

*Impacts of 404 Permits on
Wetlands and Waterways in Montana
and Recommendations for
Program Improvement*



Impacts of 404 Permits on Wetlands and Waterways in Montana and Recommendations for Program Improvement

**By
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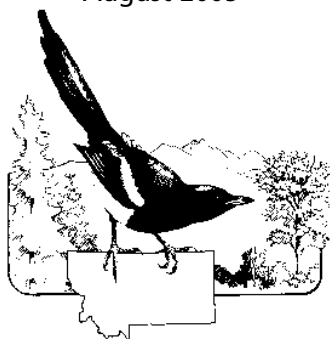
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ACRONYMS

ATF = After-the-Fact Permit
CFR = Code of Federal Regulations
Corps = U.S. Army Corps of Engineer
DEQ = Montana Department of Environmental Quality
DNRC = Montana Department of Natural Resources and Conservation
DHES = Montana Department of Health and Environmental Sciences
EA = Environmental Assessment
EIS = Environmental Impact Statement
EPA = U.S. Environmental Protection Agency
ESA = Endangered Species Act
FAG = Final After-the-Fact General Permit (Corps computer code)
FAI = Final After-the-Fact Individual Permit (Corps computer code)
FAN = Final After-the-Fact Nationwide Permit (Corps computer code)
FCI = Functional Capacity Index
FDP = Final Denied Permit (Corps computer code)
FEMA = Federal Emergency Management Agency
FERC = Federal Energy Regulatory Commission
FGP = Final General Permit (Corps computer code)
FIM = Final Modification Issued for Existing Permit (Corps computer code)
FIP = Final Individual Permit (Corps computer code)
FONSI = Finding of No Significant Impact
FNW = Final Nationwide Permit (Corps computer code)
FWP = Montana Fish, Wildlife and Parks
GP = General Permit
GPS = Global Positioning System
Heritage = Montana Natural Heritage Program
LOP = Letter of Permission
MDT = Montana Department of Transportation
NEPA = National Environmental Policy Act
NRCS = Natural Resources Conservation Service
NRIS = Natural Resource Information System
NWI = National Wetland Inventory
NWP = Nationwide Permit
PCN = Pre-construction Notification
RAMS = Regulatory Analysis and Management System (Corps' database)
SAMP = Special Area Management Plan
SWANCC = Solid Waste Agency of Northern Cook County v. the U.S. Army Corps of Engineers (U.S. Supreme Court case)
USFWS = U.S. Fish and Wildlife Service
USGS = U.S. Geological Survey

Executive Summary

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Section 404 of the Clean Water Act regulates the “discharge of dredged or fill material” into “waters of the United States, including wetlands.” The Section 404 permit program, administered by the U.S. Army Corps of Engineers (Corps), regulates the physical placement of soil, gravel, rocks, or other fill material into rivers, lakes, certain wetlands, streams, and intermittent streams. The Corps tracks permit requests using a database that contains information about the permit number, type of permit issued or denied, size and location of the project, type of wetlands being impacted, project description, mitigation information, and more.

This report evaluates Montana-specific information contained in the Corps’ database for a 13-year period between January 1, 1990, and December 31, 2002. During this time, the Corps approved 99.8% of all 404 permit applications; the agency issued 6,261 permits and denied 11. Permits authorized impacts to almost 943,000 feet (179 miles) of streams and rivers and the filling of 900 acres of wetlands. On an annual basis, the permits authorized the alteration of approximately 72,000 feet (almost 14 miles) of streams and rivers and the loss of 70 acres of wetlands. In addition, over the 13-year period, the Corps authorized the

placement of 988,557 cubic yards of fill in wetlands or waterways. Most of the 404 permits issued (71%) were for projects along rivers and streams. The Corps issued permits in each of Montana’s 56 counties. In general, Montana counties with the largest population received the highest number of 404 permits.

The Corps’ database contains no information about the size of project impacts for 29% of all 404 permits issued. As a result, this report significantly underestimates the effects of the 404 program in Montana. If these permits caused a proportional 29% increase in impacts during the 13-year study period, 404 projects authorized an additional 52 miles of impacts to streams and the loss of an additional 260 acres of wetlands.

Of the 3 types of 404 permits issued in Montana—Individual, Nationwide, and General—the largest projects were typically conducted under Individual Permits. Individual Permits are the only type of permit that allows public involvement on a project-by-project basis; the use of these permits appears to be declining in Montana. Of the 3 permit categories, Nationwide Permits authorized the most significant resource impacts: the alteration of more than 709,000 feet (134 miles) of rivers and streams and the filling of 675 acres of wetlands during the 13-year study period. Nationwide permits have no site-specific environmental assessment and no public oversight, causing concern over resource impacts being authorized by these increasingly used permits.

Bank stabilization projects are the most controversial projects authorized by the 404 program in Montana. These projects accounted for the most linear feet of impacts to streams and rivers, with 1,352 permits authorizing impacts on approximately 554,000 feet (105 miles) of streams. The Corps only documented mitigation for 7 of these projects, and a total of 8,236 linear feet. When these numbers are combined with other bank stabilization structures either put into place before 1990, or



authorized under other permits (e.g. Nationwide Permit 3 or Nationwide Permit 23), questions are raised about cumulative impacts from these projects, and whether or not the 404 program has adequate checks and balances in it to provide resource protection to Montana's rivers and streams.

