



U.S. Fish and Wildlife Service

SAFE HARBOR AGREEMENT

For the Oregon Chub
(*Oregonichthys crameri*)



U.S. FISH AND WILDLIFE SERVICE
ROBERT RUSSELL
AND OREGON FISH AND WILDLIFE DEPARTMENT

OREGON FISH AND WILDLIFE OFFICE

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SAFE HARBOR AGREEMENT FOR THE OREGON CHUB

1.0 Introduction and Background

This Safe Harbor Agreement (Agreement) between the U.S. Fish and Wildlife Service (FWS), Oregon Department of Fish and Wildlife (ODFW), and Robert Russell (Permittee) has been developed under the FWS'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. Safe Harbor Agreements 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 Agreement between the FWS, ODFW, and Robert Russell provides conservation benefits to and incidental take coverage for the Oregon chub (*Oregonichtys crameri*). This species was included on the December 30, 1982, Notice of Review for vertebrate wildlife as a category 2 candidate species (47 FR 58454). A Conservation Agreement for the Oregon chub in the Willamette Valley of Oregon was signed by the following agencies: ODFW, Oregon Parks and Recreation Department, Corps of Engineers, Bureau of Land Management, FWS, and Forest Service-Willamette National Forest. The Conservation Agreement, effective May 8, 1992, intended to reverse the declining trend of Oregon chub populations and to increase the abundance of this species in healthy, wild populations through protection of habitat, re-introductions to suitable habitat within its historic range, and public education and involvement. The Conservation Agreement was successful in identifying potential partners and increasing awareness and communication between agencies, however, it did not outline specific recovery tasks or provide an implementation timetable and costs of implementation (58 FR 53800).

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, known populations of Oregon chub were restricted to an 18.6 mile (30 kilometer) stretch of the Middle Fork Willamette River drainage, representing two percent of the species' historic range (Markle and Pearsons 1990).

A recovery plan for the Oregon chub was finalized on September 3, 1998 (USFWS 1998). The recovery plan criteria for downlisting this species to threatened are: 1) Establish and manage 10 populations of at least 500 adults each; 2) Achieve stable or increasing trend for all 10

populations for five years; 3) Ensure that at least three populations are located in each of the three sub-basins (Mainstem Willamette, Middle Fork Willamette, and Santiam). The delisting criteria listed in the recovery plan consist of establishment of 20 populations of at least 500 individuals which maintain a stable or increasing trend for seven years. At least four populations must be located in each of the three sub-basins.

1.1 Population Status and Distribution

The Oregon chub is a small minnow endemic to the Willamette River basin in western Oregon (Family: Cyprinidae) which formerly inhabited sloughs, overflow ponds, and other backwater habitats throughout the lower elevations of the Willamette River Drainage. Dam construction, channelization, diking, wetland fill, and loss of riparian vegetation have changed flooding, streamflow, and temperature patterns of the watershed. A combination of these factors has resulted in loss of backwater habitats used by Oregon chub and subsequent isolation of remaining populations (Markle *et al.* 1991). Degradation of habitat has also occurred, primarily due to sedimentation from construction activities, logging, alterations of water flow, and other causes. Introductions of exotic game fish (i.e., bass, crappie, mosquito fish) may have contributed to the decline of existing Oregon chub populations and may reduce the potential for Oregon chub to recolonize suitable habitats through increased competition for resources, predation, and introduction of parasites and disease (Markle and Pearsons 1990). The proximity of many populations to rail, highway, and power transmission corridors and state park campgrounds poses the threat of chemical spills, runoff or spill of agricultural or right-of-way maintenance chemicals, and overflow from campground toilets.

At the time of listing, there were only five known viable Oregon chub populations (Markle *et al.* 1989). By 2000, survey data existed for 25 Oregon chub populations in three different sub-basins within the Willamette River watershed. Of these populations, two were considered to be decreasing, seven were stable, and four were increasing. The remaining 12 populations had insufficient data or insufficient detections of Oregon chub to estimate population size or establish a population trend. Only 11 of the 25 populations contained 500 or more individuals. Seven introduced populations existed, ranging from 15 to >14,000 individuals (Scheerer *et al.* 2001).

