

CHAPTER 13

INTEGRATION AND SYNTHESIS FOR LISTED SPECIES

BROMOXYNIL & PROMETRYN

TABLE OF CONTENTS

13	Integration and Synthesis – Species.....	13-2
13.1	Introduction.....	13-2
13.2	Species Scorecards – Bromoxynil.....	13-4
13.3	Species Scorecards – Prometryn	13-32

13 INTEGRATION AND SYNTHESIS – SPECIES

13.1 Introduction

The integration and synthesis section is the final step in our assessment of the risk posed to species and critical habitat as a result of implementing the proposed action. In this section, we add the effects of the action (Chapter 12) to the environmental baseline (Chapter 9) and the cumulative effects (Chapter 10) to formulate the agency’s biological opinion as to whether the proposed action is likely to: (1) reduce appreciably the likelihood of both the survival and recovery of an Endangered Species Act (ESA)-listed species in the wild by reducing its numbers, reproduction, or distribution; or (2) appreciably diminish the value of designated critical habitat for the conservation of an ESA-listed species. These assessments are made in full consideration of the Status of the Species (Chapter 9).

We treat the information from the status of the species, environmental baseline, and cumulative effects, as “risk modifiers,” in that the effects described in the Effects Analysis section may be modified by the condition of the species; the condition of environmental baseline, and the anticipated cumulative effects. To help guide our risk assessors in making transparent and consistent determinations, we developed several key-questions which were examined for each species and critical habitat (see Chapters 8, 9, 10). However, the ultimate consideration of increased or decreased risk attributable to the status of the species, environmental baseline, or cumulative effects is not restricted to the consideration of the key questions alone. Additional relevant factors were considered depending on the species or critical habitat being assessed.

Once each of the above sections is evaluated, the effects of the action and the risk modifiers are depicted graphically on a “scorecard.” The influence of each modifier on the effects of the action is represented by an arrow (Figure 1). The magnitude of influence (low or high) is represented by the length of the arrow (short or long). The direction an arrow is pointed indicates the directionality of the risk modifier, increasing or decreasing risk. For example, an environmental baseline arrow pointing towards more risk may indicate that environmental mixtures and elevated temperatures occur in the Environmental Baseline, which further stresses the species in question. The level of confidence in the magnitude of modification is indicated by bolding (high confidence) or unbolding (low confidence) the arrow.

An additional arrow representing the influence on risk by the proposed action is graphically depicted on each species’ scorecard. The effects of the proposed action are characterized as high, medium, or low risk to the species on the top bar (“Effects Analysis”) of the scorecard, using the analytical process described in Chapter 4. The scorecard also summarizes how the risk posed by the effects of the action is modified by the environmental baseline, cumulative effects, and status of the species, as depicted by the three arrows below the Effects Analysis bar. At the bottom of the scorecard (Figure 2), the bar labeled Conclusion shows the overall risk and jeopardy determination (the colored bar beginning with green (less risk) to red (more risk)). A narrative is also presented below the scorecard to identify risk drivers and summarize the overall conclusion. The No Jeopardy/Jeopardy determination for each species is ultimately an informed best professional judgement, based on best commercial and scientific data available, following ecological risk assessment principles (see Chapters 3 and 11).

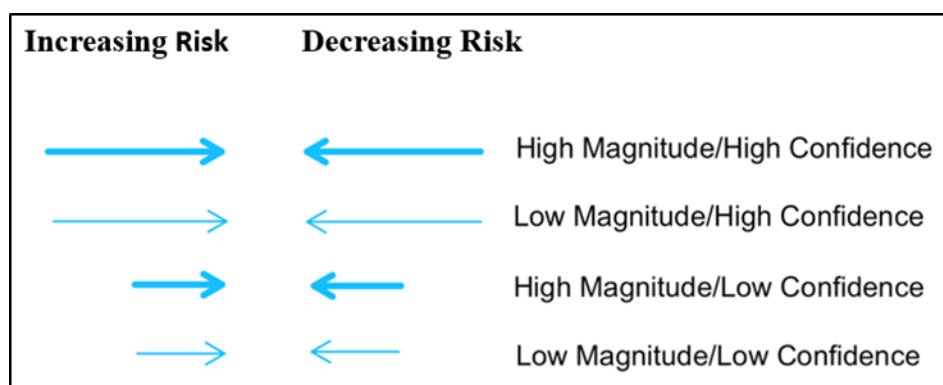


Figure 1. Example of arrows to represent direction, magnitude, and confidence of risk modifiers

Conclusion Section:

With full consideration of the status of the species and the designated critical habitat, we construct a description of the effects of the action within the action area on populations or subpopulations, when added to the environmental baseline and the cumulative effects, to determine whether the action could reasonably be expected to:

- Reduce appreciably the likelihood of survival and recovery of ESA-listed species in the wild by reducing its numbers, reproduction, or distribution, and state our conclusion as to whether the action is likely to jeopardize the continued existence of such species; or
- Appreciably diminish the value of designated critical habitat as a whole for the conservation of an ESA-listed species, and state our conclusion as to whether the action is likely to destroy or adversely modify designated critical habitat.

A scorecard is generated for each species and designated critical habitat. The effects of the proposed action is considered, as modified by the magnitude and confidence of the three arrows. Next, a no-jeopardy or jeopardy bar is placed on the risk bar i.e., the colored bar beginning with green (less risk) to red (more risk) (*Figure 2*).



Figure 2: Example conclusion graphic

13.2 Species Scorecards – Bromoxynil

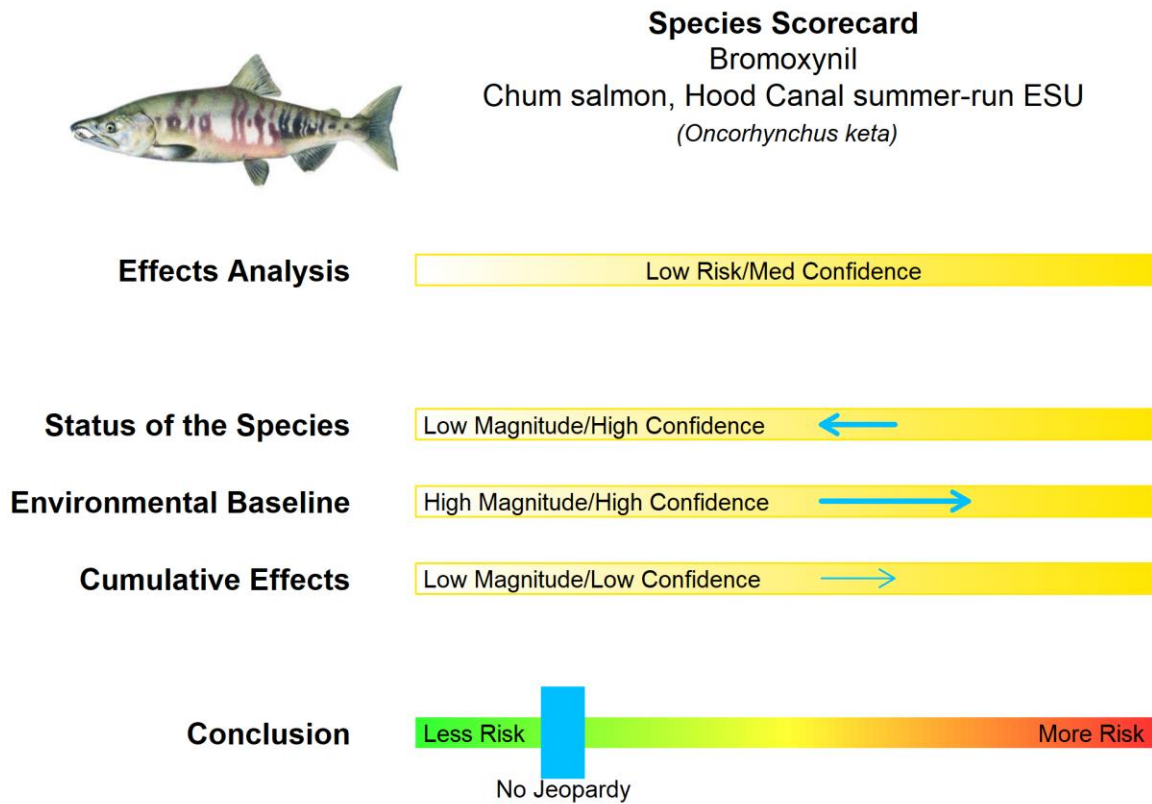


Figure 3. Species Score Card; Chum salmon, Hood Canal summer-run ESU; Bromoxynil

Effects Analysis: Low risk/Medium confidence

- Reductions in abundance, growth and productivity are not anticipated
- Significant reductions in prey abundance are not expected

Status of the Species: Decreased risk of jeopardy; Low magnitude/ High confidence

- Stable to increasing abundance trend, increasing population productivity
- Proposed action may hinder attainment of some recovery goals

Environmental Baseline: Increased risk of jeopardy; High magnitude/ High confidence

- Elevated temperatures anticipated in freshwater habitats
- Environmental mixtures anticipated in freshwater habitats that affect species

Cumulative Effects: Minimal increased risk of jeopardy; Low magnitude/ Low confidence

- Future elevated temperatures likely
- Anticipated hydrologic effects in freshwater areas may affect species

Conclusion: We find the overall risk to species is low and the confidence associated with that risk is medium based on exposure concentrations predicted for freshwater and estuarine habitats and expected effects to the population. Reductions of species' numbers, reproduction, or distribution are not anticipated over the 15-year action.

Bromoxynil is not likely to jeopardize the continued existence of this species: No Jeopardy

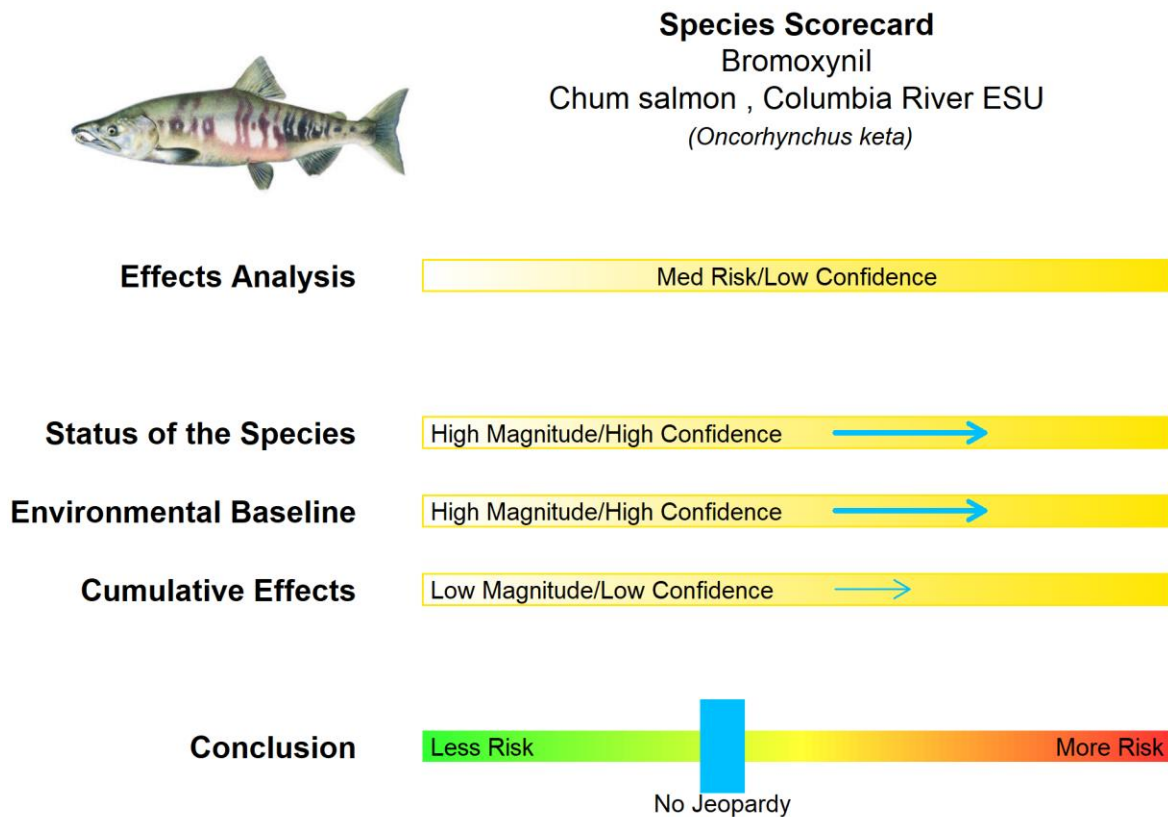


Figure 4. Species Score Card; Chum salmon, Columbia River ESU; Bromoxynil

Effects Analysis: Medium risk/Low confidence

- Maximum environmental concentrations are anticipated to be lethal to some individuals, however significant reductions in abundance are not anticipated
- Significant reductions in prey abundance are not expected

Status of the Species: Increased risk of jeopardy; High magnitude/ High confidence

- Declining abundance trends, high risk of extinction
- Recovery criteria not met and reduced likelihood of attaining recovery goals

Environmental Baseline: Increased risk of jeopardy; High magnitude/ High confidence

- Elevated temperatures anticipated in freshwater habitats
- Environmental mixtures anticipated in freshwater habitats that affect species

Cumulative Effects: Minimal increased risk of jeopardy; Low magnitude/ Low confidence

- Future elevated temperatures anticipated
- Anticipated hydrologic effects in freshwater areas that may affect species

Conclusion: We find the overall risk to species is medium and the confidence associated with that risk is low based on exposure concentrations predicted for freshwater and estuarine habitats and expected effects to the population. Although some lethality is expected, it will be limited in both the extent of exposure and the magnitude of effect. Substantial reductions in species' numbers, reproduction, or distribution are not anticipated over the 15-year action.

Bromoxynil is not likely to jeopardize the continued existence of this species: No Jeopardy

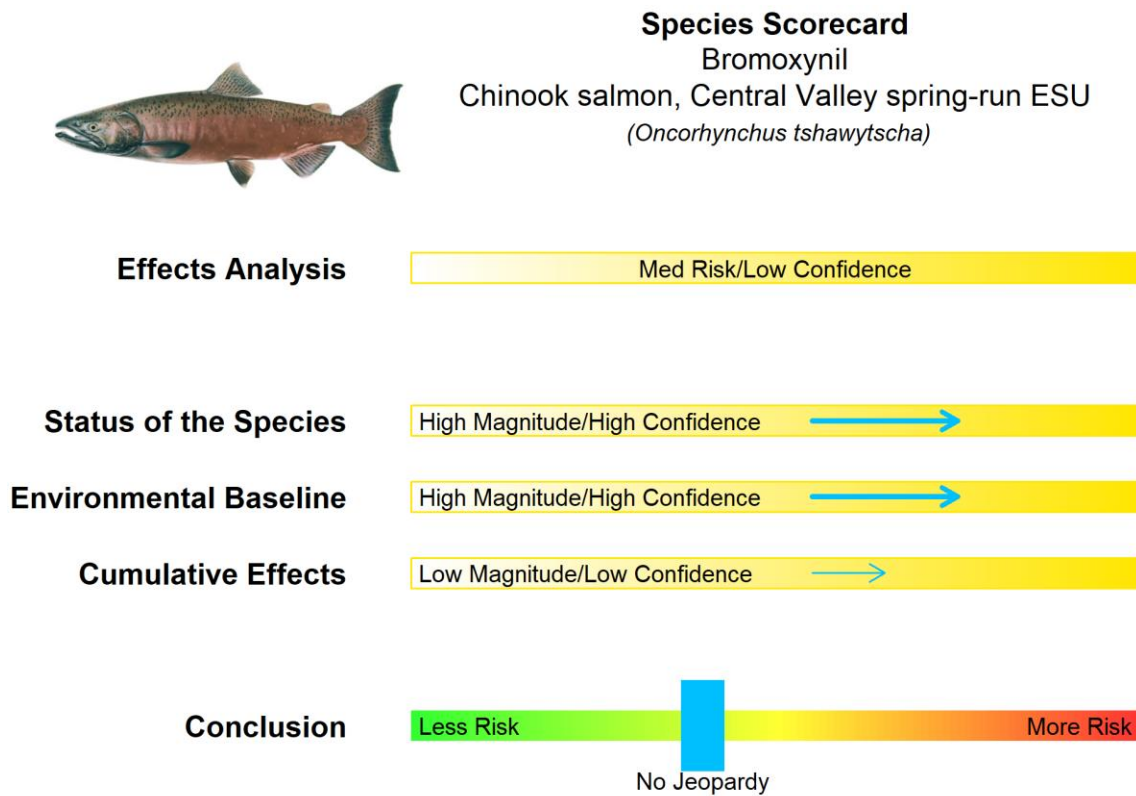


Figure 5. Species Score Card; Chinook salmon, Central Valley spring-run ESU; Bromoxynil

Effects Analysis: Medium risk/Low confidence

- Maximum environmental concentrations are anticipated to be lethal to some individuals, however significant reductions in abundance are not anticipated
- Slight shifts in population growth rate occurred for Chinook modeled at 10% mortality levels, but did not exceed the variability (1 standard deviation) of an unexposed population
- Significant reductions in prey abundance are not expected

Status of the Species: Increased risk of jeopardy; High magnitude/ High confidence

- Stable to declining abundance trends, low abundances and fragmented populations
- Threatened species
- Recovery criteria not met and reduced likelihood of attaining recovery goals

Environmental Baseline: Increased risk of jeopardy; High magnitude/ High confidence

- Elevated temperatures occur in freshwater habitats
- Environmental mixtures anticipated in freshwater habitats that affect species

Cumulative Effects: Minimal increased risk of jeopardy; Low magnitude/ Low confidence

- Future elevated temperatures anticipated
- Anticipated hydrologic effects in freshwater areas

Conclusion: We find the overall risk to species is medium and the confidence associated with that risk is low based on exposure concentrations predicted for freshwater and estuarine habitats and expected effects to the population. Although some lethality is expected, it will be limited in both the extent of exposure and the magnitude of effect. Substantial reductions in species' numbers, reproduction, or distribution are not anticipated over the 15-year action.

Bromoxynil is not likely to jeopardize the continued existence of this species: No Jeopardy

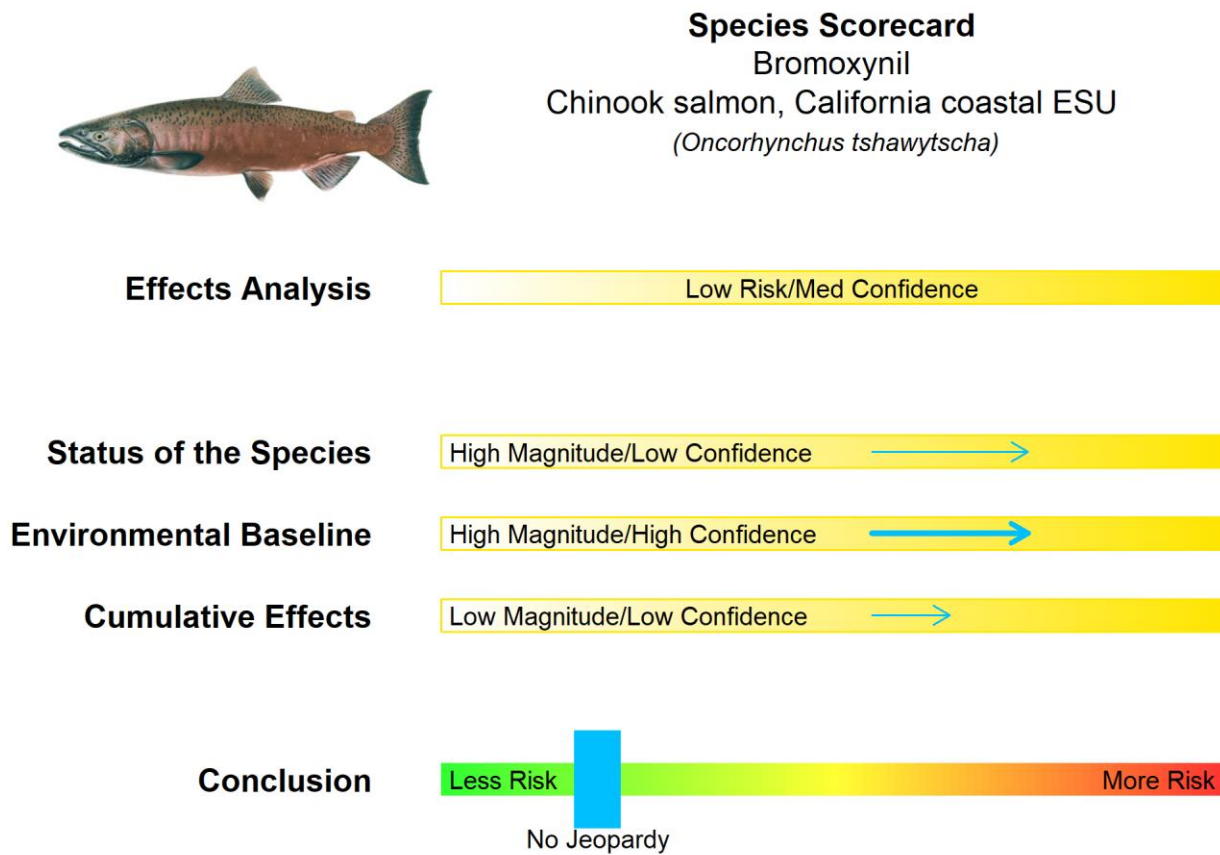


Figure 6. Species Score Card; Chinook salmon, California coastal ESU; Bromoxynil

Effects Analysis: Low risk/Medium confidence

- Reductions in abundance, growth and productivity are not anticipated
- Significant reductions in prey abundance are not expected

Status of the Species: Increased risk of jeopardy; High magnitude/ Low confidence

- One population with greater than 1000 spawners, declining trends in abundance
- Threatened
- Some recovery criteria not met, yet reduced likelihood of attaining recovery goals

Environmental Baseline: Increased risk of jeopardy; High magnitude/ High confidence

- Elevated temperatures occur in freshwater habitats
- Environmental mixtures anticipated in freshwater habitats that affect species

Cumulative Effects: Minimal increased risk of jeopardy; Low magnitude/ Low confidence

- Future elevated temperatures anticipated
- Anticipated hydrologic effects in freshwater areas

Conclusion: We find the overall risk to species is low and the confidence associated with that risk is medium based on exposure concentrations predicted for freshwater and estuarine habitats and expected effects to the population. Reductions of species' numbers, reproduction, or distribution are not anticipated over the 15-year action.

Bromoxynil is not likely to jeopardize the continued existence of this species: No Jeopardy

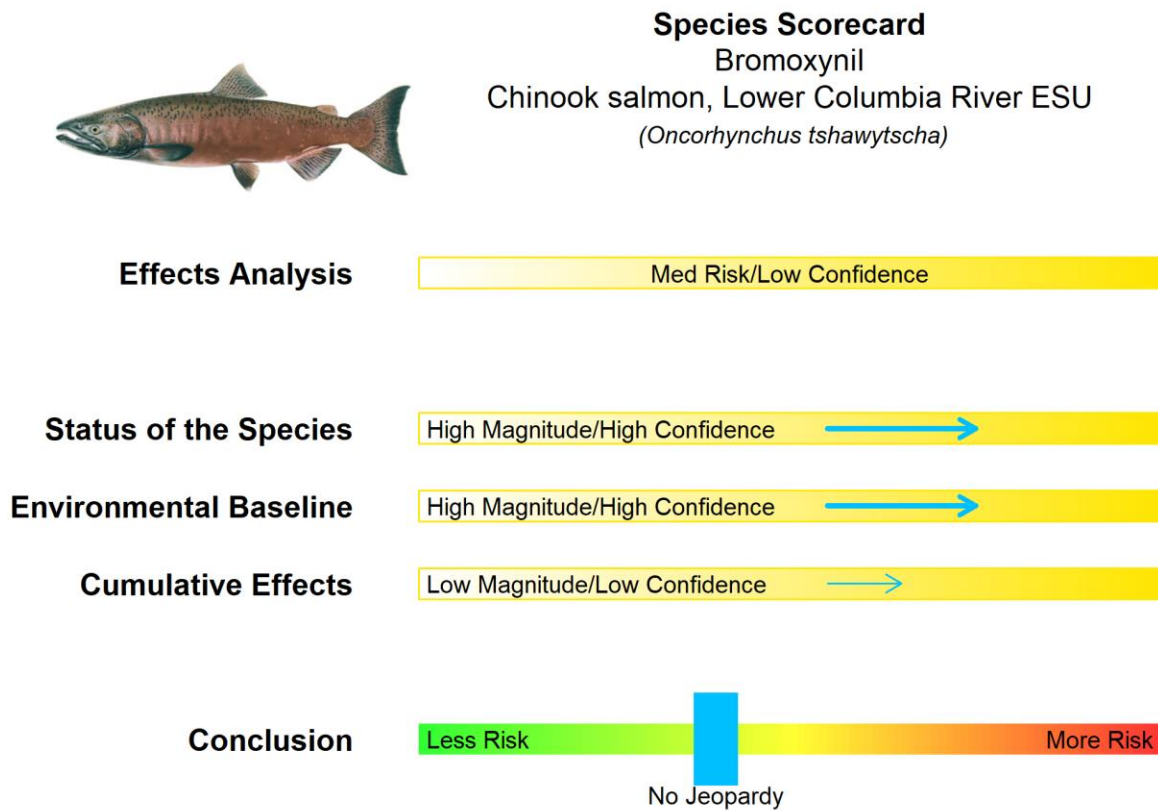


Figure 7. Species Score Card; Chinook salmon, Lower Columbia River ESU; Bromoxynil

Effects Analysis: Medium risk/Low confidence

- Maximum environmental concentrations are anticipated to be lethal to some individuals, however significant reductions in abundance are not anticipated
- Slight shifts in population growth rate occurred for Chinook modeled at 10% mortality levels, but did not exceed the variability (1 standard deviation) of an unexposed population
- Significant reductions in prey abundance are not expected

Status of the Species: Increased risk of jeopardy; High magnitude/ High confidence

- Declining trends in abundance, one self-sustaining population, low genetic diversity
- Threatened
- Recovery criteria not met and reduced likelihood of attaining recovery goals

Environmental Baseline: Increased risk of jeopardy; High magnitude/ High confidence

- Elevated temperatures occur in freshwater habitats
- Environmental mixtures anticipated in freshwater habitats that affect species

Cumulative Effects: Minimal increased risk of jeopardy; Low magnitude/ Low confidence

- Future elevated temperatures anticipated
- Anticipated hydrologic effects in freshwater areas

Conclusion: We find the overall risk to species is medium and the confidence associated with that risk is low based on exposure concentrations predicted for freshwater and estuarine habitats and expected effects to the population. Although some lethality is expected, it will be limited in both the extent of exposure and the magnitude of effect. Substantial reductions in species' numbers, reproduction, or distribution are not anticipated over the 15-year action.

Bromoxynil is not likely to jeopardize the continued existence of this species: No Jeopardy

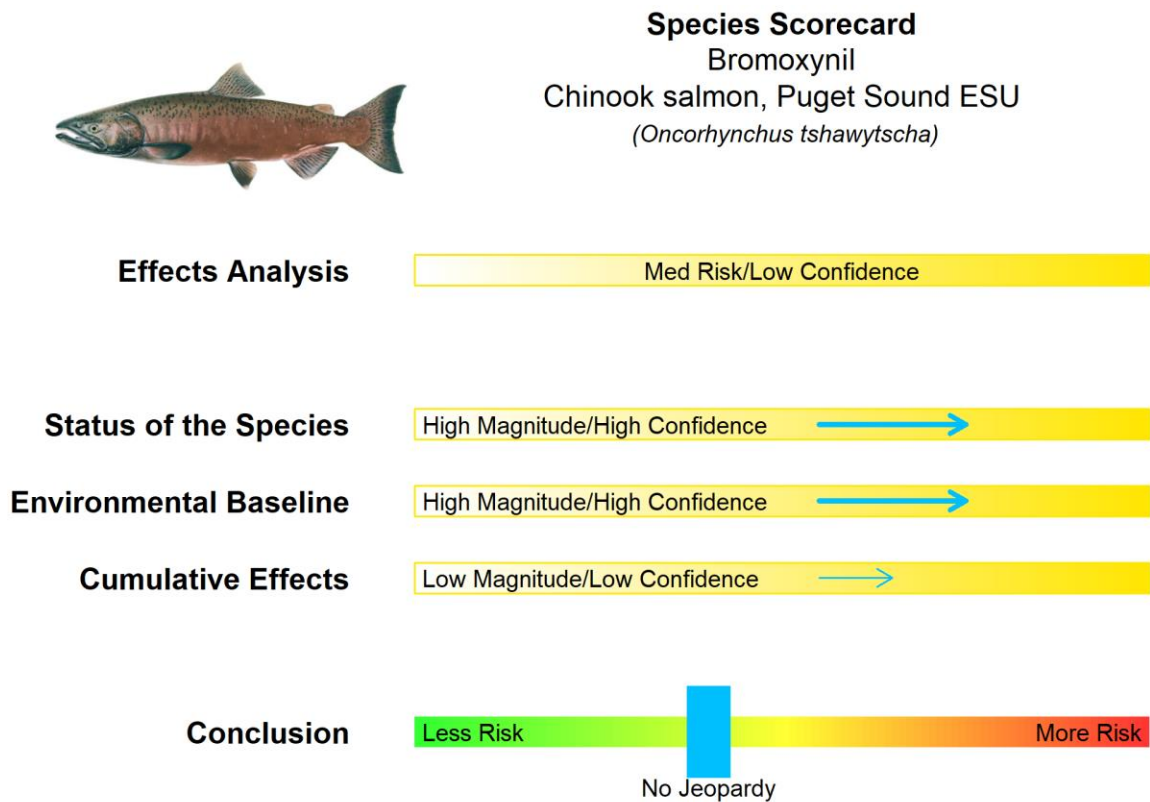


Figure 8. Species Score Card; Chinook salmon, Puget Sound ESU; Bromoxynil

Effects Analysis: Medium risk/Low confidence

- Maximum environmental concentrations are anticipated to be lethal to some individuals, however significant reductions in abundance are not anticipated
- Slight shifts in population growth rate occurred for Chinook modeled at 10% mortality levels, but did not exceed the variability (1 standard deviation) of an unexposed population
- Significant reductions in prey abundance are not expected

Status of the Species: Increased risk of jeopardy; High magnitude/ High confidence

- Half of the populations declining and half increasing in abundance
- Threatened
- Recovery criteria not met and reduced likelihood of attaining recovery goals

Environmental Baseline: Increased risk of jeopardy; High magnitude/ High confidence

- Elevated temperatures occur in freshwater habitats
- Environmental mixtures anticipated in freshwater habitats that affect species

Cumulative Effects: Minimal increased risk of jeopardy; Low magnitude/ Low confidence

- Future elevated temperatures anticipated
- Anticipated hydrologic effects in freshwater areas

Conclusion: We find the overall risk to species is medium and the confidence associated with that risk is low based on exposure concentrations predicted for freshwater and estuarine habitats and expected effects to the population. Although some lethality is expected, it will be limited in both the extent of exposure and the magnitude of effect. Substantial reductions in species' numbers, reproduction, or distribution are not anticipated over the 15-year action.

