

Seldom Seen Ranch Site Plan between National Marine Fisheries Services and California Department of Fish and Wildlife for the Template Safe Harbor Agreement for Coho Salmon (*Oncorhynchus kisutch*)

May 3, 2019

Introduction

This Site Plan for the Template Safe Harbor Agreement (Agreement) for Southern Oregon and Northern California Coast (SONCC) Evolutionarily Significant Unit (ESU) of coho salmon (the Covered Species) is between the Seldom Seen Ranch, operated by Emmerson Investments, Inc. (hereinafter referred to as the Permittee), National Marine Fisheries Service (NMFS) and California Department of Fish and Wildlife (CDFW). This Site Plan Agreement, combined with the measures prescribed in the Agreement, may serve as the basis for NMFS to issue a federal enhancement of survival permit (Permit) to the above named Permittee pursuant to section 10(a)(1)(A) of the Endangered Species Act of 1973, as amended (ESA). The joint and respective responsibilities of NMFS, CDFW and the Permittee are detailed in the Agreement. The Site Plan Agreement is subject to terms of the Template Safe Harbor Agreement and Permit.

This Site Plan Agreement documents site-specific information detailing the Permittee's Enrolled Property, including the location and management authority of the property, its baseline conditions, existing and, as available, proposed future land-use activities, and the duration of this Site Plan Agreement and requested permit. This Site Plan Agreement also documents the agreed-upon conservation measures to be undertaken by the Permittee on the Enrolled Property that are expected to benefit coho salmon.

Enrolled Property: Location and Property Information

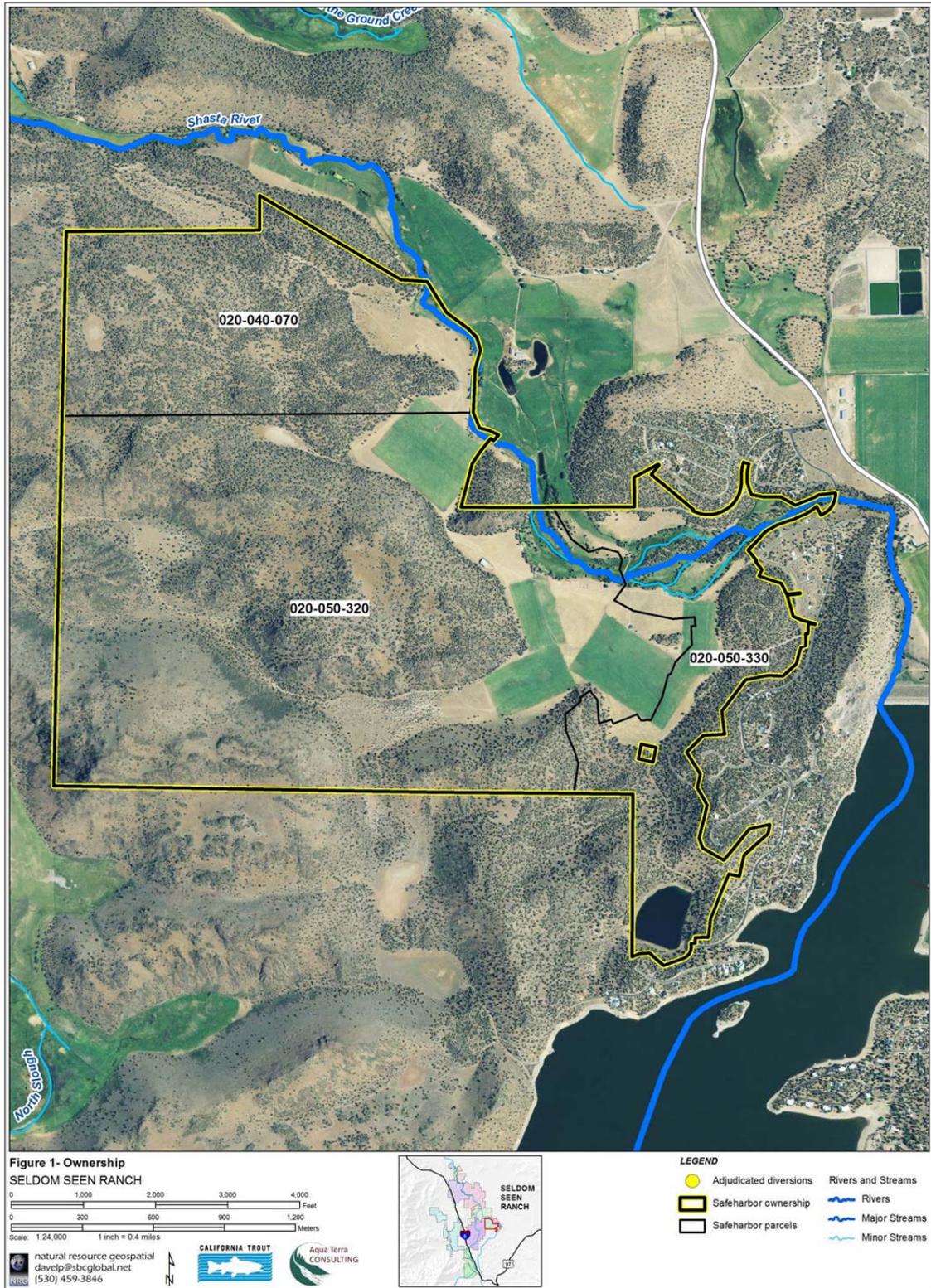
Location

The Seldom Seen Ranch (Enrolled Property *or* Ranch) is located north of Lake Shastina and west of Big Springs Road. The Ranch shares an eastern and northeastern boundary with the Shadow Hills subdivision. To the north lie the Mallet Hidden Valley and Hole in the Ground ranches and to the west, the Shasta Springs Ranch.

Property Information

The Enrolled Property is used primarily for beef cattle production and is currently managed as an integrated unit with three other ranches owned and managed by the Permittee. The three contiguous properties, including the Seldom Seen Ranch, are managed for pasture for beef cattle, while the Hay Ranch is managed for hay for winter feed to support the three cattle ranches. Using hay from the Hay Ranch during the winter minimizes the amount of grazing necessary to maintain the cattle at the other sites, which allows the pasture grasses to be maintained at very high levels of ground cover. The high level of ground cover minimizes surface erosion and fine sediment contribution to the sensitive aquatic systems on the ranch, and inhibits the establishment of noxious weeds.

Figure 1. Seldom Seen Ranch: Property Ownership Description



The Shasta River is the only fish-bearing stream on the Enrolled Property. The Seldom Seen Spring is a hydrologically unique feature of the landscape of the Seldom Seen Ranch. It is not accessible to fish. It is an unreliable spring that emerges in some years in the vicinity of (122.389W, 41.544N) under wet hydrologic conditions. The spring drains north to the Shasta River, flowing in a channel for approximately 500' across a gentle slope before dropping into the river, 10± vertical feet in 75± feet linear distance, through heavy riparian vegetation. In years when it flows, it appears as a small seep in Feb-April, but relatively quickly can increase to more than two cfs, sometimes to as much as nine cfs. Usually sometime in June, if not sooner, the flow just as quickly diminishes to zero. This water is not used for irrigation on the Enrolled Property.

For the purposes of this Agreement, activities on the Enrolled Property have the potential to influence the Upper Shasta River sub-reach.

Table 1. Legal Description of Property

APN	ASSESSED_ACRES	OWNER	REFERENCE
020040070	316	EII	SELDOM SEEN RANCH
020050320	857.2	EII	SELDOM SEEN RANCH
020050330	247.8	EII	SELDOM SEEN RANCH

Description of Water Rights

The Enrolled Property is irrigated with groundwater or precipitation. That, currently, is all. There is a production well with approximately a 1330 GPM flow rate, supplying about five-thousand feet of pressurized pipe for wheel-lines.

There are four points of diversion on the Seldom Seen Ranch. One of these is currently the irrigation diversion for the neighboring Mallet Hidden Valley Ranch (MHVR), Division of Water Rights (DWR) Point of Diversion (POD) 158. The other three diversions historically diverted irrigation, stock, and domestic water for the Seldom Seen Ranch, but are currently non-active. The soils of the Seldom Seen are good but porous and the long, unlined ditches are inefficient.

