Central Incubation and Rearing Facility (CIRF) to supply fry to multiple satellite facilities where they will be released into the stream as "presmolts" in October of each year. This supplementation will occur in the Clearwater and Salmon River subbasins (see Figure 1, 2 & 3, maps). Management objectives are; (1) to rebuild and maintain natural spring and fall chinook runs (Table 1 and 2) to meet the goals outlined in the subbasin plan, (2) to provide sustainable in-subbasin Tribal and sport harvests, (3) to minimize genetic drift of supplemented salmonids as a result of hatchery production methods, (4) to maintain the genetic character of non-supplemented naturally producing populations of salmonids native to the subbasin, (5) to rebuild natural adult spawning goals of 50 to 100% of capacity over time through supplementation and harvest management, (6) to adapt fish to return to the natural environment to spawn rather than to a hatchery, (7) to monitor and evaluate the results of presmolt releases and adult returns based on release sites and production methods, (8) to model presmolt production to fit the natural carrying capacity of the watersheds where supplementation occurs.

Production goals are listed below in Tables 1 and 2 to describe the project goals of the individual watersheds in terms of species and products. Specific pathogen free waters will be used for incubation and early rearing of juveniles to 50 plus millimeters in length at a CIRF. This will provide better disease management and overall survival. Presmolts and other juveniles will be reared at a density not to exceed 0.10 lbs/ft<sup>3</sup>/in (pounds per cubic foot per inch of length). Stock isolation will be practiced for the prevention and control of disease and genetic preservation and development. Natural populations of broodstock will be used as the source whenever possible which will constitute "conservation supplementation" with 15 to 20 years elapsing prior to harvest. A genetic resource assessment is currently underway to determine if sufficient "native stock" exists in the Lolo Creek watershed to develop that stock through "conservation supplementation". Where natural populations cannot provide broodstock, stocks will be rebuilt as rapidly as possible using broodstock from an existing

