US Army Corps of Engineers®
Walla Walla District

Lower Snake River Programmatic Sediment Management Plan and Environmental Impact Statement (PSMP/EIS)

Frequently Asked Questions

Why is the Corps developing the PSMP/EIS?

Sediment accumulation in the Lower Snake River system creates several major problems for the U.S. Army Corps of Engineers (Corps) operation and maintenance of this system. Historically, the sediment accumulation has been addressed by dredging the problem areas. However, the Corps has now determined it would be more effective to evaluate sediment management on a watershed scale rather than focus only on the reservoirs themselves. To accomplish this, the Corps is developing a Lower Snake Programmatic Sediment Management Plan and Environmental Impact Statement (PSMP/EIS). The Corps would like input from affected stakeholders and the public on this plan.

"This is an opportunity to create a regional sediment management plan for twenty years and beyond. It is important to the Corps and the future of the Snake River that this study moves forward with input from all affected stakeholders."

Carl Christianson, USACE Project Manager

Purpose

The purpose of the PSMP/EIS is to develop a long-term (20+ years), comprehensive, watershed-level approach for managing the sediment movement and deposition in the lower Snake River reservoirs where sediment interferes with the following river uses and functions:

- commercial navigation;
- irrigation withdrawals;
- recreation; and
- flow conveyance.

What is sediment?

Sediment is a mixture of soil particles and other material carried by the river. It is generally classified as suspended sediment (typically fine-grained materials such as clay and silt) or bed load (coarse-grained materials such as sand, gravels and cobbles). As the names imply, suspended sediments are transported downriver suspended within the water column, whereas bed load is moved along the river bottom. Sediment movement is determined by the size of the particle, flow velocity, and other factors. Sedimentation is the deposition of sediment along the river bottom – this typically occurs where and when flow velocity decreases and the sediment stops moving and settles to the bottom.

What are the effects of sediment in the Lower Snake River system?

Sediment is a natural part of the lower Snake and all other river systems. Sediment can carry food and nutrients to enrich downstream biota and can create new riparian habitats. However, too much sediment can smother some aquatic habitats, degrade water quality, reduce visibility and light in thewater column, and limit other uses of the river.

Sediment deposition that creates shallow water areas in some locations can form valuable aquatic habitat. However, sediment deposition in other locations can impede river uses such as commercial navigation and recreational boating. Sediment deposition can also clog water intakes. Large quantities of sediment deposition can reduce the volume of water that can be contained within the channel (the flow conveyance capacity), thereby increasing the risk of flooding during high flows. Whether sediment is considered a resource or a problem depends on how much sediment there is, whether pollutants are contained within the sediment, where, when, and how it occurs within the river and reservoir systems, and how sediment is used if extracted from a river.

Alpowa Creek Entering Snake River

Where does the sediment come from?

Sediment enters each of the Lower Snake River reservoirs from the upstream Snake and Clearwater Rivers and the tributaries to each reservoir. The sediment originates on the surrounding lands, and is carried into the tributaries by stormwater runoff, natural or unnatural bank erosion, or blown in by wind. Landslides and unstable slopes can also directly contribute sediment into the river system. Land disturbing activities and events such as development, logging, fire, and agriculture, can increase the sediment load entering the tributaries.

Clearwater National Forest Landslide

Lower Granite Pool

How can sediment cause problems for lower Snake River users?

Sediment deposition, either suspended sediment settling to the bottom of the river or bed load shifting to different places along the river bottom, affects the lower Snake River by:

- reducing the water depth; and
- reducing the flow conveyance capacity.

As the river's flow conveyance capacity is reduced by sedimentation, the risk of flooding during high flows increases in some areas. One area of potential future concern is the upper reach of the Lower Granite Reservoir near Lewiston, Idaho and Clarkston, Washington. Sediment accumulation in the Lower Granite Reservoir continues to gradually reduce the level of protection provided to this area by the levees. Over the long term and without corrective action, this could increase the risk of a flood overtopping the levees.

Sediment also impacts irrigation diversions and recreation uses, such as boating.

How do the reservoirs effect sediment movement?

Reservoirs on rivers generally act as sediment traps where they slow the flow velocity. Where there are several reservoirs in a row, such as on the lower Snake River, the first or upriver reservoir acts as the primary trap.

The upper reach of the Lower Granite Reservoir, which includes the confluence of the Snake and Clearwater rivers, serves as a sediment trap for most of the material (est. 85%) carried in suspension in the free-flowing reaches of the contributing rivers. The remaining sediment stays in suspension and gradually settles out as it passes through the reservoirs. Sediment also enters the lower Snake above Lower Monumental dam from the Palouse and Tucannon Rivers.