The Ranch decreed water rights to the use of the natural flow of the Shasta River are described in paragraphs 356, 357, and 358 of the Shasta River Adjudication Proceeding, Judgement and Decree entered December 30, 1932 (Shasta River Decree). The Shasta River Decree establishes the relative rights of the various claimants according to the doctrine of prior appropriation.

The Ranch has an “In Lieu” or “Prior Rights” Agreement with Montague Water Conservation District (MWCD). The owner of the property, the Enrolled Property in this Site Plan, continues an agreement, made by the owner in the 1920’s, with the MWCD to be furnished storage waters from the reservoir (i.e. Lake Shastina) to the lands of the property owner for the loss of use of the natural flow of the river that was used for irrigation prior to the building of the MWCD dam in that era. The amount “shall be superior to the rights of the District,” and shall be delivered “at such times and in such amounts as ordered” by the property owner during each calendar year until the total is delivered. The owner of the land currently called the Hole in the Ground Ranch, recorded a similar agreement with MWCD. Currently, the “In Lieu” amount of up to 924 acre-feet, is used by the Permittee on the Hole in the Ground Ranch, which is also owned by the Permittee. The Permittee has reviewed the records for the water rights for the Ranch and certifies the use described herein is considered otherwise legal under the Decree and the Watermaster District.

Outside of the summer irrigation season, the Enrolled Property continues to exercise the Adjudicated winter diversion right for 0.5 cfs of stock water. The stock watering right is used by cattle at designated and protected watering access lanes on the Shasta River.

Table 2 shows the water use on the Enrolled Property. The information presented in Table 2 is a good-faith effort to present the irrigation and stock water management by the Permittee for the purpose of understanding the possible changes through time and space from the ranch stewardship and the context for improving aquatic habitat conditions for the covered species. It may not be suitable for any other purpose. The variables displayed in the table are a compilation of data and estimates from a variety of sources and through a range of hydrologic conditions.

Figure 2. Seldom Seen Ranch: Water Use and Management

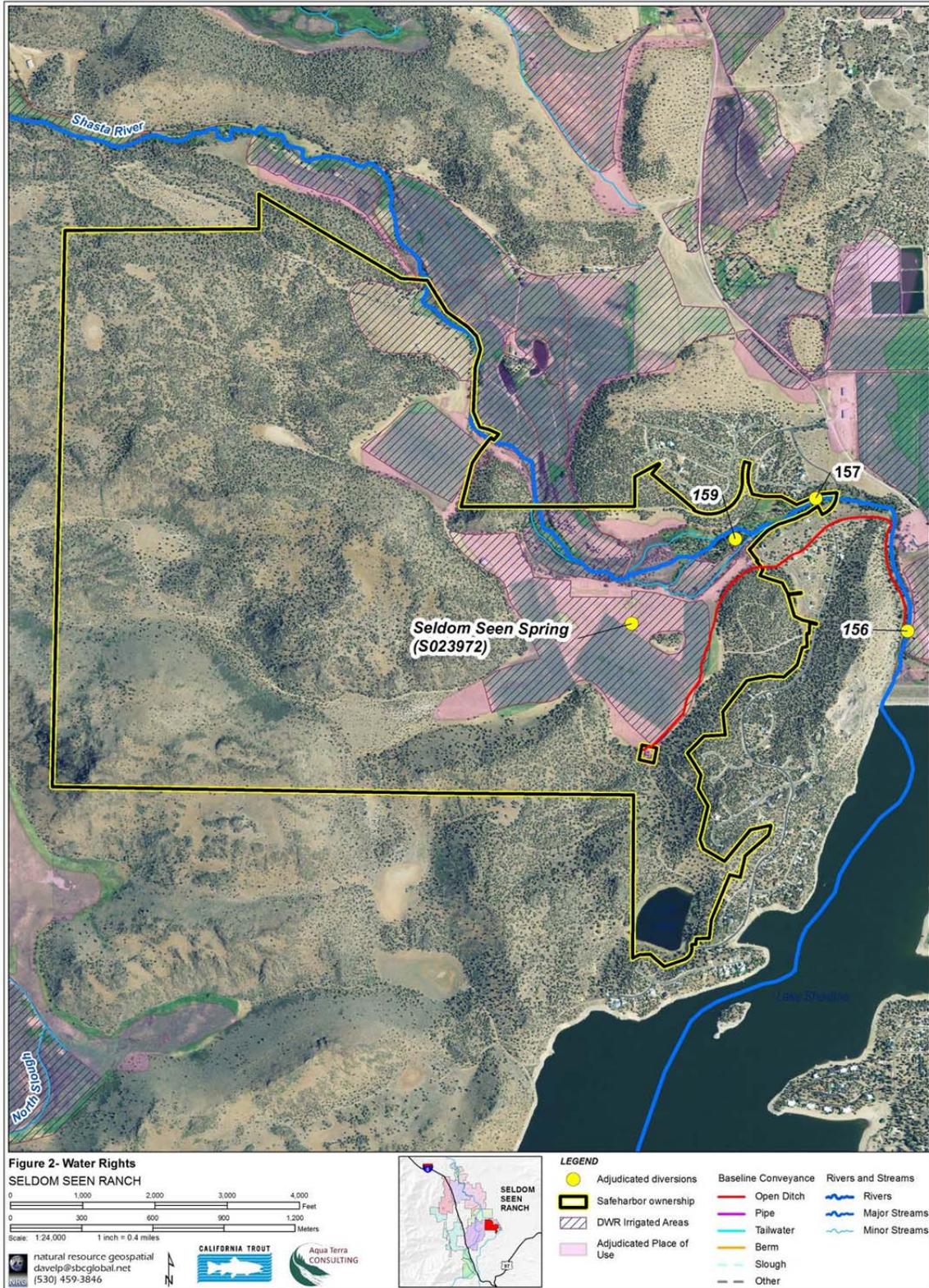


Table 2. Seldom Seen Ranch – Water Rights, Amounts, Timing, Days Used, and Acreage

Note: The information presented in this table is an estimate of potential use, is presented for the purpose of understanding how habitat conditions will be enhanced, and is not intended for any other use. The data below are a compilation of estimates from a range sources and hydrologic conditions.

Report	Diversion #/ Water Source	Description	Season	Licensed, Riparian, or Adjudicated Amounts	Approximate Ac-Ft per Season Diverted	Approximate Days per Season Diverted	Approximate Acreage Irrigated with Diversion
NA	Ground Water	Seldom Seen Well	March 1 – Nov 1	NA	515	215	96
Watermaster	156/Shasta River	stock water right (for non-active diversion)	Nov 1 – March 1	<=0.5 cfs	<= 5	121	Stock Water

C. Baseline Conditions

C.1. Present Baseline

Baseline Conditions means the habitat conditions for the Covered Species on the Enrolled Property when NMFS approves this Site Plan Agreement. Baseline Conditions for the Enrolled Property are the conditions described in the Agreement for the Upper Shasta River Reach.

C.2. Elevated Baseline

Elevated Baseline Conditions are certain Baseline Conditions on the Enrolled Property that are improved as a result of implementation of certain Beneficial Management Activities.

Table 3 summarizes the Beneficial Management Activities required to maintain Baseline Conditions and to achieve Elevated Baseline Conditions on the Enrolled Property for the term of the Site Plan Agreement. The Beneficial Management Activities implement habitat enhancement actions recommended in the Agreement for the reaches of the Shasta River on the Enrolled Property. Section E below describes the activities in more detail.

