

SAFE HARBOR AGREEMENT
For the Oregon chub
(*Oregonichthys crameri*)



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U.S. FISH AND WILDLIFE SERVICE

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Working in Cooperation for the Conservation and Recovery of Oregon Chub



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1. INTRODUCTION

This Safe Harbor Agreement (SHA) between Ms. Marilyn and Mr. Randy Sprick (Permittees), Oregon Department of Fish and Wildlife (ODFW), and the U.S. Fish and Wildlife Service (USFWS), has been developed under the USFWS's Safe Harbor Policy (64 FR 32717). The Safe Harbor Policy was developed to encourage private and other non-Federal property owners to voluntarily undertake management activities on their property to enhance, restore, or maintain habitat to benefit Federally-listed species. Under this policy, property owners who undertake management activities that attract listed species onto their properties, or into areas affected by actions undertaken on their property, or that increase the numbers or distribution of listed species already present on their properties, will not incur future property-use restrictions. SHA's provide assurances to the property owner that allow alterations or modifications to enrolled property, even if such action results in the incidental take of a listed species or, in the future, returns the species back to an originally agreed-upon baseline condition (i.e., species population estimates and distribution and/or characteristics and determined area of the enrolled property that sustain seasonal or permanent use of the covered species at the time the Agreement is executed). This SHA between the Permittee, ODFW, and the USFWS provides conservation benefits and will allow for incidental take coverage for the Oregon chub (*Oregonichthys crameri*) (Figure 1).



Figure 1: Oregon Chub Photo

2. BACKGROUND

Oregon chub are endemic to the Willamette Valley of western Oregon. This species was formerly distributed throughout the Willamette Valley in off-channel habitats such as beaver ponds, oxbows, stable backwater sloughs, and flooded marshes. These habitats usually have little or no water flow, have silty and organic substrate, and have abundant aquatic vegetation and cover for hiding and spawning. In the past 100 years, these habitats have disappeared because of changes in seasonal flows resulting from the construction of dams throughout the basin, channelization, revetments, diking, drainage of wetlands, and agricultural practices. This loss of habitat combined with the introduction of non-native species to the Willamette Valley such as largemouth bass (*Micropterus salmoides*), bluegill (*Lepomis macrochirus*), crappies (*Pomoxis sp.*), sunfishes (*Lepomis sp.*), bullheads (*Ameiurus sp.*), and western mosquitofish (*Gambusia affinis*) have been implicated in the sharp decline in Oregon chub abundance (Scheerer 2005).

3. POPULATION STATUS AND DISTRIBUTION

The Oregon chub was listed as endangered on November 17, 1993, pursuant to the Endangered Species Act of 1973, as amended (ESA; 58 FR 53800). At the time of listing, there were only five known viable Oregon chub populations and they were restricted to an 18.6 mile (30 kilometer) stretch of the Middle Fork Willamette River drainage, representing approximately two percent of the species' historic range (Markle and Pearsons 1990).

The Oregon Chub Recovery Plan (USFWS 1998) set recovery criteria for downlisting the species to “threatened” and for delisting the species. The criteria for downlisting the species are: 1) establish and manage 10 populations of at least 500 adult fish, 2) all of these populations must exhibit a stable or increasing trend for five years, and 3) at least three populations meeting criterion 1 and 2 must be located in each of the three recovery areas (Middle Fork Willamette River, Santiam River, and Mid-Willamette River tributaries). In 2006, there were 18 populations totaling 500 or more individuals (Figure 2). Thirteen of these populations also met the second criteria. Of the 13 populations meeting criteria 1 and 2, eight were located in the Middle Fork Willamette drainage, three were located in the Mid-Willamette drainage, and two were located in the Santiam drainage. With the addition of one more stable population in the Santiam drainage, the Oregon chub will reach the downlisting criteria outlined in the recovery plan (Scheerer *et. al.* 2006). The Sprick SHA will be located in the Mid-Willamette recovery area.