1.2 Purpose of Agreement

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 Agreement proposes to establish a new population of Oregon chub as a refugia for the natural population. The proposed refugia site, Russell Pond, is located in the Mohawk River drainage of the Mainstem Willamette River basin, Lane county, Oregon (Figure 1 and 2). Translocating a small portion of the Oregon chub population at the Buckhead Creek site to Russell Pond would contribute to species conservation by reducing risks of complete loss of the donor population and thus loss of any unique genetic material.

2.0 Agreement and Permit Duration

The purpose of the Agreement is to establish a population of Oregon chub on the Applicant's property. The Agreement duration is five 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 (per Section 8 of this Agreement). 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 FWS estimates that it may take up to 2-3 Oregon chub translocation events over one to three years for the establishment of a sustainable population needed to provide a net conservation benefit for the species. A population size of approximately 500 stocked individuals is the target size for use as a founder population. 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 1,000-1,500 individuals, based on Oregon chub population levels in ponds of similar size and structure (Scheerer, ODFW, pers. comm., November 1999). 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.

2.1 Monitoring Requirements

The ODFW will monitor Oregon chub at Russell Pond annually, per availability of funding. In the event that ODFW has reductions in staff or funding for monitoring Oregon chub, FWS will fulfill monitoring responsibilities outlined in this Agreement. Individuals from the Russell Pond may be used to stock or supplement the original donor population, other genetically compatible Oregon chub populations, or to establish new populations of Oregon chub within appropriate sub-basins within the historic range of this species, per approval by

Figure 1. Location of Russell Pond, Marcola Quadrangle, Oregon.

