



Procedures for Compilation of Resident Fish Hatchery Data

- Project White Paper -

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Bonneville Power Administration
Division of Fish and Wildlife
Columbia River Inter-Tribal Fish Commission
Idaho Department of Fish and Game
Montana Department of Fish, Wildlife & Parks
Oregon Department of Fish and Wildlife
Pacific States Marine Fisheries Commission
Shoshone-Bannock Tribes
U.S. Fish and Wildlife Service
Washington Department of Fish and Wildlife

Title: Procedures for Compilation of Resident Fish Hatchery Data

Work Statement task #: 1.2(d)

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Task description

RESIDENT FISH AND OTHER AQUATIC SPECIES

Task 1.2 Prepare and maintain standardized data on resident fish and other aquatic species, to include:

(d) Hatchery production (emphasis on salmonid releases and outplants; data on other species may be included as available. The initial phase will involve a scoping process that will determine the quality and availability of existing data. Realistic deliverables will be determined following this scoping process.)

Products: 1) Regionally consistent data sets for identified resident fish gathered and forwarded to PSMFC in exchange format (delivered as completed, with July 31 as deadline) and incorporated (September 30).
2) Scoping document for task 1.2(d), hatchery production (January 31).

Background

Each state (WA, OR, ID, MT) is involved in the hatchery production and release of resident fish species into their waters. Depending upon applicable state laws, rules and regulations, hatchery reared resident fish species are released into lakes, reservoirs, and/or rivers and streams.

The current situation/status of hatchery release data for resident fish species, by state, is as follows:

Idaho

The Idaho Department of Fish and Game maintains a hatchery “stocking” database with records for resident fish releases going back to the 1960’s. All data are in electronic form and, where applicable, are tied to EPA Reach number. It does not appear that it would be difficult to get data for stream releases into a StreamNet-compatible exchange format and to incorporate these data into StreamNet. Release data for lakes would require additional effort at the data compiler level due to inconsistencies in lake location codes, which will require a validation/cross-reference of codes used to identify a given lake. Most of this effort would be for pre-1980 stocking records.

Data fields in the Idaho stocking database include: stream name, date planted, catalog number, EPA reach number, hatchery planted i.d., hatchery reared i.d., county, IDFG region, species, brood year, fish size, fish length, pounds, number planted, number per pound, hauling mortality, stocking method, and truck identification.

Montana

The Montana Department of Fish, Wildlife and Parks maintains a planting database of all resident fish releases. The records within the database date back to 1923 and are updated annually. The database is maintained by the Information Services Unit in Bozeman. Bob McFarland is responsible for the maintenance of the database. A copy of the database is available in the Montana StreamNet office. It is currently used to verify data in MRIS.

The database contains 64,735 records and includes all stream and river plants as well as lakes and reservoirs. The data are coded by water code which is cross-referenced to the EPA RRN in the Montana Rivers Information System.

Data fields in the planting database include: the code for the hatchery where the fish originated, the planting date, the region the fish were planted in, the county name, the watercode, the water type (reservoir, river, pond, trout stream, etc.), the name of the water body, the species and strain of fish, the length and weight of fish in the plant, the number of fish planted, and several fields that relate to the cost of the plant by the hatchery. The database is a DBF file and can be accessed using dBase. A Windows-based C program has been prepared that contains several query options and reports. It is available through both Bozeman and Kalispell.

Our preliminary evaluation suggests it would not be difficult to get Montana's stocking data into an accepted exchange format and submit it for inclusion in the StreamNet system.

Oregon

The Oregon Department of Fish and Wildlife maintains electronic records of resident fish hatchery releases on their mainframe computer in Portland, Oregon. Records are available in electronic form back to 1980. These release records are not tied to EPA Reach number but are systematically referenced to unique location identification codes such that EPA reach numbers could be associated using a similar cross reference process to that used for anadromous fish records. However, transferring Oregon fish release records in suitable electronic format would involve significant data query programming by system operators and time-consuming verification to ensure comprehensive and accurate data. Hatchery records for resident and anadromous fish releases prior to 1980 exist in various paper and electronic formats and would be difficult to transfer into a standardized electronic format.

Washington

The Washington Department of Fish and Wildlife is in the process of merging the hatchery release databases which were formally maintained by the Department of Fisheries and the Department of Wildlife. Resident fish releases are in electronic form from 1982-present. Lake releases are not coded and rely on the water name and water type. There is currently no standardized naming convention in the database. Confirming the actual location of the release sites would be the biggest challenge in merging Washington stocking data into the StreamNet system. Due to the ongoing efforts within WDFW there would be no need to reconcile the information between two major datasets, as was the case with steelhead hatchery data. Validation of data would, however, require considerable help from individual hatcheries.