Table 3: Net Conservation Benefit Actions, Summary: Seldom Seen Ranch

Habitat Parameter	Net Conservation Benefit Actions			
	Projects for Present Day Baseline (Completed)	Present Day Baseline (Maintain)	Elevated Baseline Condition (Upgrade)	Other Beneficial Management Activities
Hydrology/Water Quality	<p>Fencing completed in (or about) 2013 excludes cattle from accessing channel and banks</p> <p>Cooperated with studies & surveys for project to construct new distribution system for MHVR diversion at – (W122.38123, N41.54835)</p> <p>Participated in Irrigation Efficiency Study to evaluate</p>	<p>Continue to irrigate with groundwater, utilizing the stored “Prior Rights” downstream, per current Upper Shasta River Flow Management Strategy</p>	<p>Agree to continue cooperation in project to upgrade MHVR diversion system adjusting stocking to reflect loss of pasture productivity (≥10 acres) <i>Time Frame: Underway; Completion Estimated within 5 years of Permit issuance</i></p> <p>Agree to re-plumb supply for wheelines eliminating drain water entering</p>	<p>Agree to participate in Upper Shasta River Diversion Strategy <i>Time Frame: At Permit issuance, for duration of Permit</i></p> <p>Agree to include Ranch pastures in Project Area for testing effectiveness of soil moisture sensor technology, or other appropriate technology, to increase irrigation efficiency, implement routine use where appropriate, and adjust water management accordingly <i>Time Frame: During first 15 years from Permit Issuance</i></p>

Habitat Parameter	Net Conservation Benefit Actions			
	Projects for Present Day Baseline (Completed)	Present Day Baseline (Maintain)	Elevated Baseline Condition (Upgrade)	Other Beneficial Management Activities
Passage/Migration/Screening	<p>opportunities for additional instream flow for covered species habitat (Davids Engineering 2011)</p> <p>No known use of sub-reach by salmonids until in 2011 Permittee provided access for CDFW evaluation, subsequently documenting use of the sub-reach as rearing habitat (CDFW, 2011, "Field Note 7/6/11")</p>		<p>channel as warmed surface water <i>Time Frame: Within 2 years of permit issuance</i></p> <p>Agree to eliminate Covered Species passage barrier at Diversion 156 (W122.37550, 41.54393) <i>Time Frame: Underway; Completion Estimated within 5 years of permit issuance</i></p>	<p>Agree to continue to provide access and work collaboratively with NMFS & CDFW to conduct studies of salmonid populations, habitat use, and distribution in the upper Shasta River on the Ranch</p> <p>Agree to develop and implement beaver management plan to alter or provide access around potential migration barriers at dams (<i>Seldom Seen Section E.3.c.</i>) <i>Time Frame: within 5 years of permit issuance</i></p>
Large Wood/Channel Type/ Capability	<p>Dam-building beavers are not discouraged except where crossings or fencing are impaired</p>			<p>Agree to work collaboratively with NMFS & CDFW to design and implement a project for addition of large wood, up to 23 sites (<i>Seldom Seen</i>)</p>

Habitat Parameter	Net Conservation Benefit Actions			
	Projects for Present Day Baseline (Completed)	Present Day Baseline (Maintain)	Elevated Baseline Condition (Upgrade)	Other Beneficial Management Activities
Riparian Condition/ Acres	Fencing completed in (or about) 2013 excludes cattle from accessing riparian habitat	<p>Agree to maintain riparian exclusion fencing or, if modified, riparian pasture fencing with associated grazing plan</p> <p>Will replace up to 20% of riparian fencing if needed due to high flow damage; will request funding assistance for balance of repairs</p>		<p><i>Section E.3.c.; Figure 5) Time Frame: Underway; Completion Estimated within 10 years of permit issuance</i></p> <p>Agree to work collaboratively with NMFS & CDFW to design and implement a project for riparian habitat enhancement (<i>Seldom Seen Section E.3.c.</i>) Time Frame: Underway. Estimated completion within 15 years of permit issuance</p>
Instream Habitat Complexity (alcoves, side channels and floodplains)				<p>Agree to work collaboratively with NMFS & CDFW to design and implement a project to increase in-stream habitat complexity, generally and specifically at the confluence of the Seldom Seen Spring channel and the river. (<i>Seldom Seen Section E.3.c.</i>) Time Frame: Underway; Completion Estimated within 10</p>

Habitat Parameter	Net Conservation Benefit Actions			
	Projects for Present Day Baseline (Completed)	Present Day Baseline (Maintain)	Elevated Baseline Condition (Upgrade)	Other Beneficial Management Activities
Substrate Quality		Two vehicle/livestock crossings/ watering access lanes will be maintained as rocked fords. One vehicle crossing will be maintained in appropriately-sized CMP(<i>Seldom Seen Section E.1.c.</i>)		<i>years of permit issuance</i> Agree to develop and implement beaver management plan to mitigate potential migration barriers at dams (<i>Seldom Seen Section E.3.c.</i>) <i>Time Frame: Within 5 years of permit issuance</i>

D. Routine Land Use

D.1. Present Routine Land Use

Cattle have been the mainstay of the productivity of this ranch for more than one hundred and sixty years, with several owners since the parcels were first patented in mid-1800's. Every owner has left their mark on the Ranch by different pasture utilization practices reflected in the varied configurations of fencing, changes in the amount and types of feed crops grown, and especially in the modifications and improvements in the way water is acquired, conveyed, and utilized to irrigate.

Historically, this ranch was managed by different owners, with or without support from feed on other properties and with different carrying capacities to utilize the irrigated and seasonal pastures available on the land. Just as currently, each ranch operation would have had to plan for winter feeding by selling or moving the cattle, acquiring feed from another source, or growing and storing its own hay.

Depending on which of these management options were pursued successfully, the carrying capacity and pasture rotations on this property would have been adjusted accordingly.

Present Routine Land Use

The ranch is managed as a portion of a larger cow-calf outfit. Calving typically begins in early October and lasts through December. Calves are weaned, beginning at the end of July and shipped in August and September before the next round of calving, with some heifers kept each year for replacements.

The Seldom Seen Ranch consists of 1420± acres. Pastures on the Seldom Seen are managed in rotation with pastures on the Hole in the Ground Ranch. Depending on the season and available feed, 150-175 pairs and, seasonally, a few bulls are trailed cross country to the Seldom Seen to utilize those pastures.

Cattle are fed by irrigated pastures (150± acres) and dry land range (1270± acres) supplemented by feeding hay grown on another ranch in the Shasta Valley. Supplemental feeding begins about the end of November and lasts through the end of March, by which time pasture and range conditions are sufficient to sustain the herd.

The irrigated pastures are primarily grass species and are sprinkler irrigated with wheel-lines supplied by one well and approximately 5000 feet of pressurized pipe. At the end of each rotation, wheel-lines are drained before returning to the top of the field.

There are two rocked fords on the Shasta River for stock crossings and watering, both of which are also used for ATVs on occasion. The rocked fords are used by an ATV 1-3 times per week, April to October, and by cattle 1-2 times per day, in roughly the same time period. Angular rock was placed on both approaches to the crossings when they were constructed at an unrecorded time in the past. The channel that conveys the spring water passes through a culvert at a Ranch road crossing.

The following Routine Land Use activities will be implemented in accordance with the relevant AMMs described below in Section D.2.

D.1.a. Irrigation Management

Currently, irrigation on the Enrolled Property is with groundwater or precipitation only.

Activities:

- Maintain measuring device for Seldom Seen Spring

D.1.b. Irrigation Maintenance

Since fields are irrigated by sprinkler, a highly efficient method of delivering water to the pastures, there are currently no ditches, pumps, fish screens, or tailwater berms to build or maintain.

Activities:

- None

D.1.c. Riparian Pasture Grazing Management

Activities:

- None

D.1.d. Fence Maintenance

Activities:

- Maintain narrow-corridor riparian exclusion fencing
- Maintain panels and/or fencing in riparian zone to limit livestock access to channel at water gaps, crossings, and property boundaries
- Remove and/or replace panels and/or fencing at water gaps for high stream flow events

D.1.e. Road Use and Maintenance

Activities:

- Except for crossings, no roads are closer than 75 feet of a perennial or seasonal stream. The road receives light use, primarily by Ranch ATVs (1-3 times per week) and occasionally by pickups, hay trucks (daily, November-April, irregularly thereafter; averaging less than twice a week), or medium-duty equipment (12 times per year). The side slope between the road and the river is almost flat for no less than fifty feet and covered with perennial grasses or riparian vegetation.