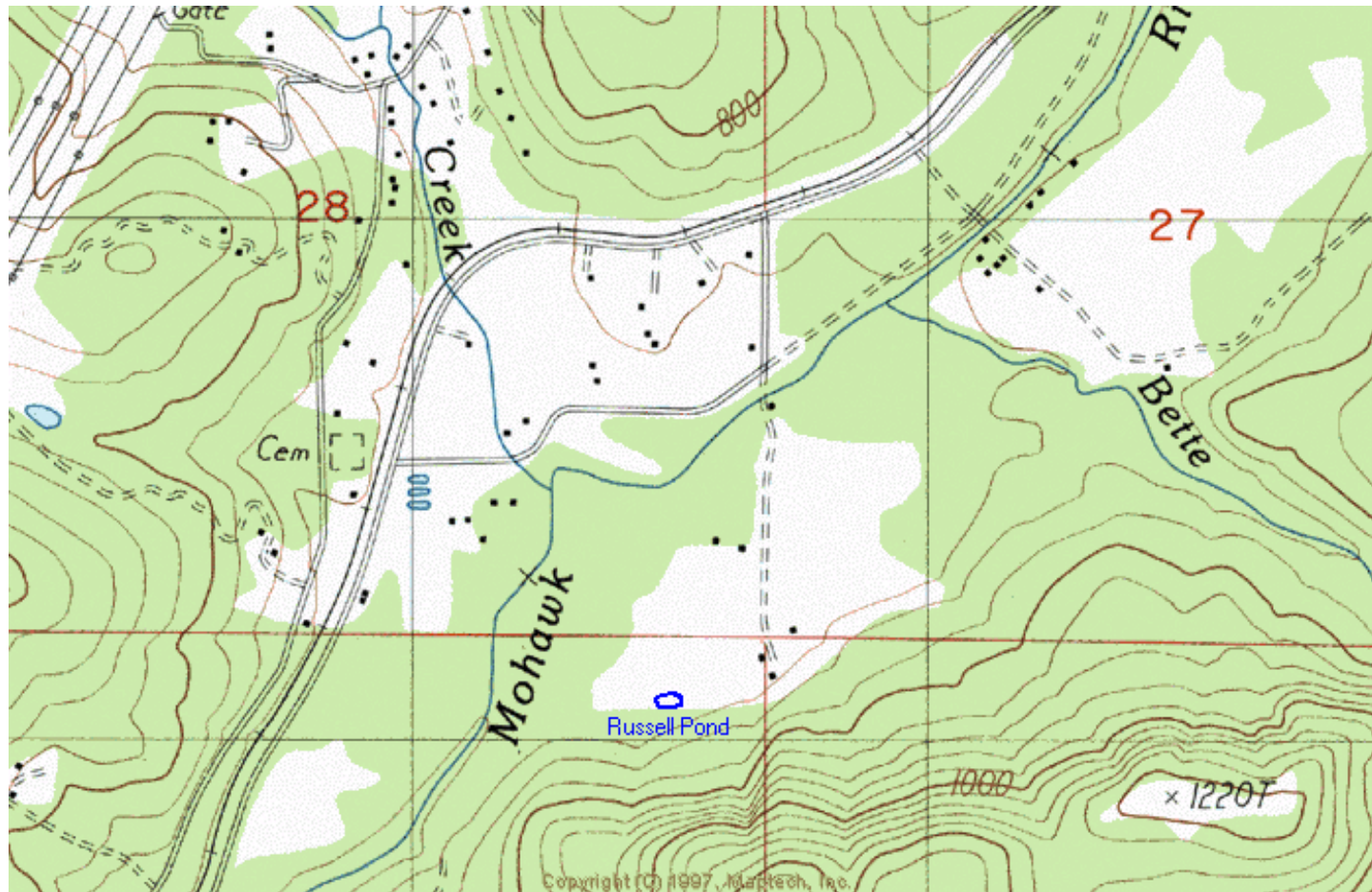
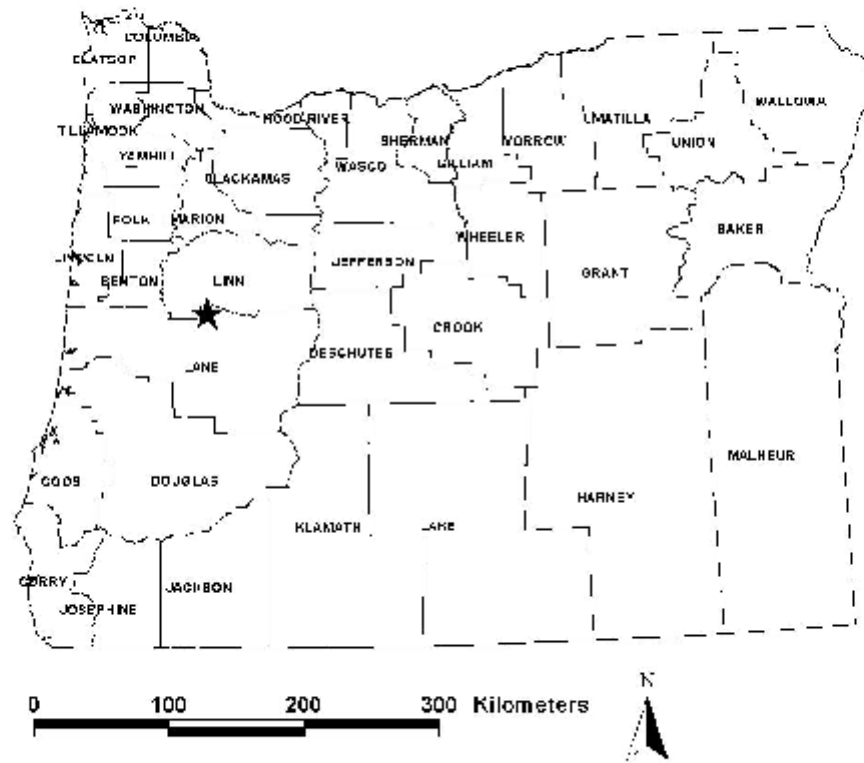


Fig. 2. Approximate location of Applicant Property, Lane County, Oregon



the FWS, Oregon Fish and Wildlife Office, Portland. No more than 10 percent of the Russell Pond population should be removed at one time and this population should not be reduced below 500 individuals.

The ODFW has monitored the donor (parent stock) population of Buckhead Creek since 1999 and will continue monitoring, contingent upon funding, to determine population size and stability. If the donor population is reduced below a threshold of 500 individuals or 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 Russell Pond population, providing that the proximate threats to the donor population are no longer present and providing that the Russell Pond population contains no fewer than 500 individuals or that a decision is made to eliminate the Russell Pond population. Any translocations of Oregon chub from this pond to supplement the donor population must receive prior approval by the FWS, Oregon Fish and Wildlife Office, Portland.