Bromoxynil is not likely to jeopardize the continued existence of this species: No Jeopardy

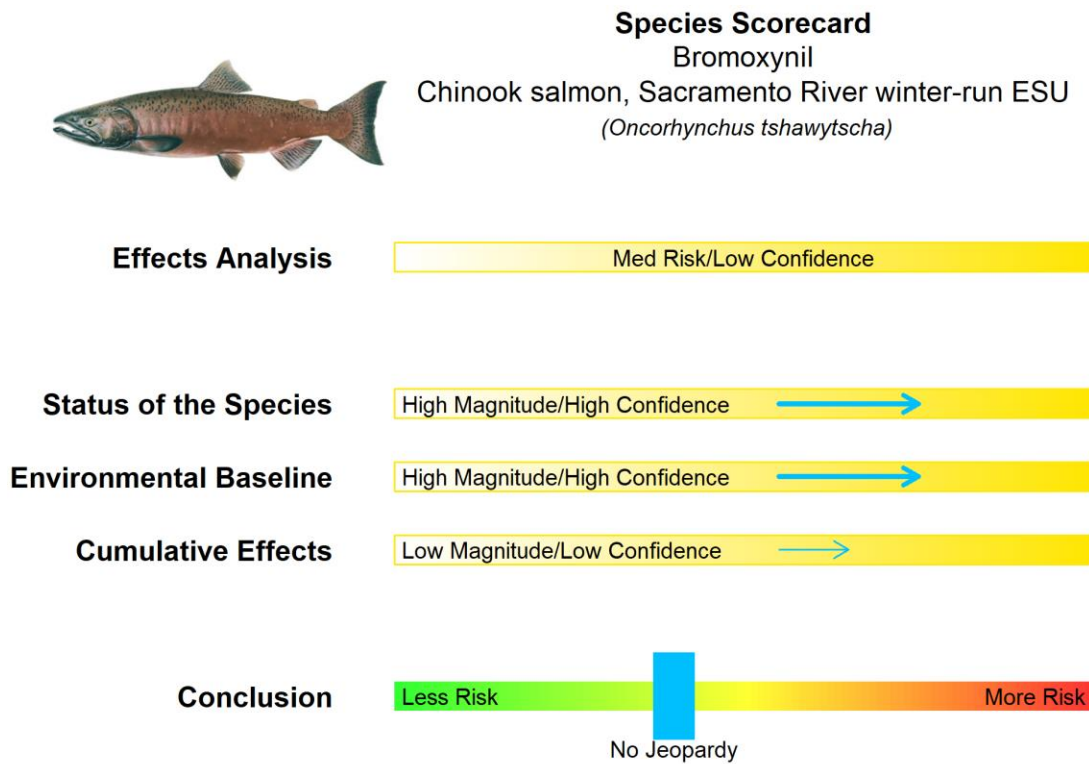


Figure 9. Species Score Card; Chinook salmon, Sacramento River winter-run ESU; Bromoxynil

Effects Analysis: Medium risk/Low confidence

- Maximum environmental concentrations are anticipated to be lethal to some individuals, however significant reductions in abundance are not anticipated
- Slight shifts in population growth rate occurred for Chinook modeled at 10% mortality levels, but did not exceed the variability (1 standard deviation) of an unexposed population
- Significant reductions in prey abundance are not expected

Status of the Species: Increased risk of jeopardy; High magnitude/ High confidence

- One extant population, declining abundance trends, hatchery-supported
- Endangered species
- Recovery criteria not met and reduced likelihood of attaining recovery goals

Environmental Baseline: Increased risk of jeopardy; High magnitude/ High confidence

- Elevated temperatures occur in freshwater habitats
- Environmental mixtures anticipated in freshwater habitats that affect species

Cumulative Effects: Minimal increased risk of jeopardy; Low magnitude/ Low confidence

- Future elevated temperatures anticipated
- Anticipated hydrologic effects in freshwater areas

Conclusion: We find the overall risk to species is medium and the confidence associated with that risk is low based on exposure concentrations predicted for freshwater and estuarine habitats and expected effects to the population. Although some lethality is expected, it will be limited in both the extent of exposure and the magnitude of effect. Substantial reductions in species' numbers, reproduction, or distribution are not anticipated over the 15-year action.

Bromoxynil is not likely to jeopardize the continued existence of this species: No Jeopardy

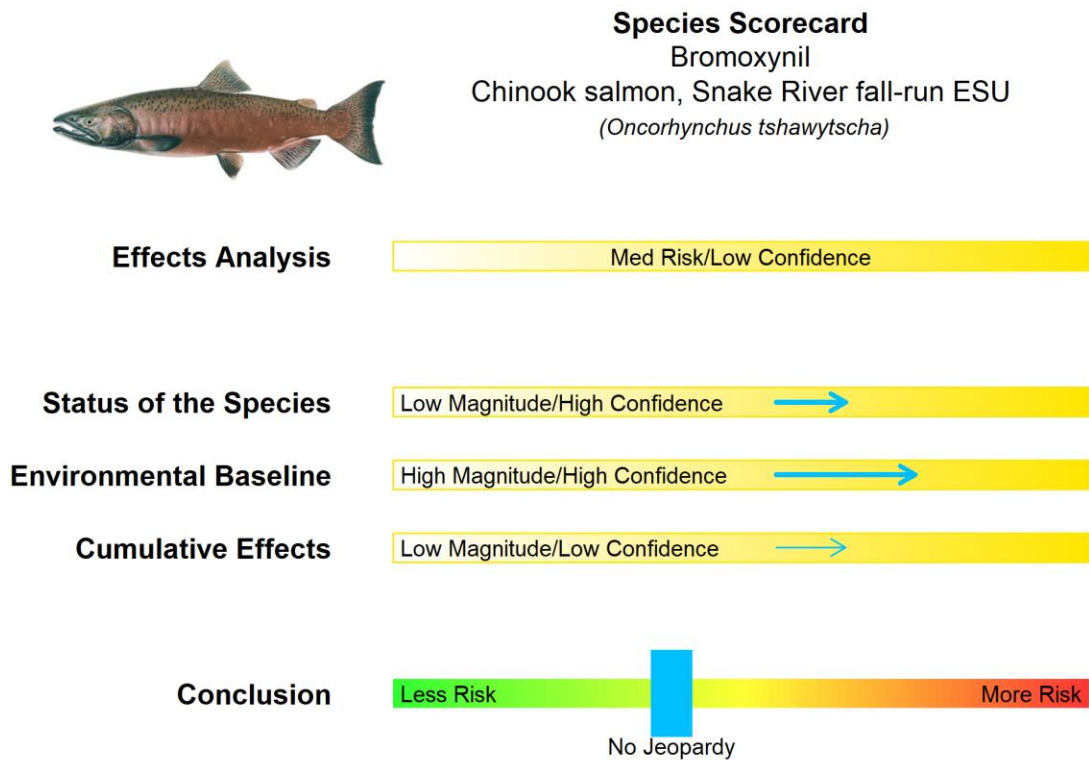


Figure 10. Species Score Card; Chinook salmon, Snake River fall-run ESU; Bromoxynil

Effects Analysis: Medium risk/Low confidence

- Maximum environmental concentrations are anticipated to be lethal to some individuals, however significant reductions in abundance are not anticipated
- Slight shifts in population growth rate occurred for Chinook modeled at 10% mortality levels, but did not exceed the variability (1 standard deviation) of an unexposed population
- Significant reductions in prey abundance are not expected

Status of the Species: Increased risk of jeopardy; Low magnitude/ High confidence

- Stable to increasing abundance trends, moderate extinction risk, hatchery supported
- Threatened species
- Recovery criteria not met and reduced likelihood of attaining recovery goals

Environmental Baseline: Increased risk of jeopardy; High magnitude/ High confidence

- Elevated temperatures occur in freshwater habitats
- Environmental mixtures anticipated in freshwater habitats that affect species

Cumulative Effects: Minimal increased risk of jeopardy; Low magnitude/ Low confidence

- Future elevated temperatures anticipated
- Anticipated hydrologic effects in freshwater areas

Conclusion: We find the overall risk to species is medium and the confidence associated with that risk is low based on exposure concentrations predicted for freshwater and estuarine habitats and expected effects to the population. Although some lethality is expected, it will be limited in both the extent of exposure and the magnitude of effect. Substantial reductions in species' numbers, reproduction, or distribution are not anticipated over the 15-year action.

Bromoxynil is not likely to jeopardize the continued existence of this species: No Jeopardy

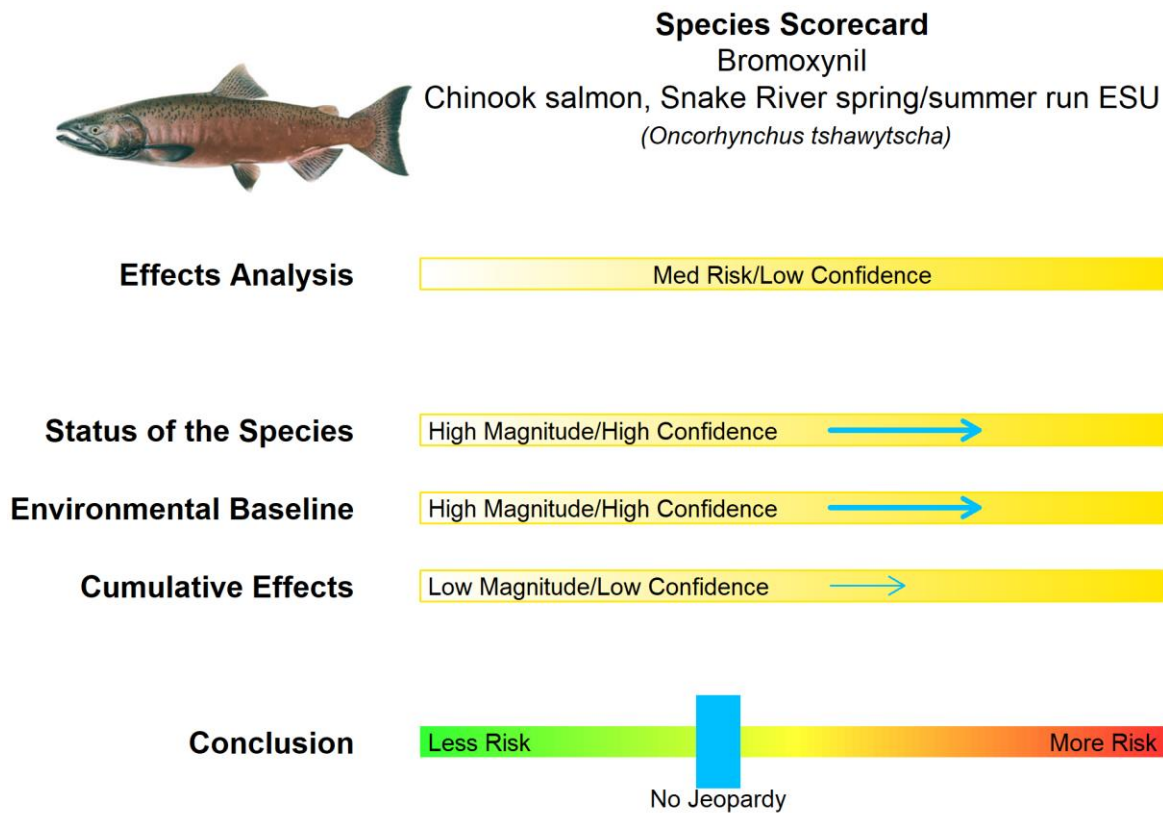


Figure 11. Species Score Card; Chinook salmon, Snake River spring/summer run ESU; Bromoxynil

Effects Analysis: Medium risk/Low confidence

- Maximum environmental concentrations are anticipated to be lethal to some individuals, however significant reductions in abundance are not anticipated
- Slight shifts in population growth rate occurred for Chinook modeled at 10% mortality levels, but did not exceed the variability (1 standard deviation) of an unexposed population
- Significant reductions in prey abundance are not expected

Status of the Species: Increased risk of jeopardy; High magnitude/ High confidence

- Decreasing abundance trends, high extinction risk, moderate genetic diversity
- Threatened species
- Recovery criteria not met and reduced likelihood of attaining recovery goals

Environmental Baseline: Increased risk of jeopardy; High magnitude/ High confidence

- Elevated temperatures occur in freshwater habitats
- Environmental mixtures anticipated in freshwater habitats that affect species

Cumulative Effects: Minimal increased risk of jeopardy; Low magnitude/ Low confidence

- Future elevated temperatures anticipated
- Anticipated hydrologic effects in freshwater areas

Conclusion: We find the overall risk to species is medium and the confidence associated with that risk is low based on exposure concentrations predicted for freshwater and estuarine habitats and expected effects to the population. Although some lethality is expected, it will be limited in both the extent of exposure and the magnitude of effect. Substantial reductions in species' numbers, reproduction, or distribution are not anticipated over the 15-year action.

Bromoxynil is not likely to jeopardize the continued existence of this species: No Jeopardy

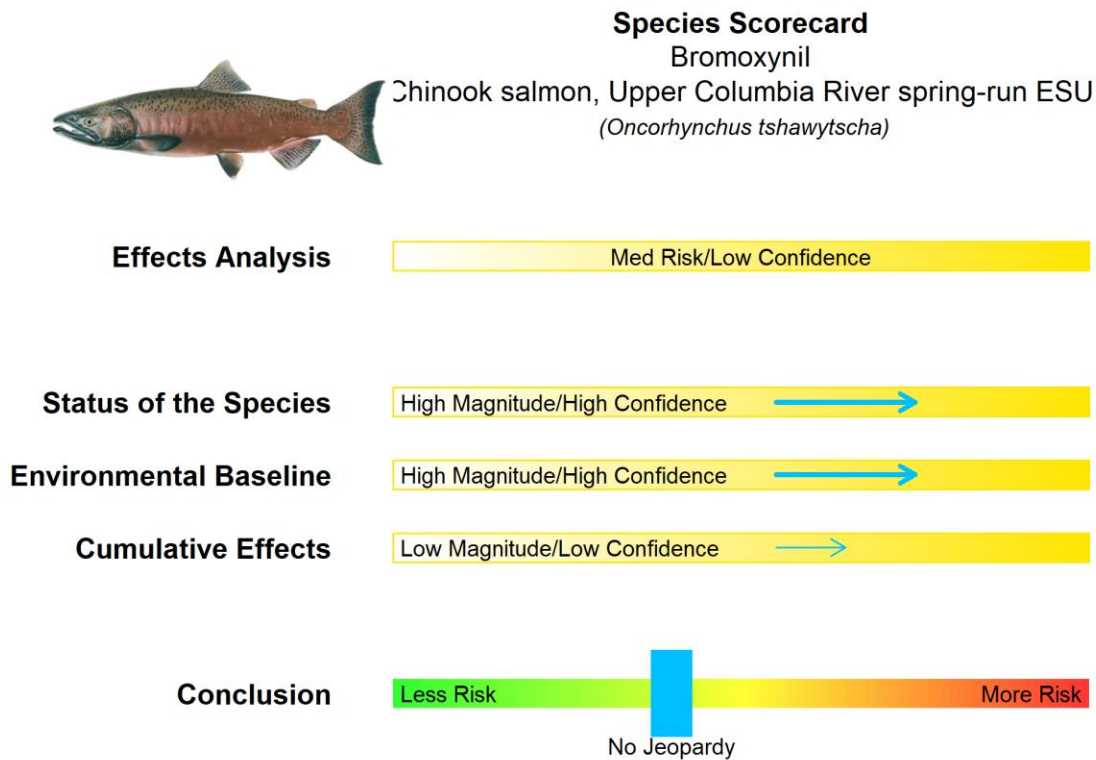


Figure 12. Species Score Card; Chinook salmon, Upper Columbia River spring-run ESU; Bromoxynil

Effects Analysis: Medium risk/Low confidence

- Maximum environmental concentrations are anticipated to be lethal to some individuals, however significant reductions in abundance are not anticipated
- Slight shifts in population growth rate occurred for Chinook modeled at 10% mortality levels, but did not exceed the variability (1 standard deviation) of an unexposed population
- Significant reductions in prey abundance are not expected

Status of the Species: Increased risk of jeopardy; High magnitude/ High confidence

- Decreasing abundance trends, independent populations not replacing themselves
- Endangered species (all independent population experiencing low abundance)
- Recovery criteria not met and reduced likelihood of attaining recovery goals

Environmental Baseline: Increased risk of jeopardy; High magnitude/ High confidence

- Elevated temperatures occur in freshwater habitats
- Environmental mixtures anticipated in freshwater habitats that affect species

Cumulative Effects: Minimal increased risk of jeopardy; Low magnitude/ Low confidence

- Future elevated temperatures anticipated
- Anticipated hydrologic effects in freshwater areas

Conclusion: We find the overall risk to species is medium and the confidence associated with that risk is low based on exposure concentrations predicted for freshwater and estuarine habitats and expected effects to the population. Although some lethality is expected, it will be limited in both the extent of exposure and the magnitude of effect. Substantial reductions in species' numbers, reproduction, or distribution are not anticipated over the 15-year action.

Bromoxynil is not likely to jeopardize the continued existence of this species: No Jeopardy

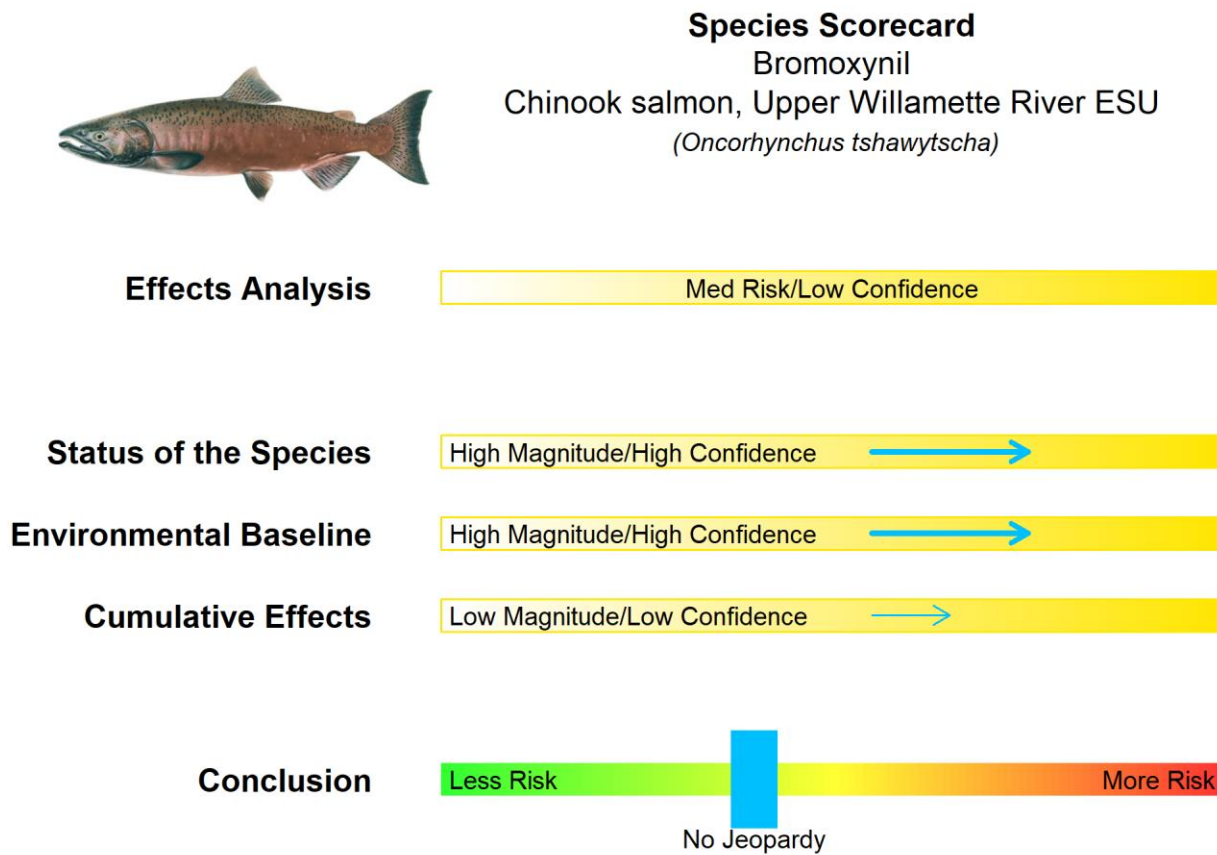


Figure 13. Species Score Card; Chinook salmon, Upper Willamette River ESU; Bromoxynil

Effects Analysis: Medium risk/Low confidence

- Maximum environmental concentrations are anticipated to be lethal to some individuals, however significant reductions in abundance are not anticipated
- Slight shifts in population growth rate occurred for Chinook modeled at 10% mortality levels, but did not exceed the variability (1 standard deviation) of an unexposed population
- Significant reductions in prey abundance are not expected

Status of the Species: Increased risk of jeopardy; High magnitude / High confidence

- Decreasing abundance trends, 1 of 7 remaining naturally reproducing populations
- Threatened species
- Recovery criteria not met and reduced likelihood of attaining recovery goals

Environmental Baseline: Increased risk of jeopardy; High magnitude/ High confidence

- Elevated temperatures occur in freshwater habitats
- Environmental mixtures anticipated in freshwater habitats that affect species

Cumulative Effects: Minimal increased risk of jeopardy; Low magnitude/ Low confidence

- Future elevated temperatures anticipated
- Anticipated hydrologic effects in freshwater areas

Conclusion: We find the overall risk to species is medium and the confidence associated with that risk is low based on exposure concentrations predicted for freshwater and estuarine habitats and expected effects to the population. Although some lethality is expected, it will be limited in both the extent of exposure and the magnitude of effect. Substantial reductions in species' numbers, reproduction, or distribution are not anticipated over the 15-year action.

Bromoxynil is no likely to jeopardize the continued existence of this species: No Jeopardy

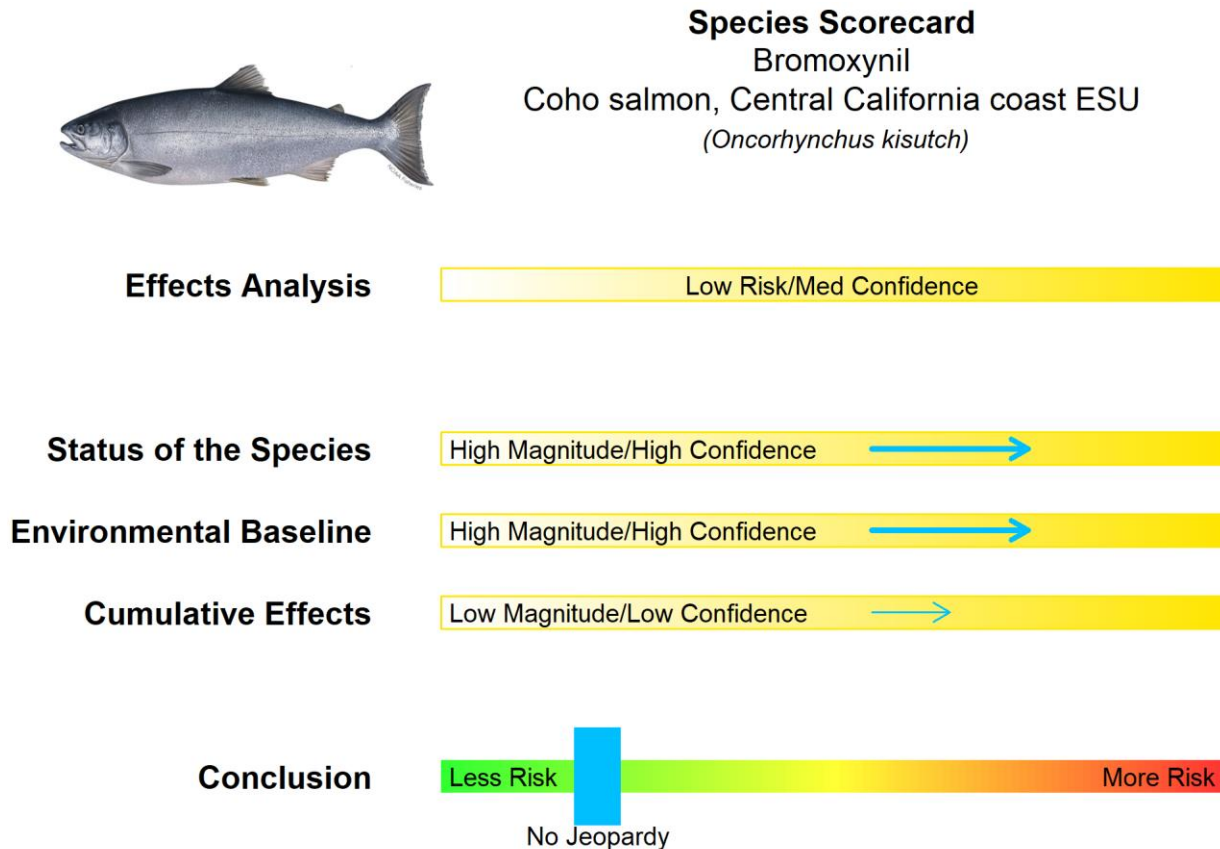


Figure 14. Species Score Card; Coho salmon, Central California coast ESU; Bromoxynil

Effects Analysis: Low risk /Medium confidence

- Reductions in abundance, growth and productivity are not anticipated
- Significant reductions in prey abundance are not expected

Status of the Species: Increased risk of jeopardy; High magnitude / High confidence

- Stable population trend, fragmented populations, supported by hatchery propagation
- Endangered species (low abundances)
- Recovery criteria not met and reduced likelihood of attaining recovery goals

Environmental Baseline: Increased risk of jeopardy; High magnitude / High confidence

- Elevated temperatures occur in freshwater habitats
- Environmental mixtures anticipated in freshwater habitats that affect species

Cumulative Effects: Minimal increased risk of jeopardy; Low magnitude / Low confidence

- Future elevated temperatures anticipated
- Anticipated hydrologic effects in freshwater areas

Conclusion: We find the overall risk to species is low and the confidence associated with that risk is medium based on exposure concentrations predicted for freshwater and estuarine habitats and expected effects to the population. Reductions of species' numbers, reproduction, or distribution are not anticipated over the 15-year action.

