

# Risk Assessment and Relocation Guidelines

DRAFT

California Department of Fish and Wildlife

## Overview

The California Department of Fish and Wildlife has prepared the following DRAFT guidelines and threat evaluations to aid in assessing at risk trout populations. These guidelines serve as a tool in making decisions in the face of degrading aquatic habitats. Although these guidelines can be applied at the statewide level, special consideration should be given to localized conditions and species. These are guidelines, not rules or policy. They have proved to be helpful in assessing trout population risks and options.

## Tables

Level 1 (Assessing at risk populations)

| Action   | Trigger  | Response  | Peripherals  |
|--|--|---|--|
| If a water is considered 'at risk' based on current climatic projections and is occupied by state or federally listed species, native species, or species of special concern, conduct onsite evaluations to assess existing instream habitat condition and flows at various locations, across seasons, and water operations/diversions | Surveys find flow conditions that will likely allow fish to persist across seasons and not lead to adverse effects and/or loss of the population                                       | Continue monitoring at intermittent intervals, based on season and localized flow/discharge   | Special considerations should be made to assess impacts to fish distribution/persistence in relation to barriers (natural/manmade) and over winter/summer survival |
|  | Surveys find low or intermittent flow, potential stranding, and/or disconnection of wetted habitats that will likely lead to adverse effects to, and potential loss of, the population | Evaluate potential areas for translocation, land access, assess disease threats, estimate logistical needs/procedures, and evaluate contribution/value of the extant population to the persistence of the species or strain | Significant effort should be placed into estimating timelines associated with desiccation and urgency of threat  |
| Evaluate potential areas for translocation, assess disease threats, estimate logistical needs/procedures, and evaluate contribution/value of the extant population to the persistence of the species or strain   | Population has been identified as essential to maintain species, strain, or "meta" population recovery and conservation  | Initiate Level 2 translocation evaluation   | Consideration of individual population's role in a disconnected "meta" population should be considered.  |
|  | Population has been identified as not essential to species or meta population recovery and conservation  | Continue monitoring at intermittent intervals, based on season and localized flow/discharge (Level 1 monitoring)  |  |

