St. Mary Recovery Unit Implementation Plan for Bull Trout

(Salvelinus confluentus)

Boulder Creek, 2014, 28" Migratory Saint Mary River or Lakes Bull Trout.
Jim Mogen

Saint Mary Recovery Unit

Implementation Plan

for

Bull Trout (*Salvelinus confluentus*)

September 2015

Prepared by

U.S. Fish and Wildlife Service

Montana Ecological Services Office
Kalispell Suboffice
Kalispell, Montana

Table of Contents

List of Figures

List of Tables

Saint Mary Recovery Unit

Implementation Plan

Introduction

This recovery unit implementation plan (RUIP) describes the threats to bull trout and the site-specific management actions necessary for recovery of the species within the Saint Mary Recovery Unit, including estimates of time required and cost. This document supports and complements the Recovery Plan for the Coterminous U.S. Population of Bull Trout (USFWS 2015a), which describes recovery criteria and a general range-wide recovery strategy for the species. Detailed discussion of species status and recovery actions within each of the six recovery units is provided in six RUIPs that have been developed in coordination with State, Federal, Tribal, and other conservation partners. This document incorporates our responses to public comment on the draft Saint Mary RUIP (USFWS 2015b) received during the comment period from June 4 to July 20, 2015 (Appendix II).

The Saint Mary Recovery Unit is located in northwest Montana east of the Continental Divide and includes the U.S. portions of the Saint Mary River basin, from its headwaters to the international boundary with Canada at the 49th parallel (Figure F-1). The watershed and the bull trout population are linked to downstream aquatic resources in southern Alberta, Canada; the U.S. portion includes headwater spawning and rearing (SR) habitat in the tributaries and a portion of the foraging, migrating, and overwintering (FMO) habitat in the mainstem of the Saint Mary River and Saint Mary lakes (Mogen and Kaeding 2001).

The Saint Mary Recovery Unit comprises four core areas; only one (Saint Mary River) is a complex core area with five described local bull trout populations (Divide, Boulder, Kennedy, Otatso, and Lee Creeks). Roughly half of the linear extent of available FMO habitat in the mainstem Saint Mary system (between Saint Mary Falls at the upstream end and the downstream Canadian border) is comprised of Saint Mary and Lower Saint Mary Lakes, with the remainder in the Saint Mary River. The other three core areas (Slide Lakes, Cracker Lake, and Red Eagle Lake) are simple core areas. Slide Lakes and Cracker Lake occur upstream of seasonal or permanent barriers and are comprised of genetically isolated single local bull trout populations, wholly within Glacier National Park, Montana. In the case of Red Eagle Lake, physical isolation does not occur, but consistent with other lakes in the adjacent Columbia Headwaters Recovery Unit, there is likely some degree of spatial separation from downstream Saint Mary Lake. As noted, the extent of isolation has been identified as a research need.

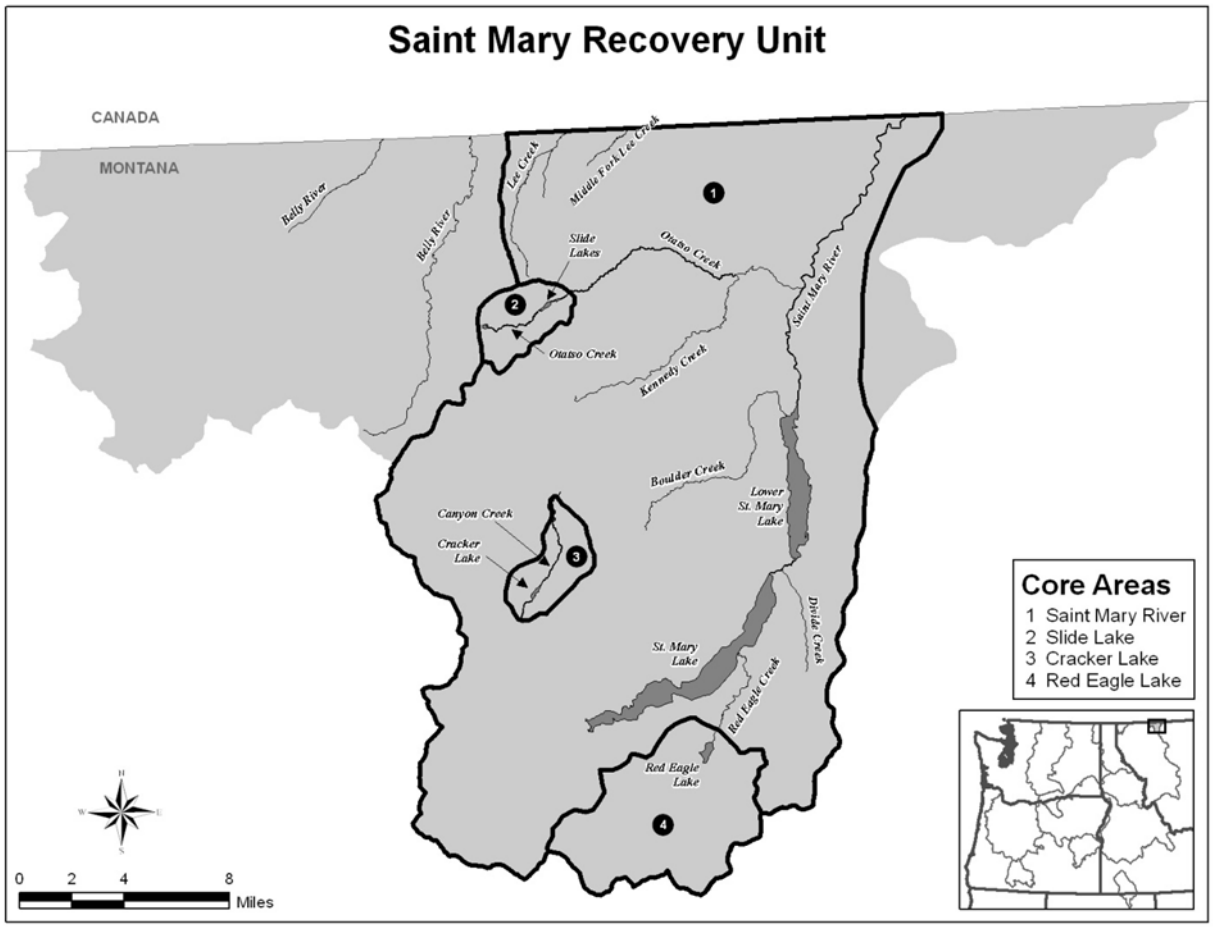

Figure F-1. Map of the Saint Mary Recovery Unit for Bull Trout.

Bull trout in the Saint Mary River complex core area are documented to exhibit primarily the migratory fluvial[1] life history form (Mogen and Kaeding 2005a, 2005b), but there is doubtless some occupancy (though less well documented) of Saint Mary Lakes, suggesting a partly adfluvial[2] adaptation. Since lake trout and northern pike are both native to the Saint Mary River system (headwaters of the South Saskatchewan River drainage draining to Hudson Bay), the conventional wisdom is that these large piscivores historically outcompeted bull trout in the lacustrine environment (Donald and Alger 1993, Martinez *et al*. 2009), resulting in a primarily fluvial niche and existence for bull trout in this system. This is an untested hypothesis and additional research into this aspect is needed.