The sediment-contributing drainage area above Lower Granite dam includes the Salmon, Grande Ronde, and Imnaha Rivers; the main stem of

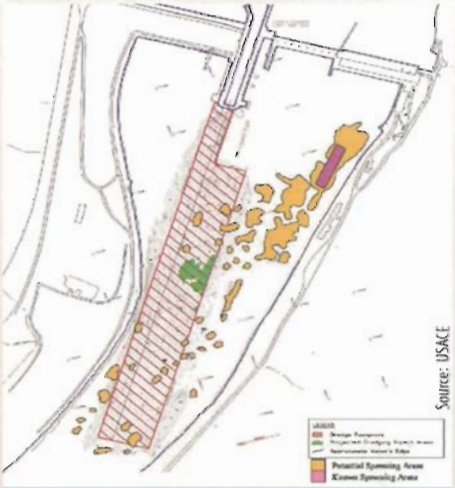
Barge Traffic

Steptoe Canyon Silt Deposit at Snake River

the Clearwater River; and the local drainage of the Snake River between the Hells Canyon dam complex and Lower Granite dam.

How has the Corps managed sediment in the past?

Historically the Corps has used periodic dredging to manage sediment as part of operating and maintaining the federal navigation channel. The Corps dredged the accumulated sediment from the areas causing problems, and disposed of the material either upland, or more recently, in-water within the reservoirs. The Corps approach was to react once sediment problems were identified. Sedimentation (also known as shoaling) locations would be dredged on average every three to five years. The actual dredging was scheduled when data indicated that the sediment deposition was interfering with navigation or other uses of the reservoirs.



Lower Granite Tailrace Dredging

Why develop a new approach to sediment management?

Dredging provides many sediment management benefits: it directly addresses the immediate

Snake/Clearwater Confluence

sediment problem or specific unwanted sediment deposit; it can be applied to almost all areas with sediment problems throughout the river system; the sediment redeposited in other locations within the river can provide beneficial uses, and it produces measurable results. However, dredging involves specific sediment disturbance and disturbance of accumulated sediment has the potential to adversely affect water quality, aquatic habitat, and endangered species. Disposal or reuse of the dredged material may also raise environmental issues and requires careful planning. Further, dredging can only address the immediate need to remove existing sediment deposits; it will not prevent more sediment from being deposited in the same or other undesirable locations.

Dredging projects can also be sources of controversy among some river and reservoir stakeholders. The Corps prepared a Dredged Material Management Plan and Environmental Impact Statement (DMMP/EIS) that

was finalized in 2002. Shortly after this, litigation ensued and the proposed dredging was halted. The litigation ended by settlement agreement in 2005 with the Corps agreeing to develop a PSMP to study the sources of sediment and problems of sediment accumulation in the Lower Snake, and prepare an EIS for addressing long-term sediment accumulation and management. In the PSMP/EIS, the Corps will consider a broader range of sediment management alternatives beyond the traditional dredging program, including potential actions that could be taken in the contributing drainage areas to reduce sediment sources and update management approaches in the Lower Snake River system.

What is the working hypothesis for this planning effort?

By addressing sediment management for the lower Snake River and contributing drainage areas for a 20-year period, this planning effort will improve understanding of causes and sources of sediment in the watershed, the sediment problems in the river, and the opportunities to manage sediment over the near and long-term. Applying an adaptive management approach to sediment management will help to update and refine plan strategies and data needs over time.

What is the EIS process?

The PSMP is a federally funded effort and any implementation measures must comply with the National Environmental Policy Act (NEPA). The NEPA process relies on participation from the public, from local, state and federal agencies, tribal governments and Non Government Organizations (NGO's) to help identify the range of alternatives, actions and impacts. NEPA then requires study of those alternatives and

The EIS process includes:

1) defining project purpose and need,
2) holding public scoping meetings to identify issues and concerns to be addressed in the EIS,
3) developing alternatives to evaluate,
4) describing the potentially affected environment,
5) evaluating environmental, economic, cultural, and social consequences of the alternatives,
6) developing measures to avoid, minimize, and mitigate potential adverse environmental impacts.
7) publishing a draft PSMP\EIS for public review and comment
8) publishing a final PSMP\EIS
9) signing a Record of Decision describing the federal actions to be taken.

Source: USACE

Dredged Material Deposition, Lower Granite Reservoir

disclosure of their environmental consequences to decision-makers and the public. For this project, this will be done through the preparation of an environmental impact statement (or EIS).

Scoping is a critical component of the NEPA process, and one of the first steps taken in developing an EIS. Scoping provides an opportunity for the pubic and resource agencies to learn about and comment on the project. The scoping process is intended to help define the range of actions, alternatives, and environmental consequences that will be examined in the EIS. Scoping also establishes a public record and ensures that relevant issues are identified early and included in the analyses.