D.1.f. Livestock and Vehicle Wet Crossings and Watering Lanes

Activities:

- Use and maintain two vehicle fords across Shasta River
- Periodic use of wetted fords for crossing cattle at two designated crossings (same as vehicle fords)
- Crossings will be maintained for crossing vehicles and watering and crossing livestock
- One instream stockwatering only point will be maintained using panels or other effective livestock management equipment to limit access to approximately twenty-five linear feet of wetted channel to meet watering needs for up to 175 pairs.

D.1.g. Herbicide (Weed Management), Fertilizer, or Pesticide Use

Activities:

- Periodic use of herbicide to control invasive plants at hay barn. All facilities are more than 500' from a stream.

D.2. Avoidance and Minimization Measures

D.2.a. Water Diversion and Diversion Facilities

There are no actively managed surface water diversions. No AMM are proposed.

D.2.b. Irrigation Management and Maintenance

Seldom Seen fields are irrigated by sprinklers supplied by pressurized pipe from a well. No AMM are proposed.

D.2.c. Pasture and Riparian Grazing Maintenance

There is no grazing of riparian pastures or exclosures on the Seldom Seen. No AMM are proposed.

D.2.d. Fence Maintenance

Per the Agreement for this section, the following AMMs will be applied on the Ranch:

Inspect riparian exclusion fencing during and after each season of grazing and after high flow events where over bank flows may inundate fences and prior to and after riparian grazing has occurred. If riparian exclusion fencing is damaged, repair fencing and move livestock, as appropriate, to minimize resource impacts. If cattle are present, riparian fences shall be repaired within 30 days.

If riparian fences are lost due to a catastrophic event, the Permittee will notify agencies of the loss in the annual report. The Permittee will repair up to twenty percent of fencing and request funding assistance for the remaining repairs beyond this commitment. Cattle will not have access to areas of riparian areas normally excluded through other provisions of the AMM's.

Monitoring:

A short description of fence maintenance activities will be included in the annual report.

D.2.e. Road Maintenance

Per the Agreement for this section, the following AMMs will be applied on the Ranch:

Ensure fish passage at road crossings of streams that are accessible to the Covered Species including at bridges, wet crossings and culverts. Any instream crossing structure will be designed and implemented in accordance with the fish passage evaluation methods specified in the 2010 4th edition of the Department's California Salmonid Stream Habitat Restoration Manual. The most current edition of the manual is available at: <http://www.dfg.ca.gov/fish/Resources/HabitatManual.asp>.

Minimize erosion and sedimentation from roads and road work. Rock road crossings and approaches to stream channels to minimize sedimentation. Utilize mulch or other suitable materials, as necessary, to minimize sediment runoff and transport to surface waters. Apply mulch so that not less than 90% of the disturbed areas are covered. Apply all mulches, except hydro-mulch, in a layer not less than two (2) inches deep. Where appropriate, all mulches will be kneaded or tracked-in with track marks parallel to the contour, and "tackified" as necessary to prevent excessive movement. All exposed soils and fills, including the downstream face of the road prism adjacent to the outlet of culverts, will be reseeded with non-invasive species at a rate which will ensure establishment.

Planned Instream work will occur only when Covered Species are least likely to be present or affected by the project, typically from June 15 through November 1.

Avoid using native surface roads for heavy traffic during wet or thaw periods, and roads not designed and constructed for these conditions. Evaluate the future needs for a road and close roads that will not be needed. Inspect roads annually to determine the need for structural maintenance. Conduct maintenance practices, when conditions warrant, including cleaning and replacement of deteriorated structures and erosion controls, grading or upgrading road surfaces with aggregate. Properly maintain permanent stream crossings and

associated fills and approaches to reduce the likelihood (a) that stream overflow will divert onto roads, and (b) that fill erosion will not occur if the drainage structures become obstructed

Monitoring:

A short description of annual road maintenance activities will be included in the annual report.

D.2.f. Livestock and Vehicle Wet Crossings and Watering Access Lanes

Per the Agreement for this section, the following AMMs will be applied on the Ranch:

Cross livestock and vehicles only at stable designated locations where potential spawning gravel, incubating eggs, and fry are not present. Wet crossings and watering access for cattle should be armoured with rock. Fencing should be installed to guide the cattle to the crossing and, where necessary, across the stream on the armoured surface while minimizing impacts to the stream and stream banks.

Factors considered when selecting a crossing and/or watering access location include the stream gradient, channel width, and the ability to maintain the existing channel slope. Generally, to construct a crossing, a boulder weir is placed on the downstream side of the crossing and angular quarry rock is placed in the crossing location; the width of the crossing does not exceed 25 feet; the crossing spans the entire width of the channel; the crossing is “keyed” into the bank on each side; the approaches on both sides do not exceed a slope of 3:1; and bank armoring (usually using quarry rock) is added where needed. Watering access lanes are of similar construction and may or may not span the width of the channel.

Angular rock will be applied to the crossing, or watering access lane, during the period of June 15 through November 1 and maintained over time. The diameter of angular rock will be selected so as to eliminate the risk of angular rock becoming a grade control affecting channel conditions. In locations where the stream crossings occur on intermittent streams, application of rock will occur when the stream channel is dry.

Once a crossing, or watering access lane, is established, the landowner will collaborate with agency staff after high flow events and/or after gravel introduction, to inspect the crossing and ensure it has not been compromised. The inspection will be completed in spring or early summer.

When operating vehicles in wetted portions of a stream channel, check and maintain vehicles on a daily basis to prevent leaks of materials that, if introduced to water, could be deleterious to aquatic life, wildlife, or riparian habitat; minimize the number of passes through the stream to avoid increasing the turbidity of the water to a level that is deleterious to aquatic life; and allow the work area to “rest” after each individual pass of the vehicle that causes a plume of turbidity above background levels, resuming work only after the stream has reached the original background turbidity levels.

Monitoring:

All maintenance activities related to livestock and vehicle crossing and watering access will be monitored as follows:

Provide Photo Monitoring in the Annual SHA report that can clearly document changes over time and/or management activities. The Permittee will do the following as part of photo point monitoring:

1. Establish, label and re-occupy set photo points, with a permanent marker in view of the photo monitoring point (i.e. fencepost, hillside, large tree, etc.).
2. Provide a Photo Point monitoring map which includes:

- Points showing the exact location of each photo monitoring point on the Ranch
 - Labels for each photo monitoring point with a site code (Ranch ID/Photo Point #)
 - Directional orientation of photos
 - Map scale and North marker
 - Landmarks such as labeled road crossings and waterways.
3. Photo log which includes:
- Site code
 - Photo's code (digital label)
 - Date photos were taken
 - Description of what was being documented (riparian growth, project implementation, etc.)

D.2.g. Herbicide (Weed Management), Fertilizer, and Pesticide Use

Per the Agreement for this section, the following AMMs will be applied on the Ranch:

Ensure that any pesticide or herbicide is handled and applied by a licensed applicator (when required) in accordance with and all applicable, federal, state, local laws, regulations, procedures, and guidelines. Application of pesticides will be in conformance with the pesticide label as well as any required buffers from anadromous streams in conformance with the Order entered in Washington Toxics Coalition et al. v. Environmental Protection Agency et al., (W.D. Wash No. C01-132C) (January 22, 2004). When possible, areas will be spot treated to reduce the amount applied. Use of broad spectrum insecticides will be minimized or avoided as they are more likely to be harmful to non-target organisms including fish and aquatic insects if exposed. Chemicals with the lowest possible toxicity rating will be used when possible. Use of mobile, pre-emergent herbicides will be minimized or avoided as they can impact non-target plants in the riparian area leading to other impacts such as sedimentation. The Applicant will avoid or minimize exposing aquatic resources by managing spray drift. This includes using modern spray equipment (e.g., low volume or electrostatic sprayers); routinely checking for nozzle wear and calibrating the sprayer frequently throughout the growing season; turning off the sprayer along creeks, drainages and in the turn-around areas; supervising the spraying to minimize effects to surface waters.