Bull trout populations in the simple core areas of the three headwater lake systems (Slide, Cracker, and Red Eagle Lakes) are, by definition, adfluvial; there are also resident[3] life history components in portions of the Saint Mary River system such as Lower Otatso Creek (Mogen and Kaeding 2005a), further exemplifying the overall life history diversity typical of bull trout.

Mogen and Kaeding (2001) reported that bull trout continue to inhabit nearly all suitable habitats accessible to them in the Saint Mary River basin in the United States. The possible exception is portions of Divide Creek, which appears to be intermittently occupied despite a lack of permanent migratory barriers, possibly due to low population size and erratic year class production.

It should be noted that bull trout are found in minor portions of two additional U.S. watersheds (Belly and Waterton rivers) that were once included in the original draft recovery plan (USFWS 2002) but are no longer considered core areas in the final recovery plan (USFWS 2015a) and are not addressed in this document. In Alberta, Canada, the Saint Mary River bull trout population is considered at "high risk," while the Belly River is rated as "at risk" (ACA 2009). In the Belly River drainage, which enters the South Saskatchewan system downstream of the Saint Mary River in Alberta, some bull trout spawning is known to occur on either side of the international boundary. These waters are in the drainage immediately west of the Saint Mary River headwaters. However, the U.S. range of this population constitutes only a minor headwater migratory SR segment of an otherwise wholly Canadian population, extending less than 1 mile (0.6 km) into backcountry waters of Glacier National Park. The Belly River population is otherwise totally dependent on management within Canadian jurisdiction, with no natural migratory connection to the Saint Mary, so it is not addressed further in this plan.

[1] Fluvial: Life history pattern of spawning and rearing in tributary streams and migrating to larger rivers to mature.
[2] Adfluvial: Life history pattern of spawning and rearing in tributary streams and migrating to lakes or reservoirs to mature.
[3] Resident: Life history pattern of residing in tributary streams for the fish's entire life without migrating.

The Waterton River basin also heads in the backcountry of Glacier National Park to the west of the Saint Mary River, including Waterton Lake, which spans the international border. In this drainage, natural fish barriers occur just upstream of Waterton Lake. Thus, U.S. headwaters are not reachable by migratory fish, the portion downstream of the barriers are not documented to be used for SR, and such bull trout occupancy as occurs appears to be only transitory in less than 1 mile (0.6 km) of stream. As with Belly River, the important land, water, and fishery management decisions for this population exist on the Canadian side of the boundary, so this population is also not addressed further in this plan.

In a meeting to discuss design of this RUIP, scientists from the U.S. Fish and Wildlife Service (Service), National Park Service (NPS), and Bureau of Reclamation (BOR) were asked to provide existing plans, conservation projects, and reports related to bull trout conservation within their areas. Over a dozen documents were reviewed to determine what recovery actions were underway, had been completed, or were needed in the future in the Saint Mary core area. Individual tasks from existing plans were classified by primary threat focus and compiled into a threats matrix in this RUIP. The intent was to identify those actions already being pursued and to highlight primary threats that may require additional planning and attention to address (Table 1).

Discussion at the meeting also highlighted actions identified in previous draft bull trout recovery plans and reviews that had been completed (Appendix) or that were no longer considered conservation priorities because of changes in core area management, new information from field surveys, or research results. We also contacted the Bureau of Indian Affairs for a discussion of on-reservation grazing and timber management plans. The RUIP's discussion of Tribal fisheries management relies heavily on the 2010 Blackfeet Nation Bull Trout Management Plan (Skunk Cap *et al*. 2010), which was co-written by the Tribe and the Service and adopted by the Blackfeet Tribal Business Council in 2010.

Current Status of Bull Trout in the Saint Mary Recovery Unit

Current status of bull trout in the Saint Mary River core area (U.S.) is considered strong (Mogen 2013). Migratory bull trout redd counts are conducted annually in the two major SR streams, Boulder and Kennedy creeks. Boulder Creek redd counts have ranged from 33 to 66 in the past decade, with the last 4 counts all 53 or higher. Kennedy Creek redd counts are less robust, ranging from 5 to 25 over the last decade, with a 2014 count of 20.

Generally, the demographic status of the Saint Mary River core area is believed to be good, with the exception of the Divide Creek local population. In this local population, there is evidence that a combination of ongoing habitat manipulation (Smillie and Ellerbroek 1991,

USDOI 1992) resulting in occasional historical passage issues, combined with low and erratic recruitment (DeHaan *et al*. 2011) has caused concern for the continuing existence of the local population.

While less is known about the demographic status of the three simple cores where redd counts are not conducted, all three appear to be self-sustaining and fluctuating within known historical population demographic bounds. Of the three simple core areas, demographic status in Slide Lakes and Cracker Lake appear to be functioning appropriately, but the demographic status in Red Eagle Lake is less well documented and believed to be less robust.

Factors Affecting Bull Trout in the Saint Mary Recovery Unit

A comprehensive summary of factors affecting bull trout at the core area level within the Saint Mary Recovery Unit can be found in the Service's Core Area Status Assessment Template (USFWS 2008).

The current design and management of the Saint Mary Diversion for the Milk River Project is the primary factor affecting bull trout in the Saint Mary Recovery Unit (Mogen and Kaeding 2005b, Mogen *et al*. 2011). The Saint Mary Diversion is operated by BOR and recovery actions identified as necessary to conserve bull trout include: (1) constructing a screen at the Saint Mary Diversion to eliminate entrainment of up to 600 bull trout per year (Mogen *et al*. 2011); and (2) development of fish passage facilities to facilitate upstream migration, especially to access Boulder Creek, the single most abundant local population. In addition, further evaluation of the financial costs and biological benefits of securing adequate instream flow for bull trout in Swiftcurrent Creek downstream of Sherburne Dam and in the Saint Mary River during irrigation season is in order to prevent dewatering and provide suitable bull trout habitat as recommended. These measures should be accomplished in coordination with full implementation of the Blackfeet Bull Trout Management Plan (Skunk Cap *et al*. 2010) and consistent with needs of downstream water right holders.

Effects of nonnative fish on bull trout in the Saint Mary Recovery Unit appear relatively minor. Lake trout and northern pike are native to these watersheds and historically coexisted with bull trout, although as noted above the resulting interaction probably minimized the existence of the adfluvial life history form of bull trout in Saint Mary lakes. Brook trout have been introduced in areas where bull trout occur, but to date no hybridization has been detected and brook trout are not currently considered to be a factor negatively affecting bull trout conservation in the Saint Mary Recovery Unit in the U.S., except in Kennedy Creek. Walleye have existed since the 1980's downstream in Saint Mary Reservoir (Alberta, Canada) and are occasionally caught by fishermen in the lower Saint Mary River around Cardston, Alberta, indicating some upstream migratory movement. Several walleye were also captured in the fall of

2014 by BOR, during shut-down from the lower-most drop pool on the Saint Mary Canal where it enters the North Fork Milk River in Alberta. At this time it is considered unlikely that walleye could pass upstream from there, through a large siphon, into the Saint Mary River. Walleye currently inhabit several additional waters on the Blackfeet Reservation, namely Four Horns Reservoir, Mission Lake (stocked with Saugeye), Milk River and the lower headwaters of the Marias River (Two Medicine River and Cut Bank Creek). Walleye represent a potential threat to the Saint Mary Recovery Unit due to habitat overlap with migratory bull trout in the Alberta portion of the watershed and the potential for illegal transplant. However, this recovery plan is limited to addressing threats currently occurring within the U.S. portion of the drainage. Should walleye continue to move upstream or be documented elsewhere in U.S. portions of the drainage, this potential threat may need to be re-evaluated.