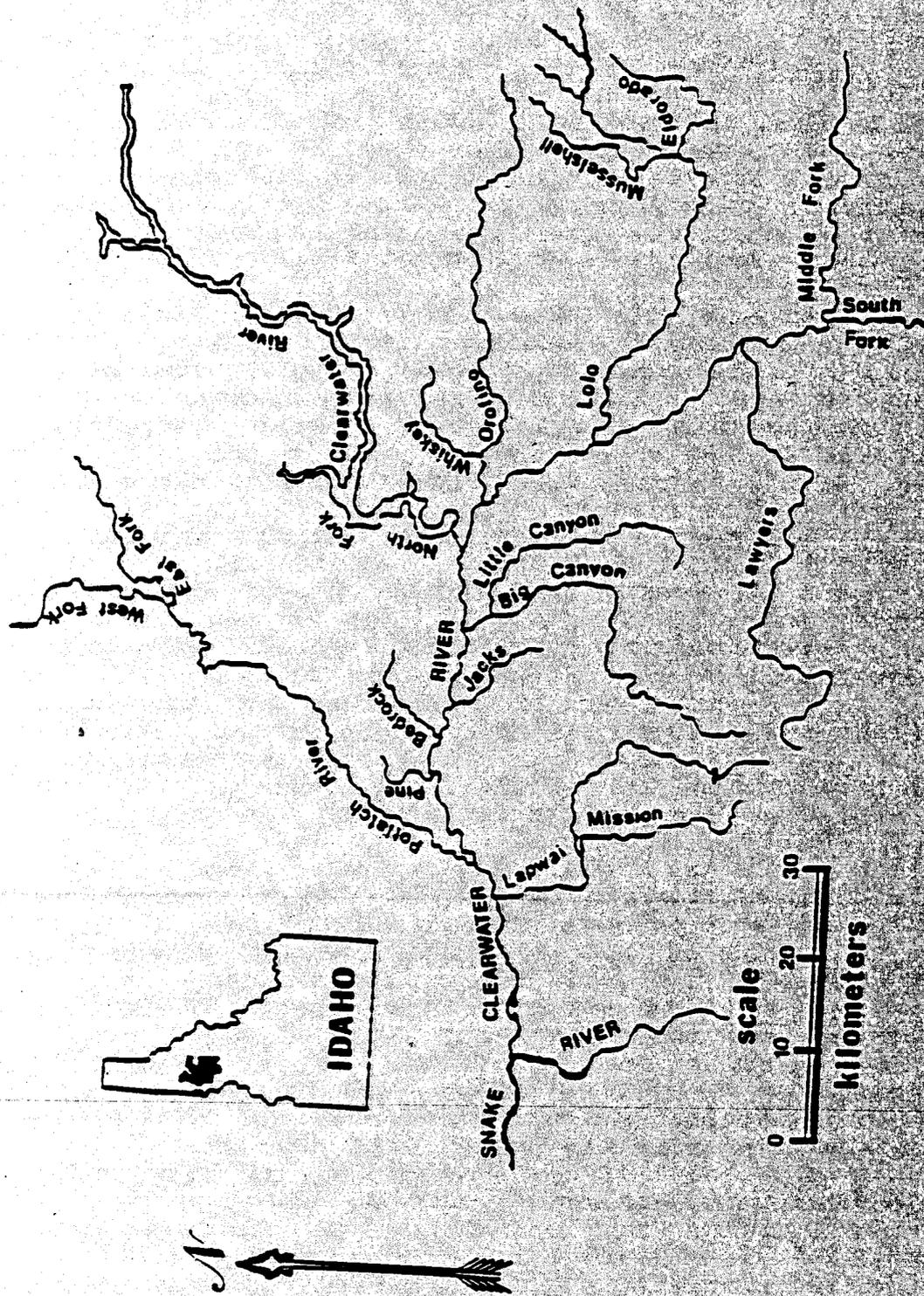


Figure 1. Map of the lower mainstem Clearwater River and its major tributaries with emphasis on the Lolo Creek water shed.