Use care to minimize fertilizer use in applications that could result in nutrient loading to natural waterways.

Review label information and avoid the use of any material known to be detrimental to fish where it could impact Covered Species.

Use or store stationary petroleum-powered equipment in a manner to prevent the potential release of petroleum materials into natural waterways by use of drip pans or other measures

Refuel machinery and handle or store hazardous materials no less than one hundred and fifty (150) feet away from the edge of any water body. All unused or leftover materials will be transported off-site and properly disposed of, when applicable.

Monitoring:

A log of herbicide, fertilizer, and pesticide use activities carried out within the calendar year will be included in the annual report.

D.2.h. Flood or Emergency Events

Per the Agreement for this section, the following AMMs will be applied on the Ranch:

Prior to, during or immediately after the event, NMFS and CDFW will be contacted and AMMs will be developed in coordination with the Permittee for the particular flood or emergency circumstances.

NMFS and CDFW will be notified within 14 days of beginning emergency work per Fish and Game Code 1610.

Monitoring:

Photographs of the emergency site repairs and a detailed description of the repairs to be included in the annual report.

E. Beneficial Management Activities

This section provides a detailed description of Conservation and Habitat Enhancement Activities that are ongoing and those that will be implemented on the Enrolled Property for the benefit of the Covered Species.

E.1. Completed and Sustained Beneficial Management Activities

This section details the actions required to maintain Baseline Conditions. This includes any land and/or water management activities that are being implemented, or have been implemented, on the enrolled property that benefit the Covered Species and will be maintained over the duration of the Safe Harbor Agreement. This section includes completed studies and research by Permittee and others that continue to contribute to the knowledge base informing the Agreement.

E.1.a. Hydrology/Water Quality

Increased delivery and irrigation efficiencies (Completed and Sustained)

- With funding provided by the Pacific States Marine Fisheries Commission under a grant from NMFS, in cooperation with CDFW, undertook an irrigation efficiency study
- Cooperated in more than seven years of CDFW studies of juvenile salmonid distribution and habitat use with direct observations, PIT tag technology, water temperature monitoring, flow monitoring, etc.
- Enrolled Property is sprinkler irrigated and Permittee agrees to continue using groundwater and precipitation, only, for irrigation

Tailwater Reduction (Completed and Sustained)

- The Enrolled Property is, and will continue to be, sprinkler irrigated

Participation in reach-wide Diversion Management Plan (Completed and Sustained)

- Participated in July, 2015 flow/diversion experiment in the upper Shasta River to evaluate alternative diversion coordination scenarios
- Participated in MWCD pulse flow/environmental water release experiments with

access for monitoring

- The Enrolled Property is, and will continue to be, sprinkler irrigated

Upgrade/repair/maintain diversion facilities– No projects or practices specific to this parameter
Other (Completed and Sustained)

- Permittee has cooperated in studies to redesign and reconstruct MHVR diversion located on the Ranch (at -122.38123, 41.54835), including realignment and piping of conveyance facilities, at a potential loss of ±10 acres of sub-irrigated pasture.

Water Exchanges – No projects or practices specific to this parameter

E.1.b Passage/Migration/ Diversion Screening

Research (Completed)

- Permittee conducted for one year and continues to participate in spawner surveys for all reaches with suitable spawning habitat
- Permittee cooperated in more than seven years of CDFW studies of juvenile salmonid population estimates, distribution, and habitat use with direct observations, PIT tag technology, water temperature monitoring, flow monitoring, etc.

Remediation of identified on-site barriers (Completed)

- Permittee has cooperated with NMFS and CDFW in redesign and implementation of upgrade to Diversion 156 (upstream of ranch fenceline on MWCD property). Time Frame: Underway; Completion Estimated within 5 years of permit issuance

E.1.c. Riparian Function/ Channel Structure

Riparian Fencing (Completed and Sustained)

- The Shasta River through the Enrolled Property is 100% narrow-corridor fenced for exclusion of cattle from the riparian area (Figure 3)
- Permittee agrees to maintain riparian fencing
- Permittee agrees to replace, out-of-pocket, at least 20% of riparian fencing if needed due to high flow damage. Partners for additional funding to replace fencing to 100% will be sought, if necessary.

Crossings on Fish-bearing Stream Reaches (Completed and Sustained)

- Permittee has limited cattle and vehicle access to the Shasta River to two crossings (vehicle crossings also serve as stock crossings when necessary)
- Permittee agrees to maintain crossings and cap the number of livestock and vehicle access points to current number

Off-Channel Stock watering -- No projects or practices specific to this parameter

Beaver management -- No projects or practices specific to this parameter

No beaver-created fish passage barriers yet detected (June, 2017)

Riparian Habitat -- No projects or practices specific to this parameter

E.1.d. Spawning Substrate

Riparian function measure (Completed) (Also see Section E.1.c., above)

- Cooperated in McBain and Trush study (*McBain & Trush, et al., 2010*) by allowing access for evaluation of gravel composition and quality. Summarizing the findings:
 - Reductions to spawning gravel supply and spawning gravel storage within mainstem and tributary spawning areas have reduced spawning gravel availability and gravel quality for salmon spawning habitat.
 - The quantity of spawning gravel in the mainstem Shasta River and in key tributary reaches can be increased, and the quality of existing spawning gravel can be improved.
 - Based on current and projected coho salmon population estimates by CDFG, spawning gravel inventory results suggested that the existing spawning gravel quantity is adequate to sustain current (and support projected) populations, but that the quality of existing spawning gravel may be limiting fry production and thus should be improved.
 - For Chinook salmon, however, results suggested spawning gravel quantities may be limiting populations in high escapement years, and that gravel augmentation will be needed in the near future to sustain current spawning gravel supplies as well as allow Chinook salmon population to expand beyond current levels.
 - An enhancement strategy was proposed that first focuses on coho salmon habitat (due to a significantly reduced population) and then focuses on Chinook salmon habitat.