Climate change and its potential effects on bull trout are a consideration across the range. In the Saint Mary Recovery Unit we have not yet completed an adequate assessment of the potential impacts of changing climate. The three simple core areas centered on high elevation lakes (FMO) are fed by small cold streams providing SR habitat. Similar to those on the west side of Glacier National Park (USFWS 2015c), these simple core areas are unlikely to be meaningfully affected by climate change in the foreseeable future. The lakes themselves provide cold water refugia and a measure of resiliency from minor temperature effects. Concerns about climate change may be more relevant for portions of the Saint Mary River core area. The natural thermal regime in Swiftcurrent Creek and the Saint Mary River has been altered by Sherburne Dam. Irrigation discharge from Sherburne Reservoir is likely much warmer than natural conditions, especially in late summer, and additional temperature increases could have negative effects for bull trout in Swiftcurrent Creek and the Saint Mary River. Operational changes may or may not be able to mitigate such impacts. These issues require further examination.

Table F-1. Primary Threats in the Saint Mary Recovery Unit, listed by major category (Habitat-Based, Demographic, and Nonnative Species) with subheadings. All threats listed are considered "primary", without rank.

Core Area	Number of Local Populations	PRIMARY THREATS[1]		
		Habitat	***Demographic***	***Nonnatives***
Saint Mary River	**5**	**Upland/ Riparian Land Management** (1.1) Trespass livestock grazing along lower reaches of SR tributaries (primarily Kennedy, Otatso, and Lee Creeks) causes riparian and instream degradation, leading to loss of large woody debris, potential pool reduction, and sedimentation. Redd trampling has been documented in Kennedy Creek and possibly also occurs in other SR tributaries. Periodic dredging and diking of the stream channel to reduce bedload along lower Divide Creek, associated with maintenance of residential development in Saint Mary and the NPS compound, along with historical rerouting of the lower channel, perpetually aggravates unstable alluvial deposits contributing to dewatering and potential blockage of upstream fish passage. **Instream Impacts** (1.2) Ongoing management of roads and transportation corridors (Saint Mary River, Swiftcurrent Creek, and Divide Creek) impacts FMO habitat by contributing to destabilized stream channel.	**Connectivity Impairment** (2.1) Entrainment of an estimated 470 juvenile bull trout (and a few subadults and adults) occurs annually at the unscreened Saint Mary Diversion, representing by far the most significant primary threat. Upstream passage of prespawning adult bull trout is partially blocked (some fish can jump the diversion under certain conditions) during irrigation season, disproportionately impacting Boulder and Divide Creek local populations. Passage improvement is necessary to fully remediate effects of fragmentation and to enhance persistence of bull trout in isolated local populations. **Small Population Size** (2.3) Small population size and fragmentation limits annual recruitment and genetic diversity in key SR tributaries in the lower drainage (e.g., Divide Creek).	None.

Core Area	Number of Local Populations	PRIMARY THREATS[1]		
		Habitat	***Demographic***	***Nonnatives***
		Water Quality (1.3) Dewatering of the Saint Mary River mainstem (inter-basin transfer to the Milk River) reduces quality and quantity of FMO habitat and contributes to warmer summer water temperatures downstream of Saint Mary Diversion. Complete seasonal dewatering of Swiftcurrent Creek in winter (nonirrigation season) strands fish (up to 10 bull trout typically salvaged annually, but not all are captured) and reduces availability of FMO habitat, especially for subadult and adult bull trout in winter. Sherburne Reservoir discharges into Swiftcurrent Creek channel for conveyance downstream to Saint Mary Diversion, negatively affecting the thermal regime (warmer summer water temperature) in Swiftcurrent Creek as well as potentially downstream in the Saint Mary River.		
Red Eagle Lake	**1**	None	None	None
Cracker Lake	**1**	None	None	None
Slide Lakes	**1**	None	None	None

[1] **Primary Threat**: *Factors known or likely (i.e., non-speculative) to negatively impact bull trout populations at the core area level, and accordingly require management actions to assure bull trout persistence to a degree necessary that bull trout will not be at risk of extirpation within that core area in the foreseeable future (50 years).*

Ongoing Saint Mary Recovery Unit Conservation Measures

The primary issue precluding bull trout recovery and eventual delisting in the Saint Mary Recovery Unit relates to biological impacts of water diversions, specifically those documented as attributable to the BOR Milk River Project. This includes dewatering of Swiftcurrent Creek and the Saint Mary River channel, entrainment of bull trout at the Saint Mary Diversion Dam, and at least seasonal migration barriers to upstream bull trout movement at the diversion. The Service is currently engaged with BOR in informal consultation under section 7 of the Endangered Species Act to facilitate rehabilitation and necessary corrective actions at the Saint Mary Diversion Dam.

The Blackfeet Nation Bull Trout Management Plan was adopted in 2010 (Skunk Cap *et al*. 2010). This document, adopted by the Blackfeet Tribal Business Council, certifies that the Blackfeet Tribe, in cooperation with Federal, State, and local government agencies, will work to complete the recovery measures outlined in the 2002 Draft Recovery Plan (USFWS 2002), within such funding constraints as resources are made available to the Tribe. The Tribe has the necessary regulatory authority and ordinances in place to protect and conserve bull trout and their habitat.

Research, Monitoring, and Evaluation

There are generally a suite of concerns associated with the dominant primary threats associated with operations of the Saint Mary Diversion, including documented passage and entrainment issues as well as potential impacts of reduced and altered instream flow regimes. If those issues are resolved, as expected over the next few years, then future research needs will likely focus on the potential impacts of climate change, the interaction between bull trout and native lake trout and northern pike in the FMO habitat of the Saint Mary lakes, and any future habitat issues that arise. Some of these factors could rise to the level of primary threat in the foreseeable future if they increase in magnitude or intensity, or are better documented or understood. Existing monitoring (primarily redd counts) could be expanded, particularly to account for the simple core areas, but is largely adequate to assess recovery criteria.

Recovery Measures Narrative

A list of individual recovery actions identified within the Saint Mary Recovery Unit follows (Table F-2). For each recovery action a title is underlined and carried forward (sometimes in abbreviated format) to the implementation schedule, where details of priority,

partners, and costs are added. Each recovery action is accompanied below by a brief narrative with appropriate details of methods, rationale, scope, and implementation considerations.

It is our belief that the most effective way to implement bull trout recovery is a bottom-up approach that supports existing recovery efforts that partners have already agreed to and are implementing, rather than a prescriptive top-down approach that provides unsupported mandates for actions that are unlikely to occur. For that reason, the majority of recovery actions in this RUIP were taken directly from existing land, water, and natural resource planning documents, most of which were developed through collaborative processes involving interagency forums. These plans have nearly all been developed since bull trout were listed under the Endangered Species Act, and many have already contributed measurably to focusing mitigation programs and agency activities on priorities for bull trout recovery (see Appendix I).