## Level 2 (Translocation evaluation)

| Action  | Trigger   | Response   | Peripherals  |
|---|---|--|--|
| Initiate surveys for available translocation habitat within the same watershed that will likely persist across seasons (including evaluation of manmade and natural barriers)                     | Habitat is found within the same stream that will support translocation of fish and will likely persist based on current or projected conditions  | Initiate movement of fish and collect associated data (numbers, size, tissue, geo referencing info, etc.) and continue to monitor  | Analysis of the receiving water bodies should include inventory of existing fish and aquatic communities and potential threats from genetic introgression, predation, or intra/interspecific comp (is the receiving pop at carrying capacity?)   |
|   | No habitat is found within the same stream that would provide long-term persistence or existing fish populations are at carrying capacity   | Evaluate other lotic/lentic waters within the same watershed, consult pathologists to assess risks, assess logistics, contact landowners as needed                         | Analysis of the receiving water bodies should include inventory of existing fish and aquatic communities and potential threats from genetic introgression, predation, intra/interspecific comp (is the receiving pop at carrying capacity?), or disease transfer from a translocation effort |
| Initiate surveys for available translocation habitat within the same watershed that will likely persist across seasons (including evaluation of manmade and natural barriers)                     | Habitat is found within the same watershed that will support translocation of fish and will likely persist based on current or projected conditions and poses limited potential for genetic or biological threat  | Confirm with pathologist, secure trespass permission with landowners, and begin translocation process in compliance with the CDFW rescue policy and operational guidelines | Analysis of the receiving water bodies should include inventory of existing fish and aquatic communities and potential threats from genetic introgression, predation, intra/interspecific comp (is the receiving pop at carrying capacity?), or disease transfer from a translocation effort |
|   | No habitat is found within the same watershed that would provide long-term persistence and/or existing fish populations within receiving water(s) are at carrying capacity  | Survey potential translocation habitats within documented historic range that will likely persist across seasons   |  |
| Survey potential translocation habitats within the documented historic range of the species/strain that will likely persist across seasons (including evaluation of manmade and natural barriers) | Habitat is found within historic range that will likely persist based on current or projected conditions and translocation of fish poses limited potential for genetic or biological threat; movement of fish is feasible and supported by Region and HQ  | Confirm with pathologist, secure trespass permission with landowners, and begin translocation process in compliance with the CDFW rescue policy and operational guidelines | Analysis of the receiving water bodies should include inventory of existing fish and aquatic communities and potential threats from genetic introgression, predation, intra/interspecific comp (is the receiving pop at carrying capacity?), or disease transfer from a translocation effort |
|   | Habitat is found within historic range that will likely persist based on current or projected conditions and translocation of fish poses limited potential for genetic or biological threat; however, movement of fish is not logistically feasible and/or is not supported by Region and HQ      | Continue Level 1 monitoring of population and work toward solving problems, conflicts, or associated challenges that inhibit translocation efforts                         |  |
|   | No habitat is found within the historic range that will likely persist based on current or projected conditions and/or translocation of fish to all potential sites poses a genetic or biological threat  | Initiate surveys for available translocation habitat outside the historic range that will likely persist across seasons  |  |
| Initiate surveys for available translocation habitat outside the documented historic range that will likely persist across seasons (including evaluation of manmade and natural barriers)         | Habitat is found outside the historic range that will likely persist based on current or projected conditions and translocation of fish poses limited potential for genetic or biological threat; movement of fish is logistically feasible and is supported by Region and HQ                     | Confirm with pathologist, secure trespass permission with landowners, and begin translocation process in compliance with the CDFW rescue policy and operational guidelines | Analysis of the receiving water bodies should include inventory of existing fish and aquatic communities and potential threats from genetic introgression, predation, intra/interspecific comp (is the receiving pop at carrying capacity?), or disease transfer from a translocation effort |
|   | Habitat is found outside the historic range that will likely persist based on current or projected conditions and translocation of fish poses limited potential for genetic or biological threat; however, movement of fish is not logistically feasible and/or is not supported by Region and HQ | Continue Level 1 monitoring of population and work toward solving problems, conflicts, or associated challenges (if feasible) that inhibit translocation efforts           | Analysis of the receiving water bodies should include inventory of existing fish and aquatic communities and potential threats from genetic introgression, predation, intra/interspecific comp (is the receiving pop at carrying capacity?), or disease transfer from a translocation effort |
|   | No habitat is found outside the historic range that will likely persist based on current or projected conditions and/or translocation of fish to all potential sites poses a genetic or biological threat   | Initiate a Level 3 rescue evaluation   |  |

### Level 3 (Rescue evaluation)

| Action   | Trigger  | Response  | Peripherals   |
|--|--|---|---|
| Assess available information on disease threats, hatchery conditions, logistical feasibility, cost/benefits, and stakeholder input regarding viability of rescue and translocation to refuge sites | Existing conditions and information support movement of fish into a hatchery or other refuge facility and movement of fish is logistically feasible and is supported by Region and HQ                  | Initiate rescue process, data collection and monitoring in compliance with the CDFW rescue policy and operational guidelines  | Consideration should be given to duration of captive holding, potential rearing effects, and plans for release into the wild if habitat and flow conditions improve |
|  | Existing conditions and information do not support movement of fish into a hatchery or other refuge facility or movement of fish is not logistically feasible and/or is not supported by Region and HQ | Seek resolution of Level 2 conflicts in order to secure translocation sites within stream, within watershed, within or outside historic range, while continuing to monitor existing conditions and threats to population(s) |   |