Bromoxynil is not likely to jeopardize the continued existence of this species: No Jeopardy

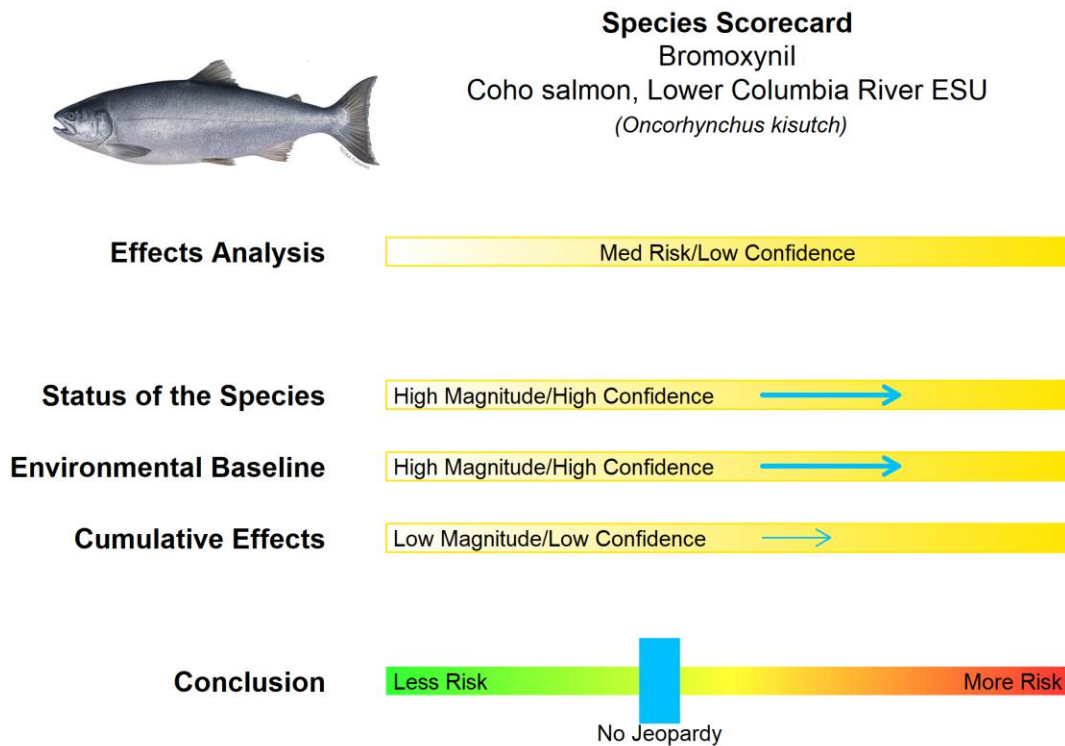


Figure 15. Species Score Card; Coho salmon, Lower Columbia River ESU; Bromoxynil

Effects Analysis: Medium risk /Low confidence

- Maximum environmental concentrations are anticipated to be lethal to some individuals, however significant reductions in abundance are not anticipated
- Slight shifts in population growth rate occurred for coho modeled at 10% mortality levels, but did not exceed the variability (1 standard deviation) of an unexposed population
- Significant reductions in prey abundance are not expected

Status of the Species: Increased risk of jeopardy; High magnitude / High confidence

- Negative long/short term lambda projections. Only 2 of 25 populations exhibit natural production. Diversity in “high risk” category.
- Endangered species (90% reduction in abundance of all independent populations)
- Recovery criteria not met and reduced likelihood of attaining recovery goals

Environmental Baseline: Increased risk of jeopardy; High magnitude / High confidence

- Elevated temperatures occur in freshwater habitats
- Environmental mixtures anticipated in freshwater habitats that affect species

Cumulative Effects: Minimal increased risk of jeopardy; Low magnitude / Low confidence

- Future elevated temperatures anticipated
- Anticipated hydrologic effects in freshwater areas

Conclusion: We find the overall risk to species is medium and the confidence associated with that risk is low based on exposure concentrations predicted for freshwater and estuarine habitats and expected effects to the population. Although some lethality is expected, it will be limited in both the extent of exposure and the magnitude of effect. Substantial reductions in species’ numbers, reproduction, or distribution are not anticipated over the 15-year action.

Bromoxynil is not likely to jeopardize the continued existence of this species: No Jeopardy

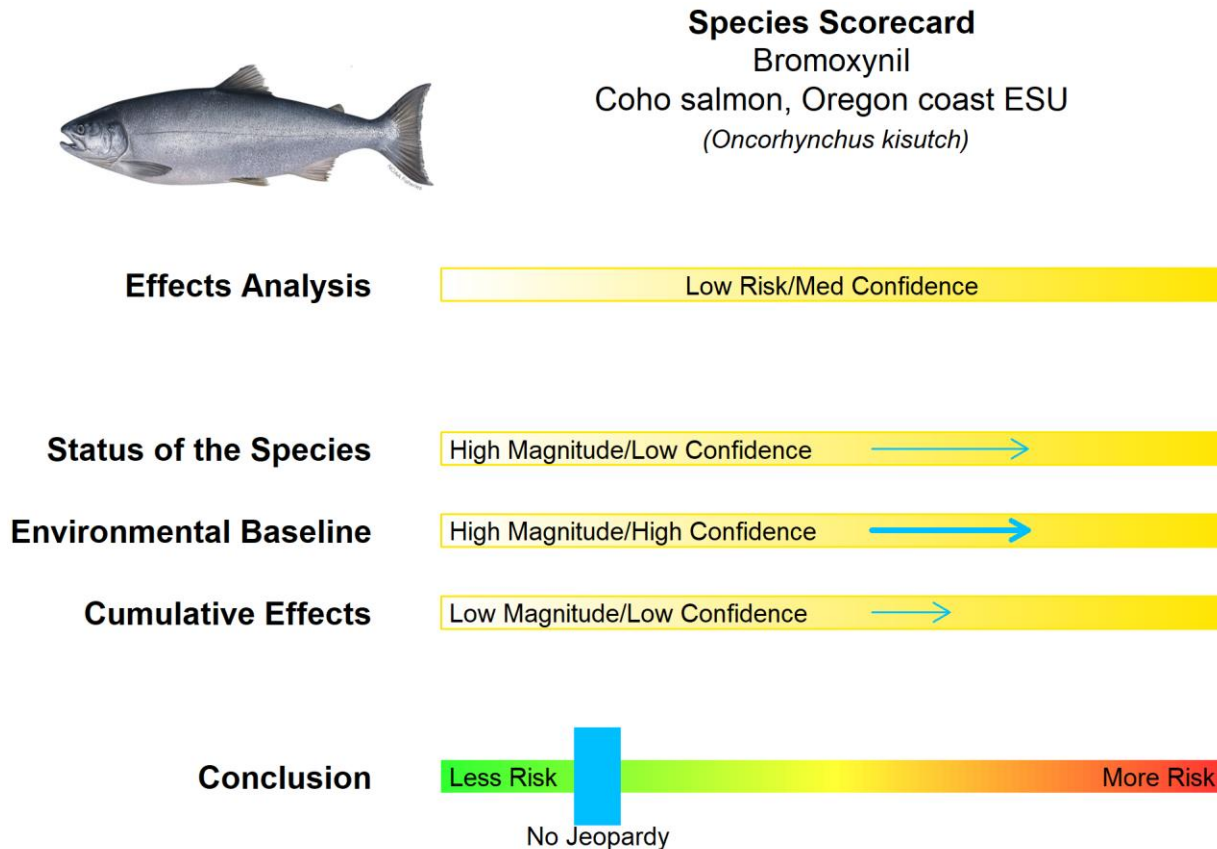


Figure 16. Species Score Card; Coho salmon, Oregon coast ESU; Bromoxynil

Effects Analysis: Low risk /Medium confidence

- Reductions in abundance, growth and productivity are not anticipated
- Significant reductions in prey abundance are not expected

Status of the Species: Increased risk of jeopardy; High magnitude / Low confidence

- Variable abundances with periods of severe declines. Negative long term trends negative
- Threatened (Severe reductions in ESU abundance compared to historical estimates)
- Recovery criteria not met and reduced likelihood of attaining recovery goals

Environmental Baseline: Increased risk of jeopardy; High magnitude / High confidence

- Elevated temperatures occur in freshwater habitats
- Environmental mixtures anticipated in freshwater habitats that affect species

Cumulative Effects: Minimal increased risk of jeopardy; Low magnitude / Low confidence

- Future elevated temperatures anticipated
- Anticipated hydrologic effects in freshwater areas

Conclusion: We find the overall risk to species is low and the confidence associated with that risk is medium based on exposure concentrations predicted for freshwater and estuarine habitats and expected effects to the population. Reductions of species' numbers, reproduction, or distribution are not anticipated over the 15-year action

Bromoxynil is not likely to jeopardize the continued existence of this species: No Jeopardy

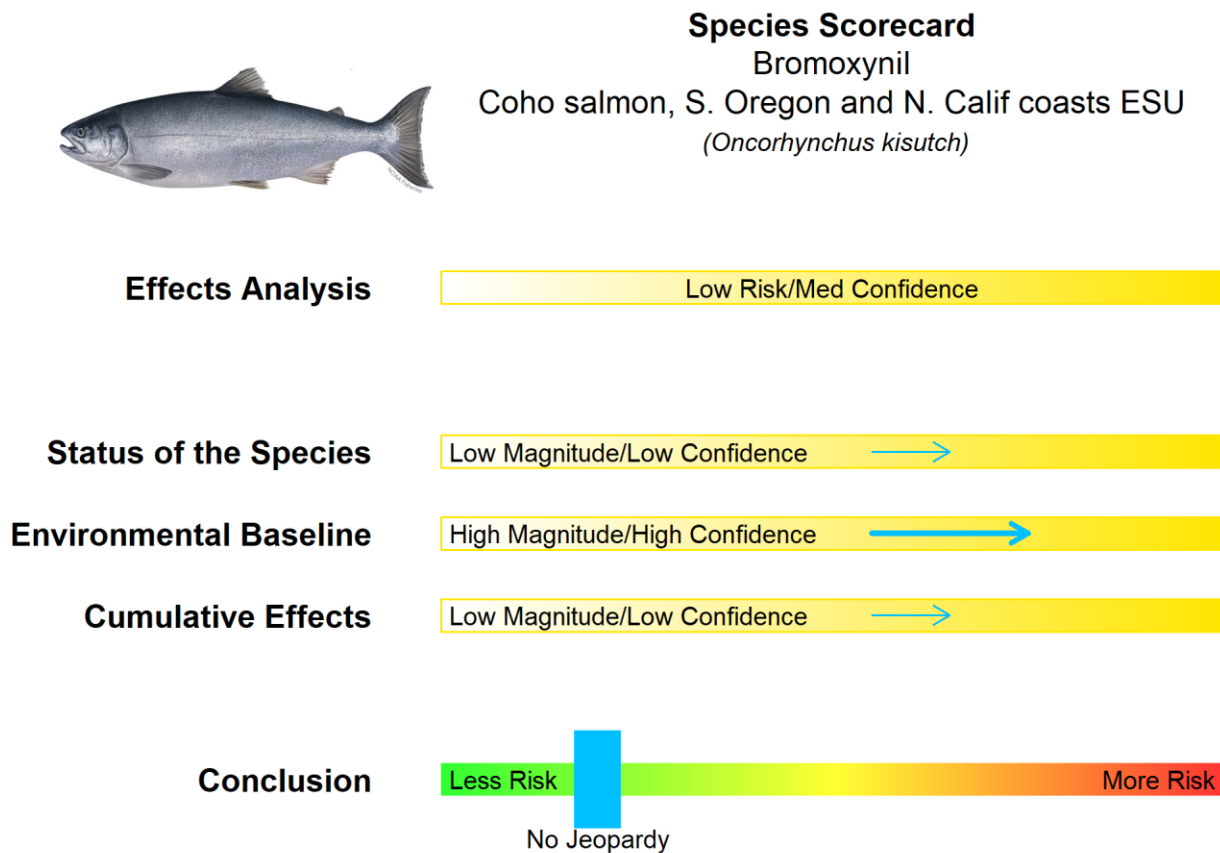


Figure 17. Species Score Card; Coho salmon, S. Oregon and N. Calif coasts ESU; Bromoxynil

Effects Analysis: Low risk/Medium confidence

- Reductions in abundance, growth and productivity are not anticipated
- Significant reductions in prey abundance are not expected

Status of the Species: Minimal increased risk of jeopardy; Low magnitude/ Low confidence

- Limited data on population abundance, thus trend data unavailable
- Threatened
- Recovery criteria not met and reduced likelihood of attaining recovery goals

Environmental Baseline: Increased risk of jeopardy; High magnitude/ High confidence

- Elevated temperatures occur in freshwater habitats
- Environmental mixtures anticipated in freshwater habitats that affect species

Cumulative Effects: Minimal increased risk of jeopardy; Low magnitude/ Low confidence

- Future elevated temperatures anticipated
- Anticipated hydrologic effects in freshwater areas

Conclusion: We find the overall risk to species is low and the confidence associated with that risk is medium based on exposure concentrations predicted for freshwater and estuarine habitats and expected effects to the population. Reductions of species' numbers, reproduction, or distribution are not anticipated over the 15-year action.

Bromoxynil is not likely to jeopardize the continued existence of this species: No Jeopardy

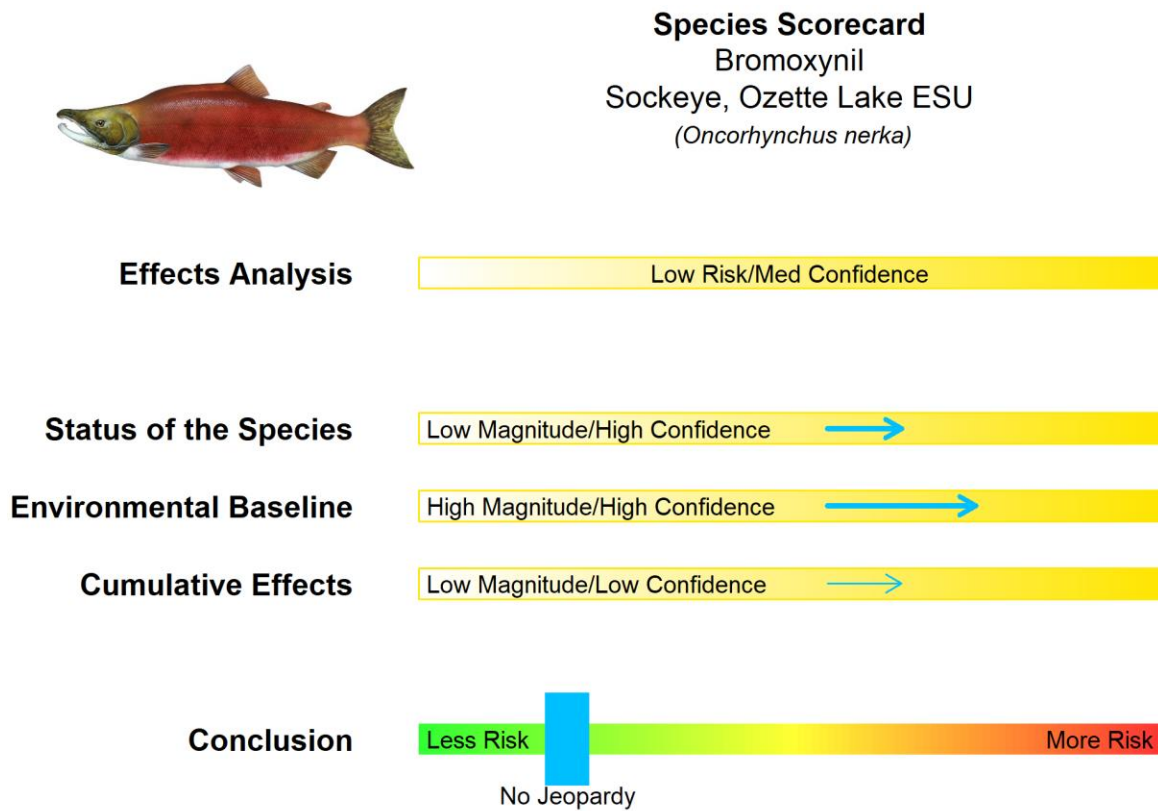


Figure 18. Species Score Card; Sockeye, Ozette Lake ESU; Bromoxynil

Effects Analysis: Low risk/Medium confidence

- Reductions in abundance, growth and productivity are not anticipated
- Significant reductions in prey abundance are not expected

Status of the Species: Minimal increased risk of jeopardy; Low magnitude/ High confidence

- Stable productivity rates; low genetic diversity and low resilience to future perturbations
- Threatened (abundance only 1% of historical levels)
- Recovery criteria not met and reduced likelihood of attaining recovery goals

Environmental Baseline: Increased risk of jeopardy; High magnitude/ High confidence

- Elevated temperatures occur in freshwater habitats
- Environmental mixtures anticipated in freshwater habitats that affect species

Cumulative Effects: Minimal increased risk of jeopardy; Low magnitude/ Low confidence

- Future elevated temperatures anticipated
- Anticipated hydrologic effects in freshwater areas

Conclusion: We find the overall risk to species is low and the confidence associated with that risk is medium based on exposure concentrations predicted for freshwater and estuarine habitats and expected effects to the population. Reductions of species' numbers, reproduction, or distribution are not anticipated over the 15-year action.

Bromoxynil is not likely to jeopardize the continued existence of this species: No Jeopardy

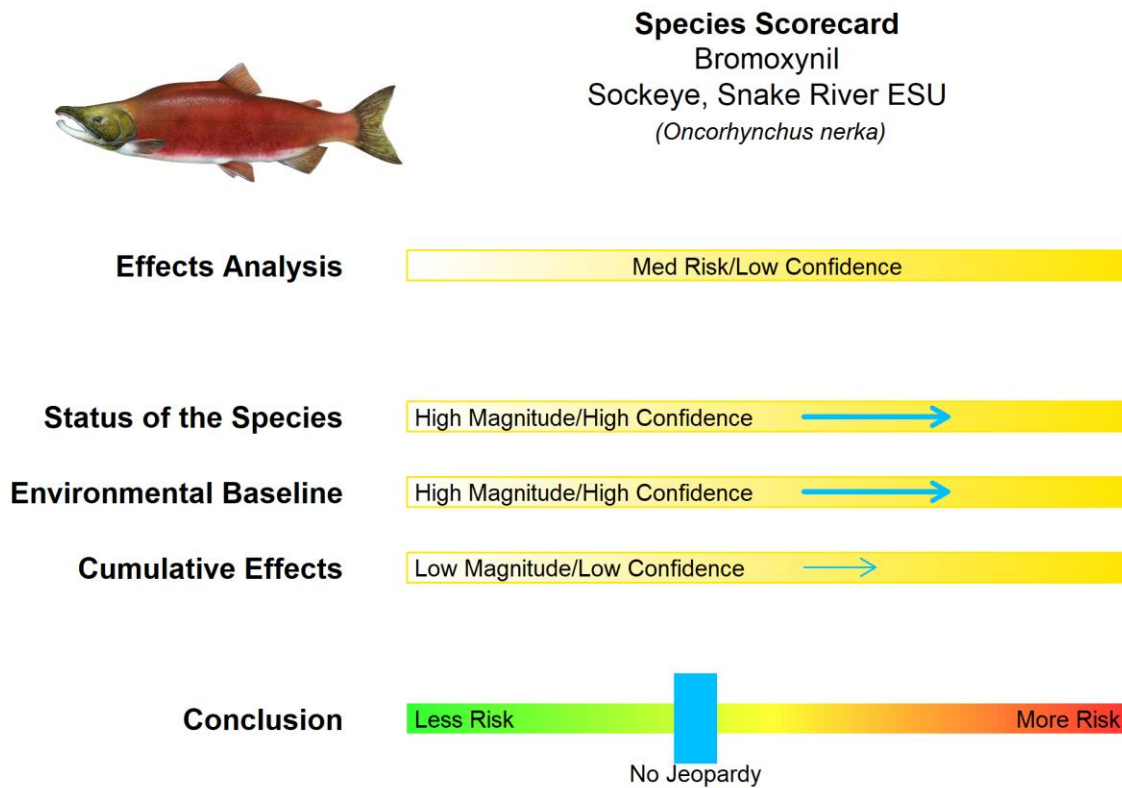


Figure 19. Species Score Card; Sockeye, Snake River ESU; Bromoxynil

Effects Analysis: Medium risk/Low confidence

- Maximum environmental concentrations are anticipated to be lethal to some individuals, however significant reductions in abundance are not anticipated
- Slight shifts in population growth rate occurred for sockeye modeled at 10% mortality levels, but did not exceed the variability (1 standard deviation) of an unexposed population
- Significant reductions in prey abundance are not expected

Status of the Species: Increased risk of jeopardy; High magnitude/ High confidence

- One population remaining supported by hatchery propagation. Increasing abundance, well below sustainable natural production. Low resilience to perturbations.
- Endangered (abundance only 1% of historical levels)
- Recovery criteria not met and reduced likelihood of attaining recovery goals

Environmental Baseline: Increased risk of jeopardy; High magnitude/ High confidence

- Elevated temperatures occur in freshwater habitats
- Environmental mixtures anticipated in freshwater habitats that affect species

Cumulative Effects: Minimal increased risk of jeopardy; Low magnitude/ Low confidence

- Future elevated temperatures anticipated
- Anticipated hydrologic effects in freshwater areas

Conclusion: We find the overall risk to species is medium and the confidence associated with that risk is low based on exposure concentrations predicted for freshwater and estuarine habitats and expected effects to the population. Although some lethality is expected, it will be limited in both the extent of exposure and the magnitude of effect. Substantial reductions in species' numbers, reproduction, or distribution are not anticipated over the 15-year action.

Bromoxynil is not likely to jeopardize the continued existence of this species: No Jeopardy

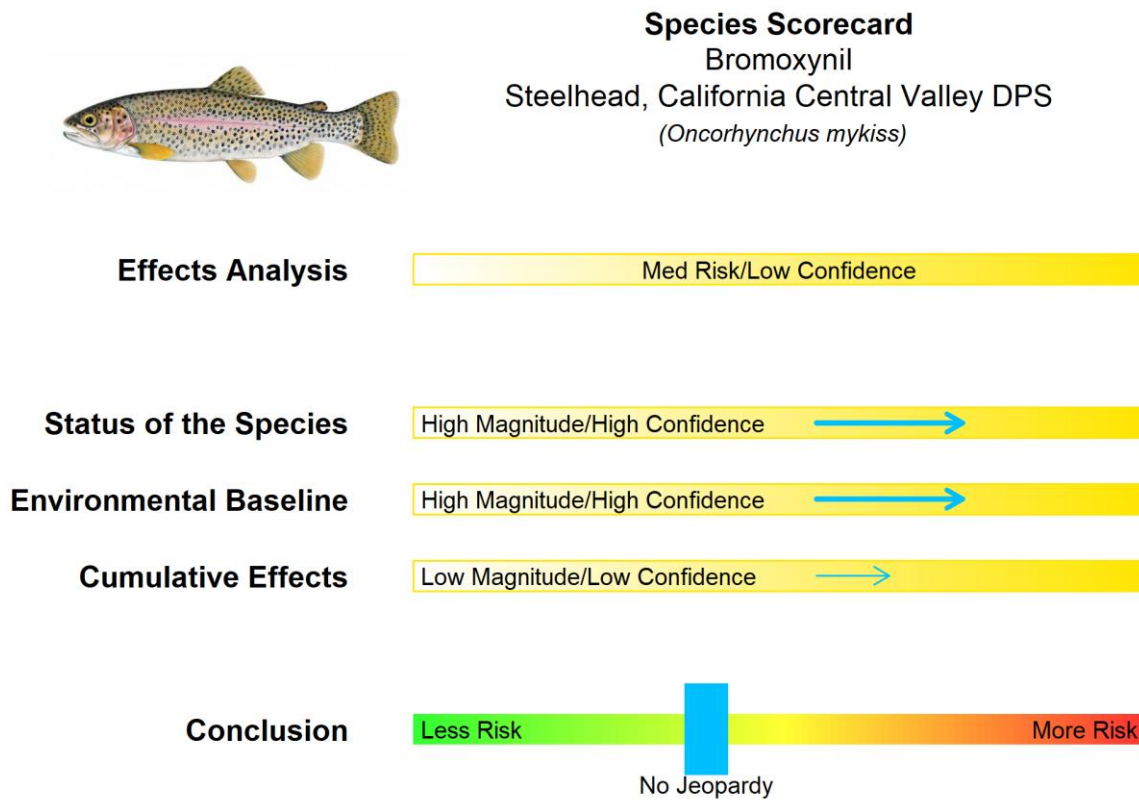


Figure 20. Species Score Card; Steelhead, California Central Valley Distinct Population Segment (DPS); Bromoxynil

Effects Analysis: Medium risk/Low confidence

- Maximum environmental concentrations are anticipated to be lethal to some individuals, however significant reductions in abundance are not anticipated
- Significant reductions in prey abundance are not expected

Status of the Species: Increased risk of jeopardy; High magnitude/ High confidence

- Long-term trend of declining abundances and reduced genetic diversity. Populations supplemented by hatchery propagation.
- Threatened
- Recovery criteria not met and reduced likelihood of attaining recovery goals

Environmental Baseline: Increased risk of jeopardy; High magnitude/ High confidence

- Elevated temperatures occur in freshwater habitats
- Environmental mixtures anticipated in freshwater habitats that affect species

Cumulative Effects: Minimal increased risk of jeopardy; Low magnitude/ Low confidence

- Future elevated temperatures anticipated
- Anticipated hydrologic effects in freshwater areas

Conclusion: We find the overall risk to species is medium and the confidence associated with that risk is low based on exposure concentrations predicted for freshwater and estuarine habitats and expected effects to the population. Although some lethality is expected, it will be limited in both the extent of exposure and the magnitude of effect. Substantial reductions in species' numbers, reproduction, or distribution are not anticipated over the 15-year action.

Bromoxynil is not likely to jeopardize the continued existence of this species: No Jeopardy

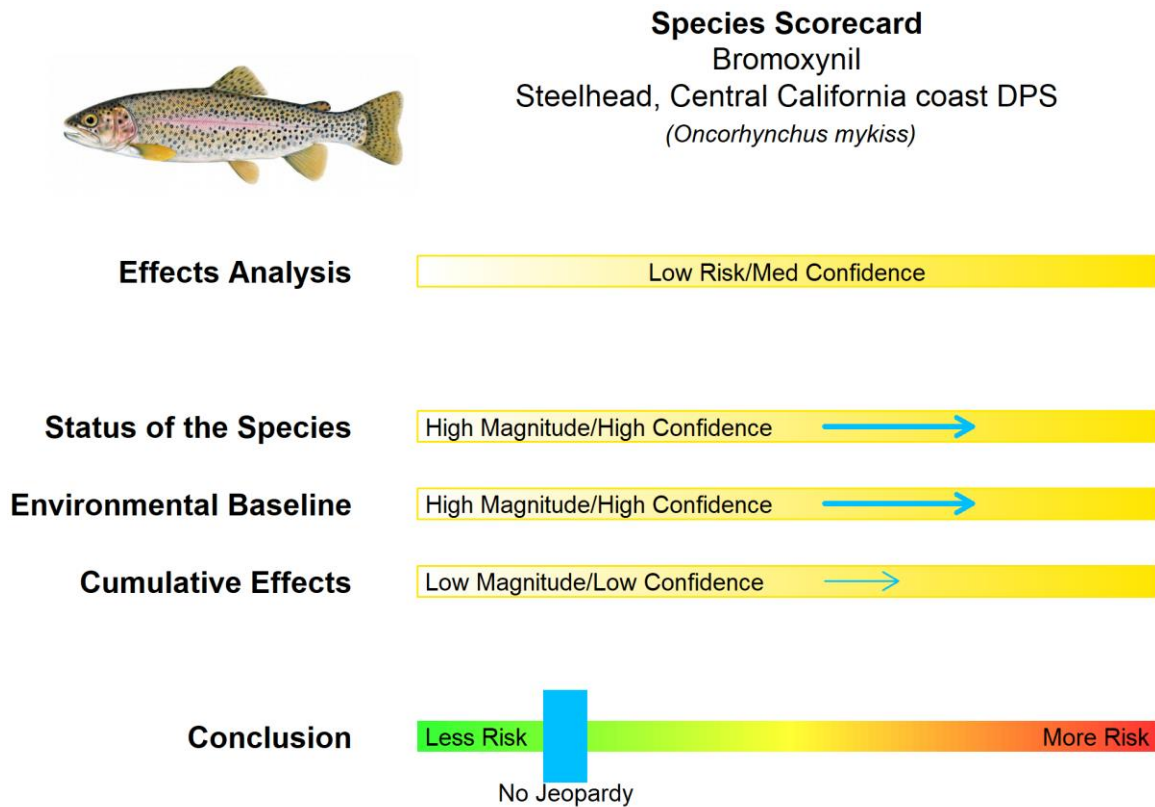


Figure 21. Species Score Card; Steelhead, Central California coast DPS; Bromoxynil

Effects Analysis: Low risk/Medium confidence

- Reductions in abundance, growth and productivity are not anticipated
- Significant reductions in prey abundance are not expected

Status of the Species: Increased risk of jeopardy; High magnitude/ High confidence

- 5-year population trend uncertain. Population abundance supplemented by hatchery propagation. Populations likely not viable, and have lost spatial structure.
- Threatened
- Recovery criteria not met and reduced likelihood of attaining recovery goals

Environmental Baseline: Increased risk of jeopardy; High magnitude/ High confidence

- Elevated temperatures occur in freshwater habitats
- Environmental mixtures anticipated in freshwater habitats that affect species

Cumulative Effects: Minimal increased risk of jeopardy; Low magnitude/ Low confidence

- Future elevated temperatures anticipated
- Anticipated hydrologic effects in freshwater areas

Conclusion: We find the overall risk to species is low and the confidence associated with that risk is medium based on exposure concentrations predicted for freshwater and estuarine habitats and expected effects to the population. Reductions of species' numbers, reproduction, or distribution are not anticipated over the 15-year action.