In most cases, recovery action wording is taken directly from the source document(s), or closely paraphrased, with some editing for purposes of updating, brevity, and clarity. Recovery actions that are not sourced were generally new additions to this RUIP to cover identified gaps (i.e., primary threats with no identifiable actions found in existing literature). Recovery tasks that address primary threats are bolded.

Primary sources for most of the referenced recovery tasks in the Saint Mary Recovery Unit were the 2002 Draft Recovery Plan (USFWS 2002) and the Blackfeet Nation Bull Trout Management Plan (Skunk Cap *et al*. 2010).

Recovery tasks that address primary threats are bolded.

1. Actions to Address Habitat Threats

1.1 Upland/Riparian Land Management

1.1.1 **Implement Divide Creek restoration actions**. Watershed analysis of channel instability in lower Divide Creek, related to Glacier National Park and private developments, was completed in 1992. Recommended solutions to chronic road and sediment delivery problems in and around Saint Mary must be implemented to restore aquatic function. (Source: USFWS (2002) - Draft Bull Trout Recovery Plan, task 1.1.2; Blackfeet Nation Bull Trout Management Plan 2010)

1.1.2 **Improve grazing practices**. Reduce negative effects of grazing with improved grazing management or riparian fencing where investigation indicates actions are likely to benefit bull trout and other native fish. Priority watersheds include Middle Fork and East Fork Lee Creek,

Kennedy Creek (outside Glacier National Park; livestock trespass inside the Park needs to be controlled), and lower Otatso Creek. (Source: USFWS (2002) - Draft Bull Trout Recovery Plan, task 1.3.3; Blackfeet Nation Bull Trout Management Plan 2010)

1.1.3 **Develop Aquatic Conservation Strategy and follow Best Management Practices (BMPs) for timber activities**. Per the 2008 BIA Biological Opinion on the Effects of the Draft Blackfeet Forest Management Plan on Bull Trout on the Blackfeet Indian Reservation: In the event that BIA conducts timber sales that result in timber harvest or ground disturbing activities within the Lee, Otatso, Boulder, Swiftcurrent, Kennedy, or Divide Creek drainages and all such activities are 300 feet (91 meters) or more from those streams and their fish-bearing tributaries, BIA must follow standard Forestry BMPs. In the absence of an approved Aquatic Conservation Strategy, the BIA must reasonably demonstrate through cumulative watershed effects analysis that those activities will not adversely affect bull trout. (New Task)

1.2 Instream Impacts

1.2.1 **Minimize potential stream channel degradation**. Ensure that negative effects to bull trout of ongoing flood control activities (e.g., dredging, channel clearing on lower Divide and Swiftcurrent creeks) are minimized or eliminated. (Source: USFWS (2002) - Draft Bull Trout Recovery Plan, task 1.3.6; Blackfeet Nation Bull Trout Management Plan 2010)

1.2.2 **Evaluate the proposal to reroute lower Swiftcurrent Creek** to its original confluence with the Saint Mary River (rather than Lower Saint Mary Lake). As currently conceived, this project represents a potential threat to the Boulder Creek local population, which may have adapted to a more adfluvial orientation. If implementation occurs, ensure that connectivity issues for bull trout in and out of Boulder Creek drainage are satisfactorily addressed. (New Task)

1.3 Water Quality

1.3.1 **Improve instream flows**. Restore connectivity, opportunities for migration, and improve habitat by securing or improving instream flows. Priority streams include lower Swiftcurrent Creek and the Saint Mary River. (Source: USFWS (2002) - Draft Bull Trout Recovery Plan, task 1.2.4; Blackfeet Nation Bull Trout Management Plan 2010)

1.3.2 **Optimize outflow patterns from Sherburne Dam**. Continue ongoing discussions and implement a program to integrate reservoir operations with the demands for downstream flow releases in a fashion that restores a more naturally shaped dam discharge pattern (both seasonally and daily), and accommodates sufficient instream flows for threatened bull trout and other native species. (Source: USFWS (2002) - Draft Bull Trout Recovery Plan, task 1.4.1; Blackfeet Nation Bull Trout Management Plan 2010)

2. Actions to Address Demographic Threats

2.1 Connectivity Impairment

2.1.1 **Eliminate entrainment in diversions**. Continue efforts to eliminate loss of fish through entrainment in diversions; in part by incorporating screens on the Saint Mary Diversion in Montana. (Source: USFWS (2002) - Draft Bull Trout Recovery Plan, task 1.2.1; Blackfeet Nation Bull Trout Management Plan 2010)

2.1.2 **Provide fish passage around diversions**. Install effective fish passage around the Saint Mary Diversion. (Source: USFWS (2002) - Draft Bull Trout Recovery Plan, task 1.2.2; Blackfeet Nation Bull Trout Management Plan 2010)

2.1.3 **Eliminate culvert barriers**. Monitor road crossings for blockages to upstream passage, and replace any existing culverts or manmade blockages that may impede fish passage as necessary, taking into consideration risks versus benefits to reconnection. One site is currently identified on Middle Fork Lee Creek. (Source: USFWS (2002) - Draft Bull Trout Recovery Plan, task 1.2.3; Blackfeet Nation Bull Trout Management Plan 2010)

2.1.4 **Establish and restore natural thermal regime**. Attempt to determine natural thermal conditions in lower Swiftcurrent Creek and, to the extent possible, restore those conditions so that the normal biological migratory and growth response of bull trout is enhanced in the creek and the Saint Mary River downstream. (Source: USFWS (2002) - Draft Bull Trout Recovery Plan, task 1.4.2; Blackfeet Nation Bull Trout Management Plan 2010)

2.2 Fisheries Management

2.2.1 Evaluate enforcement of angling regulations. Ensure compliance with angling regulations and scientific collection policies. Target bull trout

spawning and staging areas for enforcement, especially in the Saint Mary River near the diversion. (Source: USFWS (2002) - Draft Bull Trout Recovery Plan, task 3.2.2; Blackfeet Nation Bull Trout Management Plan 2010)

2.3 Small Population Size

2.3.1 **Continue and expand annual redd counts** in index reaches. Annual redd counts ongoing since 1997 should be continued in Boulder and Kennedy creeks. The NPS should continue annual bull trout redd counts begun in Lee Creek in 2011 and explore the potential for periodic redd counts in Red Eagle and Slide Lakes core areas. (Source: USFWS (2002) - Draft Bull Trout Recovery Plan, task 5.1.1; Blackfeet Nation Bull Trout Management Plan 2010)

3. Actions to Address Nonnative Fishes

3.1 Nonnative Fishes

3.1.1 Discourage nonnative fish introductions into waters with a surface water connection to bull trout core areas. Implement a public educational effort about the problems and consequences associated with unauthorized fish introductions. Establish dialogue with Blackfeet Fish and Game staff as well as fish managers in Alberta regarding stocking of nonnative fish species into connected surface waters. (Source: USFWS (2002) - Draft Bull Trout Recovery Plan, task 2.3.1; Blackfeet Nation Bull Trout Management Plan 2010)

