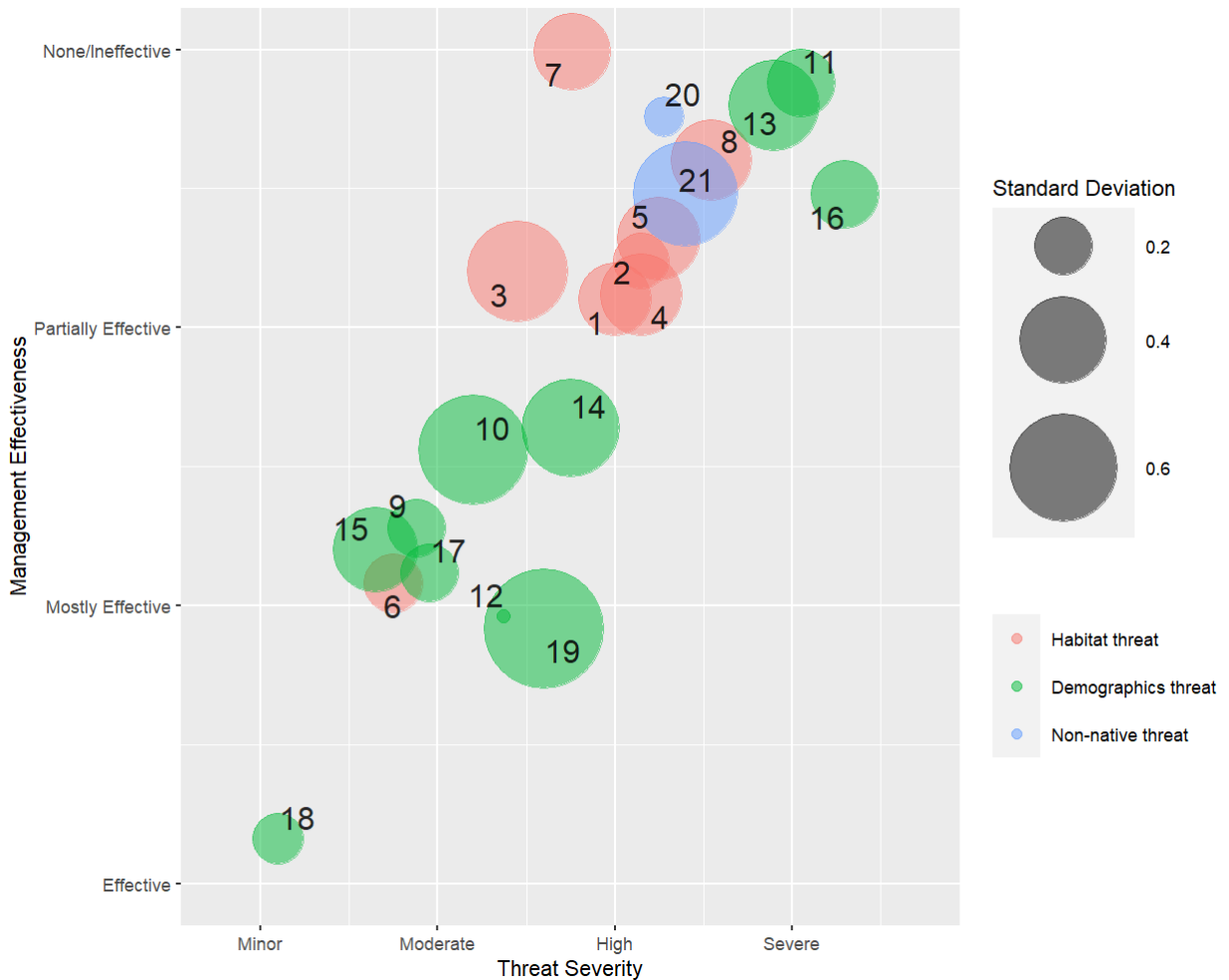


MC08 – Methow River Core Area

Threats Assessment Results



Threats Summary

Habitat

Upland/Riparian Land Management

- (1) Agriculture/Livestock Grazing/Forest Management Practices – legacy and current practices including forest roads, have resulted in a lack of habitat complexity (i.e., wood, primary pools, functioning floodplains). Agriculture practices have channelized streams, altered floodplains, and reduced riparian vegetation.
- (2) Development/Transportation Networks – legacy and current structures and features impact both SR and FMO habitat.
- (3) Recreation – legacy and new recreational developments impact SR habitat (i.e., rock dam building, reduced riparian areas, and compacted stream banks) and reduce habitat complexity.