Bromoxynil is not likely to jeopardize the continued existence of this species: No Jeopardy

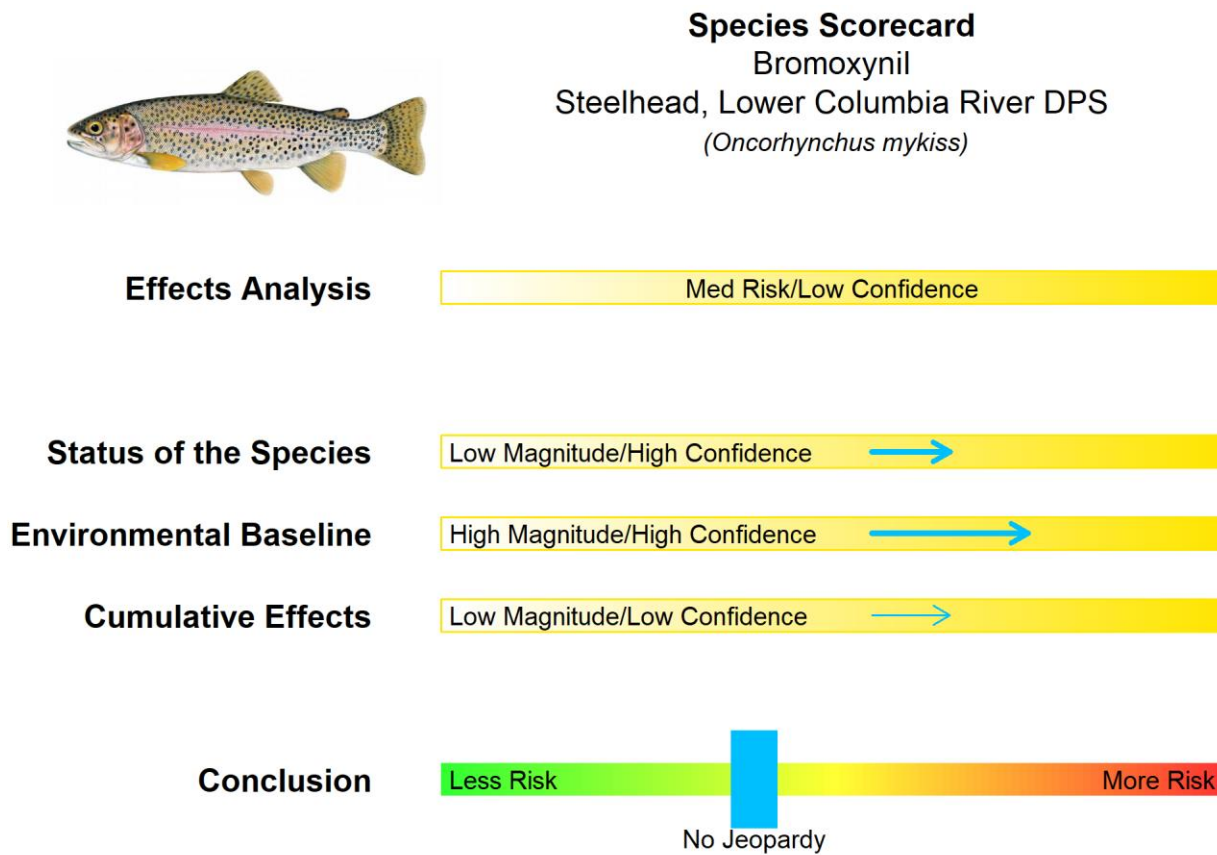


Figure 22. Species Score Card; Steelhead, Lower Columbia River DPS; Bromoxynil

Effects Analysis: Medium risk/Low confidence

- Maximum environmental concentrations are anticipated to be lethal to some individuals, however significant reductions in abundance are not anticipated
- Significant reductions in prey abundance are not expected

Status of the Species: Minimal increased risk of jeopardy; Low magnitude/ High confidence

- 5-year population trend stable. Populations exhibit low genetic diversity and impacted by a loss of available habitat.
- Threatened
- Recovery criteria not met and reduced likelihood of attaining recovery goals

Environmental Baseline: Increased risk of jeopardy; High magnitude/ High confidence

- Elevated temperatures occur in freshwater habitats
- Environmental mixtures anticipated in freshwater habitats that affect species

Cumulative Effects: Minimal increased risk of jeopardy; Low magnitude/ Low confidence

- Future elevated temperatures anticipated
- Anticipated hydrologic effects in freshwater areas

Conclusion: We find the overall risk to species is medium and the confidence associated with that risk is low based on exposure concentrations predicted for freshwater and estuarine habitats and expected effects to the population. Although some lethality is expected, it will be limited in both the extent of exposure and the magnitude of effect. Substantial reductions in species' numbers, reproduction, or distribution are not anticipated over the 15-year action.

Bromoxynil is not likely to jeopardize the continued existence of this species: No Jeopardy

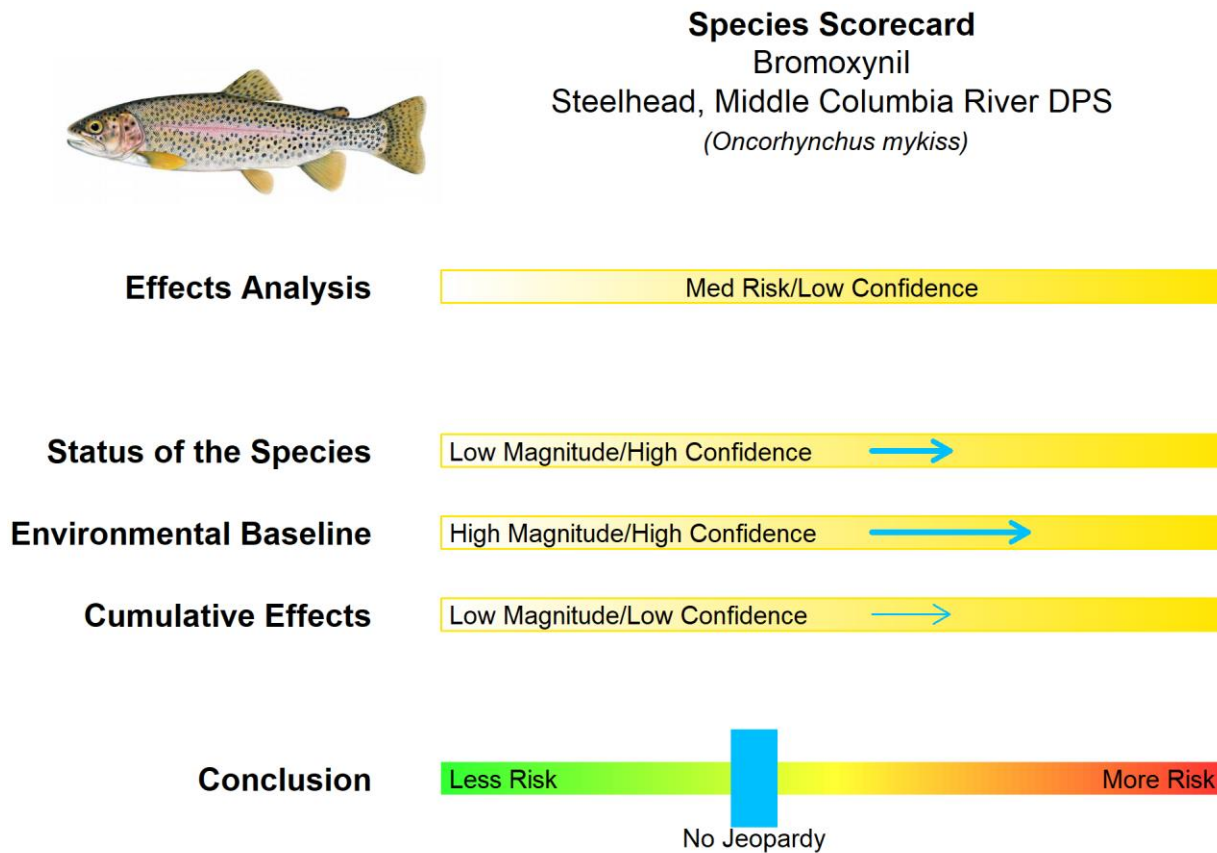


Figure 23. Species Score Card; Steelhead, Middle Columbia River DPS; Bromoxynil

Effects Analysis: Medium risk/Low confidence

- Maximum environmental concentrations are anticipated to be lethal to some individuals, however significant reductions in abundance are not anticipated
- Significant reductions in prey abundance are not expected

Status of the Species: Minimal increased risk of jeopardy; Low magnitude/ High confidence

- 5-year population trend stable to improving; abundances remain low compared to historical numbers
- Threatened
- Recovery criteria not met and reduced likelihood of attaining recovery goals

Environmental Baseline: Increased risk of jeopardy; High magnitude/ High confidence

- Elevated temperatures occur in freshwater habitats
- Environmental mixtures anticipated in freshwater habitats that affect species

Cumulative Effects: Minimal increased risk of jeopardy; Low magnitude/ Low confidence

- Future elevated temperatures anticipated
- Anticipated hydrologic effects in freshwater areas

Conclusion: We find the overall risk to species is medium and the confidence associated with that risk is low based on exposure concentrations predicted for freshwater and estuarine habitats and expected effects to the population. Although some lethality is expected, it will be limited in both the extent of exposure and the magnitude of effect. Substantial reductions in species' numbers, reproduction, or distribution are not anticipated over the 15-year action.

Bromoxynil is not likely to jeopardize the continued existence of this species: No Jeopardy

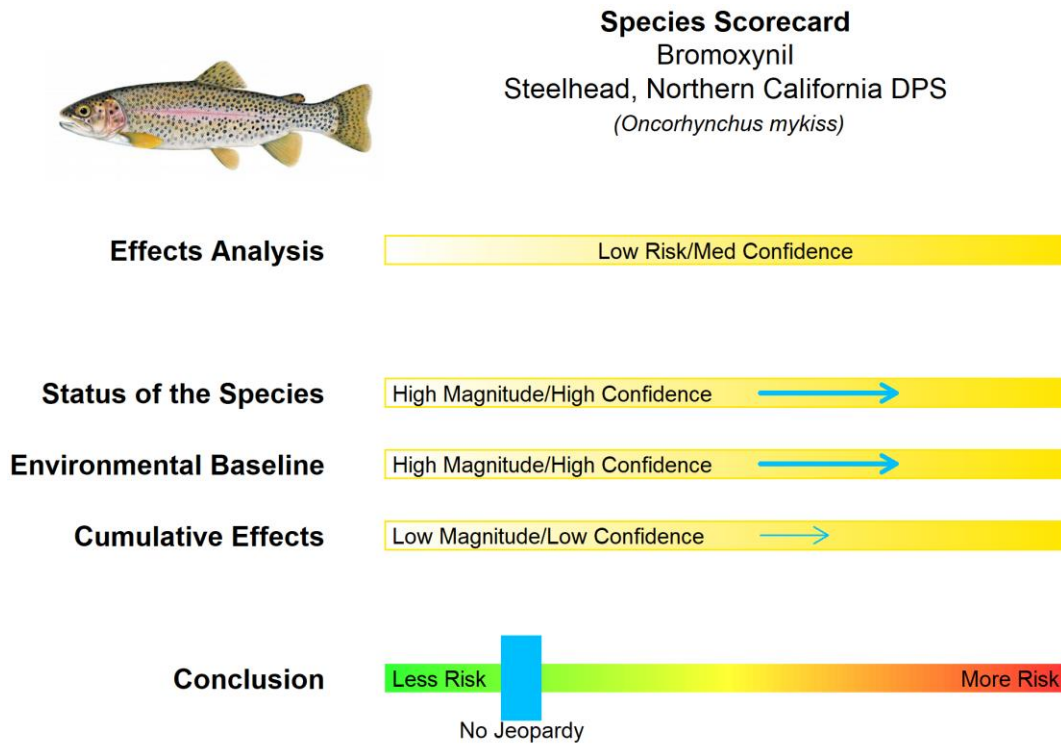


Figure 24. Species Score Card; Steelhead, Northern California DPS; Bromoxynil

Effects Analysis: Low risk/Medium confidence

- Reductions in abundance, growth and productivity are not anticipated
- Significant reductions in prey abundance are not expected

Status of the Species: Increased risk of jeopardy; High magnitude/ High confidence

- Variable 5-year population abundance trends; Population supplemented by hatchery propagation. Populations exhibit low abundances and productivity.
- Threatened
- Recovery criteria not met and reduced likelihood of attaining recovery goals

Environmental Baseline: Increased risk of jeopardy; High magnitude/ High confidence

- Elevated temperatures occur in freshwater habitats
- Environmental mixtures anticipated in freshwater habitats that affect species

Cumulative Effects: Minimal increased risk of jeopardy; Low magnitude/ Low confidence

- Future elevated temperatures anticipated
- Anticipated hydrologic effects in freshwater areas

Conclusion: We find the overall risk to species is low and the confidence associated with that risk is medium based on exposure concentrations predicted for freshwater and estuarine habitats and expected effects to the population. Reductions of species' numbers, reproduction, or distribution are not anticipated over the 15-year action.

Bromoxynil is not likely to jeopardize the continued existence of this species: No Jeopardy

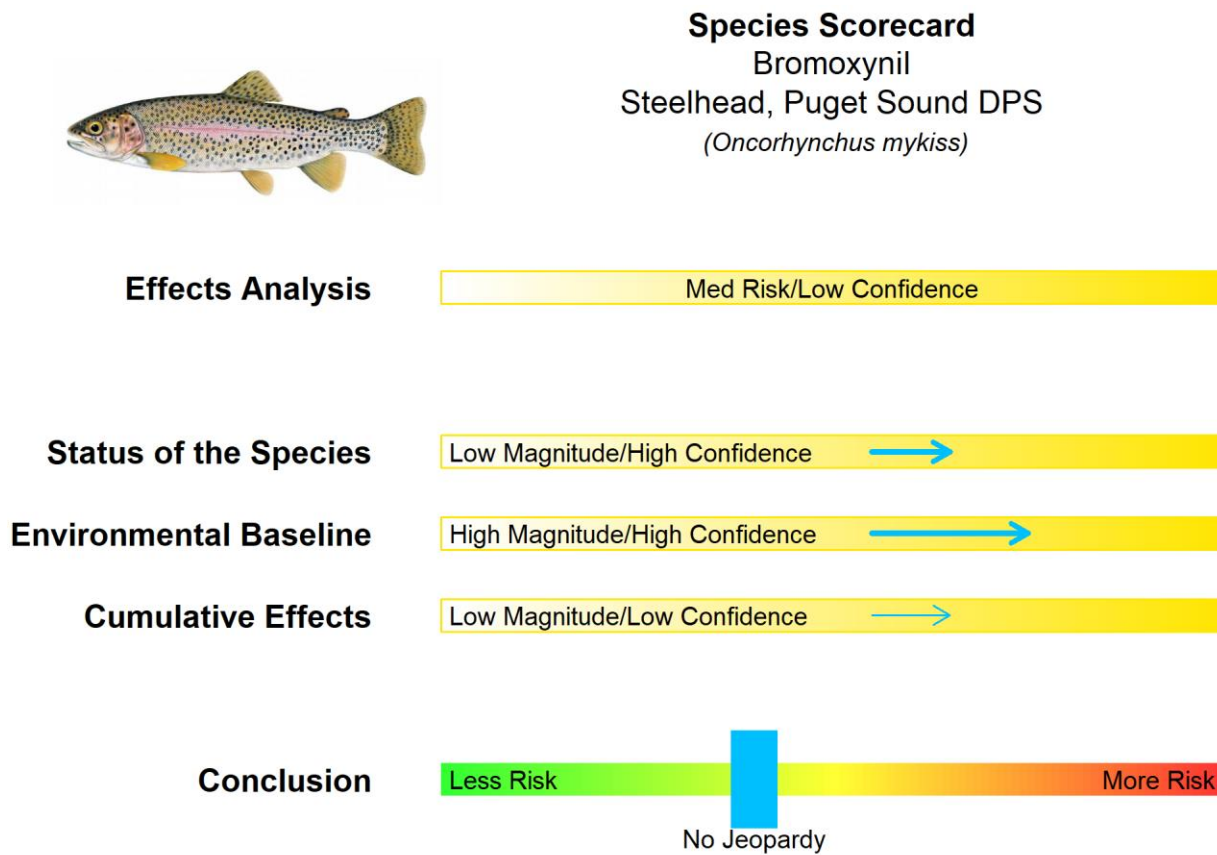


Figure 25. Species Score Card; Steelhead, Puget Sound DPS; Bromoxynil

Effects Analysis: Medium risk/Low confidence

- Maximum environmental concentrations are anticipated to be lethal to some individuals, however significant reductions in abundance are not anticipated
- Significant reductions in prey abundance are not expected

Status of the Species: Minimal increased risk of jeopardy; Low magnitude/ High confidence

- 5-year population trend stable, but populations have reduced genetic diversity
- Threatened
- Recovery criteria not met and reduced likelihood of attaining recovery goals

Environmental Baseline: Increased risk of jeopardy; High magnitude/ High confidence

- Elevated temperatures occur in freshwater habitats
- Environmental mixtures anticipated in freshwater habitats that affect species

Cumulative Effects: Minimal increased risk of jeopardy; Low magnitude/ Low confidence

- Future elevated temperatures anticipated
- Anticipated hydrologic effects in freshwater areas

Conclusion: We find the overall risk to species is medium and the confidence associated with that risk is low based on exposure concentrations predicted for freshwater and estuarine habitats and expected effects to the population. Although some lethality is expected, it will be limited in both the extent of exposure and the magnitude of effect. Substantial reductions in species' numbers, reproduction, or distribution are not anticipated over the 15-year action.

Bromoxynil is not likely to jeopardize the continued existence of this species: No Jeopardy

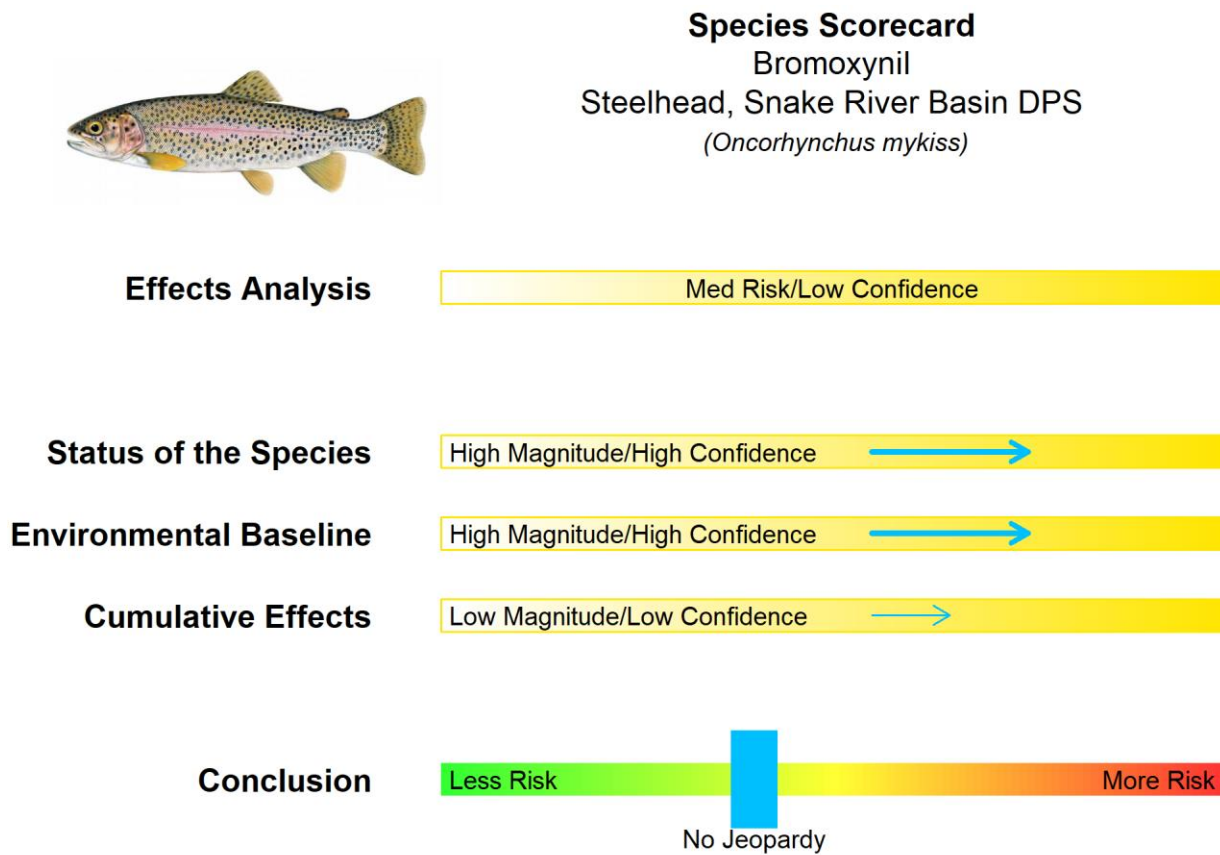


Figure 26. Species Score Card; Steelhead, Snake River Basin DPS; Bromoxynil

Effects Analysis: Medium risk/Low confidence

- Maximum environmental concentrations are anticipated to be lethal to some individuals, however significant reductions in abundance are not anticipated
- Significant reductions in prey abundance are not expected

Status of the Species: Increased risk of jeopardy; High magnitude/ High confidence

- 5-year population trend stable to improving, but still in moderate danger of extinction. Overall abundances remain below thresholds necessary for recovery.
- Threatened
- Recovery criteria not met and reduced likelihood of attaining recovery goals

Environmental Baseline: Increased risk of jeopardy; High magnitude/ High confidence

- Elevated temperatures occur in freshwater habitats
- Environmental mixtures anticipated in freshwater habitats that affect species

Cumulative Effects: Minimal increased risk of jeopardy; Low magnitude/ Low confidence

- Future elevated temperatures anticipated
- Anticipated hydrologic effects in freshwater areas

Conclusion: We find the overall risk to species is medium and the confidence associated with that risk is low based on exposure concentrations predicted for freshwater and estuarine habitats and expected effects to the population. Although some lethality is expected, it will be limited in both the extent of exposure and the magnitude of effect. Substantial reductions in species' numbers, reproduction, or distribution are not anticipated over the 15-year action.

Bromoxynil is not likely to jeopardize the continued existence of this species: No Jeopardy

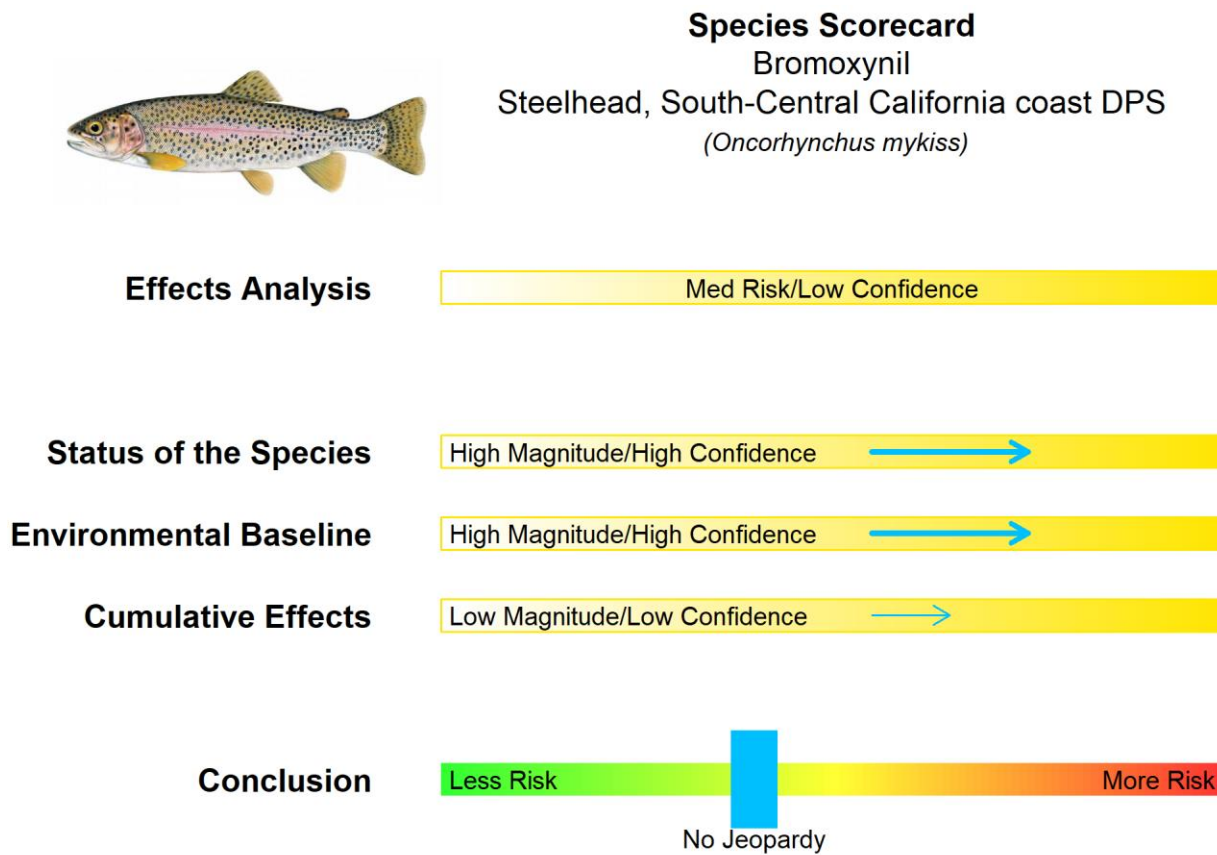


Figure 27. Species Score Card; Steelhead, South-Central California coast DPS; Bromoxynil

Effects Analysis: Medium risk/Low confidence

- Maximum environmental concentrations are anticipated to be lethal to some individuals, however significant reductions in abundance are not anticipated
- Significant reductions in prey abundance are not expected

Status of the Species: Increased risk of jeopardy; High magnitude/ High confidence

- 5-year population trend declining, depressed abundances.
- Threatened
- Recovery criteria not met and reduced likelihood of attaining recovery goals

Environmental Baseline: Increased risk of jeopardy; High magnitude/ High confidence

- Elevated temperatures occur in freshwater habitats
- Environmental mixtures anticipated in freshwater habitats that affect species

Cumulative Effects: Minimal increased risk of jeopardy; Low magnitude/ Low confidence

- Future elevated temperatures anticipated
- Anticipated hydrologic effects in freshwater areas

Conclusion: We find the overall risk to species is medium and the confidence associated with that risk is low based on exposure concentrations predicted for freshwater and estuarine habitats and expected effects to the population. Although some lethality is expected, it will be limited in both the extent of exposure and the magnitude of effect. Substantial reductions in species' numbers, reproduction, or distribution are not anticipated over the 15-year action.

Bromoxynil is not likely to jeopardize the continued existence of this species: No Jeopardy

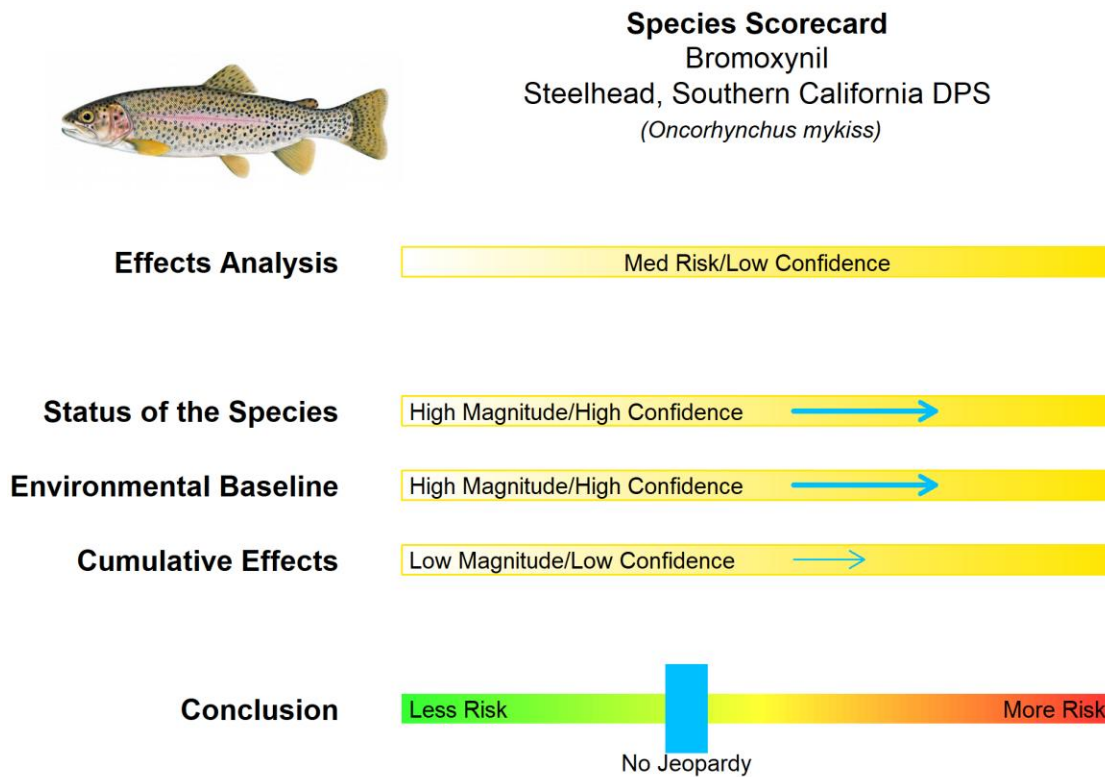


Figure 28. Species Score Card; Steelhead, Southern California DPS; Bromoxynil

Effects Analysis: Medium risk/Low confidence

- Maximum environmental concentrations are anticipated to be lethal to some individuals, however significant reductions in abundance are not anticipated
- Significant reductions in prey abundance are not expected

Status of the Species: Increased risk of jeopardy; High magnitude/ High confidence

- 5-year population trend uncertain (large annual variations); supplemented by hatchery propagation; fragmented distributions.
- Endangered; Populations at extreme southern end of species' range
- Recovery criteria not met and reduced likelihood of attaining recovery goals

Environmental Baseline: Increased risk of jeopardy; High magnitude/ High confidence

- Elevated temperatures occur in freshwater habitats
- Environmental mixtures anticipated in freshwater habitats that affect species

Cumulative Effects: Minimal increased risk of jeopardy; Low magnitude/ Low confidence

- Future elevated temperatures anticipated
- Anticipated hydrologic effects in freshwater areas

Conclusion: We find the overall risk to species is medium and the confidence associated with that risk is low based on exposure concentrations predicted for freshwater and estuarine habitats and expected effects to the population. Although some lethality is expected, it will be limited in both the extent of exposure and the magnitude of effect. Substantial reductions in species' numbers, reproduction, or distribution are not anticipated over the 15-year action.

