

## RESEARCH PROJECT SEGMENT

State: Alaska Name: Sport Fish Investigations  
of Alaska.

Project No.: F-9-6

Study No.: R-IV Study Title: A STUDY OF DOLLY VARDEN  
IN ALASKA.

Job No.: R-IV-D Job Title: Dissemination of Information  
Collected on Dolly Varden.

Period Covered: July 1, 1973 to June 30, 1974.

## ABSTRACT

One report on the information collected under the Dolly Varden study was published this year. This was titled "Migration of Anadromous Dolly Varden in Southeastern Alaska."

## RECOMMENDATIONS

Some information remains to be published on the Dolly Varden study and it is recommended that this job be continued.

## FINDINGS

A report on the migration of Dolly Varden was published this year. An abstract of this report is:

*Armstrong, R. H. 1974. Migration of anadromous Dolly Varden in southeastern Alaska. J. Fish. Res. Bd. Canada 31:(in press).*

*Migrations of anadromous Dolly Varden, Salvelinus malma, from the sea into Hood Bay Creek and two other nearby non-lake streams on Admiralty Island, consisted of 61%-87% immature fish. Most of these fish left the streams within a few days of entering. Nearly all smolts leaving Hood Bay Creek for*

three years were marked, but only 16%-21% of the immature fish entering the stream bore these marks. Many of the Dolly Varden, marked in Hood Bay Creek as smolt, were recovered entering the two other study streams as immature fish but not as spawners.

Mature Dolly Varden immigrants remained in the stream for several weeks until they had completed spawning in October and November. Most of the Dolly Varden that spawned in Hood Bay Creek had been marked in Hood Bay Creek, previously as smolt or as spawners. No Dolly Varden were observed to spawn in a stream other than the stream of origin. Results of transplant of smolts and displacement of adults showed that smolts returned to spawn in the receiving stream, and adults returned to their home stream. Most Dolly Varden from Hood Bay Creek spawned only once or twice. Males suffered a much higher spawning mortality than did the females.

It is hypothesized that: (1) anadromous Dolly Varden from non-lake streams migrate both between non-lake streams and between non-lake streams and lake-stream systems; (2) during their first summer in the sea, Dolly Varden from non-lake streams enter several streams while searching for a lake; (3) mature fish from non-lake streams leave their lake wintering area and return to their home streams to spawn; and (4) mature fish from lake stream systems go to the ocean to feed for several weeks to a few months then return to their home lake-stream system to spawn and overwinter.

In addition to the annual reports of progress, the following reports of information collected under the Dolly Varden Study have been published since the beginning of the project in 1962:

Anonymous. 1973. Logging and Fish Habitat. A pamphlet published by the U.S. Forest Service, Alaska Department of Fish and Game and Alaska Department of Natural Resources. 22 pp.

Armstrong, R. H. 1974. Migration of anadromous Dolly Varden in southeastern Alaska. J. Fish. Res. Bd. Canada 31:(in press).

\_\_\_\_\_. 1971. Age, food, and migration of sea-run cutthroat trout, *Salmo clarki*, at Eva Lake, southeastern Alaska. Trans. Amer. Fish. Soc. 100(2):302-306.

\_\_\_\_\_. 1970. Age, food, and migration of Dolly Varden smolts in southeastern Alaska. J. Fish. Res. Bd. Canada 27:991-1004.

\_\_\_\_\_. 1965a. Annotated Bibliography on the Dolly Varden Char. Alaska Department of Fish and Game, Research Report Number 4. 26 pp.

- \_\_\_\_\_. 1965b. Some Feeding Habits of the Anadromous Dolly Varden, Salvelinus malma (Walbaum), in Southeastern Alaska. Alaska Department of Fish and Game, Informational Leaflet Number 51. 27 pp.
- \_\_\_\_\_. 1965c. Some Migratory Habits of the Anadromous Dolly Varden, Salvelinus malma (Walbaum), in Southeastern Alaska. Alaska Department of Fish and Game, Research Report Number 3. 36 pp.
- \_\_\_\_\_ and Roger F. Blackett. 1966a. Digestion Rate of the Dolly Varden. Transactions of the American Fisheries Society. 65(4):429-430.
- \_\_\_\_\_. 1966b. Use and Evaluation of Dart Tags to Study the Migration Habits of Dolly Varden, Salvelinus malma (Walbaum). Transactions of the American Fisheries Society, 95(3):320-322.
- \_\_\_\_\_ and William A. Morton. 1969. Revised Annotated Bibliography of the Dolly Varden Char. Alaska Department of Fish and Game, Research Report Number 7. 108 pp.
- \_\_\_\_\_ and Peter C. Winslow. 1968a. An incident of Walleye Pollock Feeding on Salmon Young. Transactions of the American Fisheries Society, 97(2):202-203.
- Blackett, R. F. 1973. Fecundity of resident and anadromous Dolly Varden (Salvelinus malma) in southeastern Alaska. J. Fish. Res. Board Canada. 30:543-548.
- \_\_\_\_\_. 1968. Spawning Behavior, Fecundity, and Early Life History of Anadromous Dolly Varden, Salvelinus malma (Walbaum), in Southeastern Alaska. Alaska Department of Fish and Game, Research Report Number 6. 85 pp.
- Blackett, Roger F. and Robert H. Armstrong. 1965a. Collection of Two Abnormal Dolly Varden: One with Two Dorsal Fins, the Other with Incomplete Pigmentation. Transactions of the American Fisheries Society, 94(4):409.
- Heiser, David W. 1966. Age and Growth of Anadromous Dolly Varden Char, Salvelinus malma (Walbaum), in Eva Creek, Baranof Island, Southeastern Alaska. Alaska Department of Fish and Game, Research Report Number 5. 26 pp.

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