Oregon Chub Historical Range and Current Distribution

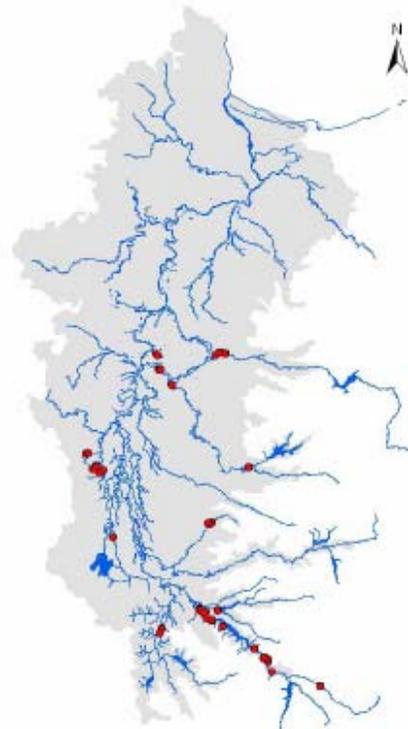


Figure 2: Oregon Chub Historical Range and Current Distribution

According to ODFW's 2006 Annual Monitoring Report for the Oregon Chub, findings to date indicate that Oregon chub remain at risk due to the loss of suitable habitat and the continued threats posed by the proliferation of non-native fishes, water withdrawals, accelerated sedimentation due to logging activities, and potential chemical spills or careless pesticide applications (Scheerer *et. al.* 2006). Their status has improved in recent years, resulting primarily from successful introductions and the discovery of previously undocumented populations.

4. PURPOSE OF THE SHA

Oregon chub are susceptible to rapid population declines due to predation by exotic fish or to unknown or stochastic factors, making establishment of new populations from existing population donor sources an important conservation tool for this species (USFWS 1998). A major recovery task for Oregon chub in the Willamette River Watershed is the establishment of new populations within ponds with suitable habitat that are devoid of non-native predators (USFWS 1998).

This SHA proposes to establish a new population of Oregon chub as refugia for the natural population. The proposed refugia site, Sprick Pond, is a tributary to Camas Swale Creek which flows into the Coast Fork of the Willamette River, about 5 miles south of Eugene, Oregon. Translocating a small portion of the Oregon chub population from the donor population to Sprick Pond would contribute to species conservation by reducing risks of complete loss of the donor population and thus loss of any unique genetic material.

5. SHA AND PERMIT DURATION

The Agreement duration is ten years, during which time the Applicant will engage in specific conservation actions and will avoid engaging in activities which could result in take of the Oregon chub. The section 10(a)1(A) permit authorizing incidental take of Oregon chub will have a term of 30 years from the effective date of the Agreement.

Oregon chub populations exhibit high annual variability (Scheerer and McDonald 2000), therefore, the USFWS estimates that it will take multiple Oregon chub translocation events over several years for the establishment of a sustainable population needed to provide a net conservation benefit for the species. No more than 10 percent of the donor population will be translocated in any one year. The estimated carrying capacity of the Permittee's pond is approximately 1,000 individuals, based on Oregon chub population levels in ponds of similar size and structure. Upon reaching this threshold, this reintroduced population may be used as a source for further translocations, including for augmentation of the donor population, other genetically compatible Oregon chub populations, or for the establishment of new populations within appropriate sub-basins within the historic range. No more than 10 percent of the Sprick Pond population should be removed at one time and this population should not be reduced below 500 individuals. The ODFW will monitor Oregon chub at Sprick Pond annually.

The ODFW and the USFWS will work together to identify an appropriate donor population. If the donor population is reduced below a threshold to such a level that the continued existence of the population may be threatened, the donor population may be supplemented using Oregon chub from the Sprick Pond population, providing that the proximate threats to the donor population are no longer present and providing that the Sprick Pond population contains no fewer than 500 individuals or that a decision is made to eliminate the Sprick Pond population. Any

translocations of Oregon chub from this pond to supplement the donor population must receive prior approval by the USFWS.

6. DESCRIPTION OF THE ENROLLED LANDS

The pond is located about 5 miles northwest of Creswell, Oregon, in Lane, County (Figure 3). The enrolled lands, located at Township 18S Range 3W Section 31SE (UTM coordinates: 10T, 492530mE, 4866657mN), consist of an artificial pond comprising a surface area of approximately 28,259ft² (226' by 125') and an average depth of 8 feet (Figure 4). A buffer area comprised of a 100 ft set back from the pond is also included as enrolled lands. Sampling efforts in October of 2005 did not detect any native or non-native fish present in Sprick Pond. The pond's hydrology is supplied by a diversion pipe (12 inches in diameter) from a natural hillside seep located above the pond.