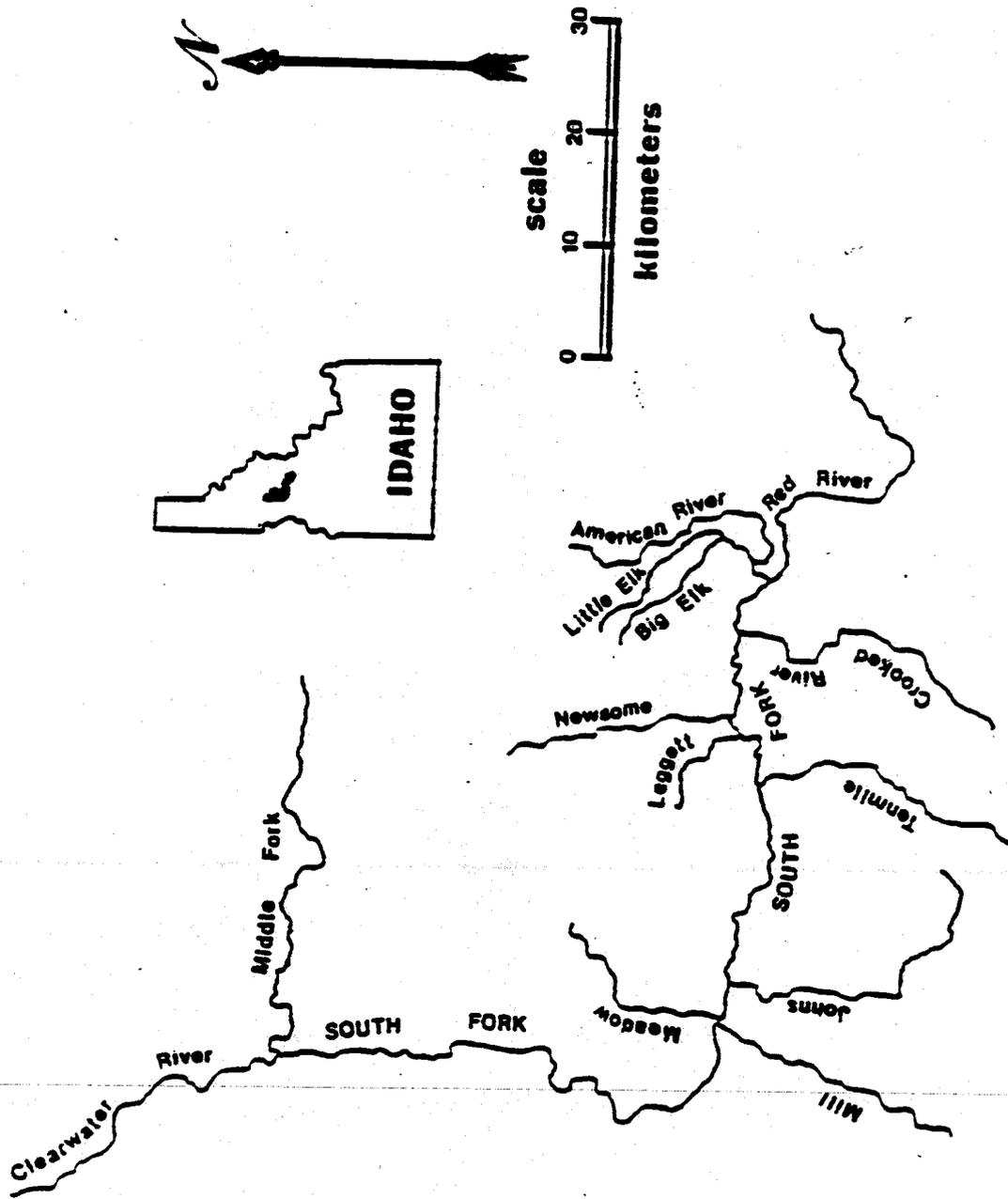


Figure 2. Map of the South Fork Clearwater River and its tributaries with emphasis on Meadow, Mill and Newsome Creeks.

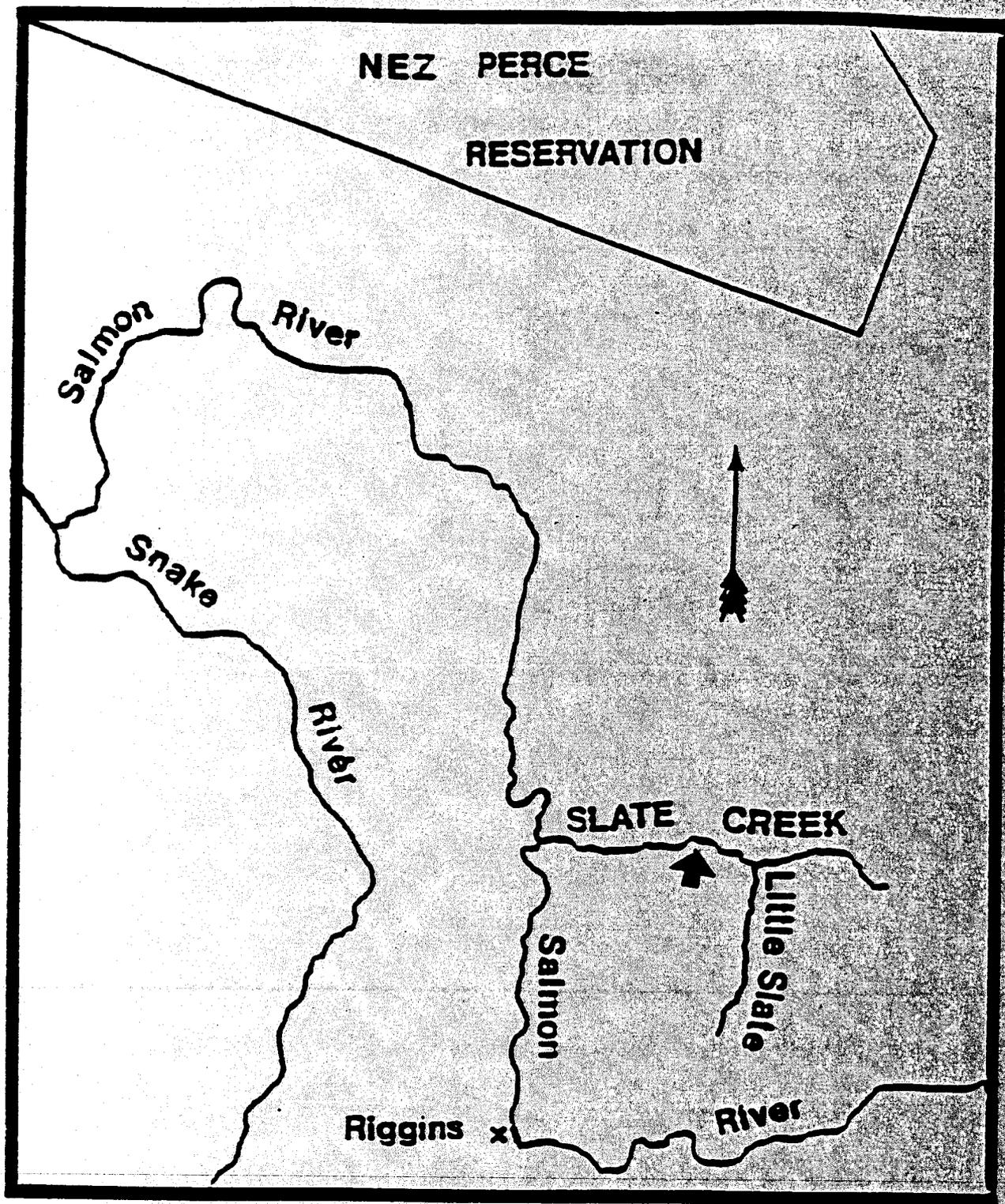


Figure 3. Map of Salmon River and its tributary Slate Creek.