3.0 Description of Enrolled Lands

The enrolled lands, located at Township 15S Range 1W Section 28 SE, consist of an artificial pond comprising a surface area of approximately 800 m² (8,600 ft²) and an average depth of 1.8 m (6.0 ft) (Figure 1). A buffer area comprised of a 15 m (50 ft) set back from the edge of the pond is also included as enrolled lands. Sampling efforts in October of 2000 did not detect any other native or non-native fish present in Russell Pond. The pond's hydrology is supplied by a 10 cm (4 in) diameter diversion pipe from a natural hillside seep located above the pond. Water temperatures range from 6 to 20 degrees Celsius (43 to 68 degrees Fahrenheit) throughout the year, with temperatures above 16 degrees Celsius (61 degrees Fahrenheit) during the spawning season from mid-June to mid-August. Optimal spawning temperatures for Oregon chub range from 16-21 degrees Celsius (61 to 70 degrees Fahrenheit) (Scheerer and McDonald 2000).

The pond was constructed in 1972. It is near the confluence of Drury Creek and the Mohawk River, which feeds into the McKenzie River approximately 24 km (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).

3.1 Overflow Protection

Although overflow of the pond could potentially occur following extreme rainfall events (one hundred year flood event) in the winter months, it is unlikely that Oregon chub would be flushed from the pond or that they would survive in the adjacent river to establish a viable population. Oregon chub tend to remain low in the water profile adjacent to the substrate in winter months (Scheerer, pers.

comm., November 1999), reducing potential for fish to be flushed from the pond in the case of an overflow. In addition, overflow from the pond would travel approximately 400 m (1300 ft) along a 0.5 m (1.5 ft) deep grassy swale before emptying into the Mohawk River, a rapidly flowing tributary with few deeper pools for Oregon chub habitat. Prior to or at the time of Oregon chub introduction into the pond, an overflow valve will be added to the inflow pipe by the ODFW to allow seep inflow to be diverted from entering the pond if the water level in the pond risks overtopping. This would provide management control during one hundred year rain events and thus maximize the refugia benefit of Russell Pond and prevent flushing of Oregon chub into the surrounding watershed.

4.0 Baseline Determination

The baseline condition of the Russell Pond (enrolled lands) was determined based on the presence or absence of Oregon chub currently occupying the pond. October 2000 field surveys by the ODFW resulted in zero Oregon chub occurrence at the site. Therefore, baseline condition for Russell pond is zero (i.e., the pond is not occupied by Oregon chub). Under this Agreement and permit, Russell pond will be stocked with Oregon chub for the establishment of a refugia population and will be monitored annually by the ODFW, per available funding. Incidental take, under conditions listed below (See Section 7.0), will be authorized for the entire Russell pond per discretion of the Permittee upon termination of the permit duration.

5.0 Management Actions for Oregon Chub

The management actions under the Agreement for Oregon chub and the anticipated benefits to the species are:

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

The Agreement would involve movement of no more than 10 percent of the Buckhead Creek population to the Russell pond. Fish will be collected during either May or September-October 2001 population surveys of Buckhead Creek. Approximately 350 Oregon chub will be introduced into Russell Pond, based on 2000 survey data, which estimated 3,570 Oregon chub occurring in Buckhead Creek. In 1999, 3,010 Oregon chub were estimated as occurring at Buckhead Creek.

Subsequent introductions of Oregon chub to Russell Pond from Buckhead Creek will occur in May or September-October of 2002 and 2003, if necessary, until a minimum population size of 500 individuals is achieved. If the introduced population at Russell Pond does not reach 500 individuals by 2003, FWS and ODFW will make a decision

regarding the appropriate course of action based on the situation. Fish mortality in Russell Pond between introductions will be compensated for in subsequent introductions through 2003. No more than 10 percent of the donor population will be collected at any time.