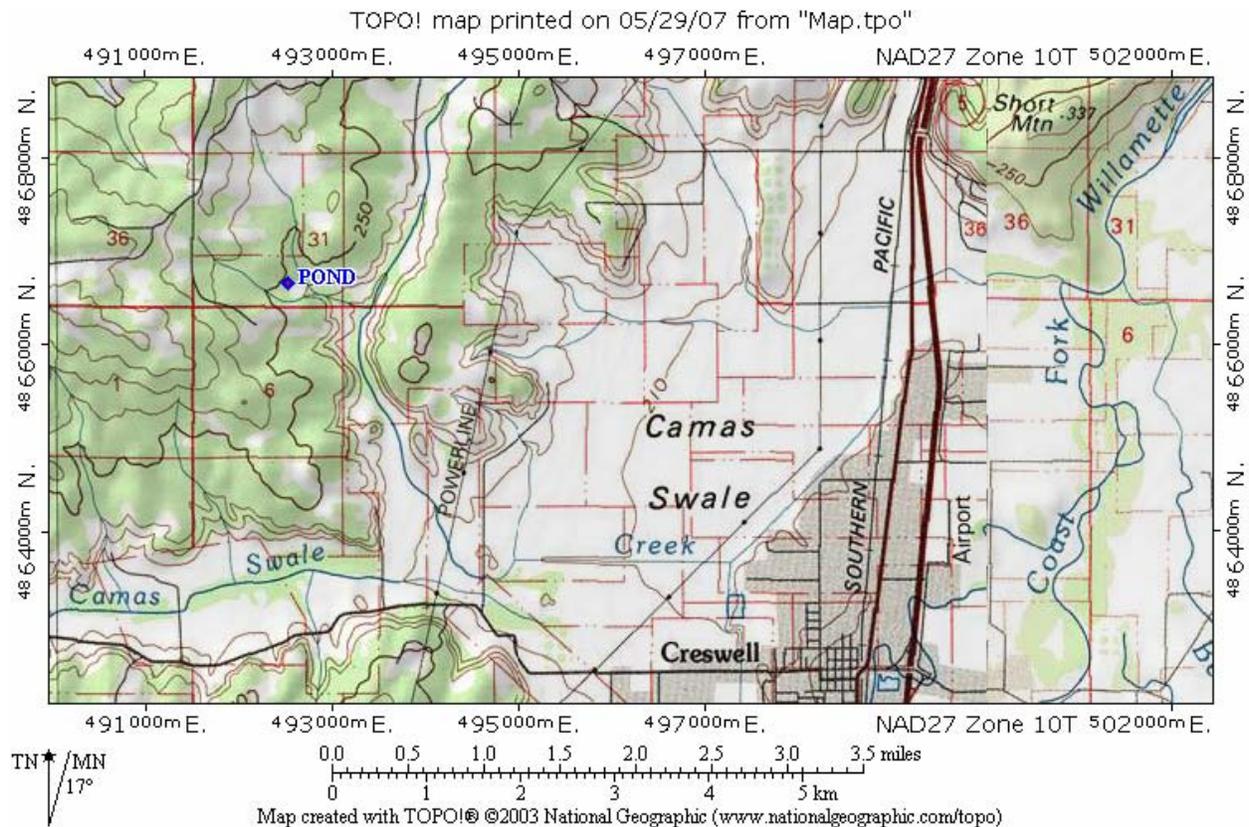


Figure 3: Location of the Sprick Pond

The Permittee's use a minimal amount of water from the pond to irrigate their property. The water intake is screened and located in a deep part of the pond (approximately 9 feet) to avoid effects on Oregon chub. The Permittee's engage in routine property maintenance activities such as tree thinning on their property. These maintenance activities occur greater than 100 feet from the pond and it is unlikely that these activities would adversely affect Oregon chub. There is also

a staging area near the pond were Permittee engages in land use activities such as cutting firewood. It is unlikely the effects associated with this staging area would adversely affect Oregon chub in the pond.

Water temperatures range from 39 to 69 degrees Fahrenheit (°F) throughout the year, with temperatures above 61 °F during the spawning season from mid-June to mid-August. Optimal spawning temperatures for Oregon chub range from 61 to 70 °F (Scheerer and McDonald 2000). The pond was not formed naturally and it flows into Camas Swale Creek and then flows into the Coast Fork Willamette River near Creswell, into the McKenzie River approximately 15 miles downstream. The pond contains year round water, abundant submergent and overhanging emergent vegetation, ideal temperatures during spawning, and no predatory fish species, resulting in suitable habitat for Oregon chub (Scheerer *et al.* 1992).