E.1.e Sediment/Turbidity

Riparian function measures, See Section E.1.c., above

Tailwater reduction measures, See Section E.1.c., above

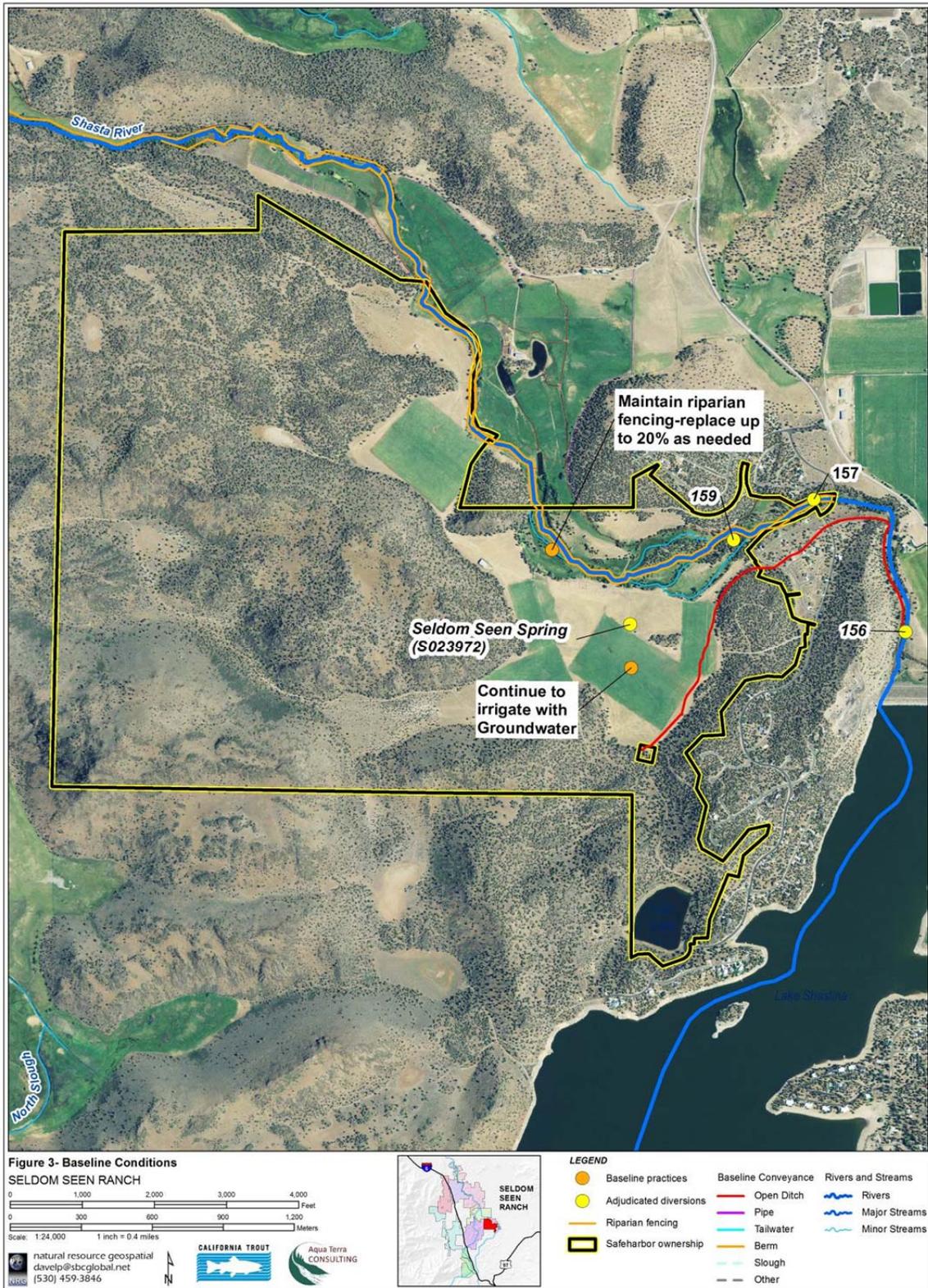
E.1.f. Floodplain Function – No projects or practices specific to this parameter

E.1.g. Pasture Management

Pasture Grazing Management (Completed and Sustained)

- Fall calving to produce calves big enough to fully utilize upland, seasonal range, comprising more than half of the Ranch
- Rotation and stocking rates in irrigated (and non-irrigated) pastures are managed to maintain optimum forage cover and heights based on water year type

Figure 3. Baseline Conditions



E.2. Proposed Beneficial Management Activities for Elevated Baseline

E.2.a. Hydrology/Water Quality

Increased delivery and irrigation efficiencies – None proposed as Elevated Baseline

Tailwater Reduction – None proposed as Elevated Baseline

Soil Moisture Monitoring Program – None proposed as Elevated Baseline (See E.3.a., below)

Participation in reach-wide Diversion Management Plans – None proposed as Elevated Baseline

Upgrade/repair/maintain diversion facilities – None proposed as Elevated Baseline

Diversion relocation/combination – None proposed as Elevated Baseline

Other

Permittee agrees to continue cooperation in project to upgrade MHVR diversion system (W122.38123, N41.54835) adjusting stocking to reflect loss of pasture productivity (≥ 10 acres) Time Frame: Underway; completion estimated within five years of permit issuance.

Permittee agrees to change plumbing at Wheel Line Fields to eliminate wheel line drain-water proximate to river Time Frame: Within 2 years of permit issuance

E.2.b. Passage/Migration/ Diversion Screening

Remediation of identified on-site barriers

Permittee agrees to continue working collaboratively with NMFS and CDFW in redesign and implementation of upgrade to Diversion 156 (upstream of ranch fenceline on MWCD property). Time Frame: Underway; completion estimated within 5 years of permit issuance

Also see Section E.3.c. “Beaver Management”, below

E.2.c. Riparian Function/ Channel Structure

Riparian Fencing – None proposed as Elevated Baseline

Prescribed Riparian Grazing Intensity/Frequency – None proposed as Elevated Baseline (See E.3.c., below)

Crossings -- None proposed as Elevated Baseline

Off-Channel Stock watering -- None proposed as Elevated Baseline

Beaver management -- None proposed as Elevated Baseline (See E.3.c., below)

Riparian Habitat-- None proposed as Elevated Baseline (See E.3.c., below)

Riparian management (e.g., promote aquatic vegetation growth) – None proposed as Elevated Baseline

Channel Structure Improvement (e.g., instream LWD additions) – None proposed as Elevated Baseline (See E.3.c., below)

E.2.d. Spawning Substrate

Gravel Augmentation – None proposed as Elevated Baseline (See E.3.d., below)

Riparian function measures -- None proposed as Elevated Baseline

E.2.e. Sediment/Turbidity

Riparian Function and Tailwater Reduction – None proposed as Elevated Baseline

E.2.f. Floodplain Function

Identification of potential floodplain habitat sites – None proposed as Elevated Baseline

Beaver management to promote floodplain function – None proposed as Elevated Baseline
(See E.3.f., below)

E.2.g. Pasture Management

Pasture Grazing Management - None proposed as Elevated Baseline

Figure 4. Proposed Conditions - Elevated Baseline and other BMAs

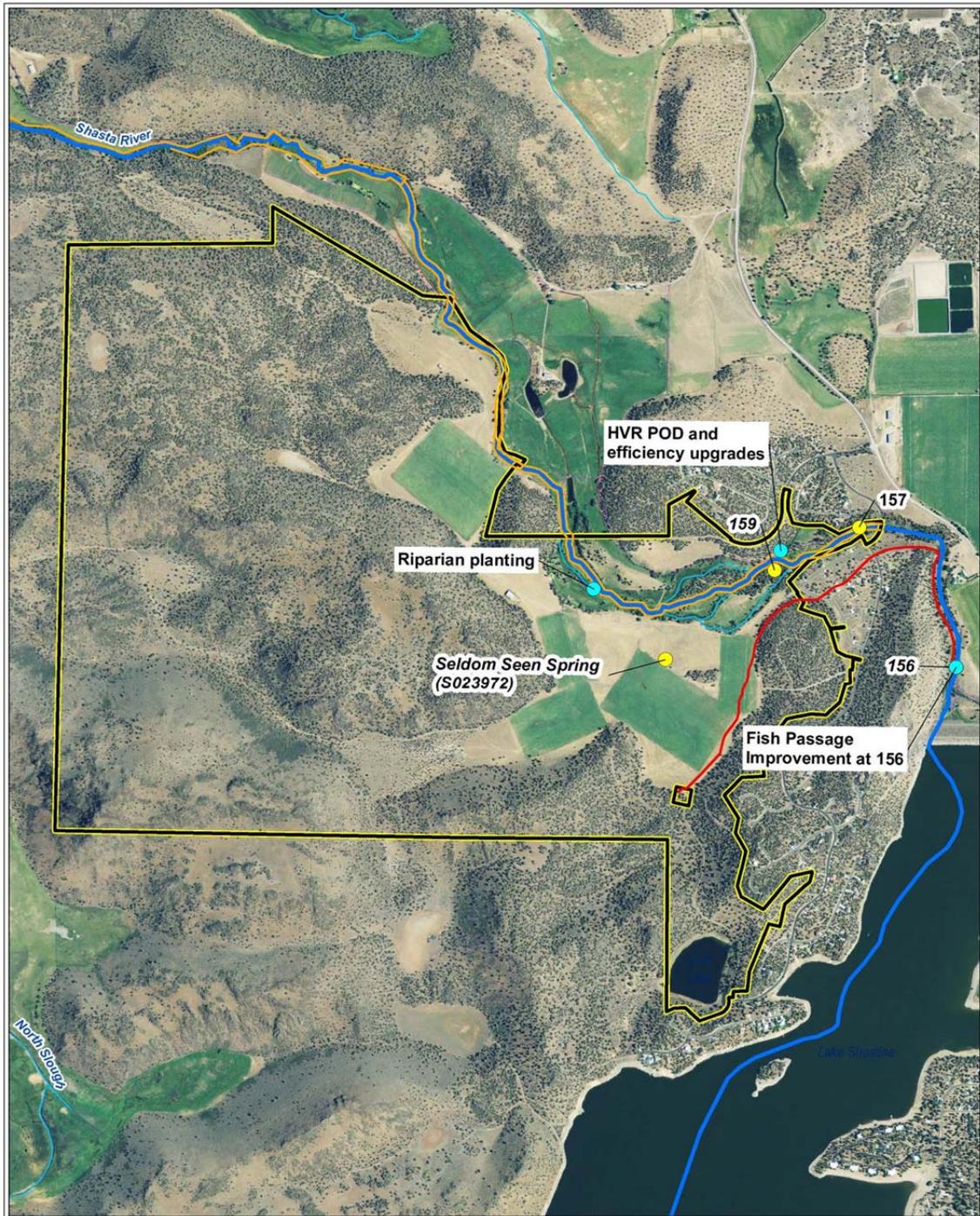
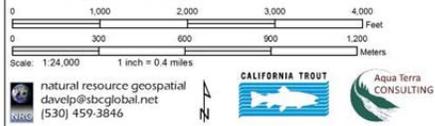