- *Allow the FWS 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 new populations.*

The ODFW will monitor the Oregon chub population and habitat conditions at the Russell Pond annually during either the 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 Oregon Fish and Wildlife Office. A written report on the population status and habitat conditions will be submitted by the ODFW annually to the Oregon Fish and Wildlife Office. Reports will be submitted in conjunction with annual progress reports by April 30.

The carrying capacity of Russell Pond for Oregon chub is determined to be approximately 1,000-1,500 individuals, based on similar sized habitats occupied by this species (Scheerer, pers. comm., November 1999). Once established, the Russell Pond Oregon chub population may be used to supplement existing populations or to establish new populations. All subsequent translocations of Oregon chub from Russell Pond must be approved by the FWS, Oregon Fish and Wildlife Office, Portland. 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 Russell Pond, per approval by the FWS, Oregon Fish and Wildlife Office, Portland, 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 Russell 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 FWS or the ODFW with written notice six months prior (or per FWS 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 implement the take permit, the ODFW will remove Oregon chub from the Russell pond, if deemed practical or necessary by the FWS, Oregon Fish and Wildlife Office, Portland. Timing of Oregon chub translocation shall be during spring or fall sampling (usually in 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 the FWS, 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 FWS or the ODFW with written notice.*

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

6.0 Net Conservation Benefit

This Agreement 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. This Agreement 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 Agreement upon development of a viable population of Oregon chub on the Permittee's property. This process is expected to take approximately two to three introduction efforts and approximately two to three seasons.

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 Russell 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 Agreement includes provisions whereby the introduced population of Oregon chub is protected from future land use alterations for a period of five years. After this time period, should the Permittee choose to undertake activities that result in take of Oregon chub (i.e., stocking of exotic fish, diversion of water for irrigation or other purposes, earthmoving or other silt-generating activities), six months advance notice prior to the upcoming fall or spring sampling season will be provided to the FWS, in writing, to allow the FWS 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 FWS may to evaluate additional sites for potential for introduction of Oregon chub.

7.0 Incidental Take of Oregon Chub

The Enrolled Lands for this Agreement occur within the context of the Permittee's homesite and farm. As such, the Permittee agrees to avoid the following land use activities for the minimum five year Agreement period: diversion of water for irrigation or other purposes, grazing of livestock upslope of or within 15 m (50 ft) of the pond, stocking of fish or amphibian species, logging trees within 15 m of the pond, removal of vegetation surrounding the pond area, use of herbicide or pesticide within 30 m (100 ft) of the pond, and any earthmoving activities within 15 m of the upslope area of the pond. After the five year period is over, these activities will be covered by the permit authorizing incidental take of Oregon chub.

After the five year Agreement period has ended, the Permittee will notify the FWS of intent to engage in any of the above activities, in writing, at least six months in advance. The Permittee will consult with the FWS prior to conducting any of the above activities within a 15-30 m radius of the pond, with the exception of herbicide or pesticide application. In the case of herbicide or pesticide application, the Permittee will consult with FWS prior to application 30-45 m (100-150 ft) upslope of the pond. All chemical applications will be according to label specifications and will be non-persistent. FWS may decide to remove the fish from Russell Pond, depending upon the herbicide or pesticide utilized. The Permittee will provide the FWS with notice, in writing, six months in advance of any planned introductions of fish or amphibians to allow the FWS and the ODFW opportunity to translocate Oregon chub from the site.

As stated in Section 4.0, no Oregon chub currently occupy the Enrolled Lands. In addition, expansion of this species beyond the Enrolled Lands is highly unlikely and will actually be prevented through overflow protection measures outlined in Section 3.1. The Incidental Take permit will be valid for 30 years following completion of the five year no-take period. 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 agreement.

8.0 Responsibilities of the Parties

The 800 m² spring fed pond on the Permittee's property will be stocked with Oregon chub taken from a naturally occurring population at Buckhead Creek. The pond and a surrounding 15 m buffer zone will be protected from landuse activities deemed to be incompatible with Oregon chub survival and listed above in Section 7.0 for a minimum of five years.