Figure 4: Photo of the Sprick Pond

7. BASELINE DETERMINATION

The baseline condition of the Sprick Pond (enrolled lands) was determined based on the absence of Oregon chub currently occupying the pond. October 2005 field surveys by the ODFW resulted in zero Oregon chub occurrence at the site. Therefore, baseline condition for Sprick pond is zero (i.e., the pond is not occupied by Oregon chub). Under this SHA and permit, Sprick pond will be stocked with Oregon chub for the establishment of a refugia population and will be monitored annually by the ODFW.

8. MANAGEMENT ACTIONS FOR OREGON CHUB

The management actions under this SHA for the Oregon chub are:

- *Introduce Oregon chub into the Permittee's pond to establish a viable population which will serve as a refugia to the donor population.*

Oregon chub will be collected during either April-May or September-October population surveys of the donor population. Subsequent introductions of Oregon chub to Sprick Pond from the donor population will occur in April-May or September-October of subsequent years, until the population abundance and the genetic diversity of the introduced population equals that in the donor population. Genetic diversity will be monitored by the USFWS's Abernathy Fish Technology Center in Vancouver, Washington.

- *Allow the USFWS and the ODFW access to the property to introduce Oregon Chub, conduct surveys, monitor habitat conditions, and translocate Oregon chub for establishment or enhancement of subsequent new populations.*

The ODFW will monitor the Oregon chub population and habitat conditions at the Sprick Pond annually during either the April-May or the September-October sampling season. The presence of non-native fish or amphibians will be documented. Violations of the conditions put forth in this document will be reported, in writing, within 10 working days to the USFWS. A written report on the population status and habitat conditions will be submitted by the ODFW annually to the USFWS. Reports will be submitted in conjunction with annual progress reports due by April 30 of each year.

Historic range, sub-basin, and sub-population genetic diversity are among the factors upon which movement of Oregon chub will be evaluated. Translocation of Oregon chub from Sprick Pond, per approval by the USFWS, will also be pursued if an imminent threat to the population's continued existence is detected. Factors that might pose an imminent threat to the Sprick Pond Oregon chub population include, but are not limited to disease, accidental contamination of the pond, or the establishment of alien predators or competitors.

- *Notification requirement: The Permittee will provide the USFWS or the ODFW with written notice six months prior (or per USFWS approval, notice of sufficient amount of time to allow for movement of fish during spring or fall sampling) of any plans to implement the incidental take permit or alter landuse activities which may result in take of Oregon chub.*

Upon receipt of notice by the Permittee to return the pond to baseline conditions, the ODFW will remove Oregon chub from the Sprick pond, if deemed appropriate by the USFWS. Timing of Oregon chub translocation shall be during spring or fall sampling (usually in April-May or September-October) and shall be performed according to the fish introduction protocol set forth in this document. Individuals shall be relocated to a site deemed appropriate by ODFW and the USFWS, per criteria already set forth in this document using the protocol described in Appendix A.

• *Change of Landowner: If a land transfer occurs that encompasses the Enrolled Lands, the Permittee will provide the USFWS or the ODFW with written notice of 6 months prior to the transfer.*

The new landowner will have the option to become a party to the terms and conditions set forth in this SHA and associated Incidental Take permit. Should the party not wish to enter into the SHA, the USFWS or the ODFW must be given six months notice and access to Sprick Pond for the opportunity to relocate Oregon chub from Sprick Pond prior to transfer of title or implementation of activities that would result in take of this species.

9. NET CONSERVATION BENEFIT

This SHA produces a net conservation benefit to Oregon chub by increasing the distribution of this species within its historic range and by creating a refugia population to reduce the effects of catastrophic events that could result in local extinction of Oregon chub populations.

Establishment of new populations of Oregon chub is a major component of the recovery strategy for this species. Specifically, Task 2 in the Recovery Plan reads:

The establishment of new populations in each of the three sub-basins will be essential to the recovery of the Oregon chub. By increasing the number and size of populations, beyond those currently existing, we can reduce the probability that a single environmental catastrophe could simultaneously affect all populations of the species. Thus, the risk of extinction will be reduced.

This SHA supports endangered species recovery actions provided for in the recovery plan (USFWS 1998) by supplying individual Oregon chub for the establishment of new, self-sustaining populations, thereby reducing the possibility of catastrophic events wiping out all individuals of the donor or source population. Long-term recovery and conservation planning benefits will also be derived from this SHA upon development of a viable population of Oregon chub on the Permittee's property. This process is expected to take several introduction efforts and 5 or more years.