Instream Impacts

- (4) Agriculture/Forest Management Practices/Grazing/Development/Transportation Networks/Recreation (legacy and current) – actions have degraded habitat. Past timber, fire, recreation, and grazing management have compounded impacts in stream reaches (i.e., sediments, reduced riparian areas, and high stream temperatures). Current grazing management plans need to be maintained and improved in spawning areas and FMO areas. Highways and county roads along FMO and development in floodplains reduce complexity, create passage issues, and degrade water quality.
- (5) Dewatering and Altered Flows – streams with natural dewatering are further impacted during low flow years. Mainstem diversion dams have altered instream flows and water quality.
- (6) Entrainment and Connectivity/Fish Passage – hydropower dams on the mainstem Columbia River, Methow River mainstem and tributary irrigation dams, and historic splash dams altered channel structure, floodplains, and impede fish passage.

Water Quality

- (7) Water Quality Impairment (legacy and current) – management has led to 303(d) listed reaches with water quality degradation. Standards are frequently not met in FMO areas. Irrigation returns, runoff, application of pesticides/herbicides/deicer impacts occur in adjacent FMO and several SR areas.
- (8) Climate Change – current science predicts temperature changes will impact stream flow and temperature patterns. Quality of the lower elevation SR habitat and FMO will be further degraded (stream temperatures, turbidity, sediments, dissolved oxygen levels).

Demographic

Connectivity Impairment

- (9) Agriculture – irrigation diversions cause impacts to fish passage entrainment. Some reaches within SR and FMO have listed 303(d) reaches. Stream temperature and agriculture chemicals have legacy and current impacts that reduce habitat complexity and degrade connectivity of bull trout habitat.
- (10) Forest Management/Transportation Networks (legacy and current) – forest roads/highways/county roads continue to impair connectivity for migration. Forest Management and Transportation Networks have impeded passage and contributed to a lack of complex habitat.
- (11) Dewatering – several streams natural dewater during times of low snowpack/rain and may be further impacted with climate change and management impacting these populations.
- (12) Entrainment (hydropower and diversions)/Fish Passage/Altered Flows – entrainment and altered flows occur at all PUD and Federal hydropower dams on the Columbia River and at other diversions/dams in the Methow Core Area where, fish passage is impeded, causing altered movement from SR and migration areas. Altered flows and climate change have caused reduced or limited use of migratory corridors.

- (13) Climate Change – climate change is predicted to impact stream flows and temperatures that will cause barriers for passage and reduced refuge.

Fisheries Management

- (14) Angling/Harvest/Poaching – fishing regulations and harvest rules need to continue to protect bull trout. Illegal poaching occurring in several basins.
- (15) Fisheries Management – increased fish management and need for fish monitoring cause increased handling impacts. Species interactions from hatchery fish are likely; degree of impacts is unknown.

Small Population Size

- (16) Genetic/Demographic Stochasticity – half of the local populations in the basin are small and unstable or stable at very low numbers. Several populations are at the lowest they have been in years.
- (17) Loss/Altered Migratory Life History – life histories have been altered due to long-term impediment of fish passage at long-time PUD dams and irrigation diversions.
- (18) Fisheries Management – species interactions from hatchery-released smolts/fishes and overlapping adult spawners may be greatest on low abundance populations.

Forage Fish Availability

- (19) Fish Passage/Introduced Species/Fish Management – Columbia River dams, irrigation diversions, and legacy splash dams or other culverts currently or historically impeded passage for potential native prey species (i.e., other salmonids). Hatchery releases may both impact and benefit bull trout especially where low numbers of bull trout exist. Brook trout outcompete bull trout for habitat and food.

Nonnatives

Nonnative Fishes

- (20) Introduced Species/Fish Management – brook trout are nonnative predators in the basin and will impact recovery. Brook trout overlap with bull trout in both SR and FMO habitat. Distribution is unknown. Fisheries for brook trout continue to occur. Salmon recovery involves output of high numbers of smolts, with some residualization and species competition, which may have impacts to preybase and small populations of bull trout. Genetic analysis has identified brook trout x bull trout hybrids within the basin.
- (21) Climate Change – predatory nonnative species occur within FMO habitats and risk potential spread especially as waters warm with climate change.