Lake Koocanusa site-specific selenium update

Montana Department of Environmental Quality

February 20, 2020

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Model/Policy Decisions

- Levels of Protection
- Selection of modeled fish species
- Designate appropriate food web for each modeled fish species
- Trophic transfer factor (TTFs)
- Partitioning coefficient (Kd)/enrichment factor (EF)

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Levels of Protection Process

US Federal Partners on the SeTSC drafted 4 levels of protection

→ DEQ sought feedback from:
- SeTSC
- CSKT & KTOI
- ENV

ENV proposed 3 additional alternatives
+
David DeForest (SeTSC member) recommended an additional approach

→ DEQ sought feedback from:
- SeTSC
- CSKT & KTOI
- ENV

DEQ & ENV finalized 5 Levels of Protection

* A separate analysis using David DeForest's recommended species-specific toxicity threshold approach may be included

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Levels of Protection

1. Max Egg/Ovary [Se] < 11 mg/kg
2. Mean Egg/Ovary [Se] < 11 mg/kg
3. Max Egg/Ovary [Se] < 15.1 mg/kg
4. Mean Egg/Ovary [Se] <15.1 mg/kg
5. Mean whole body/muscle [Se] < 4 mg/kg

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Fish Species found within Lake Koocanusa

Kokanee
Burbot
Bull Trout
Westslope Cutthroat Trout
Rainbow Trout
Peamouth Chub
Redside Shiner
Mountain Whitefish
Largescale Sucker
Longnose Sucker
Northern Pikeminnow
Northern Pike
Bluegill
Pumpkinseed
Brook Trout
Lake Trout
Yellow Perch

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Target Fish Species Process

*Consideration of target fish species began in 2016; initial draft list was included in the USGS conceptual framework (2017).

November face-to-face SeTSC drafted criteria for selecting target fish species → DEQ sought feedback from SeTSC

December SeTSC teleconference – discuss and draft list → DEQ sought feedback from SeTSC

Updated draft target fish species list → DEQ seeking feedback from:

- SeTSC
- CSKT & KTOI
- ENV

March-April
Finalize Draft list

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Draft List - Modeled Fish Species

Kokanee
Burbot
Bull Trout
Westslope Cutthroat Trout
Rainbow Trout
Peamouth Chub
Redside Shiner
Mountain Whitefish
Largescale Sucker
Longnose Sucker
Northern Pikeminnow
White Sturgeon (d/s white sturgeon must be protected)

Northern Pike
Bluegill
Pumpkinseed
Brook Trout
Lake Trout
Yellow Perch

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Target Fish Species – outstanding questions

- Can largescale sucker be used as a surrogate for longnose sucker? Or vice versa.
    - The SeTSC has demonstrated support for modeling either one or the other species but a determination on which one has yet to be finalized.
- The SeTSC has determined redside shiner and peamouth chub are appropriate surrogates for one another. Is one a better option for modeling than the other?
- Can westslope cutthroat trout be used as a surrogate for rainbow trout? Or vice versa?

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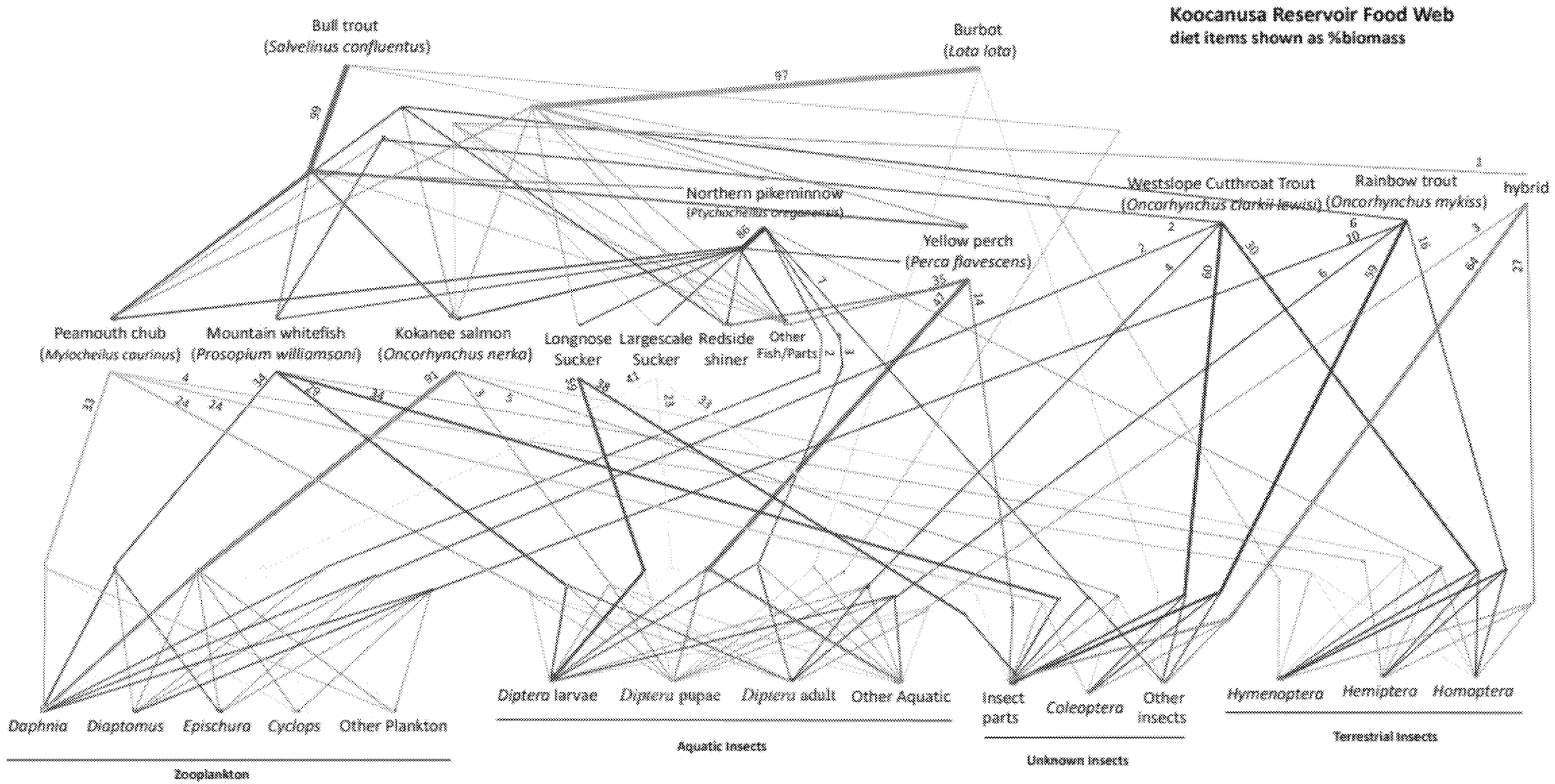
Supplementary slides



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Draft Criteria for selecting target fish species for modeling

- Ceremonial, subsistence or other cultural value
- Special status
- Bioaccumulation (whole body, muscle, and egg/ovary)
- Abundant/common
- Sensitivity
- Human consumption
- Prey for other aquatic dependent wildlife
- Pelagic feeding
- Spring/fall spawners
- Short lived/ long lived
- Reservoir/tributary spawners
- Feeding guild (i.e. piscivore, insectivore, planktivore)

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