The final rule to list Oregon chub under the ESA (58 FR 53800) listed the following threats to Oregon chub: "chemical spill from overturned truck or rail tankers, runoff or accidental spills of brush control chemicals, overflow from chemical toilets in campgrounds, siltation of shallow habitats from logging and construction activities, loss of habitat from illegal fill activities and changes in water level or flow conditions from construction, diversions, or natural desiccation" as well as dam construction, alteration of the floodplain through increased channelization and loss of backwater vegetated habitats, and predation and competition with exotic fish. The Sprick Pond Oregon chub introduction will provide suitable Oregon chub habitat in a landscape context which is protected from potential chemical spills, inputs of silt or fill, and exotic fish introduction.

The SHA includes provisions whereby the introduced population of Oregon chub is protected. After this time period, should the Permittee choose to undertake activities that result in take of Oregon chub (i.e., stocking of exotic fish, grazing, earthmoving or other silt generating activities), six months advance notice prior to the upcoming fall or spring sampling season will be provided to the USFWS, in writing, to allow the USFWS and the ODFW to relocate Oregon chub from the Permittee's property. Potential sites for introduction of Oregon chub were identified in the Recovery Plan (USFWS 1998), however, some sites on this list later proved to be unsuitable due to seasonal hydrology or presence of exotic fish species. The Oregon chub working group, in cooperation with the ODFW and the USFWS may need to evaluate additional sites for potential for introduction of Oregon chub.

10. INCIDENTAL TAKE OF OREGON CHUB

The Enrolled Lands for this SHA occur within the context of the Permittee's home site and farm. The Permittee agrees to avoid the following land use activities for the minimum 10 year SHA period: grazing of livestock within 100 ft of the pond, stocking of fish, introduction of potentially harmful non-native species (e.g. invasive plants, pets such as non-native amphibians or turtles, etc.), logging trees within 100 ft of the pond, removal of vegetation surrounding the pond area, use of herbicide or pesticide within 100 ft of the pond, and any earthmoving activities within 100 ft of the upslope area of the pond. After the 10 year period is over, these activities will be covered by the permit authorizing incidental take of Oregon chub. After the 10 year SHA period has ended, the Permittee will notify the USFWS of intent to engage in any of the above activities, in writing, at least six months in advance.

The Permittee will consult with the USFWS prior to conducting any of the above activities within 100 feet of the pond, with the exception of herbicide or pesticide application. In the case of herbicide or pesticide application, the Permittee will consult with USFWS prior to application 100 ft from the pond. All chemical applications will be according to label specifications and will be non-persistent. USFWS may decide to remove the fish from Sprick Pond, depending upon the herbicide or pesticide utilized. The Permittee will provide the USFWS with notice, in writing, six months in advance of any planned introductions of fish or amphibians to allow the USFWS and the ODFW opportunity to translocate Oregon chub from the site.

Oregon chub do not currently occupy the habitat enrolled in the SHA. In addition, expansion of this species beyond the Enrolled Lands is highly unlikely since the pond is isolated from tributaries that flow into the Coast Fork Willamette River. The Incidental Take permit will be valid for 30 years and the Incidental Take permit can be renewed upon consent of all parties or can be transferred to a new landowner providing they agree to the terms and conditions of this SHA.

11. RESPONSIBILITY OF THE PARTIES

The pond on the Permittee's property will be stocked with Oregon chub taken from the naturally occurring population at the Coast Fork Side Channel Side Channel population or other source populations as agreed to by USFWS and ODFW. The pond and a surrounding 100 foot buffer zone will be protected from land use activities deemed to be incompatible with Oregon chub survival and listed above for 10 years.

a. Permittee

The Permittee will be responsible for the following actions:

- *Allow the USFWS and the ODFW access to the enrolled lands for Oregon chub introduction and for monitoring of permit compliance, habitat conditions, and population status. The USFWS and ODFW will provide Mr. Sprick with one day of advanced notification prior to access of Sprick Pond.*
- *Observe winter pond levels and provide notification to the ODFW and the USFWS if pond overtopping appears likely or imminent.*
- *For 10 years following the introduction of Oregon chub, no grazing of livestock upslope of, or within 100 ft. of the pond, no stocking of non-native or competitive fish or amphibian species, no logging trees within 100 ft. of the pond, no removal of vegetation surrounding the pond area, no use of herbicide or pesticide within 100ft. of the pond, and no earthmoving activities within 100 ft. of the upslope area of the pond.*
- *Provide six months written notice to ODFW and the USFWS if the Permittee decides to engage in activities that would result in loss or degradation of habitat or introduction of predators. The written notice would allow ODFW and the USFWS to develop a strategy that would minimize adverse effects to Oregon chub.*

b. ODFW

ODFW will be responsible for the following actions:

- *Conduct introductions of Oregon chub to Sprick Pond using fish translocation protocols listed in Appendix A of this document.*
- *Annually monitor the Sprick Pond Oregon chub population size, habitat conditions, and potential threats to the population, per the protocol identified in Appendix B of this document.*
- *Submit annual monitoring reports by April 30 annually to the USFWS's, Oregon Fish and Wildlife Office, 2600 SE 98th Avenue, Suite 100, Portland, Oregon 97266.*

• Conduct removal of Oregon chub from the Sprick Pond, per approval by the USFWS, upon a decision by the Permittee to return the population to baseline, or if deemed necessary and appropriate, due to imminent threat to the population, or for subsequent translocations from the pond to alternative sites as described above.

• Work with USFWS and the Oregon chub workgroup to identify potential introduction sites for Oregon chub and to develop a translocation plan.

In the event that ODFW has reductions in staff or funding for Oregon chub, the USFWS will fulfill all monitoring responsibilities and conservation actions associated with Oregon chub outlined in this SHA.

c. USFWS

The USFWS will be responsible for the following actions:

• Review monitoring data on the population abundance at Sprick Pond until chub abundance is equal to or exceeds the chub abundance at the donor site. At this point, the USFWS and ODFW will seek funding to compare the genetic makeup of both donor and introduced populations. If the Sprick population has lower genetic diversity, then subsequent translocations, not to exceed 10% of donor, will occur annually until the two populations have similar genetic diversity.

• Provide review, advice, and approval to the ODFW regarding the necessity of translocating Oregon chub from the Sprick Pond (due to threats to the population, population growth beyond carrying capacity, or Permittee notice of intent to implement incidental take agreement) and for selection of additional introduction sites.

• In the event that ODFW will not be able to conduct the annual monitoring of Sprick Pond during the period of this SHA, the USFWS assume monitoring responsibilities until ODFW can resume that role.

• Work with ODFW and the Oregon chub workgroup to identify potential introduction sites for Oregon chub and to develop a translocation plan.

• Upon execution of this SHA and satisfaction of all other legal requirements, the USFWS will issue a permit, in accordance with section 10(a)(1)(A) of the ESA, to the Permittee authorizing incidental take of Oregon chub as a result of specified activities as described above. The term of the permit will be 30 years. The activities that will be covered are: diversion of water for irrigation or other purposes, grazing of livestock upslope of or within 100 ft. of the pond, stocking of fish or amphibian species, logging of trees within 100 ft. of the pond, removal of vegetation surrounding the pond, use of herbicide or pesticide within 100 ft of the pond, and any earthmoving activities within 100 ft of the upslope area of the pond.

12. MONITORING AND REPORTING

The ODFW will be responsible for annual monitoring and reporting related to this SHA. Annual reports will provide information on: 1) the number of Oregon chub translocated from the donor population to Sprick Pond and current population estimate in Sprick Pond; 2) the results of any translocation efforts and the status of Oregon chub populations in both the donor site and the recipient site; 3) habitat conditions at Sprick Pond including temperature, water depth, vegetation, dissolved oxygen, and other parameters determined to be important to Oregon chub survival; 4) compliance of Permittee with the conditions set forth in this document; 5) presence of other fish or amphibians in Sprick Pond; 6) recommendations for translocation of Oregon chub from the Sprick Pond due to overcrowding, imminent threat to the population, or other reasons; and 7) management recommendations for Sprick Pond or the surrounding habitat. Reports will be due annually by April 30 to the USFWS. A copy will be sent to the Permittee and to the USFWS Regional Office in Portland, Oregon.

13. ADDITIONAL MEASURES

Modifications and Amendments

a. Modifications to the SHA.

Any party may propose modifications to this SHA by providing written notice to the other parties. Such notice shall include a statement of the proposed modification and the reason for the modification. The parties shall respond within 60 days of receipt of such notice. Proposed modifications will become effective upon all parties' written approval.

b. Amendment of the Permit.

The permit may be amended in accordance with all applicable legal requirements, including but not limited to the ESA, the National Environmental Policy Act, and the USFWS's permit regulations. The party proposing the amendment shall provide a statement of the proposed amendment and the reasons for the amendment.

c. Permit Suspension or Revocation.