How will the PSMP/EIS consider sediment management?

The PSMP/EIS will examine sediment dynamics and problems and seek solutions that answer the following questions:

- What are the primary causes and sources of sediment deposition in the Lower Snake River System
- Does sediment deposition appear to be increasing, decreasing or staying the same?

Salmon River Gravel Bars

Gully Erosion

- What is the "natural" or baseline sediment amount contributed to the lower Snake River?
- How much of the problem is attributed to new sediments entering streams compared to existing streambed sediments?
- What is the relative contribution and rates of transport of sediments from different watersheds?
- What are the relative sediment contributions from different land cover types?
- What are the most effective measures to manage sediment accumulation in problem areas?
- What are the likely environmental impacts (both positive and negative) of these potential management measures?

What are the expected sediment sources and potential actions that will be considered in developing the plan?

The plan will include consideration of many actions through a suite of alternatives, including a no-action alternative, for different potential sediment sources. Some example actions for addressing sediment sources could include the following:

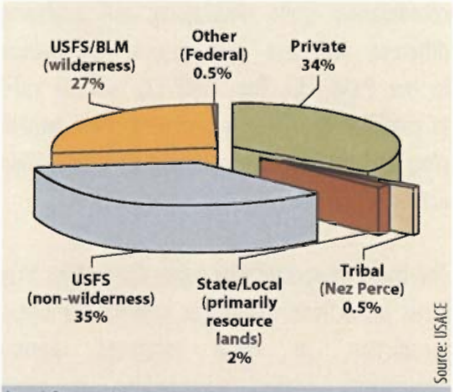
- Stream channels – habitat and channel restoration, sediment traps, bank stabilization;
- Forest lands – slope stabilization, road reductions, revegetation, best management

practices for logging or grazing, upgrades to stream crossings, and efforts to reduce fire risk such as fuels reduction;

- Range and agricultural lands – low-intensity grazing, sediment traps or settling basins, gully plugs, riparian buffers in the contributing drainage areas; and
- Reservoir channels – dredging, in-water systems to control deposition such as dikes or dike fields, in-water disposal of dredged material to enhance salmonid rearing habitat, modifying navigation system infrastructure such as facilities relocation, and modifying flows to flush sediment.

How will the Corps coordinate with other agencies?

The Corps manages only a small part of the more than 32,000 square miles of land in the study area (<1%). Most of the study area is, however, controlled by the federal government, with 27% in federal wilderness area and another 35% as national forest; 34% of the study area is in private ownership.



Land Ownership

The Corps recognizes the work that has been done and continues to be done by private landowners; local, state and federal agencies; and tribal governments to reduce sediment in the watersheds. It further recognizes that these landowners and resource managers will continue as leads in the future for implementing additional measures to reduce sediment. The Corps hopes to work closely with these parties to understand: 1) sediment sources, 2) progress made in reducing sediment, and 3) opportunities for additional sediment management. The Corps will continue this

Centennial Island Created Near Kelly Bar

coordination while developing and analyzing different sediment management alternatives in the PSMP/EIS. The PSMP/EIS will be used to establish the 20-year sediment management plan and associated monitoring and evaluation activities.

The Corps recognizes that some alternatives may focus on actions that occur outside the Corps' jurisdiction. In these instances, agency agreements, project partnerships, or other forms of cooperation may be used to support implementation of specific actions or programs that help manage sediment sources. Depending on the alternative selected, legislation may be needed prior to implementation of the recommended actions.

What are the next steps for developing the plan?

After the Corps completes the scoping process and all meetings are held we will identify issues and concerns and determine the appropriate scope for this PSMP\EIS.

The scope will help us determine the size of the study area and the amount of information that has to be collected and analyzed. After the scope is confirmed, we will publish a revised schedule on the project website. The development of this EIS is anticipated to take several years to complete.

The Corps has dedicated and will continue to dedicate significant time for communicating with federal, state, and local agencies; tribes; and the public for each phase of the project, including data collection, formulating and evaluating alternatives, and preparing a draft plan and EIS.

This is a complex project and dependent on many factors, including congressional appropriations. The amount of funding provided each year by Congress will ultimately determine the pace and duration of the project.

How can I get more information?

Additional information can be requested from:

ProgrammaticManagement@usace.army.mil
509-527-7260

Project website:
http://www.nww.usace.army.mil/psmp/

When communicating with the Corps, please let us know if you are interested in being on a project notification list, and once added to the list you will receive notice on upcoming meetings and availability of draft documents for review.