8.1 ODFW

Contingent upon continued availability of ODFW budget allocation (or competitive grant funding received) for conservation actions to benefit Oregon chub, ODFW will be responsible for the following actions:

- Conduct initial introduction of Oregon chub to Russell Pond using fish translocation protocols listed in Appendix A of this document.
- Install and monitor an overflow device to prevent winter overtopping of the Russell Pond. Device will consist of a valve and length of pvc pipe to allow for diversion of inflow from the seep around the pond. Communicate with Permittee to ensure that pond levels will be monitored in winters with high rainfall and diversion will occur if potential exists for the pond to overtop.
- Annually monitor the Russell Pond Oregon chub population size, habitat conditions, and potential threats to the population, per the protocol identified in Appendix B of this document, contingent upon availability of funding.
- Submit annual monitoring reports by April 30 annually to the Oregon Fish and Wildlife Office, 2600 SE 98th Avenue, Suite 100, Portland, Oregon 97266.
- Conduct removal of Oregon chub from the Russell Pond, per approval by the FWS, 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.

8.2 USFWS

- Monitor Russell Pond annually for Permit compliance.
- Provide review, advice, and approval to the ODFW regarding necessity of translocating Oregon chub from Russell 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.
- Provide timely review and response to written notice of intent to implement the incidental take agreement by the Permittee. Provide non-mandatory technical

advice on techniques to minimize impacts to Oregon chub.

- In the event that ODFW will not be able to conduct the annual monitoring of Russell Pond during the period of this Agreement, FWS will try to assume monitoring responsibilities for that year.
- 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 Agreement and satisfaction of all other legal requirements, the FWS 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 except if this Agreement is terminated prior to completion of its five year term, in which case the permit will also be terminated. The activities that will be covered are: diversion of water for irrigation or other purposes, grazing of livestock upslope of or within 15 m (50 ft) of the pond, stocking of fish or amphibian species, logging of trees within 15 m of the pond, removal of vegetation surrounding the pond, use of herbicide or pesticide within 30 m (100 ft) of the pond, and any earthmoving activities within 14 m of the upslope area of the pond.

8.3 Permittee

- Allow the FWS and the ODFW access to the enrolled lands for Oregon chub introduction and for monitoring of permit compliance, habitat conditions, and population status.
- Observe winter pond levels and provide notification to the ODFW and the FWS if pond overtopping appears likely or imminent.
- For initial five years following Oregon chub introduction, no diversion of water for irrigation or other purposes such that pond levels are lowered beyond current conditions, no grazing of livestock upslope of, or within 15 m (50 ft) of the pond, no stocking of non-native or competitor fish or amphibian species, no logging trees within 15 m of the pond, no removal of vegetation surrounding the pond area, no use of herbicide or pesticide within 30 m of the pond, and no earthmoving activities within 15 m of the upslope area of the pond.
- Provide six months written notice of intent to implement incidental take permit through any action which would result in loss or degradation of habitat or introduction of predators.

9.0 Monitoring and Reporting

The ODFW will be responsible for annual monitoring and reporting related to this Agreement, per section 8.1 and as identified in Appendix B. Annual reports will provide information on: 1) the number of Oregon chub translocated from Buckhead Creek to Russell 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 Russell 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 Russell Pond; 6) recommendations for translocation of Oregon chub from the Russell Pond due to overcrowding, imminent threat to the population, or other reasons; and 7) management recommendations for Russell Pond or the surrounding habitat. Reports will be due annually by April 30 to the FWS Oregon Fish and Wildlife Office, Portland, Oregon. A copy will be sent to the Permittee and to the FWS Regional Office in Portland, Oregon.

10.0 Additional Measures

10.1 Modifications and Amendments

10.1.1 Modifications to the Agreement. Any party may propose modifications to this Agreement 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.

10.1.2 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 FWS's permit regulations. The party proposing the amendment shall provide a statement of the proposed amendment and the reasons for the amendment.