Bromoxynil is not likely to jeopardize the continued existence of this species: No Jeopardy

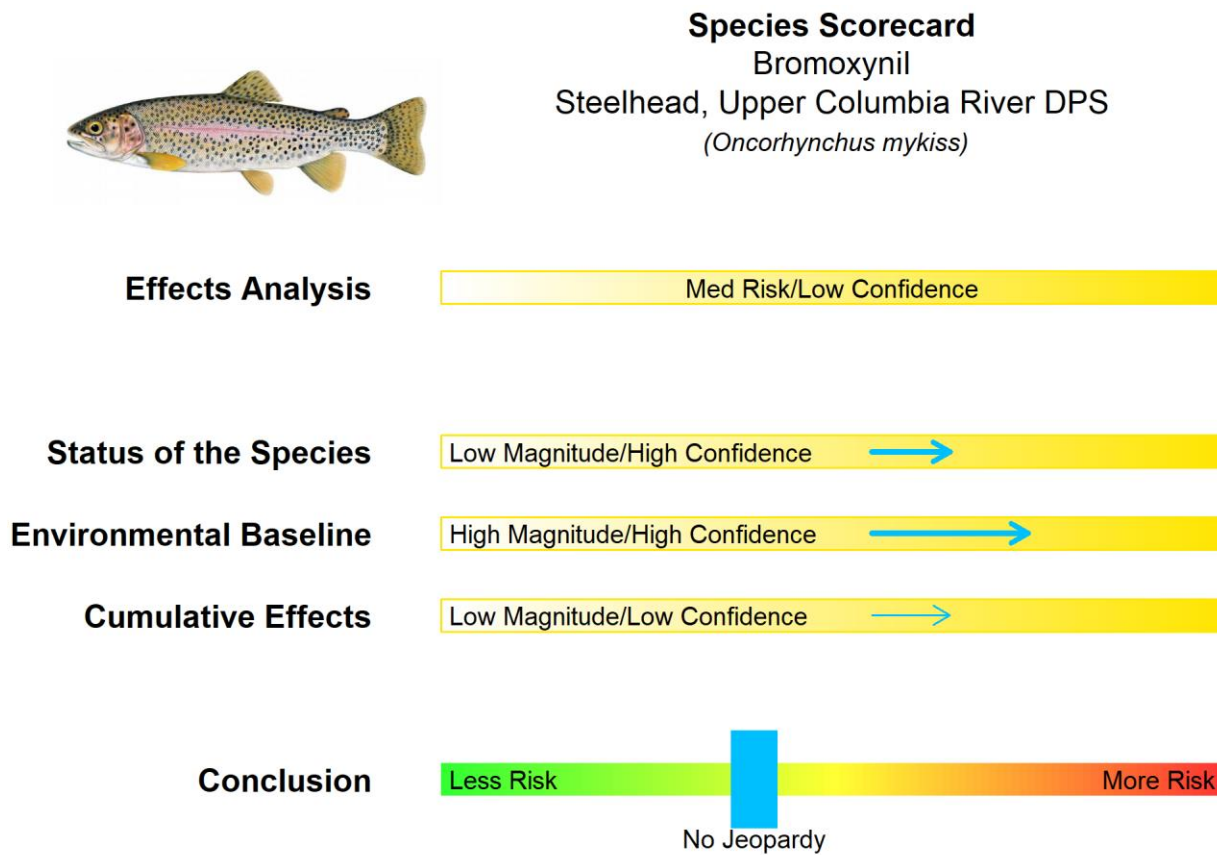


Figure 29. Species Score Card; Steelhead, Upper Columbia River DPS; Bromoxynil

Effects Analysis: Medium risk/Low confidence

- Maximum environmental concentrations are anticipated to be lethal to some individuals, however significant reductions in abundance are not anticipated
- Significant reductions in prey abundance are not expected

Status of the Species: Increased risk of jeopardy; Low magnitude/ High confidence

- 5-year population trend improving, but low genetic diversity.
- Threatened
- Recovery criteria not met and reduced likelihood of attaining recovery goals

Environmental Baseline: Increased risk of jeopardy; High magnitude/ High confidence

- Elevated temperatures occur in freshwater habitats
- Environmental mixtures anticipated in freshwater habitats that affect species

Cumulative Effects: Minimal increased risk of jeopardy; Low magnitude/ Low confidence

- Future elevated temperatures anticipated
- Anticipated hydrologic effects in freshwater areas

Conclusion: We find the overall risk to species is medium and the confidence associated with that risk is low based on exposure concentrations predicted for freshwater and estuarine habitats and expected effects to the population. Although some lethality is expected, it will be limited in both the extent of exposure and the magnitude of effect. Substantial reductions in species' numbers, reproduction, or distribution are not anticipated over the 15-year action.

Bromoxynil is not likely to jeopardize the continued existence of this species: No Jeopardy

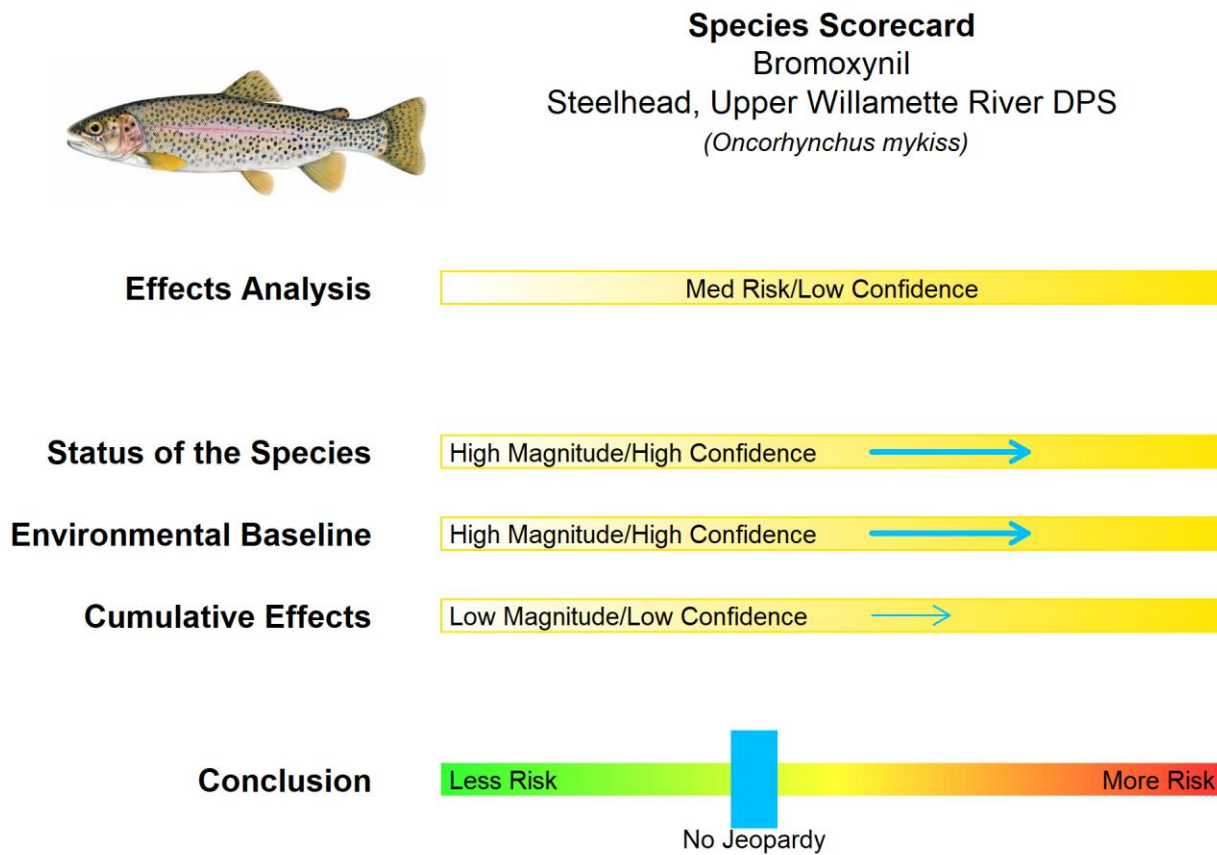


Figure 30. Species Score Card; Steelhead, Upper Willamette River DPS; Bromoxynil

Effects Analysis: Medium risk/Low confidence

- Maximum environmental concentrations are anticipated to be lethal to some individuals, however significant reductions in abundance are not anticipated
- Significant reductions in prey abundance are not expected

Status of the Species: Increased risk of jeopardy; High magnitude/ High confidence

- 5-year population trend declining, large fluctuations in abundances.
- Threatened;
- Recovery criteria not met and reduced likelihood of attaining recovery goals

Environmental Baseline: Increased risk of jeopardy; High magnitude/ High confidence

- Elevated temperatures occur in freshwater habitats
- Environmental mixtures anticipated in freshwater habitats that affect species

Cumulative Effects: Minimal increased risk of jeopardy; Low magnitude/ Low confidence

- Future elevated temperatures anticipated
- Anticipated hydrologic effects in freshwater areas

Conclusion: We find the overall risk to species is medium and the confidence associated with that risk is low based on exposure concentrations predicted for freshwater and estuarine habitats and expected effects to the population. Although some lethality is expected, it will be limited in both the extent of exposure and the magnitude of effect. Substantial reductions in species' numbers, reproduction, or distribution are not anticipated over the 15-year action.

Bromoxynil is not likely to jeopardize the continued existence of this species: No Jeopardy

13.3 Species Scorecards – Prometryn

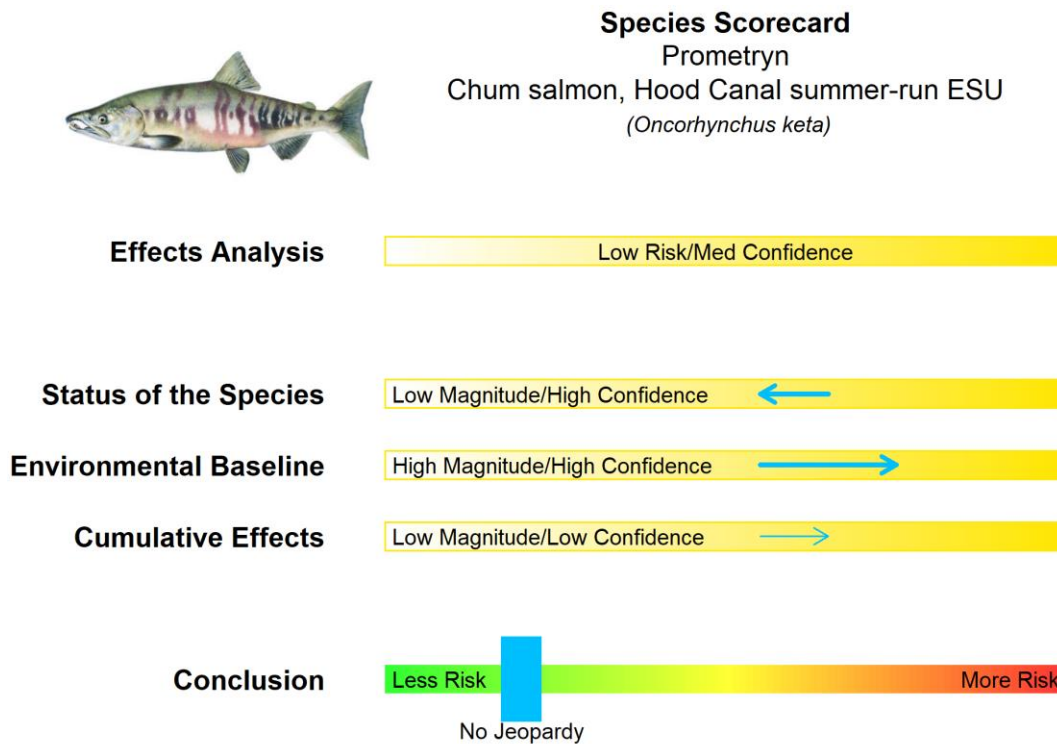


Figure 31. Species Score Card; Chum salmon, Hood Canal summer-run ESU; Prometryn

Effects Analysis: Low risk/Medium confidence

- Significant reductions in abundance are not anticipated
- Reduced prey abundance, and impaired growth are not expected

Status of the Species: Decreased risk of jeopardy; Low magnitude/ High confidence

- Stable to increasing abundance trend, increasing population productivity
- Proposed action may hinder attainment of some recovery goals

Environmental Baseline: Increased risk of jeopardy; High magnitude/ High confidence

- Elevated temperatures anticipated in freshwater habitats
- Environmental mixtures anticipated in freshwater habitats that affect species

Cumulative Effects: Minimal increased risk of jeopardy; Low magnitude/ Low confidence

- Future elevated temperatures likely
- Anticipated hydrologic effects in freshwater areas may affect species

Conclusion: The species is most vulnerable while in freshwater and nearshore areas where they spend a portion of their lives. We find the overall risk to species is low and the confidence associated with that risk is medium based on exposure concentrations predicted for freshwater and estuarine habitats and expected effects to the population. Reductions of species' numbers, reproduction, or distribution are not anticipated over the 15-year action.

Prometryn is not likely to jeopardize the continued existence of this species: No Jeopardy

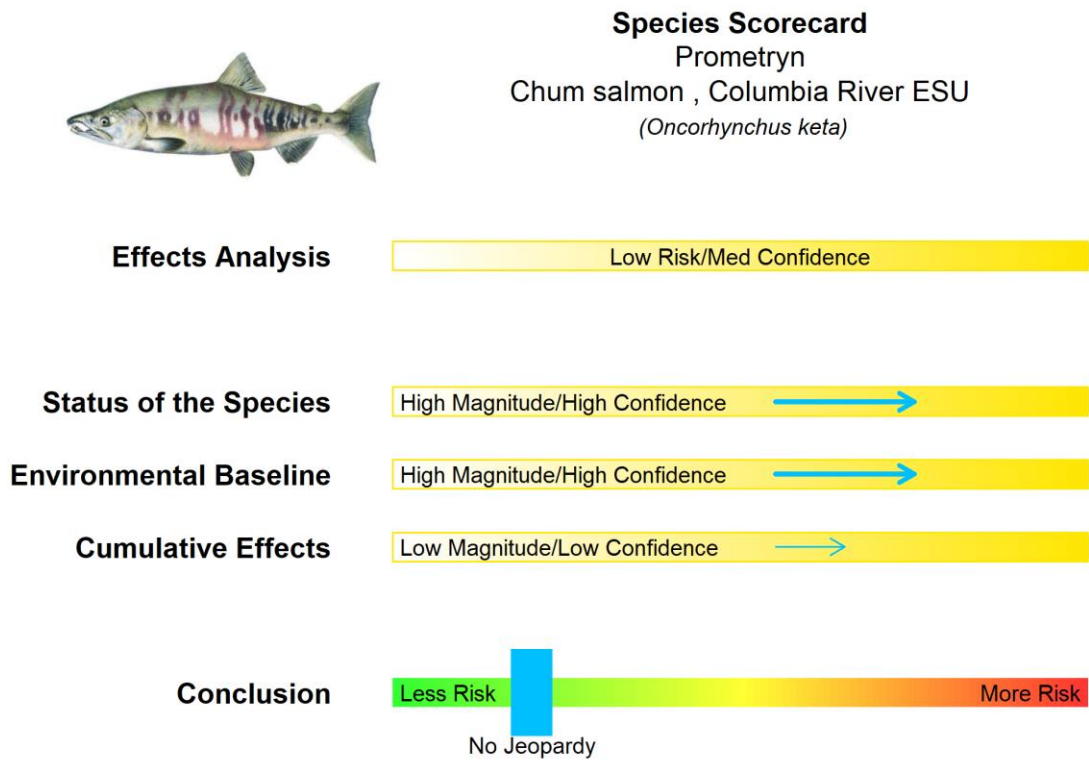


Figure 32. Species Score Card; Chum salmon, Columbia River ESU; Prometryn

Effects Analysis: Low risk/Medium confidence

- Significant reductions in abundance are not anticipated
- Reduced prey abundance, and impaired growth are not expected

Status of the Species: Increased risk of jeopardy; High magnitude/ High confidence

- Declining abundance trends, high risk of extinction
- Recovery criteria not met and reduced likelihood of attaining recovery goals

Environmental Baseline: Increased risk of jeopardy; High magnitude/ High confidence

- Elevated temperatures anticipated in freshwater habitats
- Environmental mixtures anticipated in freshwater habitats that affect species

Cumulative Effects: Minimal increased risk of jeopardy; Low magnitude/ Low confidence

- Future elevated temperatures anticipated
- Anticipated hydrologic effects in freshwater areas that may affect species

Conclusion: The species is most vulnerable while in freshwater and nearshore areas where they spend a portion of their lives. We find the overall risk to species is low and the confidence associated with that risk is medium based on exposure concentrations predicted for freshwater and estuarine habitats and expected effects to the population. Reductions of species' numbers, reproduction, or distribution are not anticipated over the 15-year action.

Prometryn is not likely to jeopardize the continued existence of this species: No Jeopardy

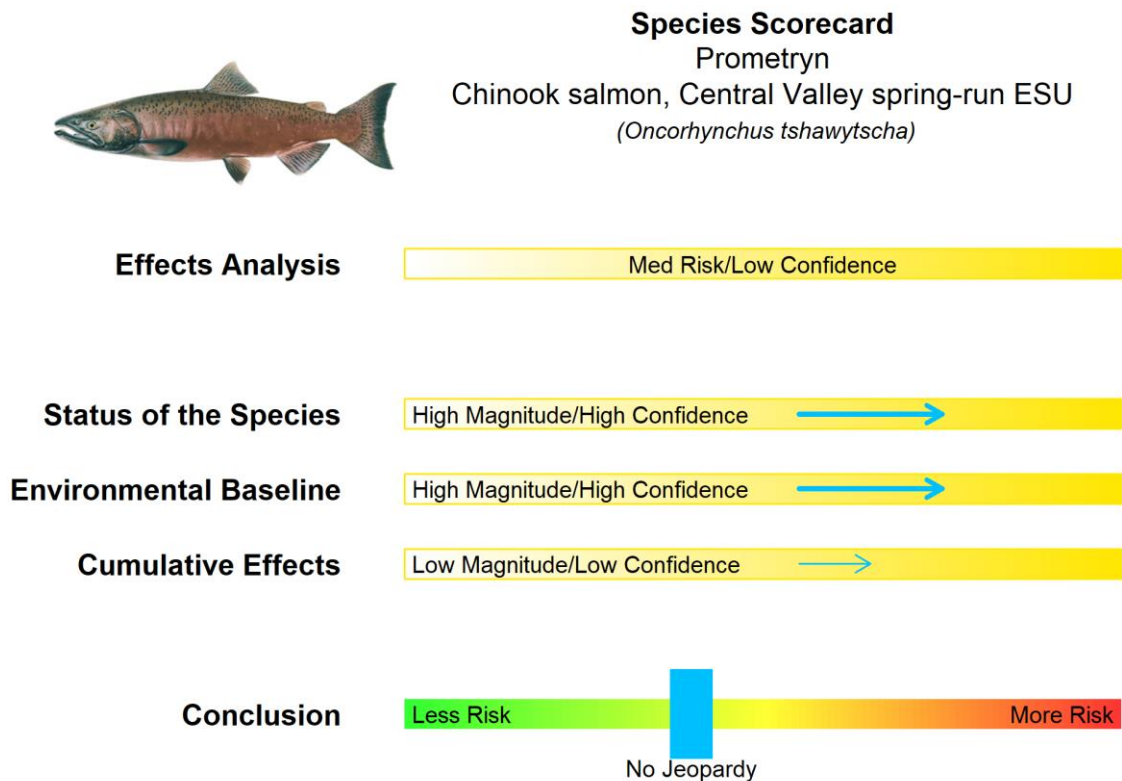


Figure 33. Species Score Card; Chinook salmon, Central Valley spring-run ESU; Prometryn

Effects Analysis: Medium risk/Low confidence

- Maximum environmental concentrations are anticipated to be lethal to some individuals, however significant reductions in abundance are not anticipated
- Slight shifts in population growth rate occurred for Chinook modeled at 10% mortality levels, but did not exceed the variability (1 standard deviation) of an unexposed population
- Reduced prey abundance, and impaired growth are not expected

Status of the Species: Increased risk of jeopardy; High magnitude/ High confidence

- Stable to declining abundance trends, low abundances and fragmented populations
- Threatened species
- Recovery criteria not met and reduced likelihood of attaining recovery goals

Environmental Baseline: Increased risk of jeopardy; High magnitude/ High confidence

- Elevated temperatures occur in freshwater habitats
- Environmental mixtures anticipated in freshwater habitats that affect species

Cumulative Effects: Minimal increased risk of jeopardy; Low magnitude/ Low confidence

- Future elevated temperatures anticipated
- Anticipated hydrologic effects in freshwater areas

Conclusion: The species is most vulnerable while in freshwater and nearshore areas where they spend a portion of their lives. We find the overall risk to species is medium and the confidence associated with that risk is low based on exposure concentrations predicted for freshwater and estuarine habitats and expected effects to the population. Reductions of species' numbers, reproduction, or distribution are not anticipated over the 15-year action.

Prometryn is not likely to jeopardize the continued existence of this species: No Jeopardy

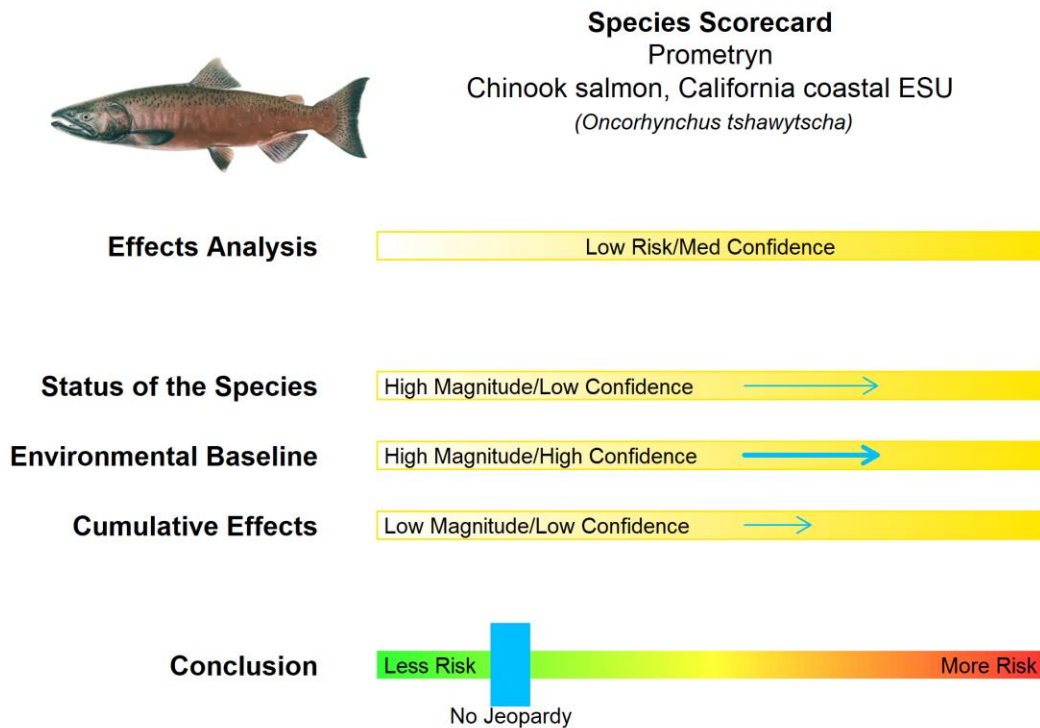


Figure 34. Species Score Card; Chinook salmon, California coastal ESU; Prometryn

Effects Analysis: Low risk/Medium confidence

- Significant reductions in abundance are not anticipated
- Slight shifts in population growth rate occurred for Chinook modeled at 10% mortality levels, but did not exceed the variability (1 standard deviation) of an unexposed population
- Reduced prey abundance, and impaired growth are not expected

Status of the Species: Increased risk of jeopardy; High magnitude/ Low confidence

- One population with greater than 1000 spawners, declining trends in abundance
- Threatened
- Some recovery criteria not met, yet reduced likelihood of attaining recovery goals

Environmental Baseline: Increased risk of jeopardy; High magnitude/ High confidence

- Elevated temperatures occur in freshwater habitats
- Environmental mixtures anticipated in freshwater habitats that affect species

Cumulative Effects: Minimal increased risk of jeopardy; Low magnitude/ Low confidence

- Future elevated temperatures anticipated
- Anticipated hydrologic effects in freshwater areas

Conclusion: The species is most vulnerable while in freshwater and nearshore areas where they spend a portion of their lives. We find the overall risk to species is low and the confidence associated with that risk is medium based on exposure concentrations predicted for freshwater and estuarine habitats and expected effects to the population. Reductions of species' numbers, reproduction, or distribution are not anticipated over the 15-year action.

Prometryn is not likely to jeopardize the continued existence of this species: No Jeopardy

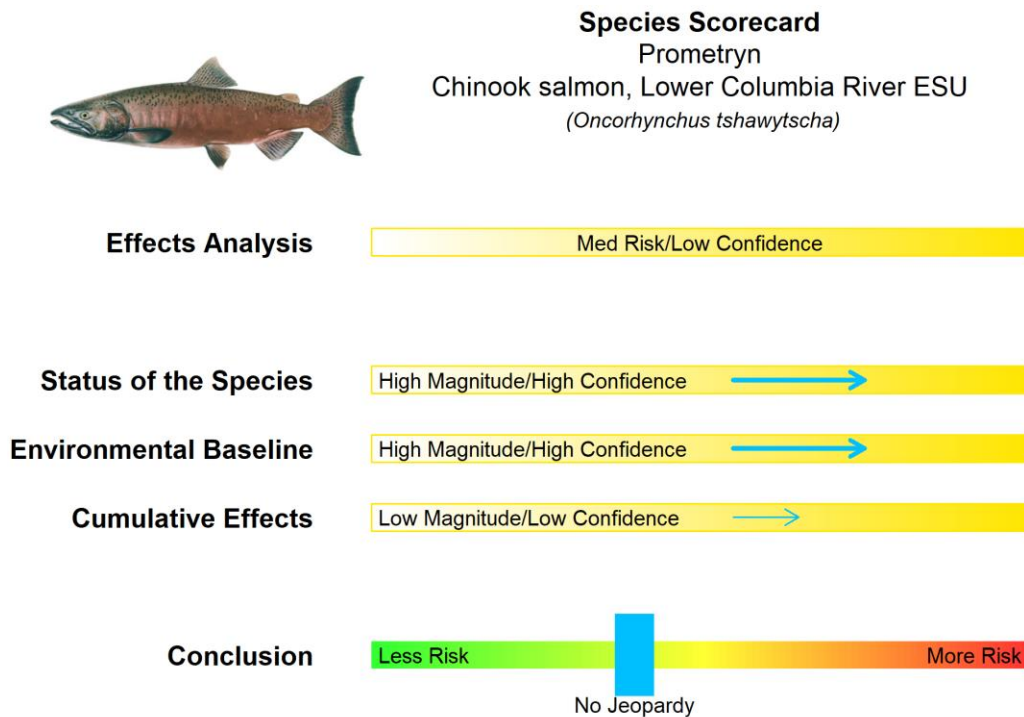


Figure 35. Species Score Card; Chinook salmon, Lower Columbia River ESU; Prometryn

Effects Analysis: Medium risk/Low confidence

- Maximum environmental concentrations are anticipated to be lethal to some individuals, however significant reductions in abundance are not anticipated
- Slight shifts in population growth rate occurred for Chinook modeled at 10% mortality levels, but did not exceed the variability (1 standard deviation) of an unexposed population
- Reduced prey abundance, and impaired growth are not expected

Status of the Species: Increased risk of jeopardy; High magnitude/ High confidence

- Declining trends in abundance, one self-sustaining population, low genetic diversity
- Threatened
- Recovery criteria not met and reduced likelihood of attaining recovery goals

Environmental Baseline: Increased risk of jeopardy; High magnitude/ High confidence

- Elevated temperatures occur in freshwater habitats
- Environmental mixtures anticipated in freshwater habitats that affect species

Cumulative Effects: Minimal increased risk of jeopardy; Low magnitude/ Low confidence

- Future elevated temperatures anticipated
- Anticipated hydrologic effects in freshwater areas

Conclusion: The species is most vulnerable while in freshwater and nearshore areas where they spend a portion of their lives. We find the overall risk to species is medium and the confidence associated with that risk is low based on exposure concentrations predicted for freshwater and estuarine habitats and expected effects to the population. Reductions of species' numbers, reproduction, or distribution are not anticipated over the 15-year action.