The USFWS may suspend or revoke the permit for cause in accordance with the laws and regulations in force at the time of such suspension or revocation.

d. Remedies.

Each party shall have all remedies otherwise available to enforce the terms of this SHA and the permit, except that no party shall be liable in damages for any breach of this SHA, any performance or failure to perform an obligation under this SHA or any other cause of action arising from this SHA.

e. Dispute Resolution.

The parties agree to work together in good faith to resolve any disputes, using dispute resolution procedures agreed upon by both parties.

f. Availability of Funds.

Implementation of this SHA is subject to the requirements of the Anti-Deficiency Act and the availability of appropriated funds. Nothing in this SHA will be construed by the parties to require the obligation, appropriation, or expenditure of any money from the U.S. Treasury. The parties acknowledge that the USFWS will not be required under this SHA to expend any Federal agency's appropriated funds unless and until an authorized official of that agency affirmatively acts to commit to such expenditures as evidenced in writing.

g. No Third-party Beneficiaries.

This SHA does not create any new right or interest in any member of the public as a third-party beneficiary, nor shall it authorize anyone not a party to this SHA to maintain a suite for personal injuries or damages pursuant to the provisions of this SHA. The duties, obligations, and responsibilities of the parties to this SHA with respect to third parties shall remain as imposed under existing law.

h. Relationship to Authorities.

The terms of this SHA shall be governed by and construed in accordance with applicable Federal law. Nothing in this SHA is intended to limit the authority of the USFWS to fulfill its responsibilities under Federal laws. All activities undertaken pursuant to this SHA or the permit must be in compliance with all applicable state and Federal laws and regulations.

i. Succession and Transfer.

This SHA shall be binding on and shall inure to the benefit of the parties and their respective successors and transferees, in accordance with applicable regulations.

j. Notices and Reports.

Any notices or reports required by this SHA shall be delivered, in writing, to the person(s) listed below:

Ms. Marilyn and Mr. Randy Sprick

Attn: Sprick Safe Harbor Agreement Project Manager
Oregon Fish and Wildlife Office
U.S. Fish and Wildlife Service
2600 SE 98th Avenue, Suite 100
Portland, Oregon 97266
503-231-6179 (phone)
503-231-6195 (fax)

14. LITERATURE CITED

- Markle, D.F. T.N. Pearsons. 1990. Petition to list the Oregon chub, *Oregonichthys crameri*, as an endangered species. Manuscript. Oregon State University, Corvallis.
- Ricker, W. E. 1975. Computation and interpretation of biological statistics of fish populations. Fisheries Research Board of Canada, Bulletin 191, Ottawa, Ontario.
- Scheerer, P.D., C.S. Shafer, C.H. Stein, and K.K. Jones. 1992. Oregon chub investigations. Unpublished. Oregon Department of Fish and Wildlife, Fish Research Project EF-91 VII-1, Annual Progress Report, Portland.
- Scheerer, P.D. and P.J. McDonald. 2000. Oregon chub research: Middle Fork Willamette and Santiam River Drainages. Unpublished. Oregon Department of Fish and Wildlife, Fish Research Project October 1999-September 2000. Annual Progress Report, Portland.
- Scheerer, P.D., C.S. Mease, P.S. Kavanagh, and K.K. Jones. 2001. Oregon chub investigations. Unpublished. Oregon Department of Fish and Wildlife, fish Research Project May 2000-April 2001. E-2. Annual Progress Report, Portland.
- Scheerer, P. D., P.S. Kavanagh, S. Davis, S.E. Jacobs. 2005. Oregon chub investigations. Oregon Department of Fish and Wildlife, Fish Research Project E-2-36 and E-2-37. Annual Progress Report, Salem, Oregon.
- Scheerer, P. D., P.S. Kavanagh, B.L. Bangs, S.E. Jacobs. 2006. Oregon chub investigations. Oregon Department of Fish and Wildlife, Fish Research Project E-2-44, Annual Progress Report, Salem, Oregon.
- U.S. Fish and Wildlife Service. 1998. Oregon chub (*Oregonichthys crameri*) Recovery Plan. Portland, Oregon. 69+ pp.

15. SIGNATURE BLOCKS

IN WITNESS WHEREOF, THE PARTIES HERETO have executed this Safe Harbor Agreement to be in effect as of the date that the U.S. Fish and Wildlife Service issues the permit referred to in Section 8.C. above.