WDFW is addressing location issues as they prepare the steelhead releases. WDFW does not currently have a standardized coding convention for lakes.

Older steelhead and resident fish releases are on hardcopy forms dating from approximately 1939 to 1981. This data would need to be entered into an electronic database.

U.S. Fish and Wildlife Service

The U.S. Fish and Wildlife Service maintains and operates 17 fish hatcheries in the Pacific Northwest region (includes 1 hatchery in Northern California). These are as follows:

Idaho

- Dworshak
- Hagerman
- Kooskia

Montana

- Creston
- Ennis

Oregon

- Eagle Creek
- Warm Springs

Washington

- Abernathy
- Carson
- Leavenworth/Entiat/Winthrop Complex
- Little White Salmon/Willard Complex
- Makah
- Nisqually
- Quilcene
- Quinault
- Spring Creek

California

- Coleman

Most of these hatchery facilities are used for anadromous fish production, however many of them also are, or have been, used for resident fish production (primarily trout). The federal hatcheries in Montana are rearing and releasing resident fish species only.

The data are for the most part in electronic form, but would need to be verified and standardized into an acceptable exchange format. Further evaluation would be required to determine what effort would be necessary to incorporate resident fish data from federal hatcheries.

Issues

From a regional resource management perspective, there are three principal reasons for compiling resident fish hatchery release data. These are: 1) stocking of resident species may have an affect on anadromous fish, 2) the stocking of resident fish may have an affect on wild fish, both through competition and alteration of genetics, and 3) hatchery release data is useful in evaluating the productivity of a given stream system.

The primary technical issues to be addressed in developing a strategy for the compilation and exchange of resident fish hatchery release data are:

1. **Standardization.** There has not been an effort to standardize hatchery release data among the state and federal agencies involved in this activity. An exchange format would need to be developed and agreed upon.
2. **Condition of Records.** There is considerable variation in the condition of available information. Information differs by state, region within the state, and date of collection, with older data being the least organized and verified. Only part of the information is in electronic format. The level of effort necessary to get data into an acceptable format differs by state.
3. **Stocking Locations.** Resident fish are often stocked in locations removed from the hatchery. While there are signs that this may be changing, there has been no systematic approach to determining release locations. Information on the specific release sites is often sketchy and sometimes suspect.
4. **Lakes and Reservoirs.** Hatchery releases of resident fish species are often into lakes and reservoirs, many of which do not have a corresponding EPA Reach number. A regionally standard lake and reservoir referencing system is not available, though this issue should be somewhat resolved when the new 1:100,000-scale hydrography is integrated into the StreamNet system. From a StreamNet project perspective, there is also the issue of the relative priority that should be placed on compilation of lake-related resident fish hatchery data when compared to other project obligations.

Recommendations

Recommendations are as follows:

- Prepare an exchange format for resident fish hatchery release data during FY 97. To the extent possible, make this consistent with the existing anadromous hatchery release exchange format.
- Prepare protocol for referencing lake and reservoir hatchery release data during FY 98.
- Review and, if necessary, update resident hatchery facility information during FY 97 and FY 98. (This will involve a follow-up on the review that took place in Fall 1996).
- Establish priorities for compilation and submittal of hatchery release data for resident fish as follows:
 1. Stream releases of resident fish in drainages containing anadromous fish.
 2. Lake/reservoir releases of resident fish in drainages containing anadromous fish where these lakes and reservoirs have inlets/outlets and there is the possibility of planted fish moving into the river system.
 3. Stream releases of resident fish where anadromous species are not present.
 4. All other resident salmonid releases, including those into lakes and reservoirs outside of drainages containing anadromous fish.
 5. All other resident species releases, including lakes and reservoirs outside of drainages containing anadromous fish.

Recognize priorities 1 and 2 above as the near-term (one-two years) priorities. Recognize priority 3 above as the mid-term (three-five years) priority. Priorities 4 and 5 should be given a low priority, that is, be added to the system only if compiled through other sources using the accepted format, or when this can be easily accomplished.

- Each state fish and wildlife agency should initiate compilation and submittal of hatchery release data for resident fish species in the agreed upon exchange format. These data submittals would occur on an annual basis after the initial submittal. Data should be compiled and submitted for years going back to at least 1980. Initial submittal should be for data that is currently in electronic format and in a condition that allows relatively easy transfer to the regional data exchange format.

- Montana and Idaho resident fish stocking records should be used to prototype the exchange of resident hatchery data.