Figure 4- Proposed Conditions -Elevated and Other BMAs
SELDOM SEEN RANCH



E.3. Other Proposed Beneficial Management Activities

E.3.a. Hydrology/Water Quality

Increased delivery and irrigation efficiencies – None proposed

Tailwater Reduction – None proposed

Soil Moisture Monitoring Program

Permittee agrees to include Ranch pastures in Project Area for testing effectiveness of soil moisture sensor technology, and other appropriate technologies, to increase irrigation efficiency, to implement routine use where appropriate, and to adjust water management accordingly. Time Frame: within 15 years of permit issuance

Participation in reach-wide Diversion Management Plans – None proposed

Upgrade/repair/maintain diversion facilities – None proposed

Diversion relocation/combination – None proposed

Forebearance Agreement

Permittee agrees to enter into a Forbearance Agreement with SWCG members for the purpose of improving habitat for Covered Species

Other

Permittee agrees to continue cooperating in studies to redesign and reconstruct MHVR diversion located on the Enrolled Property. Time Frame: Underway; completion estimated within 5 years from permit issuance

E.3.b. Passage/Migration/ Diversion Screening

Remediation of identified on-site barriers – None proposed, except...

see Section E.2.c. "Beaver Management", below

E.3.c. Riparian Function/ Channel Structure

Riparian Fencing – None proposed

Prescribed Riparian Grazing Intensity/Frequency – None proposed

Crossings -- None proposed

Off-Channel Stock watering -- None proposed

Beaver management

Permittee agrees to create a management plan to, at a minimum, not deter dam building beaver activity except where it damages infrastructure, e.g. impairs irrigation control structures, inundates crossings, etc. When necessary, Permittee will work in conjunction with fisheries management personnel to physically breach dams during smolt outmigration, juvenile redistribution, and/or adult spawning periods, generally March to mid-June and November to January or provide alternate passage opportunities through or around the beaver dams. Time Frame: Within 5 years of permit issuance

Riparian Habitat

Permittee agrees to work collaboratively with NMFS and CDFW to seek funding and implement riparian planting projects where existing riparian habitat is less than site-potential; at various locations in sub-reach from Riverside Road to property line. Time Frame: Within 15 years of permit issuance

Riparian management (e.g., promote aquatic vegetation growth)

Permittee agrees to maintain fences and utilize adaptive management approach to monitor, assess, and, where necessary, modify riparian management practices, whether exclusion or prescriptive grazing strategies

Channel Structure Improvement (e.g., instream LWD additions)

Permittee agrees to work collaboratively with NMFS and CDFW to seek funding and implement projects to place up to a total of 9 LWD structures in reach between Riverside Road and MHVR fenceline. (Figure 5). Time Frame: Underway; Completion Estimated within 5 years of permit issuance.

Permittee agrees to work collaboratively with NMFS and CDFW to seek funding and implement projects to place up to a total of 14 LWD sites in coordination with MHVR in sub-reach of the river that is the common property boundary of the two ranches (Figure 5). Time Frame: Underway; Completion Estimated within 5 years of permit issuance.

Permittee agrees to work collaboratively with NMFS & CDFW to seek funding, design, and implement a project to increase in-stream habitat complexity, generally and specifically at the confluence of the Seldom Seen Spring channel and the river. Time Frame: Underway; Completion Estimated within 10 years of permit issuance

E.3.d. Spawning Substrate

Riparian function measures, See Section E.3.c., above

Providing access to potential augmentation projects

Permittee agrees to work collaboratively with NMFS and CDFW to seek funding and implement projects to augment spawning gravels at up to 7 sites between Riverside Road and MHVR fenceline. Existing riffles will be considered as priority sites (Figure 5). Time Frame: Within 10 years of permit issuance

Permittee agrees to work collaboratively with NMFS and CDFW to seek funding and implement projects to augment spawning gravels up to 4 riffles in reach common with MHVR (Figure 5). Time Frame: Within 10 years of permit issuance

E.3.e. Sediment/Turbidity

Riparian Function and Tailwater Reduction – None proposed

E.3.f. Floodplain Function

Identification of potential floodplain habitat sites – None proposed

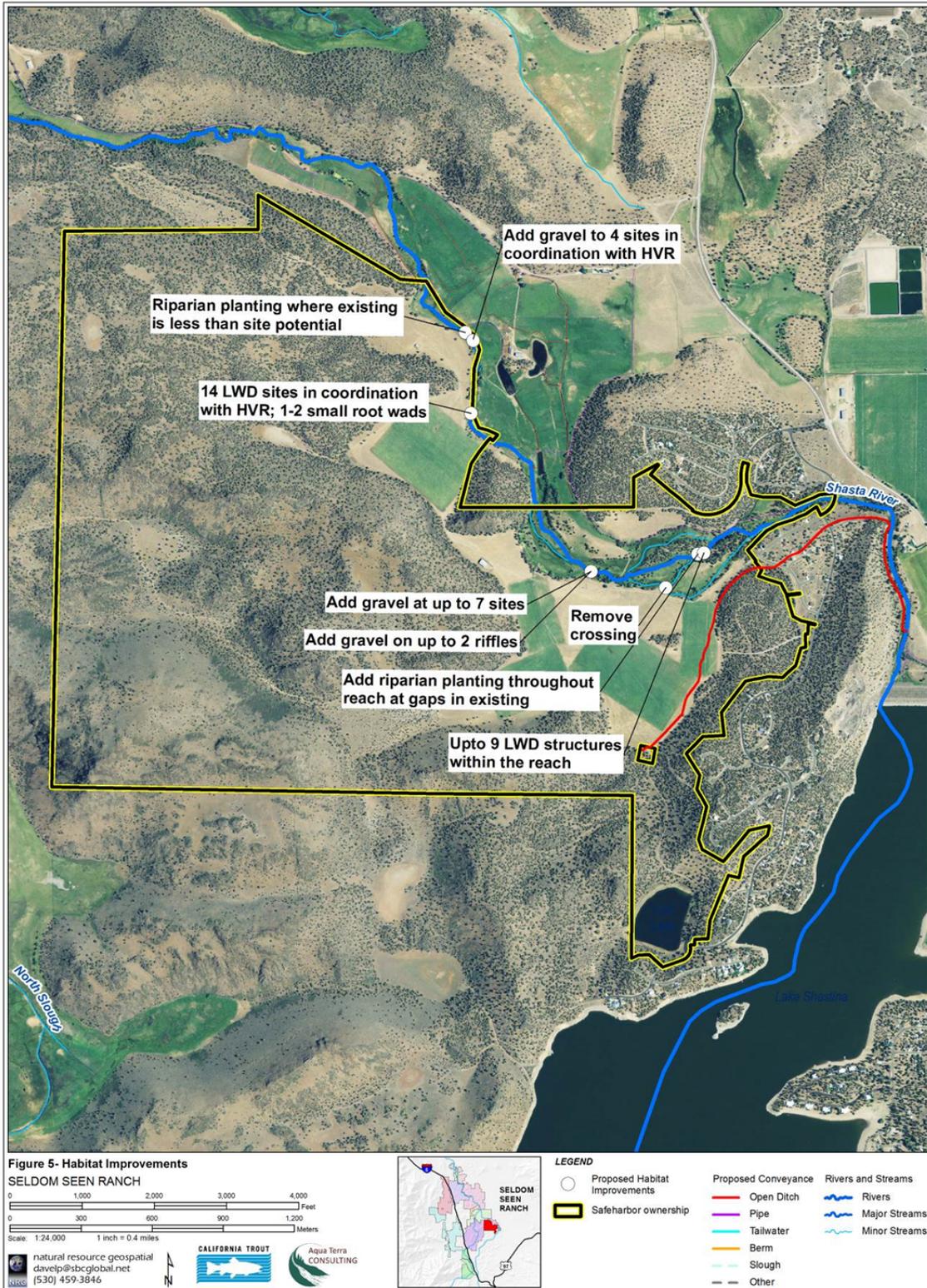
Beaver management to promote floodplain function