3.1.2 Evaluate experimental removal of established brook trout populations. Evaluate opportunities for removal of brook trout from selected streams and lakes. Priority watersheds include Kennedy and Red Eagle Creeks. Evaluate other waters for brook trout removal which may act as potential sources of dispersal to bull trout waters (e.g., Lost Lake in Glacier National Park). (Source: USFWS (2002) - Draft Bull Trout Recovery Plan, task 2.4.1)

4. Research, Monitoring, and Evaluation

4.1 Habitat

4.1.1 Conduct watershed assessments. Identify site-specific threats (problem assessment) that may be limiting bull trout in watersheds not already

evaluated. Examples include Divide Creek and forks of Lee Creek. (Source: USFWS (2002) - Draft Bull Trout Recovery Plan, task 1.3.1)

4.1.2 Evaluate temperature as a limiting factor. Evaluate the potential role of seasonally elevated water temperatures as a limiting factor to juvenile bull trout rearing and/or adult migration in Swiftcurrent Creek, the Saint Mary River downstream from the Swiftcurrent Creek confluence, and the Saint Mary River downstream from Saint Mary Diversion. (Source: USFWS (2002) - Draft Bull Trout Recovery Plan, task 5.2.4)

4.1.3 Model the potential impacts of climate change and, if necessary, develop and implement mitigation strategies. (New Task)

4.1.4 Mitigate impacts of oil and gas exploration. Based in part on past experience in the Belly and Waterton river watersheds of Alberta, Canada, develop best management practices to mitigate cumulative impacts of oil and gas exploration. These include, but are not limited to direct impacts on habitat and consequences to water quality and quantity, as well as associated human impacts from opening up access for other types of development and increased angler use. (Source: USFWS (2002) - Draft Bull Trout Recovery Plan, task 5.3.2; Blackfeet Nation Bull Trout Management Plan 2010)

4.2 Demographic

4.2.1 Evaluate distribution, abundance, and habitat use by bull trout occupying the Saint Mary lakes. A research need exists to develop information about the relatively unknown status, distribution, abundance and habitat preference of bull trout that occupy the large valley lakes in the basin; particularly since these fish are the only population in the United States known to have coexisted with native lake trout and northern pike. (Source: USFWS (2002) - Draft Bull Trout Recovery Plan, task 5.5.5)

4.2.2 Determine connectivity status and movement patterns of bull trout in lower Red Eagle Creek. Bull trout that occur in this watershed may have an adfluvial life history tied to Saint Mary Lake, but there is currently a lack of evidence to establish this as a local population of the Saint Mary.

4.3 Nonnatives

4.3.1 Develop bull trout education program. Develop and present public information programs with broad emphasis on bull trout ecology and life history requirements and more specific focus on regionally or locally important recovery issues. (Source: USFWS (2002) - Draft Bull Trout

Recovery Plan, task 2.3.2; Blackfeet Nation Bull Trout Management Plan 2010)

4.3.2 Evaluate species interaction with native lake trout and northern pike. Examine the species interaction and/or habitat partitioning that has allowed bull trout to persist in the Saint Mary watershed alongside native populations of lake trout and northern pike, with possible implications to other areas where these other species have been introduced. (Source: USFWS (2002) - Draft Bull Trout Recovery Plan, task 5.2.6)

Implementation Schedule for the Saint Mary Recovery Unit

The Implementation Schedule that follows describes recovery action priorities, action numbers, action descriptions, duration of actions, potential or participating responsible parties, total cost estimate and estimates for the next 5 years, if available, and comments. These tasks, when accomplished in conjunction with implementation of recovery actions in the other bull trout recovery units, will lead to recovery of bull trout in the coterminous United States as discussed in the Bull Trout Recovery Plan (USFWS 2015a).

Parties with authority, responsibility, or expressed interest to implement a specific recovery action are identified in the Implementation Schedule. Listing a responsible party does not imply that prior approval has been given or require that party to participate or expend any funds. However, willing participants will benefit by demonstrating that their budget submission or funding request is for a recovery action identified in an approved recovery plan, and is therefore part of a coordinated effort to recover bull trout. In addition, section 7(a)(1) of the Act directs all Federal agencies to use their authorities to further the purposes of the Act by implementing programs for the conservation of threatened or endangered species.

Interrelated Costs of Recovery Actions

Costs of recovery in the Saint Mary RU are directly attributable to bull trout, since no anadromous salmonids or other ESA-listed fish occur there. Costs are primarily assigned to 1) improvement and restoration of riparian and instream habitat impacted by land and water management activities, including flow and temperature concerns; and 2) restoration of connectivity over a single barrier (St. Mary Diversion) and elimination of entrainment in the associated diversion canal. Some of these actions are mandated and can be accomplished under the Clean Water Act, Blackfeet Tribal Laws and regulations, or other broader umbrellas. However, fish passage improvements and elimination of ongoing entrainment are the direct responsibility of the Bureau of Reclamation and the water users the system serves.

The implementation schedule includes the following components:

- Core Area: Designated core area(s) where the recovery action should be targeted.

- Threat Factor: Listing factor (A through E) or threat category addressed by the action.
  A: The present or threatened destruction, modification, or curtailment of habitat or range.
  B: Overutilization for commercial, recreational, scientific or educational purposes.
  C: Disease or predation.
  D: Inadequacy of existing regulatory mechanisms.
  E: Other natural or manmade factors affecting its continued existence.

- Recovery Action Priority: Assigned # 1, 2, 3, or CR based on the following definitions;

  Priority 1 – An action that must be taken to prevent extinction or prevent the species from declining irreversibly in the foreseeable future;

  Priority 2 – An action that must be taken to prevent a significant decline in species population or habitat quality; and

  Priority 3 - All other actions necessary to meet the recovery objectives.

  Priority CR - We also list additional conservation recommendations (denoted by "CR"). These actions are considered beneficial for bull trout conservation and merit implementation, but are not considered necessary to meet recovery objectives within a core area and so are not classified as Priority 1, 2, or 3. Conservation recommendations are not included in recovery cost estimates.

  We evaluate recovery action priorities relative to the core area(s) where the action is targeted. Recovery action priorities may reflect both the severity of the threat and the expected effectiveness of the action in addressing it. Some research, monitoring and evaluation (RM&E) actions necessary for recovery are also deemed critical for developing information for planning, implementing, monitoring, and evaluating effectiveness of recovery actions addressing management of primary threats. Depending on the level of importance of this information, these RM&E actions may be classified as Priority 2 or 3.

Additional components of the implementation schedule include:

- Recovery Action Description: Brief descriptive title of recovery action (consistent with the Recovery Measures Narrative that precedes this section).

- Recovery Action Duration: Indicates the number of years estimated to complete the action, or other codes defined as follows: Actions that are expected to last for the life of this plan (25 years) are so designated.

- Responsible Parties: Agencies and others with responsibility or authority to implement proposed recovery actions, typically with the primary lead for implementation listed first and others in no particular order.

- Estimated Costs: Estimated costs (x $1,000) are assigned to each recovery action identified in the Implementation Schedule, both for the first 5 years after release of the recovery plan and for the total estimated cost of recovery (based on time to recovery, for Continual or Ongoing actions).

  An asterisk (*) in the total cost column indicates ongoing tasks that are currently being implemented as part of normal agency responsibilities under existing authorities. Because these tasks are not being done specifically or solely for bull trout conservation, they are not included in the cost estimates. Some of these efforts may be occurring at reduced funding levels and/or in only a small portion of the watershed.