10.2 Permit Suspension or Revocation. The FWS 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.

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

- 10.4 Dispute Resolution.** The parties agree to work together in good faith to resolve any disputes, using dispute resolution procedures agreed upon by both parties.
- 10.5 Availability of Funds.** Implementation of this Agreement is subject to the requirements of the Anti-Deficiency Act and the availability of appropriated funds. Nothing in this Agreement 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 FWS will not be required under this Agreement 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.
- 10.6 No Third-party Beneficiaries.** This Agreement 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 Agreement to maintain a suite for personal injuries or damages pursuant to the provisions of this Agreement. The duties, obligations, and responsibilities of the parties to this Agreement with respect to third parties shall remain as imposed under existing law.
- 10.7 Relationship to Authorities.** The terms of this Agreement shall be governed by and construed in accordance with applicable Federal law. Nothing in this Agreement is intended to limit the authority of the FWS to fulfill its responsibilities under Federal laws. All activities undertaken pursuant to this Agreement or the permit must be in compliance with all applicable state and Federal laws and regulations.
- 10.8 Succession and Transfer.** This Agreement shall be binding on and shall inure to the benefit of the parties and their respective successors and transferees, in accordance with applicable regulations.
- 10.9 Notices and Reports.** Any notices or reports required by this Agreement shall be delivered, in writing, to the person(s) listed below:

Robert Russell

Supervisor
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)

11.0 References

Markle, D.F. and T.N. Pearsons, and D.T. Bills. 1989. Taxonomic status and distributional survey of the Oregon chub, *Oregonichthys crameri*. Final report (unpublished) to ODFW (Contract No. OSU 30-262-9714). 29 pp.

Markle, D.F. T.N. Pearsons. 1990. Petition to list the Oregon chub, *Oregonichthys crameri*, as an endangered species. Manuscript. Oregon State University, Corvallis.

Markle, D.F., T.N. Pearsons, and D.T. Bills. 1991. Natural history of *Oregonichthys* (Pisces: Cyprinidae), with a description of a new species from the Umpqua River of Oregon. *Copeia* 1991(2):277-293.

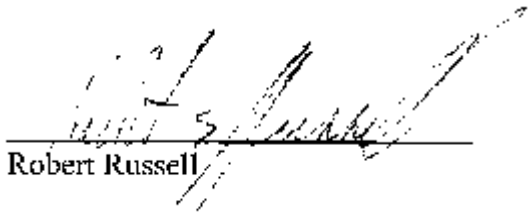
Scheerer, P.D. and P.J. McDonald. 2000. Oregon chub research: Middle Fork Willamette and Santiam River Drainages. Unpublished. Oregon Department of Fish and Wildlife, Fish Research Project October 1999-September 2000. Annual Progress Report, Portland.

Scheerer, P.D., C.S. 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.

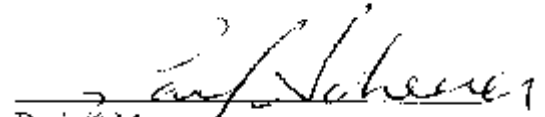
Scheerer, P.D., C.S. Mease, P.S. Kavanagh, and K.K. Jones. 2001. Oregon chub investigations. Unpublished. Oregon Department of Fish and Wildlife, fish Research Project May 2000-April 2001. E-2. Annual Progress Report, Portland.

U.S. Fish and Wildlife Service. 1998. Oregon chub (*Oregonichthys crameri*) Recovery Plan. Portland, Oregon. 69+ pp.

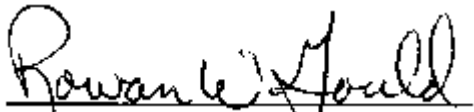
IN WITNESS WHEREOF, the parties hereto have executed this Agreement to be in effect as of the date that the FWS issues the permit.



Robert Russell



Project Manager
Oregon Department of Fish and Wildlife



Deputy Regional Director
U.S. Fish and Wildlife Service

12.0 Appendix A: Oregon Chub Translocation Guidelines

- 12.1 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.

- 12.2 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

- 12.3 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.
- 12.4 Post-Introduction Activities.** Conduct systematic monitoring of introduced populations. Determine cause of unsuccessful introductions. Restock if warranted. Document findings and conclusions.

13.0 Appendix B: Oregon Chub Monitoring Protocol

13.1 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 FWS hydrolab. Temperature during the breeding season will be measured annually.

13.2 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.

13.3 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 Russell 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.

13.4 Literature Cited

Ricker, W. E. 1975. Computation and interpretation of biological statistics of fish populations. Fisheries Research Board of Canada, Bulletin 191, Ottawa, Ontario.