See “Beaver Management” under E.3.c Riparian Function/Channel Structure, above

E.3.g. Pasture Management

Pasture Grazing Management - None proposed

Figure 5. Seldom Seen Ranch: BMA - Habitat Improvements



F. Effective Date and Duration of the Site Plan and Agreement

The Template Safe Harbor Agreement, Site Plan Agreement and Permit take effect when signed by the Participants/Permittees, NMFS, and CDFW. The Template Safe Harbor Agreement, Site Plan Agreement and Permit have a term of 20 years, which may be extended by mutual written consent of the Participants/Permittees, NMFS, and CDFW as stipulated in the Agreement. One (1) year prior to end of term of the Template Safe Harbor Agreement, Site Plan Agreement and Permit, the Participant/Permittees, NMFS, and CDFW will meet to decide whether to extend the term of the Template Safe Harbor Agreement, Site Plan Agreement and Permit.

G. Monitoring and Reporting

G.1 Monitoring

Implementation monitoring includes those monitoring tasks associated with construction and implementation of BMAs (e.g, construction of habitat restoration projects) and AMMs. Implementation monitoring of BMAs serves to verify that habitat restoration projects are constructed as designed or intended. AMMs are intended to minimize or reduce potential adverse impacts that may occur during implementation of BMAs or during routine ranching and farming activities. Implementation monitoring protocols for AMMs are described in Adaptive Management and Monitoring Plan of the Agreement. These actions will be conducted by the Permittee, the SWCG, or a contractor.

Table 4. Summary of Monitoring Efforts

Beneficial Management Activity	Seldom Seen Ranch Project	Implementation Monitoring	Effectiveness Monitoring
A. Instream Habitat Structures & Improvements	<p>access for addition of large wood enhancement, up to 23 sites (<i>Seldom Seen Section E.2.c.; Figure 5</i>)<i>Time Frame: within 5 years of permit issuance</i></p> <p>access to implement spawning gravel enhancement, up to 11 sites (<i>Seldom Seen Section E.3.d; Figure 5</i>)<i>Time Frame: Within 10 years of permit issuance</i></p>	<p>one to two photopoints per LWD structure and per gravel placement site, will be established, before and upon completion of project, using SHA photo monitoring protocol described in the “Covered Activities and Avoidance and Minimization Measures” document</p>	<p>Access for monitoring salmonid use of LWD and spawning habitat (<i>Seldom Seen Section E.3.c</i>)<i>Time Frame; Once per year for duration of permit</i></p>
B. Beaver Management	<p>agree to develop beaver management plan (<i>Seldom Seen Section E.3.c</i>) <i>Time Frame: within 5 years of permit issuance</i></p> <p>agree to implement beaver management plan <i>Time Frame: Upon finalization of plan</i></p>	<p>Completed plan to include parameters for seasonal dam monitoring for fish passage; dam removal or modification process when necessary; and variables to be reported in Annual Report</p>	<p>Access for regular evaluation of passage past beaver dams. <i>Time Frame: annually or biannually depending on beaver activity</i></p>

Beneficial Management Activity	Seldom Seen Ranch Project	Implementation Monitoring	Effectiveness Monitoring
C. Barrier Modification for Fish Passage Improvement	eliminate Covered Species passage barrier at Diversion 156 <i>Time Frame: within 5 years of permit issuance</i>	three to five photopoints will be established, before and upon completion of project, using SHA photo monitoring protocol described in the “Covered Activities and Avoidance and Minimization Measures” document	Access once per 5 years to confirm passage for all life stages. <i>Time Frame: from issuance and for duration of permit</i>
D./I. Bioengineering and Riparian Habitat Restoration	Work collaboratively with NMFS & CDFW to design and implement riparian habitat enhancement where existing riparian is less than site-potential (<i>Seldom Seen Section E.3.c.</i>) <i>Time Frame: within 15 years of permit issuance</i>	a report from an evaluation will be written and provided in the annual report and/or three to five photopoints will be established, before and upon completion of a riparian enhancement project, using SHA photo monitoring protocol described in the “Covered Activities and Avoidance and Minimization Measures” document	Access once per 10 years to spot cruise riparian restoration/enhancement project to use in conjunction with remote sensing data (e.g. satellite imagery) <i>Time Frame: from issuance and for duration of permit</i>
F. Removal of Small Dams	NA	NA	NA
G. Creation of Habitat: Off-channel/Side Channel	NA	NA	NA
H. Developing Alternative Stockwater Supply	NA	NA	NA
I. Riparian Restoration and Revegetation	<i>see D (above)</i>	<i>see D (above)</i>	<i>see D (above)</i>
J. Research	participate in studies to refine Upper Shasta River Diversion Strategy <i>Time Frame: For 10 years from permit issuance</i>	Summaries or reports of studies will be written/obtained and provided in the annual report, if author allows such use	Reasonable access as needed for supplemental water temperature and/or flow data to augment SHA Water Quality Monitoring Network
K. Water Storage and Tailwater Capture Systems	NA	NA	NA
L. Piping Ditches	NA	NA	NA
M. Fish Screens	NA	NA	NA
N. Headgates and Water Measuring Devices	NA	NA	NA
O. Optimizing Cold Water Inputs	NA	NA	NA
P. Combining and/or Moving Points of Diversion	NA	NA	NA
Q. Water Exchanges	NA	NA	NA
R. 1707 Dedications	NA	NA	NA

G.2 Annual Report and Adaptive Management

The Permittee will complete a report form annually and report as stipulated in the Agreement.

H. Regulatory Assurances

Upon execution of this Agreement by the Parties, and the satisfaction of all other applicable legal requirements, NMFS will issue a permit under Section 10(a)(1)(A) of the ESA to assure the Permittee they may incidentally take Covered Species, in accordance with the Site Plan and Agreement, as a result of Routine Land Use and Beneficial Management Activities as described in each Agreement, and except where such Routine Land Use would result in the diminishment or non-achievement of the Baseline and/or Elevated Baseline Conditions established for the Enrolled Property. This assurance depends on the Permittee maintaining the Baseline and/or achieving the Elevated Baseline Conditions set forth in the Site Plan, complying fully with the Agreement and their Site Plan, and so long as the continuation of Routine Land Use and Beneficial Management Activities would not be likely to result in jeopardy to Covered Species or the adverse modification or destruction of their designated critical habitat. NMFS provides no assurances with regard to any action that may affect Non-Covered species, including the take of Non-Covered Species and the adverse modification or destruction of their designated critical habitat.

I. Signatures of NMFS, CDFW and the Permittee

Permittee

Date

NMFS

Date

By signing the Template Safe Harbor Agreement and this Site Plan Agreement CDFW expresses its expectation that the Agreement along with a Permittee's Site Plan Agreement signed by NMFS, and the NMFS ESP, could meet the requirements of section 2089.22 of the California Fish and Game Code with respect to the particular property described in the Site Plan Agreement. However, CDFW will not make such determination until reviewing that Site Plan Agreement signed by NMFS and the NMFS ESP.

CDFW

Date