- Time to Recovery: Estimated time before this recovery unit could meet recovery criteria, if recovery actions are successfully implemented.

The following acronyms are used to identify responsible or participating parties throughout the implementation schedule:

BFN	Blackfeet Nation
BIA	Bureau of Indian Affairs
Glacier Co.	Glacier County, Montana
NPS	National Park Service, Glacier National Park
BOR	U.S. Bureau of Reclamation
USDOT	U.S. Department of Transportation
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

Table F-2. Saint Mary Recovery Unit Implementation Schedule. Recovery action descriptions that address primary threats are bolded.

Core Area	Threat Factor	Recovery Action Priority	Recovery Action Number	Recovery Action Description	Action Duration	Responsible Parties	Estimated Costs (x $1,000)					
							Total Cost	FY 16	FY 17	FY 18	FY 19	FY 20
Saint Mary River	A	1	1.1.1	**Implement Divide Creek restoration actions**	25	NPS, BFN, BIA, Glacier Co., USDOT, USFWS	20,000	1,000	1,000	5,000	5,000	2,000
Saint Mary River	A	2	1.1.2	**Improve grazing practices**	25	BFN, BIA, USFWS	*					
Saint Mary River	A	2	1.1.3	**Develop Aquatic Conservation Strategy and follow BMPs for timber activities**	5	BFN, BIA, USFWS	*					
Saint Mary River	A	2	1.2.1	**Minimize potential stream channel degradation**	25	USDOT, USFWS, BFN, BIA, NPS, Glacier Co., BOR	*					
Saint Mary River	A	2	1.2.2	**Evaluate the proposal to reroute lower Swiftcurrent Creek**	5	BFN, BOR, USDOT, BIA, NPS, Glacier Co., USFWS	5,000	500	500	2,000	1,000	1,000
Saint Mary River	A, D	2	1.3.1	**Improve instream flows**	25	BOR, BFN, USFWS, USGS	2,000					
Saint Mary River	A, D	2	1.3.2	**Optimize outflow patterns from Sherburne Dam**	5	BOR, USFWS, NPS, BFN	*					
Saint Mary River	A, D	1	2.1.1	**Eliminate entrainment in diversions**	5	BOR, USFWS, BFN	9,000				1,000	5,000
Saint Mary River	A, D	1	2.1.2	**Provide fish passage around diversions**	3	BOR, USFWS, BFN	1,000				500	500

Core Area	Threat Factor	Recovery Action Priority	Recovery Action Number	Recovery Action Description	Action Duration	Responsible Parties	Estimated Costs (x $1,000)					
							Total Cost	FY 16	FY 17	FY 18	FY 19	FY 20
Saint Mary River	A	2	2.1.3	**Eliminate culvert barriers**	10	BFN, BIA, Glacier Co., USDOT, USFWS	500	50	50	50	50	50
Saint Mary River	A, D	2	2.1.4	**Establish and restore natural thermal regime**	25	BOR, BFN, BIA, NPS, USFWS	*					
Saint Mary River	B	3	2.2.1	Evaluate enforcement of angling regulations	5	BFN, NPS, USFWS	*					
Saint Mary River, Red Eagle Lake, Slide Lakes	A, E	2	2.3.1	**Continue and expand annual redd counts**	25	BFN, NPS, USFWS	250	10	10	10	10	10
Saint Mary River	A, E	2	4.1.2	Evaluate temperature as a limiting factor	2	USFWS, USGS, BFN, NPS, BOR	250	50	200			
Saint Mary River	A, E	2	4.1.3	Model the potential impacts of climate change	5	USGS, NPS, USFWS	240	10	10	200	10	10
Estimated total cost of recovery actions within this recovery unit: $38,240,000 (over 25 years, minimum estimate)												
Time to Recovery (estimated time required to meet recovery criteria within this recovery unit): **10 to 25 years**												

Conservation Recommendations for the Saint Mary Recovery Unit.

Core Area	Threat Factor	Recovery Action Priority	Recovery Action Number	Recovery Action Description	Action Duration	Responsible Parties	Estimated Costs (x $1,000)					
							Total Cost	FY 16	FY 17	FY 18	FY 19	FY 20
Saint Mary River	E	CR	3.1.1	Discourage nonnative fish introductions	25	BFN, NPS, USFWS						
Saint Mary River	E	CR	3.1.2	Evaluate experimental removal of established brook trout in Kennedy Creek	5	NPS, USFWS						
Red Eagle	E	CR	3.1.2	Evaluate experimental removal of established brook trout in Red Eagle Creek	5	NPS, USFWS						
Saint Mary River	A	CR	4.1.1	Conduct watershed problem assessments	10	BIA, BFN, NPS, USFWS						
Saint Mary River	A	CR	4.1.4	Mitigate impacts of oil and gas exploration	25	BFN, BIA, Glacier Co., USFWS						
Saint Mary River	E	CR	4.2.1	Evaluate distribution, abundance, and habitat use by bull trout occupying the Saint Mary lakes	10	BFN, NPS,USFWS, USGS						
Red Eagle	E	CR	4.2.2	Determine connectivity status and movement patterns of bull trout in lower Red Eagle Creek	10	BFN, NPS,USFWS, USGS						
Saint Mary River	E	CR	4.3.1	Develop bull trout education program	10	BFN, NPS, USFWS						
Saint Mary River	E	CR	4.3.2	Evaluate species interaction with native lake trout and northern pike	10	NPS, USDOT, USFWS, USGS						

References

Literature Cited

[ACA] Alberta Sustainable Resource Development and Alberta Conservation Association. 2009. Status of the bull trout (*Salvelinus confluentus*) in Alberta: Update 2009. Alberta Sustainable Resource Development. Wildlife Status Report No. 39 (Update 2009). Edmonton, Alberta.

DeHaan, P., M. Diggs, and J. VonBargen. 2011. Genetic analysis of bull trout in the Saint Mary River System. U.S. Fish and Wildlife Service. Abernathy Fish Technology Center, Longview, Washington.

Donald, D. B., and D. J. Alger. 1993. Geographic distribution, species displacement, and niche overlap for lake trout and bull trout in mountain lakes. Canadian Journal of Zoology 71:238-247.

Martinez, P. J., P. E. Bigelow, M. A. Deleray, W. A. Fredenberg, B. S. Hansen, N. J. Horner, S. K. Lehr, R. W. Schneidervin, S. A. Tolentino, and A. E. Viola. 2009. Western lake trout woes. Fisheries 34:424-442.

Mogen, J. 2013. Bull trout investigations in the Saint Mary River Drainage, Montana – 2010-2012 summary report. U.S. Fish and Wildlife Service Northern Rockies FWCO, Bozeman, Montana.

Mogen, J. T., and L. R. Kaeding. 2001. Population biology of bull trout (*Salvelinus confluentus*) in the Saint Mary River drainage, progress report 1997-2001. U.S. Fish and Wildlife Service, Bozeman, Montana.

Mogen, J. T., and L. R. Kaeding. 2005a. Identification and characterization of migratory and nonmigratory bull trout populations in the St. Mary River drainage, Montana. Transactions of the American Fisheries Society 134:841-852.