Prometryn is not likely to jeopardize the continued existence of this species: No Jeopardy

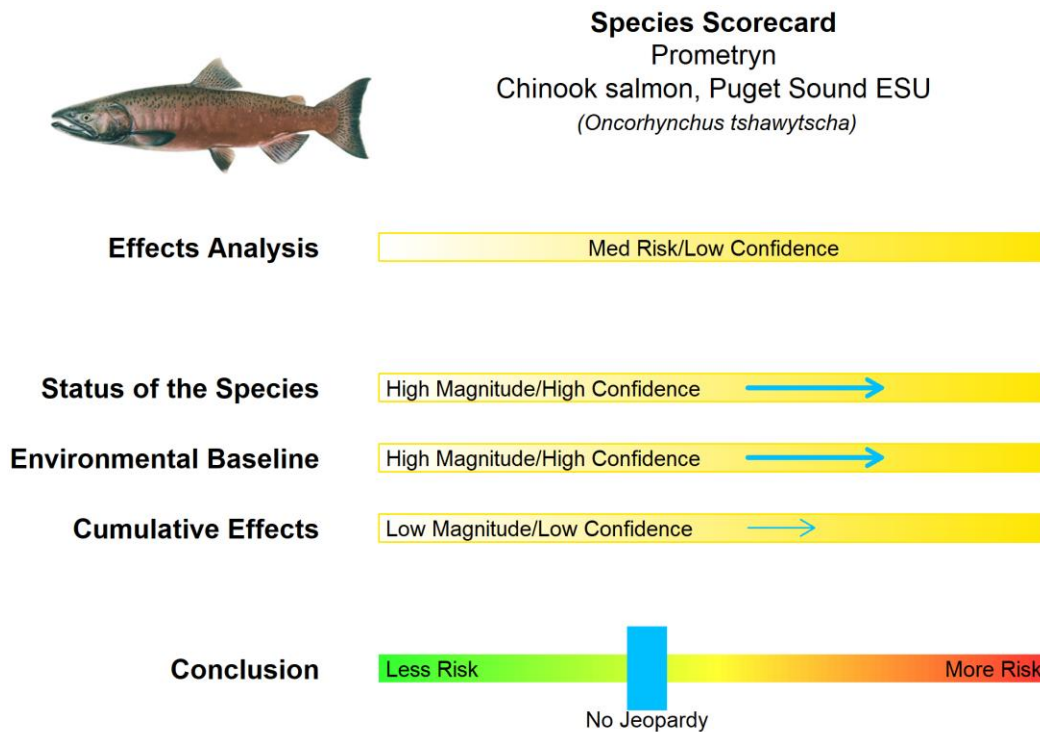


Figure 36. Species Score Card; Chinook salmon, Puget Sound ESU; Prometryn

Effects Analysis: Medium risk/Low confidence

- Maximum environmental concentrations are anticipated to be lethal to some individuals, however significant reductions in abundance are not anticipated
- Slight shifts in population growth rate occurred for Chinook modeled at 10% mortality levels, but did not exceed the variability (1 standard deviation) of an unexposed population
- Reduced prey abundance, and impaired growth are not expected

Status of the Species: Increased risk of jeopardy; High magnitude/ High confidence

- Half of the populations declining and half increasing in abundance
- Threatened
- Recovery criteria not met and reduced likelihood of attaining recovery goals

Environmental Baseline: Increased risk of jeopardy; High magnitude/ High confidence

- Elevated temperatures occur in freshwater habitats
- Environmental mixtures anticipated in freshwater habitats that affect species

Cumulative Effects: Minimal increased risk of jeopardy; Low magnitude/ Low confidence

- Future elevated temperatures anticipated
- Anticipated hydrologic effects in freshwater areas

Conclusion: The species is most vulnerable while in freshwater and nearshore areas where they spend a portion of their lives. We find the overall risk to species is medium and the confidence associated with that risk is low based on exposure concentrations predicted for freshwater and estuarine habitats and expected effects to the population. Reductions of species' numbers, reproduction, or distribution are not anticipated over the 15-year action.

Prometryn is not likely to jeopardize the continued existence of this species: No Jeopardy

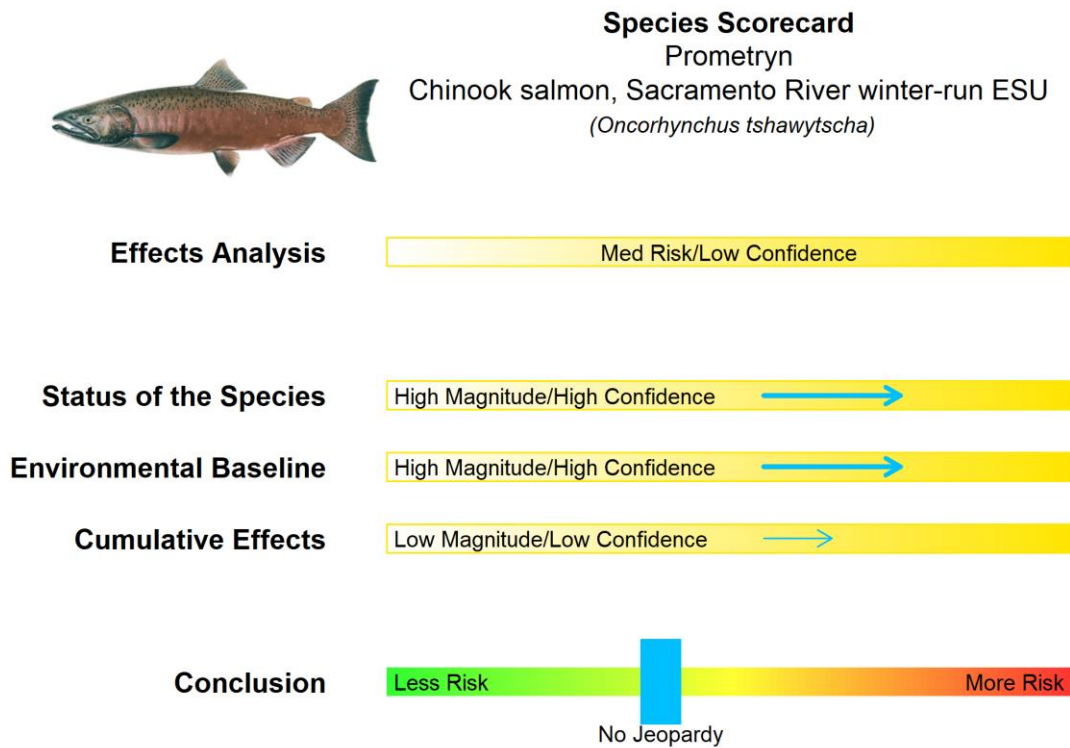


Figure 37. Species Score Card; Chinook salmon, Sacramento River winter-run ESU; Prometryn

Effects Analysis: Medium risk/Low confidence

- Maximum environmental concentrations are anticipated to be lethal to some individuals, however significant reductions in abundance are not anticipated
- Slight shifts in population growth rate occurred for Chinook modeled at 10% mortality levels, but did not exceed the variability (1 standard deviation) of an unexposed population
- Reduced prey abundance, and impaired growth are not expected

Status of the Species: Increased risk of jeopardy; High magnitude/ High confidence

- One extant population, declining abundance trends, hatchery-supported
- Endangered species
- Recovery criteria not met and reduced likelihood of attaining recovery goals

Environmental Baseline: Increased risk of jeopardy; High magnitude/ High confidence

- Elevated temperatures occur in freshwater habitats
- Environmental mixtures anticipated in freshwater habitats that affect species

Cumulative Effects: Minimal increased risk of jeopardy; Low magnitude/ Low confidence

- Future elevated temperatures anticipated
- Anticipated hydrologic effects in freshwater areas

Conclusion: The species is most vulnerable while in freshwater and nearshore areas where they spend a portion of their lives. We find the overall risk to species is medium and the confidence associated with that risk is low based on exposure concentrations predicted for freshwater and estuarine habitats and expected effects to the population. Reductions of species' numbers, reproduction, or distribution are not anticipated over the 15-year action.

Prometryn is not likely to jeopardize the continued existence of this species: No Jeopardy

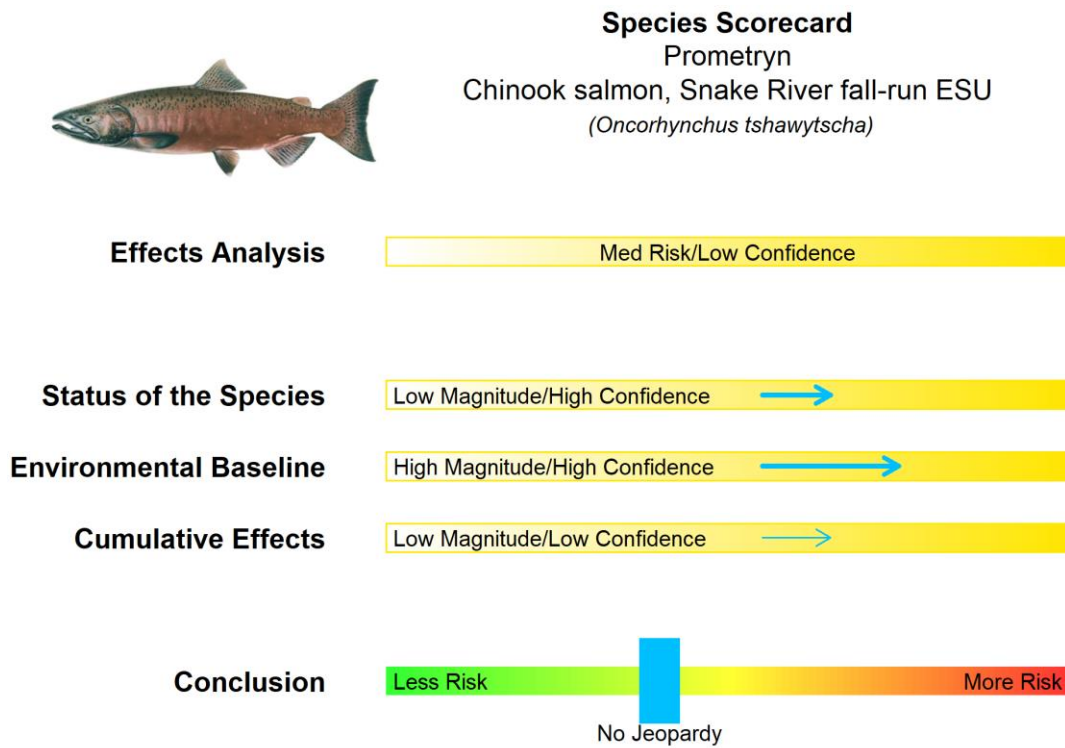


Figure 38. Species Score Card; Chinook salmon, Snake River fall-run ESU; Prometryn

Effects Analysis: Medium risk/Low confidence

- Maximum environmental concentrations are anticipated to be lethal to some individuals, however significant reductions in abundance are not anticipated
- Slight shifts in population growth rate occurred for Chinook modeled at 10% mortality levels, but did not exceed the variability (1 standard deviation) of an unexposed population
- Reduced prey abundance, and impaired growth are not expected

Status of the Species: Increased risk of jeopardy; Low magnitude/ High confidence

- Stable to increasing abundance trends, moderate extinction risk, hatchery supported
- Threatened species
- Recovery criteria not met and reduced likelihood of attaining recovery goals

Environmental Baseline: Increased risk of jeopardy; High magnitude/ High confidence

- Elevated temperatures occur in freshwater habitats
- Environmental mixtures anticipated in freshwater habitats that affect species

Cumulative Effects: Minimal increased risk of jeopardy; Low magnitude/ Low confidence

- Future elevated temperatures anticipated
- Anticipated hydrologic effects in freshwater areas

Conclusion: The species is most vulnerable while in freshwater and nearshore areas where they spend a portion of their lives. We find the overall risk to species is medium and the confidence associated with that risk is low based on exposure concentrations predicted for freshwater and estuarine habitats and expected effects to the population. Reductions of species' numbers, reproduction, or distribution are not anticipated over the 15-year action.

Prometryn is not likely to jeopardize the continued existence of this species: No Jeopardy

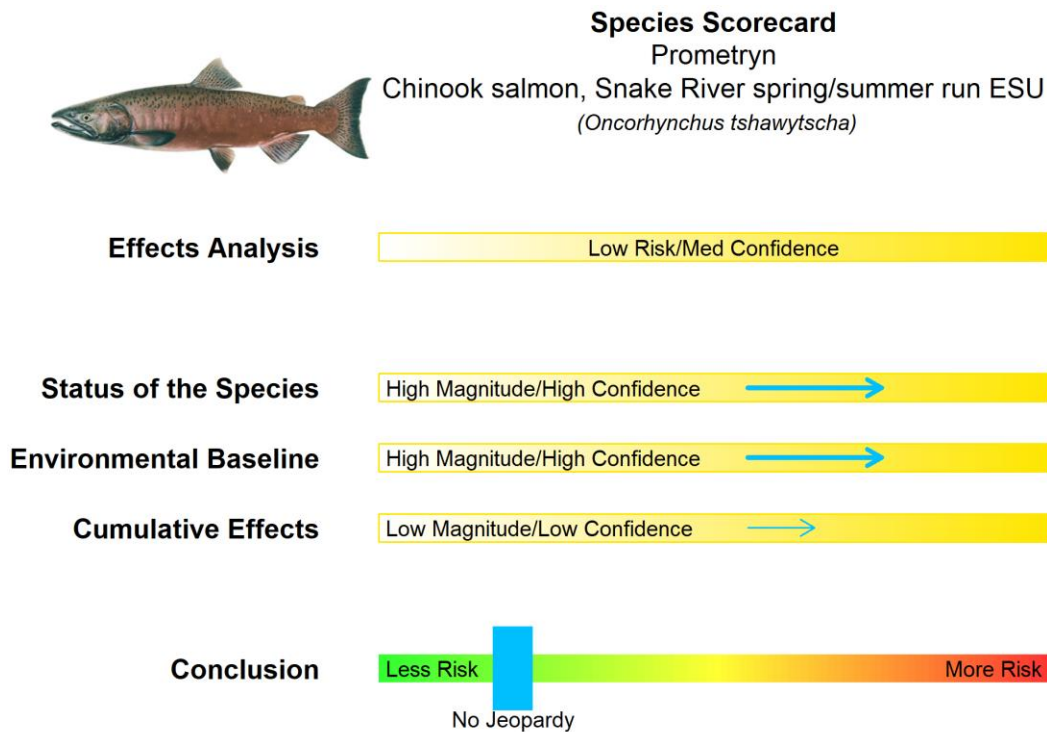


Figure 39. Species Score Card; Chinook salmon, Snake River spring/summer run ESU; Prometryn

Effects Analysis: Low risk/Medium confidence

- Significant reductions in abundance are not anticipated
- Slight shifts in population growth rate occurred for Chinook modeled at 10% mortality levels, but did not exceed the variability (1 standard deviation) of an unexposed population
- Reduced prey abundance, and impaired growth are not expected

Status of the Species: Increased risk of jeopardy; High magnitude/ High confidence

- Decreasing abundance trends, high extinction risk, moderate genetic diversity
- Threatened species
- Recovery criteria not met and reduced likelihood of attaining recovery goals

Environmental Baseline: Increased risk of jeopardy; High magnitude/ High confidence

- Elevated temperatures occur in freshwater habitats
- Environmental mixtures anticipated in freshwater habitats that affect species

Cumulative Effects: Minimal increased risk of jeopardy; Low magnitude/ Low confidence

- Future elevated temperatures anticipated
- Anticipated hydrologic effects in freshwater areas

Conclusion: The species is most vulnerable while in freshwater and nearshore areas where they spend a portion of their lives. We find the overall risk to species is low and the confidence associated with that risk is medium based on exposure concentrations predicted for freshwater and estuarine habitats and expected effects to the population. Reductions of species' numbers, reproduction, or distribution are not anticipated over the 15-year action.

Prometryn is not likely to jeopardize the continued existence of this species: No Jeopardy

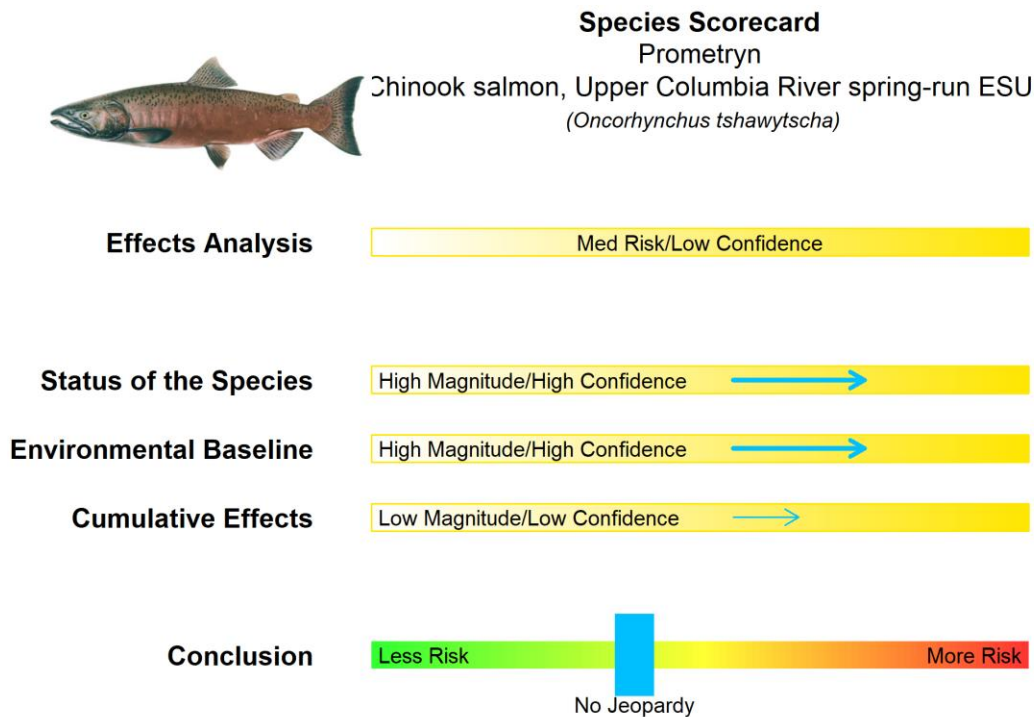


Figure 40. Species Score Card; Chinook salmon, Upper Columbia River spring-run ESU; Prometryn

Effects Analysis: Medium risk/Low confidence

- Maximum environmental concentrations are anticipated to be lethal to some individuals, however significant reductions in abundance are not anticipated
- Slight shifts in population growth rate occurred for Chinook modeled at 10% mortality levels, but did not exceed the variability (1 standard deviation) of an unexposed population
- Reduced prey abundance, and impaired growth are not expected

Status of the Species: Increased risk of jeopardy; High magnitude/ High confidence

- Decreasing abundance trends, independent populations not replacing themselves
- Endangered species (all independent population experiencing low abundance)
- Recovery criteria not met and reduced likelihood of attaining recovery goals

Environmental Baseline: Increased risk of jeopardy; High magnitude/ High confidence

- Elevated temperatures occur in freshwater habitats
- Environmental mixtures anticipated in freshwater habitats that affect species

Cumulative Effects: Minimal increased risk of jeopardy; Low magnitude/ Low confidence

- Future elevated temperatures anticipated
- Anticipated hydrologic effects in freshwater areas

Conclusion: The species is most vulnerable while in freshwater and nearshore areas where they spend a portion of their lives. We find the overall risk to species is medium and the confidence associated with that risk is low based on exposure concentrations predicted for freshwater and estuarine habitats and expected effects to the population. Reductions of species' numbers, reproduction, or distribution are not anticipated over the 15-year action.

Prometryn is not likely to jeopardize the continued existence of this species: No Jeopardy

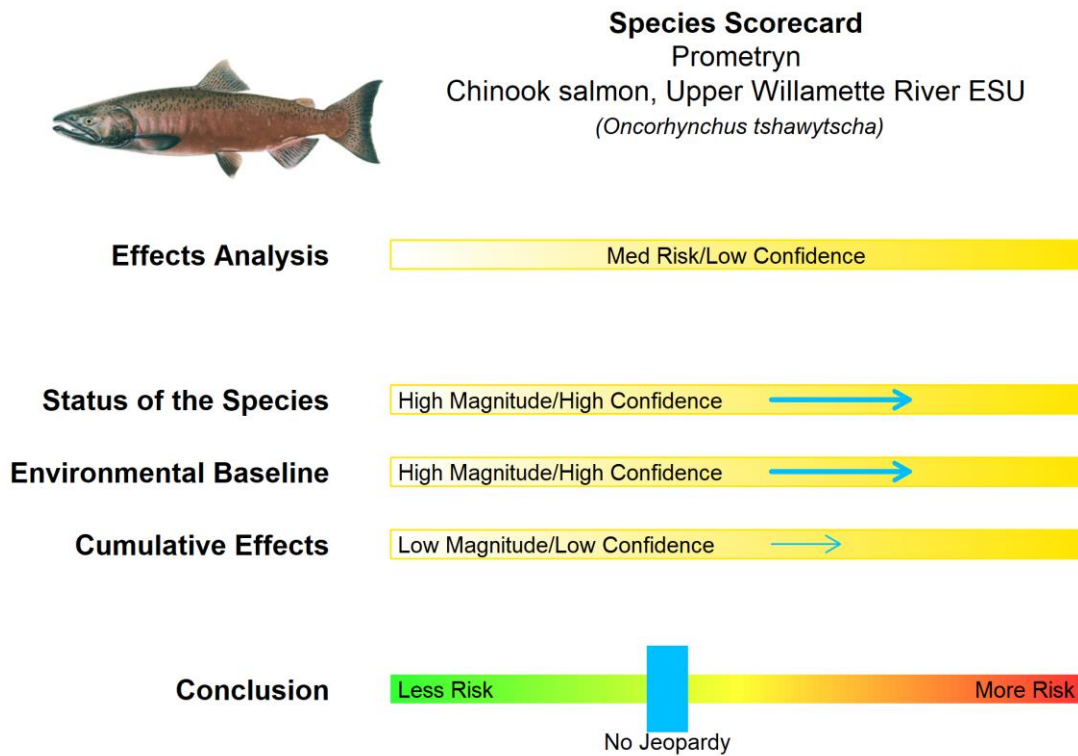


Figure 41. Species Score Card; Chinook salmon, Upper Willamette River ESU; Prometryn

Effects Analysis: Medium risk/Low confidence

- Maximum environmental concentrations are anticipated to be lethal to some individuals, however significant reductions in abundance are not anticipated
- Slight shifts in population growth rate occurred for Chinook modeled at 10% mortality levels, but did not exceed the variability (1 standard deviation) of an unexposed population
- Reduced prey abundance, and impaired growth are not expected

Status of the Species: Increased risk of jeopardy; High magnitude/ High confidence

- Decreasing abundance trends, 1 of 7 remaining naturally reproducing populations
- Threatened species
- Recovery criteria not met and reduced likelihood of attaining recovery goals

Environmental Baseline: Increased risk of jeopardy; High magnitude/ High confidence

- Elevated temperatures occur in freshwater habitats
- Environmental mixtures anticipated in freshwater habitats that affect species

Cumulative Effects: Minimal increased risk of jeopardy; Low magnitude/ Low confidence

- Future elevated temperatures anticipated
- Anticipated hydrologic effects in freshwater areas

Conclusion: The species is most vulnerable while in freshwater and nearshore areas where they spend a portion of their lives. We find the overall risk to species is medium and the confidence associated with that risk is low based on exposure concentrations predicted for freshwater and estuarine habitats and expected effects to the population. Reductions of species' numbers, reproduction, or distribution are not anticipated over the 15-year action.

Prometryn is not likely to jeopardize the continued existence of this species: No Jeopardy

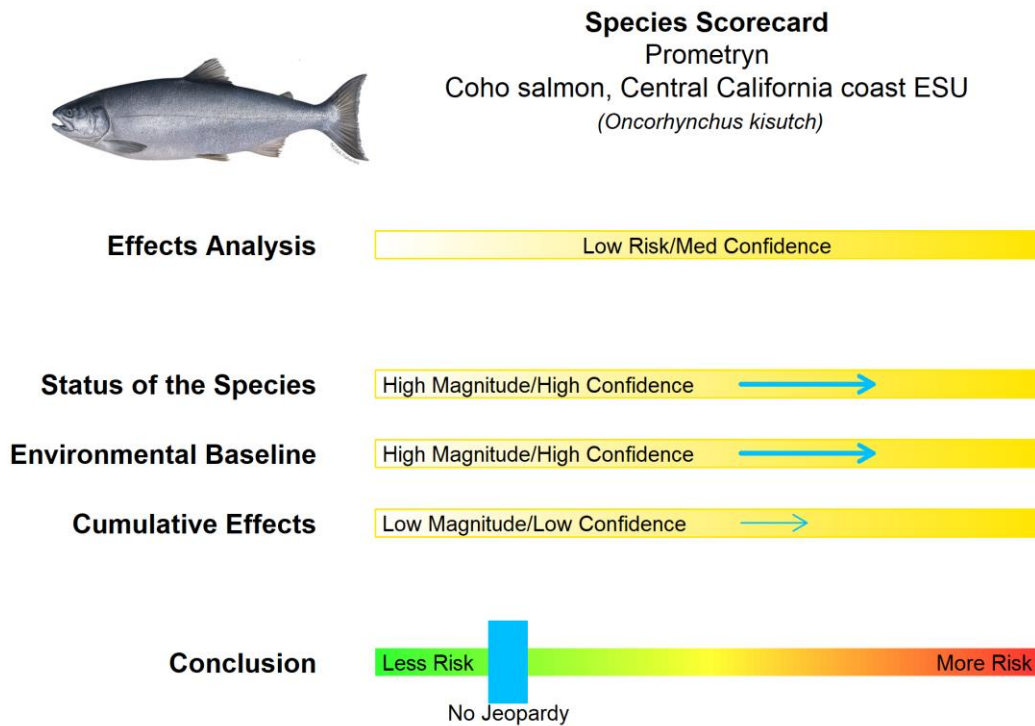


Figure 42. Species Score Card; Coho salmon, Central California coast ESU; Prometryn

Effects Analysis: Low risk/Medium confidence

- Significant reductions in abundance are not anticipated
- Slight shifts in population growth rate occurred for coho modeled at 10% mortality levels, but did not exceed the variability (1 standard deviation) of an unexposed population
- Reduced prey abundance, and impaired growth are not expected

Status of the Species: Increased risk of jeopardy; High magnitude/ High confidence

- Stable population trend, fragmented populations, supported by hatchery propagation
- Endangered species (low abundances)
- Recovery criteria not met and reduced likelihood of attaining recovery goals

Environmental Baseline: Increased risk of jeopardy; High magnitude/ High confidence

- Elevated temperatures occur in freshwater habitats
- Environmental mixtures anticipated in freshwater habitats that affect species

Cumulative Effects: Minimal increased risk of jeopardy; Low magnitude/ Low confidence

- Future elevated temperatures anticipated
- Anticipated hydrologic effects in freshwater areas

Conclusion: The species is most vulnerable while in freshwater and nearshore areas where they spend a portion of their lives. We find the overall risk to species is low and the confidence associated with that risk is medium based on exposure concentrations predicted for freshwater and estuarine habitats and expected effects to the population. Reductions of species' numbers, reproduction, or distribution are not anticipated over the 15-year action.

Prometryn is not likely to jeopardize the continued existence of this species: No Jeopardy

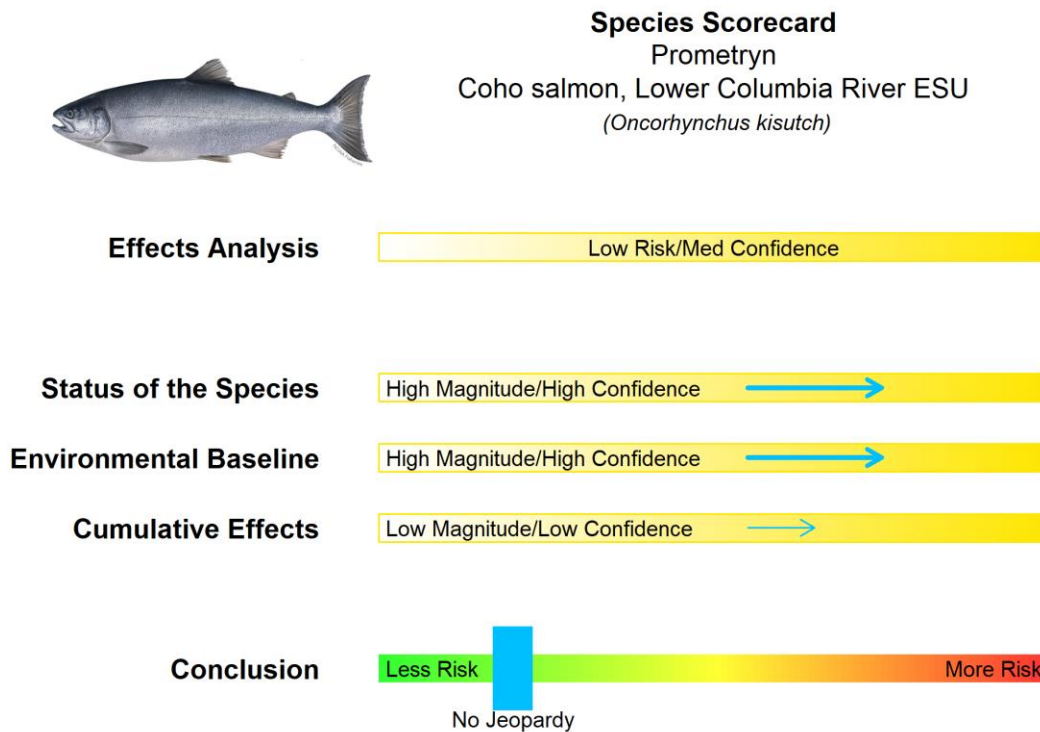


Figure 43. Species Score Card; Coho salmon, Lower Columbia River ESU; Prometryn

Effects Analysis: Low risk/Medium confidence

- Significant reductions in abundance are not anticipated
- Slight shifts in population growth rate occurred for coho modeled at 10% mortality levels, but did not exceed the variability (1 standard deviation) of an unexposed population
- Reduced prey abundance, and impaired growth are not expected

Status of the Species: Increased risk of jeopardy; High magnitude/ High confidence

- Negative long/short term lambda projections. Only 2 of 25 populations exhibit natural production. Diversity in “high risk” category.
- Endangered species (90% reduction in abundance of all independent populations)
- Recovery criteria not met and reduced likelihood of attaining recovery goals

Environmental Baseline: Increased risk of jeopardy; High magnitude/ High confidence

- Elevated temperatures occur in freshwater habitats
- Environmental mixtures anticipated in freshwater habitats that affect species

Cumulative Effects: Minimal increased risk of jeopardy; Low magnitude/ Low confidence

- Future elevated temperatures anticipated
- Anticipated hydrologic effects in freshwater areas

Conclusion: The species is most vulnerable while in freshwater and nearshore areas where they spend a portion of their lives. We find the overall risk to species is low and the confidence associated with that risk is medium based on exposure concentrations predicted for freshwater and estuarine habitats and expected effects to the population. Reductions of species’ numbers, reproduction, or distribution are not anticipated over the 15-year action.