Ms. Marilyn Sprick
Permittee

Date

Mr. Randy Sprick
Permittee

Date

ODFW Signatory Authority
Oregon Department of Fish and Wildlife

Date

State Supervisor, Oregon Fish and Wildlife Office
U.S. Fish and Wildlife Service

Date

Regional Director
U.S. Fish and Wildlife Service

Date

Appendix A: Oregon Chub Translocation Guidelines.

The Oregon Chub Translocation Guidelines stated in the Oregon chub Recovery Plan are based on the 1992 Interagency Conservation Agreement that specified guidelines for reintroducing Oregon chub into their historic range. These are adapted from Williams *et al.* (1998), and are consistent with Oregon Department of Fish and Wildlife policy and responsibility for finfish introductions (Oregon Department of Fish and Wildlife 1982).

1. Source Stock Criteria. Obtain introduction source stock of sufficient number and character. If the source population is not threatened by imminent loss, no more than 10 percent of the population should be removed annually. A minimum of 500 fish will be introduced. Introductions of fish in successive years are permitted to meet this criteria.

If the donor population is sufficiently large such that the 500 fish minimum can be collected without exceeding removal of 10 percent of the population (i.e. adult population >5000 fish), then all 500 fish will be transported in one collection event. If the donor population is less than 5000 fish then 10 percent will be collected and translocated in one year and this process will be repeated (10 percent of donor population collected) each year until a total of 500 fish have been translocated.

2. Collection and Transport Methodology. Oregon chub will be captured using baited minnow traps and/or pole seines. Fish will be collected in 19 L (5 gallon) buckets and transferred to a large cooler (minimum of 76 L or 20 gallon) for transporting. Fresh water, of the same temperature as pond, will be placed in the cooler immediately prior to transport. Temperature will be recorded. Transport time will be minimized. Condition of fish will be monitored during transport, if time of transport exceeds 15 minutes. Approximately 19 L of additional fresh water will be transported in a separate container and will be used to supplement the transport water in the event that the fish appear to be stressed due to low oxygen or ammonia buildup.

The temperatures of water in both the cooler and the introduction pond will be measured upon arrival at the introduction site. Fish will be acclimated over a period of 20 minutes prior to release.

3. Timing. Introduce stock under the most favorable weather and hydrologic conditions ensuring that water temperatures and dissolved oxygen conditions are ideal. Avoid transfers during the spawning season. Document the date, number of fish stocked, source population, introduction site, and persons conducting the introduction.

4. Post-Introduction Activities. Conduct systematic monitoring of introduced populations. Determine cause of unsuccessful introductions. Restock if warranted. Document findings and conclusions.

Appendix B: Oregon Chub Monitoring Protocol

1. Physical Habitat Assessment. The following parameters will be collected: substrate (percent silt and organics), depth (maximum, mean, range), water temperature, and total surface area. Aquatic vegetation will be identified to genus and percent of surface area cover will be recorded using ocular estimates. Water quality parameters including pH, dissolved oxygen, specific conductance, redox potential, and total dissolved solids will be measured every two years, conditional upon the availability of a USFWS hydrolab. Temperature during the breeding season will be measured annually.

2. Population Abundance Estimates. Oregon chub population estimates will be obtained annually. Minnow traps, measuring 23 x 46 centimeters with 64- millimeter mesh, will be used to capture fish for marking. The traps will be baited with a half slice of bread and set for up to 18 hours. A subsample of the fish collected in the traps will be measured, given a partial upper caudal fin clip, and returned to the water. This procedure will be repeated for several days. Each subsequent day all unmarked fish will be marked and all previously marked fish will be counted in the sample. Population estimates will be made each day and the ratio of the number marked to the total estimate will be compared to determine the approximate percentage of the total population that was marked. Marking will continue until approximately 15 percent of the Oregon chub population is marked. All fish will be returned to the water. Population size will be estimated using single-sample mark-recapture procedures (Ricker 1975). To calculate population abundance, the total number of marked fish will be used, and the catch and recaptures from the last sample date.

3. Spawning Observations in the Field. Qualitative surveys will be conducted to determine Oregon chub spawning activity and success. Fry presence and relative abundance and/or spawning behavior will be monitored at Sprick Pond through snorkeling and direct observation. Spawning behaviors will be recorded as evidence of spawning, i.e., territory establishment by males, aggressive skirmishes between males, and courting behaviors.