Mogen, J. T., and L.R. Kaeding. 2005b. Large-scale, seasonal movements of radiotagged, adult bull trout in the St. Mary River drainage, Montana and Alberta. Northwest Science 79(4):246-253.

Mogen, J., E. Best, J. Sechrist, and C. Hueth. 2011. Fish entrainment at the Saint Mary Diversion, Montana. With a review of the impacts of project operations on bull trout and other native fishes. A report of investigations conducted during the water diversion periods of 2002-2006. Technical Memorandum 86-68290-10-05. U.S. Bureau of Reclamation, Montana Area Office, Billings, Montana. U.S. Fish and Wildlife Service, Northern Rockies Fish and Wildlife Conservation Office, Bozeman, Montana.

Rees, K., I. Girard, D. Walty, and D. Christiansen. 2012. Bull trout conservation management plan 2012-2017. Species at Risk Conservation Management Plan No. 8. Alberta Sustainable Resource Development. Edmonton, Alberta. 90 pages.

Skunk Cap, G. Jr., T. Tabor and R. Wagner. 2010. Blackfeet Nation Bull Trout Management Plan 2010. Blackfeet Fish and Wildlife Department, Browning, Montana.

Smillie, G. M., and D. Ellerbroek. 1991. Flood hazard evaluation for Divide and Wild creeks, Glacier National Park. Technical Report NPS/NRWRD/NRTR-91/02. Water Resources Division, National Park Service, Fort Collins, Colorado.

[USDOI] U.S. Department of the Interior, National Park Service. 1992. Value Analysis, Glacier National Park, Divide Creek. West Glacier, Montana.

[USFWS] U.S. Fish and Wildlife Service. 2002. Bull Trout (*Salvelinus confluentus*) Draft Recovery Plan. Chapter 25 – Saint Mary–Belly River. U.S. Fish and Wildlife Service, Portland, Oregon.

[USFWS] U.S. Fish and Wildlife Service. 2008. Bull Trout core area status assessment template. Core area by core area summary. U.S. Fish and Wildlife Service, Portland, Oregon.

[USFWS] U.S. Fish and Wildlife Service. 2014. Revised draft recovery plan for the coterminous United States population of Bull Trout (*Salvelinus confluentus*). Portland, Oregon. xiii + 151 pp.

[USFWS] U.S. Fish and Wildlife Service. 2015a. Recovery plan for the coterminous United States population of Bull Trout (*Salvelinus confluentus*). Portland, Oregon. xii + 179 pp.

[USFWS] U.S. Fish and Wildlife Service. 2015b. Draft Saint Mary Recovery Unit Implementation Plan for the Bull Trout Recovery Plan. June 2015. Helena, Montana. 24 pages.

[USFWS] U.S. Fish and Wildlife Service. 2015c. Draft Columbia Headwaters Recovery Unit Implementation Plan for the Bull Trout Recovery Plan. June 2015. Helena, Montana. 173 pages.

Appendix I. Completed Recovery Actions

Partial list of recovery tasks, per the 2002 Draft Bull Trout Recovery Plan, determined to be fully accomplished in the Saint Mary River core areas by the end of 2014.

3.2.4 Solicit information from commercial fishermen. Develop a reporting system to collect information on bull trout caught and killed or released by commercial fishermen on Saint Mary Lake. Take corrective action if warranted.

3.4.2 Increase harvest of competing species. Adjust regulations in bull trout waters to encourage angler harvest of nonnative brook trout and other nonnative species. Examine potential to increase harvest of competing native species (lake trout, northern pike), in a manner that is compatible with bull trout persistence.

4.1.1 Conduct genetic inventory. Continue coordinated genetic inventory throughout recovery unit to contribute to establishing a program to understand the genetic baseline and monitor genetic changes throughout the range of bull trout.

5.2.1 Delineate important migratory habitat. Further determine movement and seasonality of use of different habitat types by adult and subadult migratory bull trout with emphasis on the mainstem Saint Mary and Belly rivers (especially United States portions) and Lee Creek in Alberta.

5.2.2 Evaluate effects of entrainment losses on population status. Collect additional information on the population dynamics of Saint Mary River and Belly River bull trout local populations, related to assessing the impact of losses downstream into and over the Saint Mary Canal and United Irrigation District, Mountain View Irrigation District and Belly to Saint Mary canal diversions. A 2-year study of entrainment losses in Saint Mary Canal is beginning in 2002.

5.2.5 Identify suitable unoccupied habitat. Identify suitable unoccupied habitat, if any. Within five years complete a comprehensive list of all known passage barriers blocking access to suitable habitat by upstream migrating bull trout in the United States and Canada.

5.4.1 Conduct wild fish health survey. Conduct the National Wild Fish Health Survey throughout headwaters of the Saint Mary and Belly drainages to assess current status of fish pathogens, given the widespread legacy of past fish stocking and transplanting practices.

5.5.2 Finalize list of local populations and prioritize key watersheds for restoration actions. Complete status and distribution surveys to a level sufficient to be used in refining site-specific lists of recovery tasks.

5.5.3 Map spawning habitat. Develop a comprehensive map of primary bull trout tributary spawning reaches for purposes of focusing habitat protection, law enforcement, and recovery efforts.

5.5.4 Evaluate resident populations. Evaluate hypothesis that some local populations may convert from migratory to “resident” status, due to the loss of functional connectivity. Assess fragmentation and isolation concerns as a result. Middle Otatso Creek and Lee Creek may provide one opportunity, although the migratory population in Lee Creek may be stronger than has currently been documented.

7.3.1 Periodically review progress towards recovery goals and assess recovery task priorities. Annually review progress toward population and adult abundance criteria and recommend changes, as needed, to the Saint Mary - Belly River Recovery Unit Chapter. In addition, review tasks, task priorities, completed tasks, budget, time-frames, particular successes, and feasibility within the Saint Mary - Belly River Recovery Unit.

Appendix II. Summary of Comments on the Draft Recovery Unit Implementation Plan for the Saint Mary Recovery Unit

Background

On June 4, 2015, we released draft recovery unit implementation plans addressing each of the six recovery units that comprise the coterminous United States population of bull trout for a 45-day comment period for Federal agencies, Native American Tribes, State and local governments, and members of the public. The public comment period ended on July 20, 2015.

Comments on the Draft Saint Mary RUIP (USFWS 2015b) were received only from one Federal agency. Following is a summary of those comments and responses:

1. *Comment:* Winter flows in Swiftcurrent Creek and irrigation depletions in the Saint Mary River may hinder certain bull trout life functions, but securing instream flows in Swiftcurrent Creek and the Saint Mary River are not necessary to conserve bull trout, as the population is already robust despite this.

Response: Some suggested revisions or changes have been incorporated and updated in the final Saint Mary RUIP and the issue has been partially re-characterized as a study need, rather than a recovery imperative. However, we do not completely agree with the commenter's perspective.

2. *Comment:* While the commenter acknowledges the thermal profile in Swiftcurrent Creek and the Saint Mary River has been increased by Sherburne Dam, they submit that "many times" warmer water is a benefit to salmonids. Further, they suggest that establishing a natural thermal regime should be a conservation recommendation and not a #2 priority.