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| Assessment effort  | Observed conditions  | Threat Level<br>(1 to 4, 4 = highest risk) | Response  |
|--|--|--|---|
| Delineate connected and non-connected wetted habitat, document barriers, count and measure mean/maximum pool depth, gather stream temp, <u>measure</u> discharge, estimate population size by size class, <u>and document water source</u> . | Instream water quality is sufficient to maintain biological function and fish health, flow is contiguous and is >.5 cfs, pool habitat exists which exceeds 300mm in depth, population exceeds 200 adults, and wetted habitat is > 2000 meters  | 1  | Document conditions/status, make recommendations on monitoring schedule,  |
| Delineate connected and non-connected wetted habitat, document barriers, count and measure mean/maximum pool depth, gather stream temp, estimate discharge, and estimate population size by size class.                                      | Instream water quality is sufficient to maintain biological function and fish health, <u>flow is not contiguous and is &lt;.5 cfs</u> , pool habitat exists which exceeds 300mm in depth, population exceeds 200 adults, and although wetted habitat is not contiguous it is > 2000 meters | 2  | Document conditions/status, make recommendations on monitoring schedule, <u>and identify a reference location for future measurements and comparisons</u> . |
| Delineate connected and non-connected wetted habitat, document barriers, count and measure mean/maximum pool depth, gather stream temp, estimate discharge, and estimate population size by size class.                                      | Instream water quality is sufficient to maintain biological function and fish health, flow is contiguous and is <.5 cfs, <u>pool habitat does not exist</u> s which exceeds 300mm in depth, population exceeds 200 adults, and wetted habitat is contiguous for > 2000 meters              | 2  | Document conditions/status, make recommendations on monitoring schedule, <u>and identify a reference location for future measurements and comparisons</u> . |
| Delineate connected and non-connected wetted habitat, document barriers, count and measure mean/maximum pool depth, gather stream temp, estimate discharge, and estimate population size by size class.                                      | Instream water quality is sufficient to maintain biological function and fish health, flow is not contiguous and is <.5 cfs, pool habitat exists which exceeds 300mm in depth, <u>population is below 200 adults</u> , and although wetted habitat is not contiguous it is > 2000 meters   | 2  | Document conditions/status, make recommendations on monitoring schedule, <u>and identify a reference location for future measurements and comparisons</u> . |
| Delineate connected and non-connected wetted habitat, document barriers, count and measure mean/maximum pool depth, gather stream temp, estimate discharge, and estimate population size by size class.                                      | Instream water quality is sufficient to maintain biological function and fish health, flow is not contiguous and is <.5 cfs, pool habitat exists which exceeds 300mm in depth, population is > 200 adults, and <u>wetted habitat is &lt; 2000</u> meters                                   | 2  | Document conditions/status, make recommendations on monitoring schedule, <u>and identify a reference location for future measurements and comparisons</u> . |
| Delineate connected and non-connected wetted habitat, document barriers, count and measure mean/maximum pool depth, gather stream temp, estimate discharge, and estimate population size by size class.                                      | Instream water quality is sufficient to maintain biological function and fish health, flow is not contiguous and is <.5 cfs, pool habitat exists which exceeds 300mm in depth, <u>population is below 200 adults</u> , and <u>wetted habitat is &lt; 2000</u> meters                       | 3  | Initiate translocation assessment strategy and or rescue alternatives and formulate plan  |
| Delineate connected and non-connected wetted habitat, document barriers, count and measure mean/maximum pool depth, gather stream temp, estimate discharge, and estimate population size by size class.                                      | Instream water quality is sufficient to maintain biological function and fish health, flow is contiguous and is <.5 cfs, <u>pool habitat</u> exceeding 300mm in depth does not exist, <u>population is &lt; 200 adults</u> , and wetted habitat is contiguous for > 2000 meters            | 3  | Initiate translocation assessment strategy and or rescue alternatives and formulate plan  |
| Delineate connected and non-connected wetted habitat, document barriers, count and measure mean/maximum pool depth, gather stream temp, estimate discharge, and estimate population size by size class.                                      | Instream water quality is <u>not sufficient to maintain biological function and fish health</u> , flow is contiguous and is >.5 cfs, pool habitat exceeding 300mm in depth does not exist, population exceeds 200 adults, and wetted habitat is > 2000 meters                              | 4  | Initiate translocation assessment strategy and or rescue alternatives and formulate plan  |
| Delineate connected and non-connected wetted habitat, document barriers, count and measure mean/maximum pool depth, gather stream temp, estimate discharge, and estimate population size by size class.                                      | Instream water quality is sufficient to maintain biological function and fish health, flow is not contiguous and is <.5 cfs, <u>pool habitat exceeding 300mm in depth does not exist</u> , <u>population is &lt; 200 adults</u> , and <u>wetted habitat is &lt; 2000</u> meters            | 4  | Initiate translocation assessment strategy and or rescue alternatives and formulate plan  |