Prometryn is not likely to jeopardize the continued existence of this species: No Jeopardy

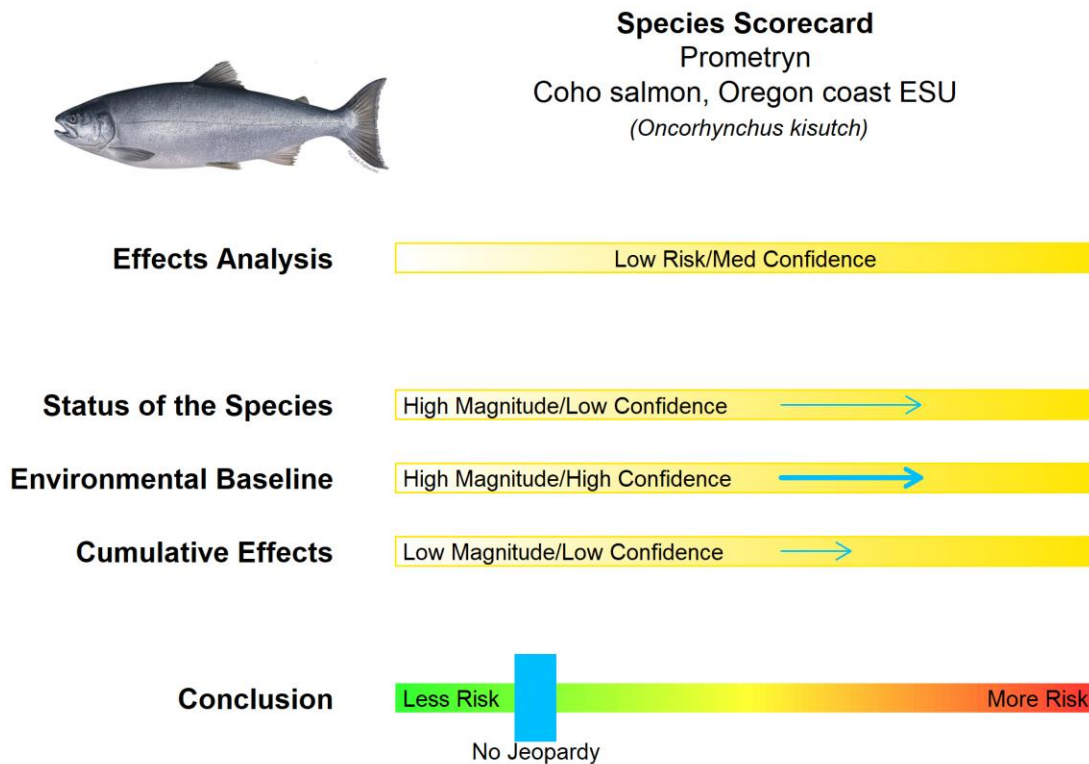


Figure 44. Species Score Card; Coho salmon, Oregon coast ESU; Prometryn

Effects Analysis: Low risk/Medium confidence

- Significant reductions in abundance are not anticipated
- Slight shifts in population growth rate occurred for coho modeled at 10% mortality levels, but did not exceed the variability (1 standard deviation) of an unexposed population
- Reduced prey abundance, and impaired growth are not expected

Status of the Species: Increased risk of jeopardy; High magnitude/ Low confidence

- Variable abundances with periods of severe declines. Negative long term trends negative
- Threatened (Severe reductions in ESU abundance compared to historical estimates)
- Recovery criteria not met and reduced likelihood of attaining recovery goals

Environmental Baseline: Increased risk of jeopardy; High magnitude/ High confidence

- Elevated temperatures occur in freshwater habitats
- Environmental mixtures anticipated in freshwater habitats that affect species

Cumulative Effects: Minimal increased risk of jeopardy; Low magnitude/ Low confidence

- Future elevated temperatures anticipated
- Anticipated hydrologic effects in freshwater areas

Conclusion: The species is most vulnerable while in freshwater and nearshore areas where they spend a portion of their lives. We find the overall risk to species is low and the confidence associated with that risk is medium based on exposure concentrations predicted for freshwater and estuarine habitats and expected effects to the population. Reductions of species' numbers, reproduction, or distribution are not anticipated over the 15-year action.

Prometryn is not likely to jeopardize the continued existence of this species: No Jeopardy

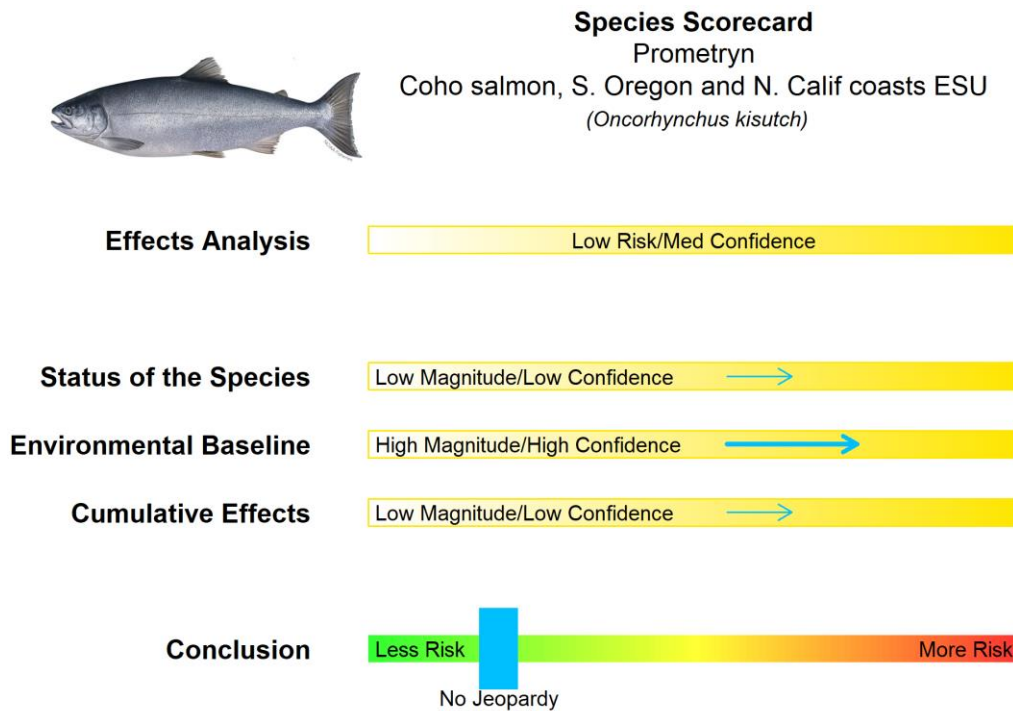


Figure 45. Species Score Card; Coho salmon, S. Oregon and N. Calif coasts ESU; Prometryn

Effects Analysis: Low risk/Medium confidence

- Significant reductions in abundance are not anticipated
- Slight shifts in population growth rate occurred for coho modeled at 10% mortality levels, but did not exceed the variability (1 standard deviation) of an unexposed population
- Reduced prey abundance, and impaired growth are not expected

Status of the Species: Minimal increased risk of jeopardy; Low magnitude/ Low confidence

- Limited data on population abundance, thus trend data unavailable
- Threatened
- Recovery criteria not met and reduced likelihood of attaining recovery goals

Environmental Baseline: Increased risk of jeopardy; High magnitude/ High confidence

- Elevated temperatures occur in freshwater habitats
- Environmental mixtures anticipated in freshwater habitats that affect species

Cumulative Effects: Minimal increased risk of jeopardy; Low magnitude/ Low confidence

- Future elevated temperatures anticipated
- Anticipated hydrologic effects in freshwater areas

Conclusion: The species is most vulnerable while in freshwater and nearshore areas where they spend a portion of their lives. We find the overall risk to species is low and the confidence associated with that risk is medium based on exposure concentrations predicted for freshwater and estuarine habitats and expected effects to the population. Reductions of species' numbers, reproduction, or distribution are not anticipated over the 15-year action.

Prometryn is not likely to jeopardize the continued existence of this species: No Jeopardy

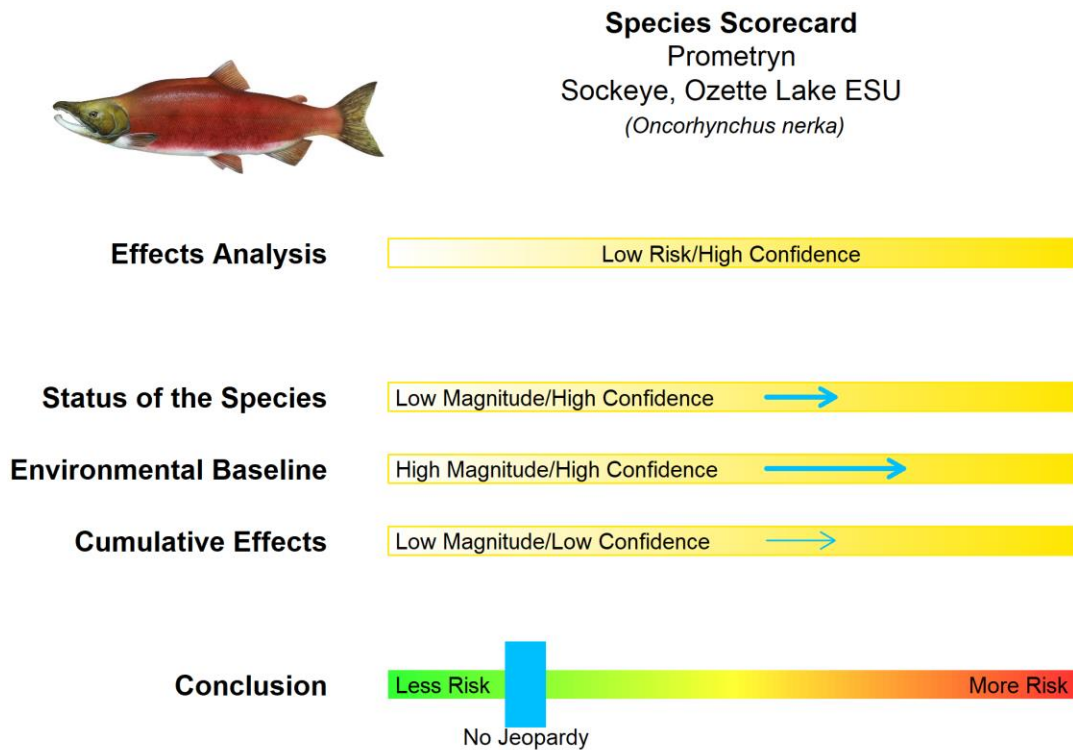


Figure 46. Species Score Card; Sockeye, Ozette Lake ESU; Prometryn

Effects Analysis: Low risk/High confidence

- Reductions in abundance are not anticipated
- Reduced prey abundance, and impaired growth are not expected

Status of the Species: Minimal increased risk of jeopardy; Low magnitude/ High confidence

- Stable productivity rates; low genetic diversity and low resilience to future perturbations
- Threatened (abundance only 1% of historical levels)
- Recovery criteria not met and reduced likelihood of attaining recovery goals

Environmental Baseline: Increased risk of jeopardy; High magnitude/ High confidence

- Elevated temperatures occur in freshwater habitats
- Environmental mixtures anticipated in freshwater habitats that affect species

Cumulative Effects: Minimal increased risk of jeopardy; Low magnitude/ Low confidence

- Future elevated temperatures anticipated
- Anticipated hydrologic effects in freshwater areas

Conclusion: We find the overall risk to species is low and the confidence associated with that risk is high based on the lack of authorized use sites within the species range. Reductions of species' numbers, reproduction, or distribution are not anticipated over the 15-year action.

Prometryn is not likely to jeopardize the continued existence of this species: No Jeopardy

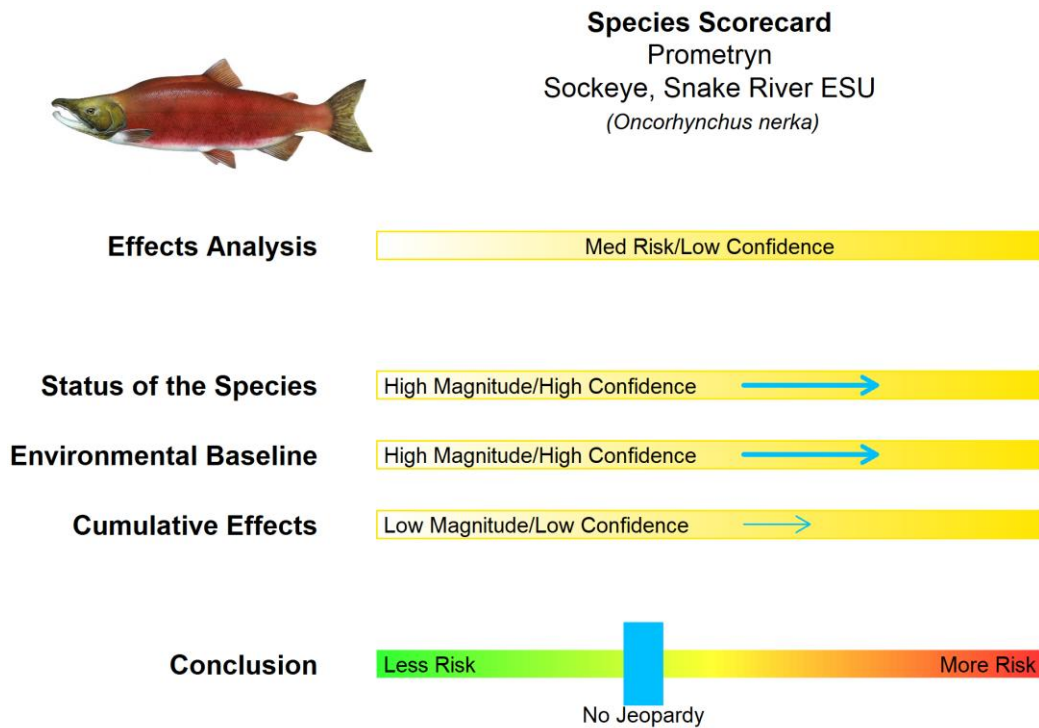


Figure 47. Species Score Card; Sockeye, Snake River ESU; Prometryn

Effects Analysis: Medium risk/Low confidence

- Maximum environmental concentrations are anticipated to be lethal to some individuals, however significant reductions in abundance are not anticipated
- Slight shifts in population growth rate occurred for sockeye modeled at 10% mortality levels, but did not exceed the variability (1 standard deviation) of an unexposed population
- Reduced prey abundance, and impaired growth are not expected

Status of the Species: Increased risk of jeopardy; High magnitude/ High confidence

- One population remaining supported by hatchery propagation. Increasing abundance, well below sustainable natural production. Low resilience to perturbations.
- Endangered (abundance only 1% of historical levels)
- Recovery criteria not met and reduced likelihood of attaining recovery goals

Environmental Baseline: Increased risk of jeopardy; High magnitude/ High confidence

- Elevated temperatures occur in freshwater habitats
- Environmental mixtures anticipated in freshwater habitats that affect species

Cumulative Effects: Minimal increased risk of jeopardy; Low magnitude/ Low confidence

- Future elevated temperatures anticipated
- Anticipated hydrologic effects in freshwater areas

Conclusion: The species is most vulnerable while in freshwater and nearshore areas where they spend a portion of their lives. We find the overall risk to species is medium and the confidence associated with that risk is low based on exposure concentrations predicted for freshwater and estuarine habitats and expected effects to the population. Reductions of species' numbers, reproduction, or distribution are not anticipated over the 15-year action.

Prometryn is not likely to jeopardize the continued existence of this species: No Jeopardy

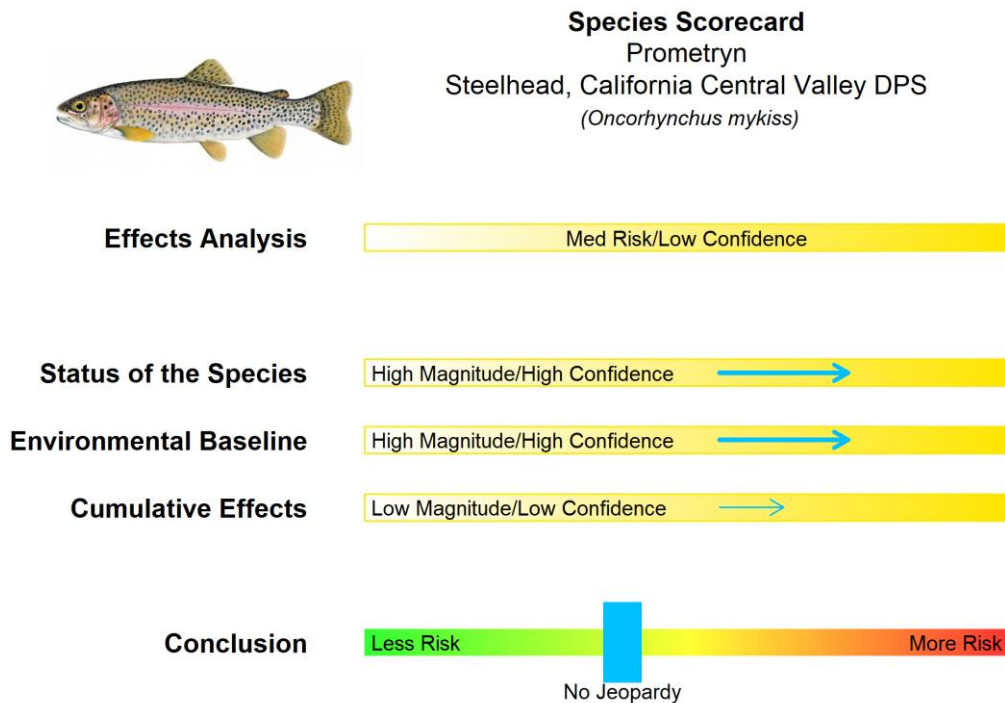


Figure 48. Species Score Card; Steelhead, California Central Valley Distinct Population Segment (DPS); Prometryn

Effects Analysis: Medium risk/Low confidence

- Maximum environmental concentrations are anticipated to be lethal to some individuals, however significant reductions in abundance are not anticipated
- Reduced prey abundance, and impaired growth are not expected

Status of the Species: Increased risk of jeopardy; High magnitude/ High confidence

- Long-term trend of declining abundances and reduced genetic diversity. Populations supplemented by hatchery propagation.
- Threatened
- Recovery criteria not met and reduced likelihood of attaining recovery goals

Environmental Baseline: Increased risk of jeopardy; High magnitude/ High confidence

- Elevated temperatures occur in freshwater habitats
- Environmental mixtures anticipated in freshwater habitats that affect species

Cumulative Effects: Minimal increased risk of jeopardy; Low magnitude/ Low confidence

- Future elevated temperatures anticipated
- Anticipated hydrologic effects in freshwater areas

Conclusion: The species is most vulnerable while in freshwater and nearshore areas where they spend a portion of their lives. We find the overall risk to species is medium and the confidence associated with that risk is low based on exposure concentrations predicted for freshwater and estuarine habitats and expected effects to the population. Reductions of species' numbers, reproduction, or distribution are not anticipated over the 15-year action.

Prometryn is not likely to jeopardize the continued existence of this species: No Jeopardy

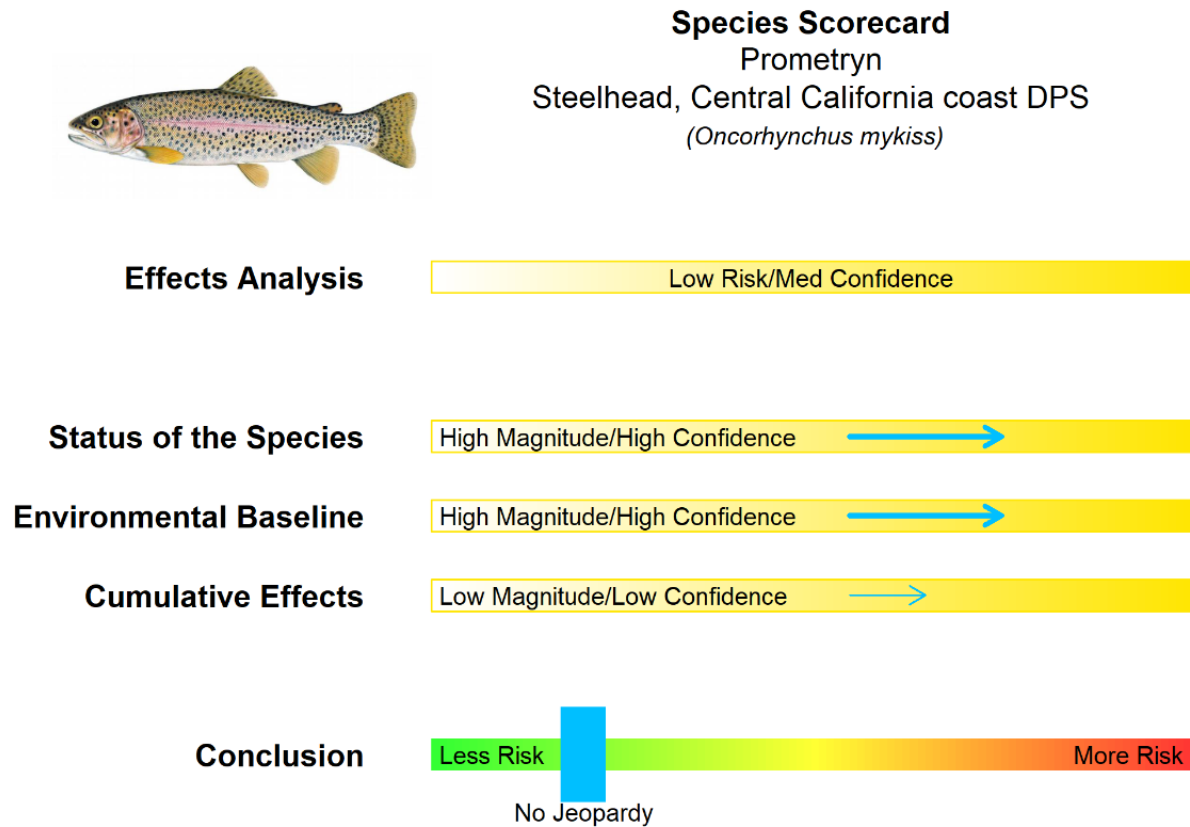


Figure 49. Species Score Card; Steelhead, Central California coast DPS; Prometryn

Effects Analysis: Low risk/Medium confidence

- Significant reductions in abundance are not anticipated
- Reduced prey abundance, and impaired growth are not expected

Status of the Species: Increased risk of jeopardy; High magnitude/ High confidence

- 5-year population trend uncertain. Population abundance supplemented by hatchery propagation. Populations likely not viable, and have lost spatial structure.
- Threatened
- Recovery criteria not met and reduced likelihood of attaining recovery goals

Environmental Baseline: Increased risk of jeopardy; High magnitude/ High confidence

- Elevated temperatures occur in freshwater habitats
- Environmental mixtures anticipated in freshwater habitats that affect species

Cumulative Effects: Minimal increased risk of jeopardy; Low magnitude/ Low confidence

- Future elevated temperatures anticipated
- Anticipated hydrologic effects in freshwater areas

Conclusion: The species is most vulnerable while in freshwater and nearshore areas where they spend a portion of their lives. We find the overall risk to species is low and the confidence associated with that risk is medium based on exposure concentrations predicted for freshwater and estuarine habitats and expected effects to the population. Reductions of species' numbers, reproduction, or distribution are not anticipated over the 15-year action.

Prometryn is not likely to jeopardize the continued existence of this species: No Jeopardy

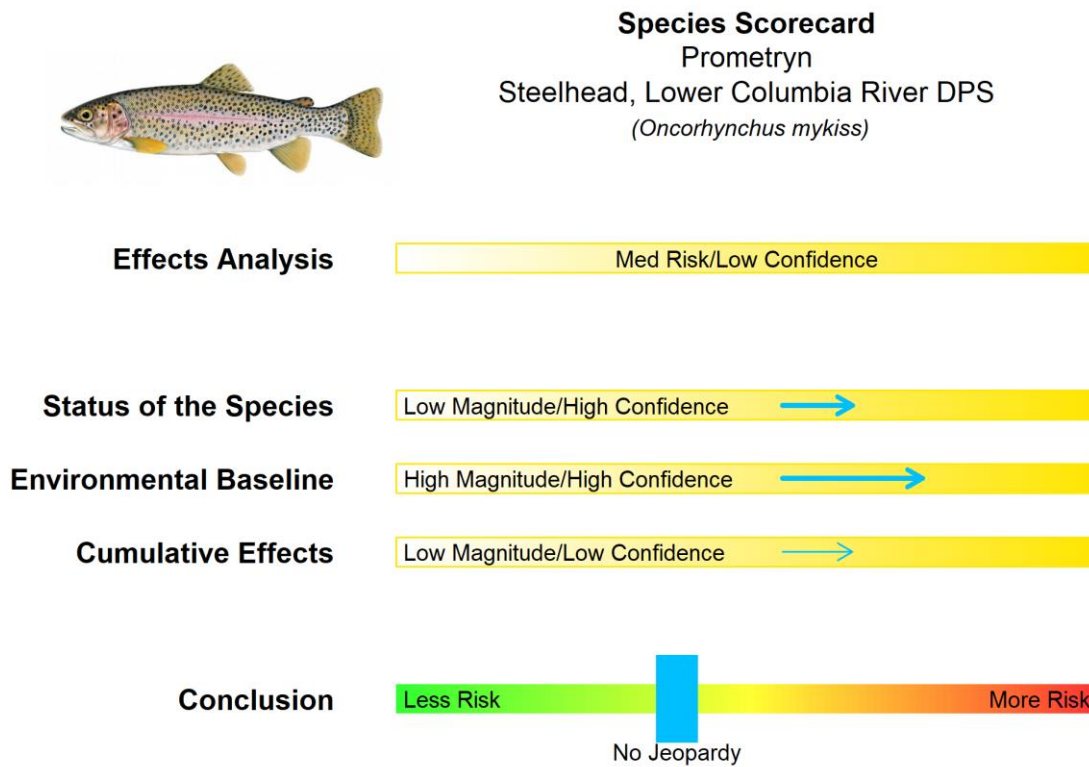


Figure 50. Species Score Card; Steelhead, Lower Columbia River DPS; Prometryn

Effects Analysis: Medium risk/Low confidence

- Maximum environmental concentrations are anticipated to be lethal to some individuals, however significant reductions in abundance are not anticipated
- Reduced prey abundance, and impaired growth are not expected

Status of the Species: Minimal increased risk of jeopardy; Low magnitude/ High confidence

- 5-year population trend stable. Populations exhibit low genetic diversity and impacted by a loss of available habitat.
- Threatened
- Recovery criteria not met and reduced likelihood of attaining recovery goals

Environmental Baseline: Increased risk of jeopardy; High magnitude/ High confidence

- Elevated temperatures occur in freshwater habitats
- Environmental mixtures anticipated in freshwater habitats that affect species

Cumulative Effects: Minimal increased risk of jeopardy; Low magnitude/ Low confidence

- Future elevated temperatures anticipated
- Anticipated hydrologic effects in freshwater areas

Conclusion: The species is most vulnerable while in freshwater and nearshore areas where they spend a portion of their lives. We find the overall risk to species is medium and the confidence associated with that risk is low based on exposure concentrations predicted for freshwater and estuarine habitats and expected effects to the population. Reductions of species' numbers, reproduction, or distribution are not anticipated over the 15-year action.

Prometryn is not likely to jeopardize the continued existence of this species: No Jeopardy

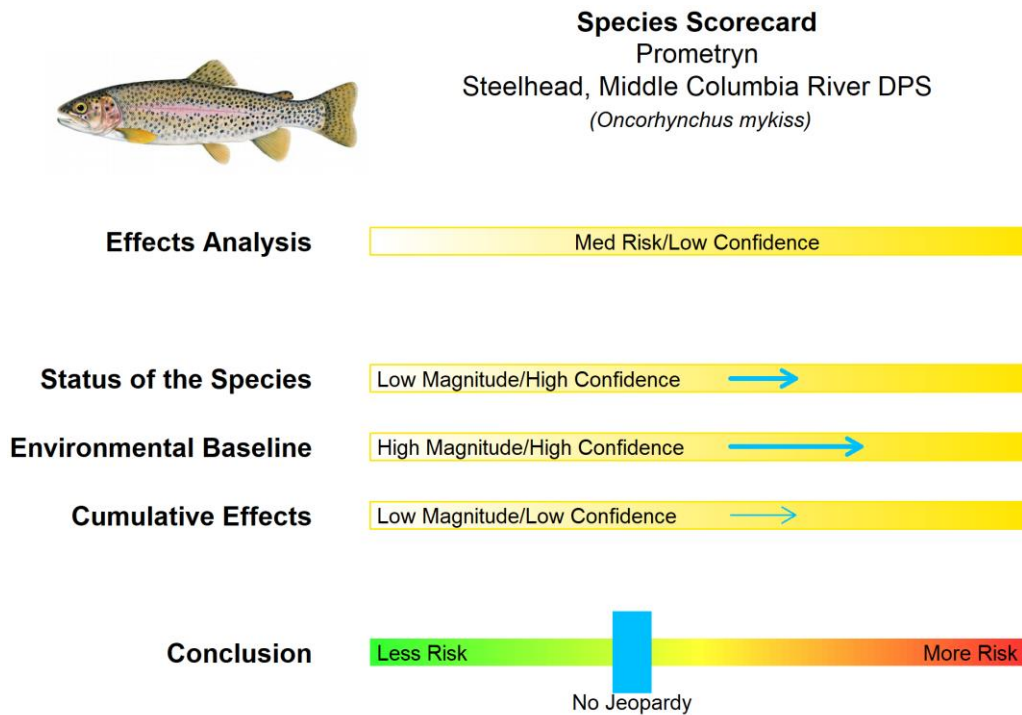


Figure 51. Species Score Card; Steelhead, Middle Columbia River DPS; Prometryn

Effects Analysis: Medium risk/Low confidence

- Maximum environmental concentrations are anticipated to be lethal to some individuals, however significant reductions in abundance are not anticipated
- Reduced prey abundance, and impaired growth are not expected

Status of the Species: Minimal increased risk of jeopardy; Low magnitude/ High confidence

- 5-year population trend stable to improving; abundances remain low compared to historical numbers
- Threatened
- Recovery criteria not met and reduced likelihood of attaining recovery goals

Environmental Baseline: Increased risk of jeopardy; High magnitude/ High confidence

- Elevated temperatures occur in freshwater habitats
- Environmental mixtures anticipated in freshwater habitats that affect species

Cumulative Effects: Minimal increased risk of jeopardy; Low magnitude/ Low confidence

- Future elevated temperatures anticipated
- Anticipated hydrologic effects in freshwater areas

Conclusion: The species is most vulnerable while in freshwater and nearshore areas where they spend a portion of their lives. We find the overall risk to species is medium and the confidence associated with that risk is low based on exposure concentrations predicted for freshwater and estuarine habitats and expected effects to the population. Reductions of species' numbers, reproduction, or distribution are not anticipated over the 15-year action.