Response: Bull trout require the coldest water of any of the salmonids. We are aware of no scientific evidence that indicates that altered or enriched thermal regimes benefit bull trout. Indications are that climate change is likely to make this issue even more crucial in the future. Therefore, no changes to the document were made.

3. *Comment:* Neither dewatering (see #1, above), nor thermal enrichment (see #2, above) meet the standard for listing as a "Primary Threat" because they demonstrably "will not result in bull trout extirpation in the foreseeable future."

Response: During the interagency scientific planning and scoping process reached consensus agreement that the compound effects to bull trout of the long-term status and current operations of the Saint Mary Diversion (i.e., entrainment, passage, dewatering, and water quality impacts) could not be narrowed down to a single element (e.g., passage only). We agree that recovery should be biologically based, though we do not necessarily characterize the St. Mary

bull trout population as “strong, robust, and sustainable”, based on the fact that it persists despite existing impacts. If systematic improvements to the diversion result in alleviating some, but not all, threats and it can be demonstrated as a result that bull trout warrant further consideration for delisting in the Saint Mary, then at that time some of the existing primary threats may no longer be considered consequential impediments to recovery.

4. *Comment:* The commenter disagrees with the characterization of “Milk River Project threats” as shorthand for the suite of impacts the Project is acknowledged to cause.

Response: While not factually inaccurate, we have reworded the statement to comply with this point.

5. *Comment:* “It would be helpful to include a definition of listing factors (A through E).”

Response: Agreed and added.

6. *Comment:* The commenter proposed that Recovery Priority for instream flow be changed to a Priority 3 and the timeframe pushed out to begin in FY2021

Response: We changed Priority to #2 and agreed with timeframe beginning in FY 2021.

7. *Comment:* The commenter contends that Sherburne Dam outflow (Swiftcurrent instream flow) patterns are not a significant threat to bull trout because populations are strong despite Project operations that completely dewater the channel in winter and have been documented to typically take “only” 10 bull trout annually. They recommend changing this to a Conservation Recommendation.

Response: The Service respectfully disagrees with this assessment and, as noted in responses #1 and #3 above, we agree to systematically resolve these issues. If instream flow is the last remaining aspect of the complex threats caused by the diversion to be dealt with, we believe it will be easier to determine its significance at that time, so agree to defer this issue to FY 2021.

8. *Comment:* Similar to #7, above, the commenter contends that entrainment (i.e., “take”) of up to 600 bull trout a year does not have a population effect and the threat priority should be reduced (from #1 to #2) and the timeframe for costs should be deferred to FY 2018.

Response: With fewer than 100 redds attributed to the migratory population (Boulder and Kennedy Creeks) and a remnant population in Divide Creek (intermittent spawning only) we disagree that the population is robust and that take of up to 600 bull trout per year is inconsequential. Because of the timeframes involved in planning, consultation, funding, and construction of a new diversion, we do agree with shifting the costs to FY 2018 and beyond.

9. *Comment:* The commenter recommends changing upstream passage around the diversion from Priority #1 to Priority #2, because current circumstances (partial blockage during irrigation

season) allow some fish to jump the diversion and the population is sustainable despite this. Further, consistent with #8 (above), the timeframe for costs should be deferred to FY 2018.

Response: Because the degree of passage is undocumented and likely variable year to year, and circumstances supporting passage are not currently managed for, we disagree that this issue should be a lower priority. Evidence of partial passage in the past is no guarantee of passage in the future. As above, because of the timeframes involved in planning, consultation, funding, and construction of a new diversion, we do agree on shifting the costs to FY 2018 and beyond.

10. *Comment:* The commenter asked for an explanation of why the time required to meet recovery is listed as 25 years.

Response: The timeframe of 25 years is the standard used for the life of the implementation schedules presented in this planning process. As such, it represents half of the 50-year foreseeable future. In this case, timely remediation of the primary threats involving the Saint Mary Diversion could shorten this timeframe to as little as 10 years. However, given the current early status of formal consultation, the uncertainty of current commitment and funding, and the eventual necessity for a follow-up period of evaluation of fish response following construction, we do not foresee a 10-year timeframe to recovery. Accordingly, we have revised the estimate to 10-25 years.

11. *Comment:* The commenter contends that while entrainment, upstream passage, and instream flow impacts due to dewatering are likely of higher importance than other perceived threats in the Core Area, they do not meet the Service's own definition of "Primary Threat"

Response: See response to Comment #3, above.

12. *Comment:* The commenter contends that while the RUIP implies the operation of Sherburne Dam and Saint Mary Diversion cause dewatering issues during the irrigation season, which affect bull trout and their habitat, they have no knowledge of research supporting this conclusion.

Response: The Service agrees that the specific instream flow needs of bull trout during the irrigation season have not been well documented. However, it is reasonable for the Service to conclude that the diversion of up to 650 cubic feet per second from the St. Mary River during April-September, routinely including 70-80 percent and sometimes up to 90 percent of the existing flow (Mogen *et al*. 2011), may adversely affect bull trout. The recent (Rees *et al*. 2012) threat assessment and bull trout conservation management plan for Alberta listed the Saint Mary River at High Risk and cited "diversion of surface waters into irrigation canals and fragmentation of habitat by reducing instream flows which can result in water temperatures that exceed bull trout tolerance" as primary risk factors. Section 7 consultation for the Saint Mary Project will allow for interagency assessment of this issue.

13. *Comment:* The commenter disagrees with the RUIP assertion that passage at the Saint Mary Diversion Dam must be addressed to conserve bull trout, noting that monitoring data shows that bull trout can pass.

Response: See response to Comment #9, above.

14. *Comment:* The commenter takes exception to the RUIP premise that "the primary issue precluding bull trout recovery and eventual delisting is Reclamation's Milk River Project."

Response: See response to Comment #4, above.

15. *Comment:* It is unclear how the "Recovery Action Priority" is determined and assigned to each Recovery Action. Data does not support improving instream flows, optimizing outflows from Sherburne, and managing for a natural thermal regime as Priority 1 actions. These activities should be identified as conservation measures.

Response: The definition of Recovery Action Priority is described in the RUIP. Consensus on the primary threats and priorities for recovery actions was discussed at an interagency meeting and priority is assigned based, in part, on the degree of threat.

16. *Comment:* The commenter questions the grouping/sequencing of estimated costs (Table F-2) and recommends that Action Duration and cost estimates by FY be removed from the Implementation Schedule.

Response: The format of the implementation schedule is standard for recovery plans; however, estimated costs and action durations are not binding upon any responsible parties and are provided only as a guideline for planning implementation. Actual timing and details of implementation actions is subject to the outcome of section 7 consultation and, as noted, Congressional appropriation.

17. *Comment:* Milk River Project beneficiaries are contractually obligated to fund 73.96 percent of ESA compliance costs, with Federal funding covering 26.04 percent. This is an important consideration which requires additional coordination.

Response: The Service understands the nature of the funding issues, and considerations of same will be incorporated into the interagency section 7 consultation.

18. *Comment:* Please include a short explanation, tied to Table F-2, of rationale for establishing the estimated time required to meet recovery criteria as 25 years.

Response: See response to Comment #10, above.

Pacific Region
U.S. Fish & Wildlife Service
Ecological Services
911 N.E. 11th Avenue
Portland, OR 97232-4181

http://www.fws.gov

September 2015