hatchery with the potential to develop harvest opportunities within 7 to 12 years. This method would be termed "harvest supplementation"; an example would be Meadow and Mill Creek, S.F. Clearwater River and Slate Creek, lower mainstem Salmon River. Regardless of the supplementation method employed a major goal of the program is to develop natural spawning populations wherever habitat can support salmon production. Broodstock will be managed to provide a genetic base that represents a complete cross section of run timing and mimics the life history traits found in fish native to the watershed. Broodstock selection will need to be rotated to select a percentage of the natural spawners and release a percentage of hatchery returns to spawn naturally. Multiple release and recovery points will be used to cause a natural distribution of returning spawners to distribute themselves throughout the watershed.

Success of the project will primarily be limited by the following factors; (1) broodstock numbers available, (2) in-basin and out-of-basin flows and passage, (3) ability to meet or exceed the smolt to adult survival factor of 0.002 (0.2 %), (4) post-release and over-winter survival of presmolts, and (5) habitat maintenance and redevelopment of degraded habitat.

Recommendations and solutions to factors limiting success of the project are; (1) to increase flows and shorten time of migration to Lower Granite Dam, (2) to improve downstream migration and survival through the dams on the lower Snake and Columbia Rivers, (3) to control losses in the Columbia and Snake Rivers to increase return of stocks to the upper river subbasins; i.e., the upper Columbia and the Snake Rivers, (4) to raise the commercial harvest trigger levels at Bonneville Dam, (5) to modify hatchery production methods to produce fish that look and act like wild/naturally reared fish; e.g., rear fish at lower densities and with the same release size as natural fish, (6) to determine both juvenile and adult survival and movement patterns more accurately by developing monitoring and evaluation for the program.

SPECIES:	ADULT RETURNS: (to mouth of river)	PRESMOLTS RELEASED:	TIMED-RELEASE FED- FRY: (150 fish/lb)	BROODSTOCK SOURCE
Spring chinook (Lolo Creek, mainstem Clearwater River; Mill & Newsome Creek, S.F. Clearwater River)	1-2,000	1- 1,500,000 <sup>a/</sup> , <sup>b/</sup> (20 fish/lb) (140 mm)	0 <sup>d/</sup>	Lolo Creek <sup>e/</sup> Dworshak-Kooskia Hatchery Complex
Fall chinook (S.F. Clearwater River at Stites, ID)	1,000-1,500	400-600,000 "0-age" migrants (70 fish/lb) (90 mm)	0	Snake River (Lyons Ferry or Lower Granite Dam)

- a/ Smolt to adult survival,  $S_{sa}$  equals 0.002 (0.2%).
- b/ Pre-smolt to smolt survival,  $S_{ps}$  anticipated to equal 0.335 to 0.67 (33.5 to 67%)
- c/ TRFF-to-smolt survival is expected to equal 20%.
- d/ NPTH CIRF or other hatchery capable of producing fish for this purpose.
- e/ Subject to genetic resource assessment for broodstock viability.

SPECIES:	ADULT RETURNS: (to mouth of river)	PRESMOLTS RELEASED: (20 fish/lb) (140 mm)	TIMED-RELEASE FED-FRY: (150 fish/lb)	BROODSTOCK SOURCE
Spring chinook	1,000-2,000	500,000 - 1,000,000 <sup>a/</sup> , <sup>b/</sup>	250,000 <sup>c/</sup> , <sup>d/</sup>	Rapid River

- a/ Smolt to adult survival,  $S_{sa}$  equals 0.002 (0.2 %).
- b/ Pre-smolt to smolt survival,  $S_{ps}$  anticipated to equal 0.335 to 0.67 (33.5 to 67%)
- c/ TRFF-to-smolt survival is expected to equal 20%.
- d/ NPTH CIRF or other hatchery capable of producing fish for this purpose.