Prometryn is not likely to jeopardize the continued existence of this species: No Jeopardy

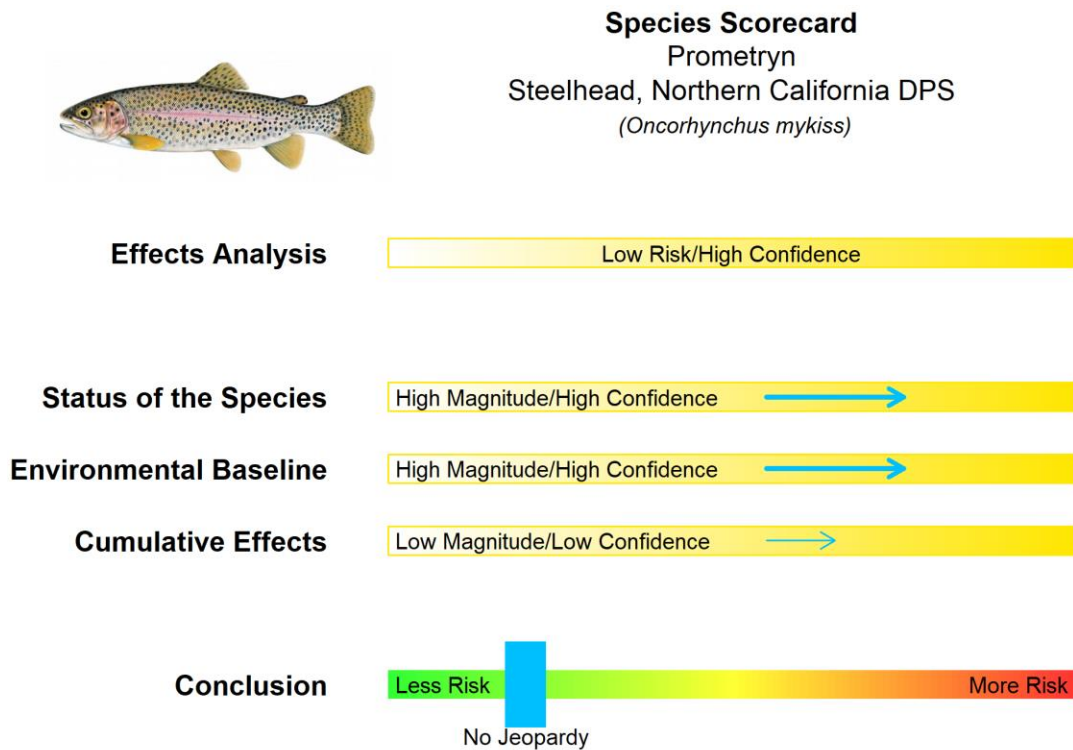


Figure 52. Species Score Card; Steelhead, Northern California DPS; Prometryn

Effects Analysis: Low risk/High confidence

- Reductions in abundance are not anticipated
- Reduced prey abundance, and impaired growth are not expected

Status of the Species: Increased risk of jeopardy; High magnitude/ High confidence

- Variable 5-year population abundance trends; Population supplemented by hatchery propagation. Populations exhibit low abundances and productivity.
- Threatened
- Recovery criteria not met and reduced likelihood of attaining recovery goals

Environmental Baseline: Increased risk of jeopardy; High magnitude/ High confidence

- Elevated temperatures occur in freshwater habitats
- Environmental mixtures anticipated in freshwater habitats that affect species

Cumulative Effects: Minimal increased risk of jeopardy; Low magnitude/ Low confidence

- Future elevated temperatures anticipated
- Anticipated hydrologic effects in freshwater areas

Conclusion: We find the overall risk to species is low and the confidence associated with that risk is high based on the lack of authorized use sites within the species range. Reductions of species' numbers, reproduction, or distribution are not anticipated over the 15-year action.

Prometryn is not likely to jeopardize the continued existence of this species: No Jeopardy

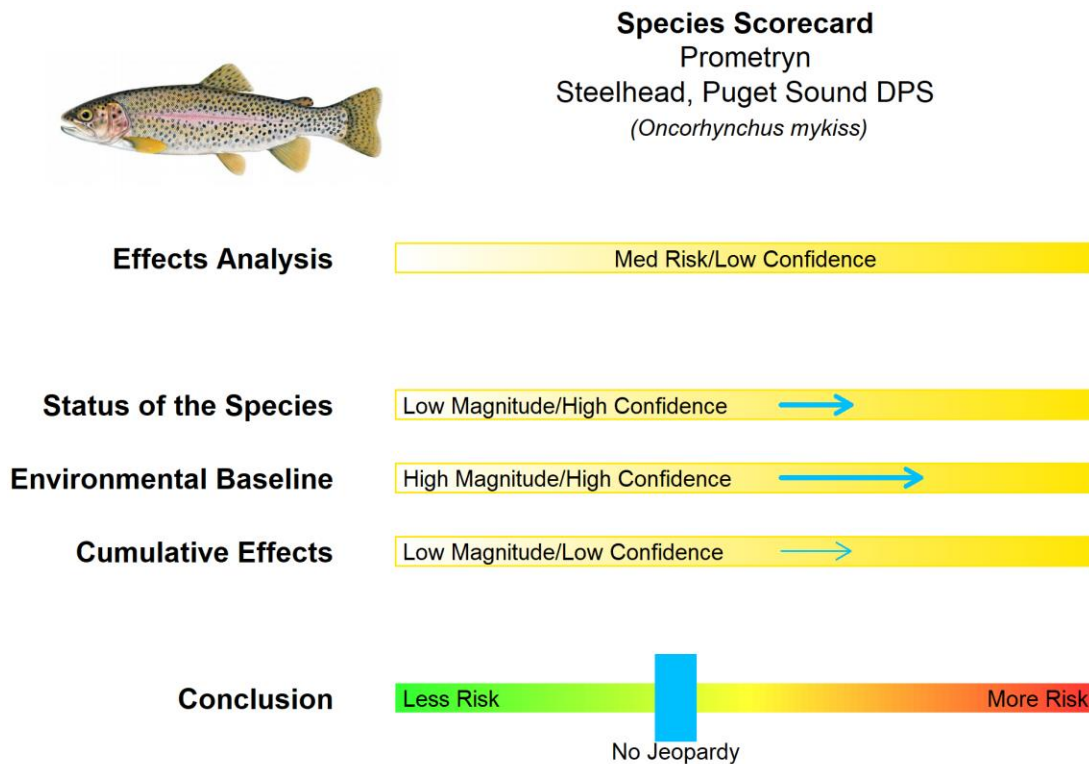


Figure 53. Species Score Card; Steelhead, Puget Sound DPS; Prometryn

Effects Analysis: Medium risk/Low confidence

- Maximum environmental concentrations are anticipated to be lethal to some individuals, however significant reductions in abundance are not anticipated
- Reduced prey abundance, and impaired growth are not expected

Status of the Species: Minimal increased risk of jeopardy; Low magnitude/ High confidence

- 5-year population trend stable, but populations have reduced genetic diversity
- Threatened
- Recovery criteria not met and reduced likelihood of attaining recovery goals

Environmental Baseline: Increased risk of jeopardy; High magnitude/ High confidence

- Elevated temperatures occur in freshwater habitats
- Environmental mixtures anticipated in freshwater habitats that affect species

Cumulative Effects: Minimal increased risk of jeopardy; Low magnitude/ Low confidence

- Future elevated temperatures anticipated
- Anticipated hydrologic effects in freshwater areas

Conclusion: The species is most vulnerable while in freshwater and nearshore areas where they spend a portion of their lives. We find the overall risk to species is medium and the confidence associated with that risk is low based on exposure concentrations predicted for freshwater and estuarine habitats and expected effects to the population. Reductions of species' numbers, reproduction, or distribution are not anticipated over the 15-year action.

Prometryn is not likely to jeopardize the continued existence of this species: No Jeopardy

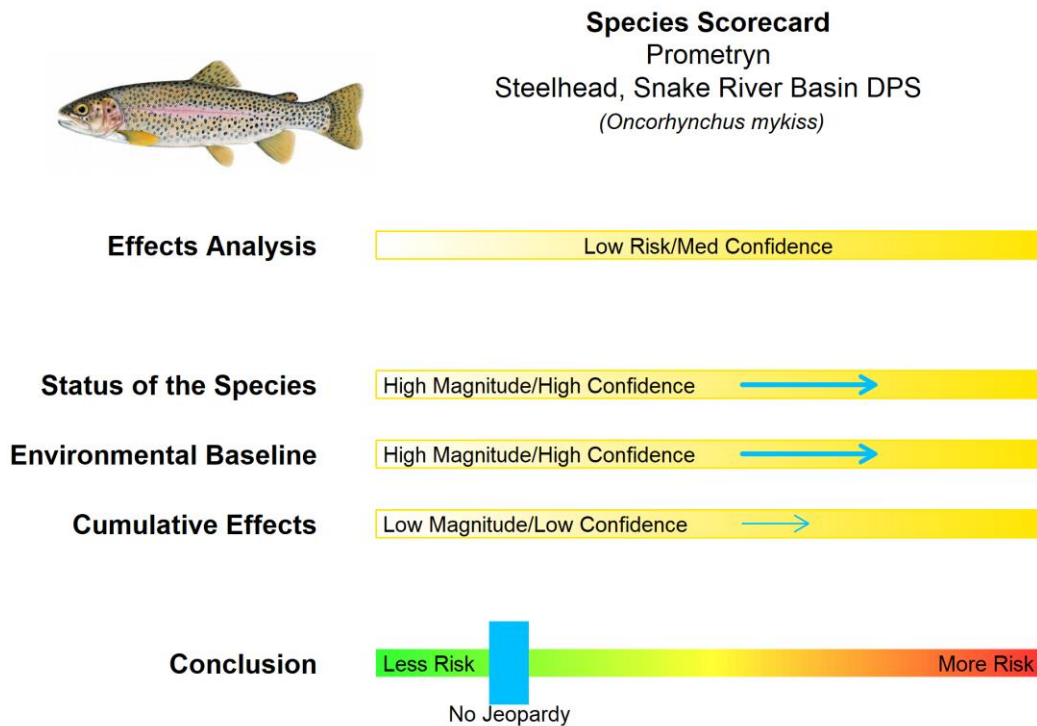


Figure 54. Species Score Card; Steelhead, Snake River Basin DPS; Prometryn

Effects Analysis: Low risk/Medium confidence

- Significant reductions in abundance are not anticipated
- Reduced prey abundance, and impaired growth are not expected

Status of the Species: Increased risk of jeopardy; High magnitude/ High confidence

- 5-year population trend stable to improving, but still in moderate danger of extinction. Overall abundances remain below thresholds necessary for recovery.
- Threatened
- Recovery criteria not met and reduced likelihood of attaining recovery goals

Environmental Baseline: Increased risk of jeopardy; High magnitude/ High confidence

- Elevated temperatures occur in freshwater habitats
- Environmental mixtures anticipated in freshwater habitats that affect species

Cumulative Effects: Minimal increased risk of jeopardy; Low magnitude/ Low confidence

- Future elevated temperatures anticipated
- Anticipated hydrologic effects in freshwater areas

Conclusion: The species is most vulnerable while in freshwater and nearshore areas where they spend a portion of their lives. We find the overall risk to species is low and the confidence associated with that risk is medium based on exposure concentrations predicted for freshwater and estuarine habitats and expected effects to the population. Reductions of species' numbers, reproduction, or distribution are not anticipated over the 15-year action.

Prometryn is not likely to jeopardize the continued existence of this species: No Jeopardy

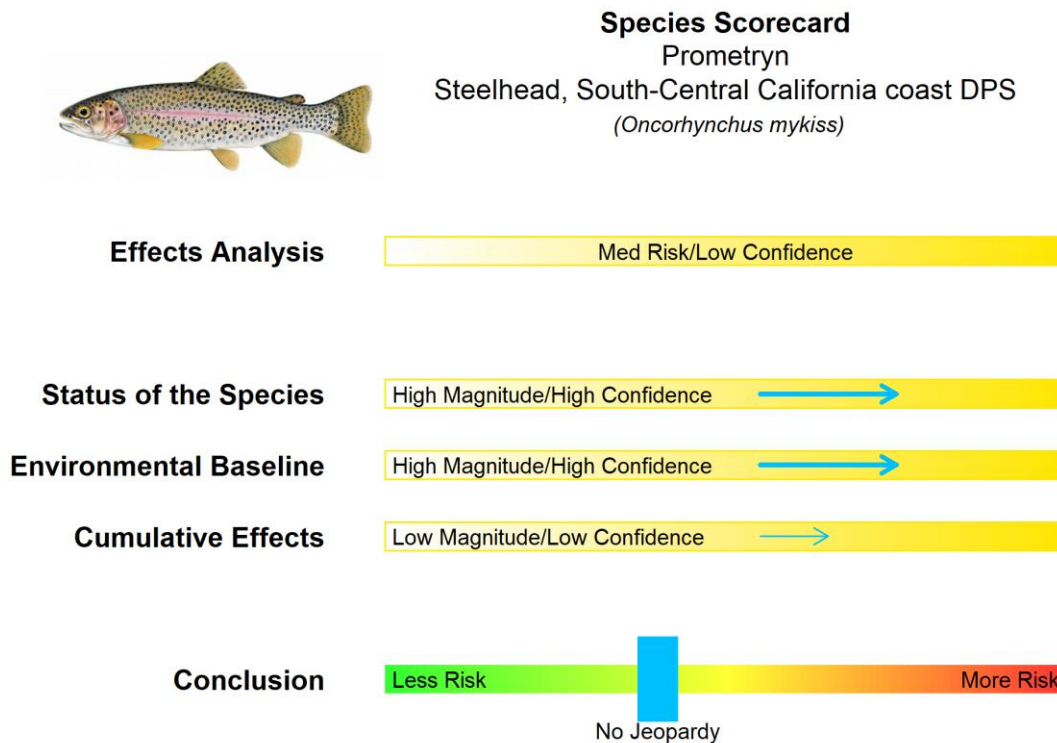


Figure 55. Species Score Card; Steelhead, South-Central California coast DPS; Prometryn

Effects Analysis: Medium risk/Low confidence

- Maximum environmental concentrations are anticipated to be lethal to some individuals, however significant reductions in abundance are not anticipated
- Reduced prey abundance, and impaired growth are not expected

Status of the Species: Increased risk of jeopardy; High magnitude/ High confidence

- 5-year population trend declining, depressed abundances.
- Threatened
- Recovery criteria not met and reduced likelihood of attaining recovery goals

Environmental Baseline: Increased risk of jeopardy; High magnitude/ High confidence

- Elevated temperatures occur in freshwater habitats
- Environmental mixtures anticipated in freshwater habitats that affect species

Cumulative Effects: Minimal increased risk of jeopardy; Low magnitude/ Low confidence

- Future elevated temperatures anticipated
- Anticipated hydrologic effects in freshwater areas

Conclusion: The species is most vulnerable while in freshwater and nearshore areas where they spend a portion of their lives. We find the overall risk to species is medium and the confidence associated with that risk is low based on exposure concentrations predicted for freshwater and estuarine habitats and expected effects to the population. Reductions of species' numbers, reproduction, or distribution are not anticipated over the 15-year action.

Prometryn is not likely to jeopardize the continued existence of this species: No Jeopardy

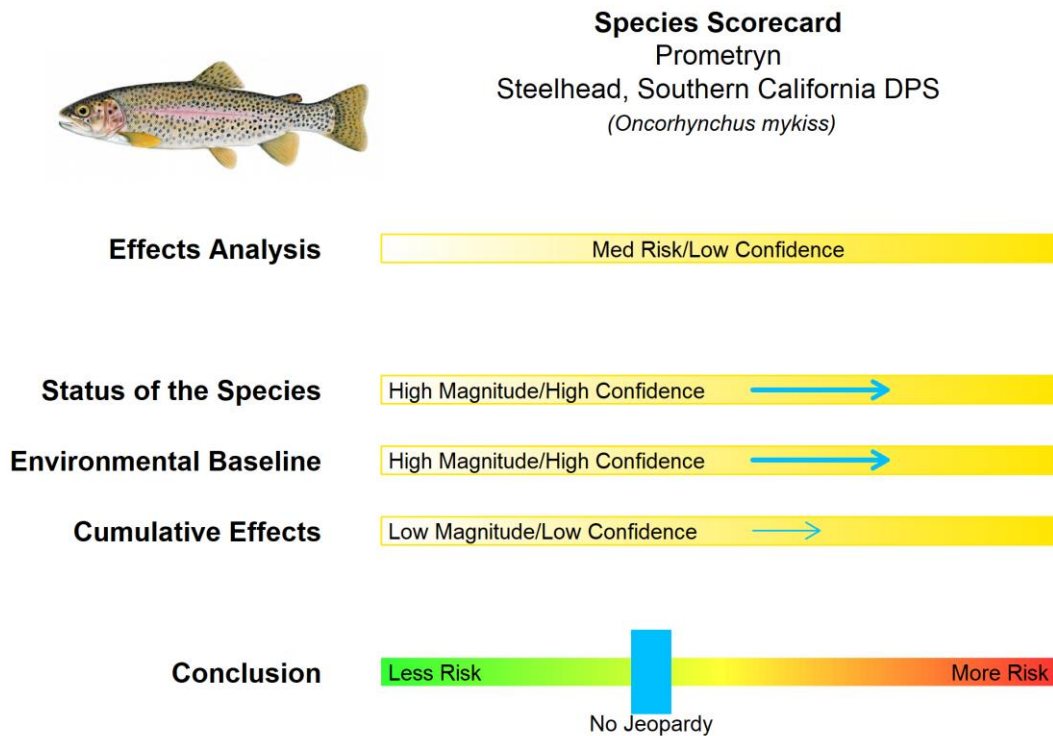


Figure 56. Species Score Card; Steelhead, Southern California DPS; Prometryn

Effects Analysis: Medium risk/Low confidence

- Maximum environmental concentrations are anticipated to be lethal to some individuals, however significant reductions in abundance are not anticipated
- Reduced prey abundance, and impaired growth are not expected

Status of the Species: Increased risk of jeopardy; High magnitude/ High confidence

- 5-year population trend uncertain (large annual variations); supplemented by hatchery propagation; fragmented distributions.
- Endangered; Populations at extreme southern end of species' range
- Recovery criteria not met and reduced likelihood of attaining recovery goals

Environmental Baseline: Increased risk of jeopardy; High magnitude/ High confidence

- Elevated temperatures occur in freshwater habitats
- Environmental mixtures anticipated in freshwater habitats that affect species

Cumulative Effects: Minimal increased risk of jeopardy; Low magnitude/ Low confidence

- Future elevated temperatures anticipated
- Anticipated hydrologic effects in freshwater areas

Conclusion: The species is most vulnerable while in freshwater and nearshore areas where they spend a portion of their lives. We find the overall risk to species is medium and the confidence associated with that risk is low based on exposure concentrations predicted for freshwater and estuarine habitats and expected effects to the population. Reductions of species' numbers, reproduction, or distribution are not anticipated over the 15-year action.

Prometryn is not likely to jeopardize the continued existence of this species: No Jeopardy

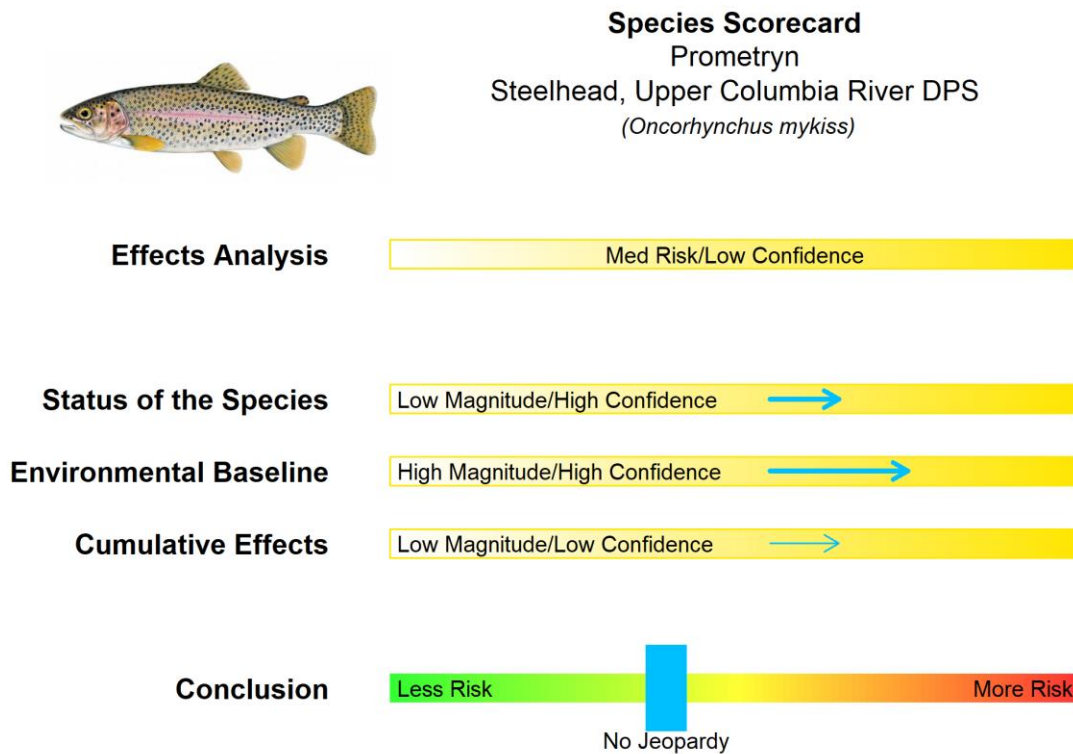


Figure 57. Species Score Card; Steelhead, Upper Columbia River DPS; Prometryn

Effects Analysis: Medium risk/Low confidence

- Maximum environmental concentrations are anticipated to be lethal to some individuals, however significant reductions in abundance are not anticipated
- Reduced prey abundance, and impaired growth are not expected

Status of the Species: Increased risk of jeopardy; Low magnitude/ High confidence

- 5-year population trend improving, but low genetic diversity.
- Threatened
- Recovery criteria not met and reduced likelihood of attaining recovery goals

Environmental Baseline: Increased risk of jeopardy; High magnitude/ High confidence

- Elevated temperatures occur in freshwater habitats
- Environmental mixtures anticipated in freshwater habitats that affect species

Cumulative Effects: Minimal increased risk of jeopardy; Low magnitude/ Low confidence

- Future elevated temperatures anticipated
- Anticipated hydrologic effects in freshwater areas

Conclusion: The species is most vulnerable while in freshwater and nearshore areas where they spend a portion of their lives. We find the overall risk to species is medium and the confidence associated with that risk is low based on exposure concentrations predicted for freshwater and estuarine habitats and expected effects to the population. Reductions of species' numbers, reproduction, or distribution are not anticipated over the 15-year action.

Prometryn is not likely to jeopardize the continued existence of this species: No Jeopardy

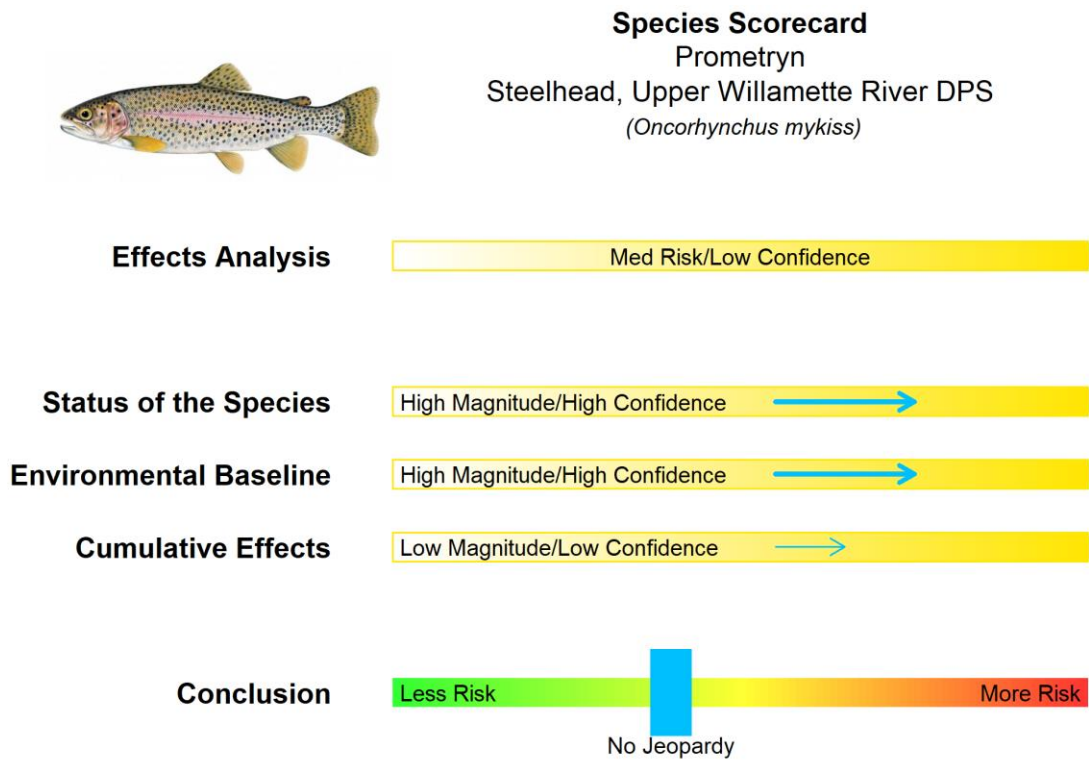


Figure 58. Species Score Card; Steelhead, Upper Willamette River DPS; Prometryn

Effects Analysis: Medium risk/Low confidence

- Maximum environmental concentrations are anticipated to be lethal to some individuals, however significant reductions in abundance are not anticipated
- Reduced prey abundance, and impaired growth are not expected

Status of the Species: Increased risk of jeopardy; High magnitude/ High confidence

- 5-year population trend declining, large fluctuations in abundances.
- Threatened;
- Recovery criteria not met and reduced likelihood of attaining recovery goals

Environmental Baseline: Increased risk of jeopardy; High magnitude/ High confidence

- Elevated temperatures occur in freshwater habitats
- Environmental mixtures anticipated in freshwater habitats that affect species

Cumulative Effects: Minimal increased risk of jeopardy; Low magnitude/ Low confidence

- Future elevated temperatures anticipated
- Anticipated hydrologic effects in freshwater areas

Conclusion: The species is most vulnerable while in freshwater and nearshore areas where they spend a portion of their lives. We find the overall risk to species is medium and the confidence associated with that risk is low based on exposure concentrations predicted for freshwater and estuarine habitats and expected effects to the population. Reductions of species' numbers, reproduction, or distribution are not anticipated over the 15-year action.

Prometryn is not likely to jeopardize the continued existence of this species: No Jeopardy

Table 1. Summary of species determinations for Bromoxynil and Prometryn

Salmon Type	ESU/DPS	Bromoxynil		Prometryn	
		Jeopardy	No Jeopardy	Jeopardy	No Jeopardy
Chum	Columbia River		X		X
Chum	Hood Canal summer-run		X		X
Chinook	California Coastal		X		X
Chinook	CA Central Valley spring-run		X		X
Chinook	Lower Columbia River		X		X
Chinook	Puget Sound		X		X
Chinook	Sacramento River winter-run		X		X
Chinook	Snake River fall-run		X		X
Chinook	Snake River spring/summer-run		X		X
Chinook	Upper Columbia River spring-run		X		X
Chinook	Upper Willamette River		X		X
Coho	Central California Coast		X		X
Coho	Lower Columbia River		X		X
Coho	Oregon Coast		X		X
Coho	S. Oregon N. California Coast		X		X
Sockeye	Ozette Lake		X		X
Sockeye	Snake River		X		X
Steelhead	CA Central Valley		X		X
Steelhead	Central California Coast		X		X
Steelhead	Lower Columbia River		X		X
Steelhead	Middle Columbia River		X		X
Steelhead	Northern California		X		X
Steelhead	Puget Sound		X		X
Steelhead	Snake River Basin		X		X
Steelhead	South-Central California Coast		X		X
Steelhead	Southern California		X		X
Steelhead	Upper Columbia River		X		X
Steelhead	Upper Willamette River		X		X