



Overwintering

Ecology

- Overwintering takes place where individual fry are located at the end of the open-water rearing season.
- Successful overwintering of fry has been documented in streams and smaller rivers, but may also occur in larger rivers.
- Overwintering survival in small streams appears to be related to local ice formation and to groundwater sources (Bradford et al. 2001).
- Overwintering has not been documented in lakes and juvenile Chinook are not present in the stomachs of predatory fish captured in lakes in the winter.
- Predation on overwintering fry by mink may be significant where the fry are confined to small areas.
- Overwintering extends until yearling (1+) juveniles leave the streams that they have spent the winter in and begin their migration to sea.

Potential Limiting Factors

- Short-term climatic/hydrologic variation resulting in decreased high quality groundwater discharge into overwintering areas following low-water summers.
- Climate change-related increased discharges of low quality ground water into overwintering habitats from melting permafrost.
- Reduced quantity/quality of overwintering habitats resulting from natural or placer mining associated fine sediment deposition on preferred cobble/rubble stream bottoms.
- Release of toxic materials from quartz mining development and operations.
- Obstruction of access by fry to overwintering habitats by beaver dams.
- Increased risk of predation from mammalian predators when fry are concentrated in small overwintering areas.
- Entrainment in hydroelectric facilities.