**To: FPOM team members**

**From: Idaho Department of Fish and Game**

**Subject: Investigation into the biological characteristics of walleye captured at Lower Granite Adult Fish Trap.**

**Introduction**: Walleye are a popular non-native gamefish in the Pacific Northwest. These fish are zooplanktivores during their larval life stage and are voracious piscivores during their sub-adult and adult life stages. As a result of their life history characteristics and environmental requirements have successfully established in many waterbodies in the Pacific Northwest with detrimental effects on existing fisheries. To date, there is little information on the biological characteristics of walleye in the Lower Snake River and no information on the characteristics of upstream dispersing individuals.

Idaho Department of Fish and Game (IDFG) has long standing concerns about the establishment of walleye in Idaho waters supporting anadromous salmonid populations (Bennett 1979; IDFG 1982). In a 1982 evaluation of the suitability of Idaho waters for walleye introduction, connection with the Lower Snake River was a criterion precluding the stocking of walleye with specific emphasis on preventing establishment in waterbodies supporting anadromous salmonids. To date, IDFG has stocked walleye into Mud Lake (1974; no outflow; did not establish), Salmon Falls Creek Reservoir (1974; closed system; established), Onieda Reservior (1976; Bear River drainage; established), and Oakley Reservoir (1989; closed system; established). IDFG rejects all requests to establish walleye population in any other waterbodies. Yet, walleye have established in other waterbodies through illegal introductions or dispersal from other states.

The lower Snake River in Washington has potential as a major vector by which walleye can invade Idaho waters supporting anadromous fish. Introduced into Lake Roosevelt in the 1940’s and 1950’s, walleye expanded their range down the Columbia River and up the Snake River with strong populations establishing from John Day Reservoir to Little Goose Dam on the lower Snake River. Walleye were first captured at the adult fish trap at Lower Granite Dam in 2016 and numbers have increased in the past four years (Figure 1) suggesting this species is on the cusp of establishing populations in the Snake River and its tributaries in Idaho. It is difficult to corroborate the trap data with window count data because walleye counts are not within the Army Corps of Engineers (USACE) contracts for conducting window counts. As a result, walleye are inconsistently documented in the hourly notes section of this dataset. The establishment of walleye above Lower Granite Dam may have severe consequences all populations of threatened anadromous salmonids in Idaho —particularly fall Chinook Salmon.

Based on discussions with WDFW, limited population dynamics and dispersal information is available for walleye in the lower Snake River. WDFW recognizes this as a data gap in their walleye sampling regime. To address this data gap and expand the current knowledge of walleye in the lower Snake River, IDFG proposes to use the adult fish trap at Lower Granite Dam to collect data on the characteristics of walleye dispersing upstream through the fish ladder. These data will prove an important first step towards future actions aimed at preventing or managing the establishment of walleye in the Snake River and its tributaries in Idaho. These data will be collected in coordination with Washington Department of Fish and Wildlife (WDFW), National Oceanographic and Atmospheric Administration (trap operator) and the USACE at Lower Granite Dam.

**Request:** Idaho Department of Fish and Game requests to lethally sample 100% of walleye captured at the Lower Granite Adult Fish Trap to obtain data on the life history attributes of walleye moving upstream through Lower Granite Dam.

**Methods**:

* Walleye will be euthanized upon capture in the Lower Granite Adult Trap using a pneumatic bolt gun and exsanguination. Expired walleye will be held in a tub at the adult trap and full work up completed after morning or afternoon salmon and steelhead sampling has been completed. Walleye will not be held or worked up in existing tanks where salmon and steelhead are sampled.
* Walleye will be measured for length and weight.
* Staff will remove the walleye otolith and first three dorsal spines for age analysis. Aging structures will be delivered to Washington Dept. of Fish and Wildlife for analysis.
* Individuals will be dissected to determine sex and gonadal development. This will provide information whether individuals captured have (1) spawned previously, (2) would reasonable be predicted to spawn above Lower Granite Dam within one year, and (3) provide an idea of the potential for rapid expansion of population upstream of Lower Granite Dam.
* Stomachs will be removed and stomach contents identified to species when possible.
* After sample collection, fish will be disposed up in a dumpster provided by the USACE at LGR.

All data will be recorded on hard copy datasheets at LGR and entered into a WAE database for analysis and/or distribution to aging labs.

**Permitting Requirements**:

* WDFW scientific collection permit. Status — In progress.
* NOAA approval to use trap for this purpose. It will not include any changes to trapping rates.

**Reporting:**

* Data will be reported, but the avenue for reporting has not yet been identified.

**References:**

Bennett, D. H. 1979. Probable walleye (Stizostedion vitreum) habitation in the Snake River and tributaries of Idaho. Research Technical Completion Report Project A-060-IDA. Moscow, ID, USA <https://www.lib.uidaho.edu/digital/iwdl/docs/iwdl-197902.html>

IDFG. 1982. Evaluation of walleye for an expanded distribution in Idaho. IDFG Report 1982. <https://collaboration.idfg.idaho.gov/FisheriesTechnicalReports/Res-IDFG1982%20Evaluation%20of%20Walleye%20for%20Expanded%20Distribution%20in%20Idaho.pdf>



Figure 1. Number of walleye captured in the Lower Granite Dam adult fish trap from 2013 – 2019. Data from Darren Ogden (NOAA).