Given the importance of wetlands and waterways in protecting public health and safety, providing flood protection, protecting water quality, and providing critical habitat for fish and wildlife, it is essential that Montana resource managers and citizens understand the effects of the 404 program and consider steps to increase resource protection. This report contains several recommendations. In particular, the Corps should require mitigation for all resource impacts caused by 404 projects. According to the Corps' database, between 1990 and 2002, mitigation was documented for only 271 of the 5,407 permits (4.3%) that resulted in resource impacts. These permits authorize mitigation for only 2.4% of the resource impacts to streams and rivers and 41.3% of the impacts to wetlands. Projects whose impacts were recorded using cubic yards of fill as the measurement of impact were not mitigated.

Although documenting the effects of the 404 program on wetlands and waterways is an important first step to ensuring that the 404 program does not degrade Montana's aquatic resources, at some point, thresholds that trigger restoration efforts or curtail the number of projects permitted should be established. Toward this end, this report recommends the establishment of a system whereby the initiation of foot-for-foot mitigation of streams and rivers would be required for 404 projects or permits would have to be denied. In this way, Montanans would gain assurance that projects do not ultimately channelize and degrade the state's streams and rivers.



The research for this report revealed that the 404 program is significantly degrading Montana's wetlands and waterways. Because of the number of permits issued and their size, the number of issued permits with no impact information identified, and the impacts from projects qualifying as "exceptions" (through policies such as Pre-construction Notification thresholds established in the Nationwide Permit system), it is impossible for Corps personnel, other resource managers, or the concerned public to know the extent of the 404 program's effects. However, it is clear that for the period 1990–2002 the 404 program in Montana did not meet the Corps' goal of no net loss of wetlands. Unless the program is improved, Montana wetlands will continue to be lost and rivers and streams will continue to be degraded.



Introduction

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Wetlands, streams, rivers, and lakes are a relatively small part of the Montana landscape, making up less than 4% of the state's acreage. Perhaps the best known reason for protecting these areas is their importance as fish and wildlife habitat. From pintails, great blue herons, and tiger salamanders to bull trout, beaver, and sturgeon, a staggering number of creatures depend on Montana's wetlands, waterways, and their associated vegetation. In addition, these areas play a critical role in flood protection, maintaining water quality by filtering out pollutants, and providing Montanans with countless hours of recreation.

The primary federal law that regulates projects that affect these areas is Section 404 of the Clean Water Act. Section 404 regulates the placement of "dredged or fill material" (soil, sand, gravel, rocks, or other such material) into "water of the United States" (rivers, lakes, streams, and certain wetlands). Authorizations for these projects (known as "404 permits") are issued by the U.S. Army Corps of Engineers (Corps). In Montana, 404 permits are an important part of the regulatory network that protects rivers, streams, lakes, and wetlands.

ABOUT THIS REPORT

The Corps issues hundreds of 404 permits in Montana each year. In order to better understand the protection that wetlands, streams, rivers, and lakes receive under this program, it is important to understand how the 404 program works and how it is being implemented.

This report is an overview of the 404 program in Montana. It reviews information about 404 permits in Montana for a 13-year period—between January 1, 1990, and December 31, 2002—and attempts to answer the following questions:

- How does the 404 program work? (Chapter 4)
- How can the public participate in the 404 program? (Chapters 4 and 7)
- What is the role of state and federal agencies in the 404-permit process? (Chapter 4)
- What types of 404 projects are permitted under this program in Montana? (Chapter 7)
- When and why have 404 permits been denied in Montana? (Chapter 6 and Appendix III)
- Where are 404 permits being used? (Chapter 8)
- What impacts does the 404 program have on the state's streams, lakes, and wetlands? (Chapter 8)
- What enforcement actions have been taken under the 404 program? (Chapter 8)
- How might the 404 program be improved to enhance resource protection? (Chapter 9).

Government agencies and Montana citizens alike need state-specific information if they are to make informed decisions about the effects of 404 projects on Montana's wetlands, streams, rivers, and lakes. This report was designed to provide agencies with decision-making information and to be used as a layperson's guide by citizens, local government officials, organizations, and businesses so that they can shape, monitor, and understand decisions affecting wetlands, streams, rivers, and lakes in their communities.



It is important to note that while this report gives a snapshot of the 404 program in Montana, the program itself has not been static over time. As a result of both legislation and court decisions, the program continues to evolve both locally and nationally. For example, a U.S. Supreme Court decision in 2001 changed which wetlands are regulated under the 404 program (See page 17). Nationwide Permits, the most frequently used 404 permits, have undergone 4 major revisions between 1990 and 2002. And, in March 2004, the Montana Corps and several state agencies approved an in-lieu-fee program to better enable mitigation of impacts to wetland resources (See page 26).

WHY IS THE ARMY CHARGED WITH REGULATION OF WETLANDS AND WATERWAYS?

In 1890 the federal government began regulating activities impacting streams, rivers, and lakes to protect navigation. Due to the importance of boat travel to both interstate commerce and the military at the time, the U.S. Army was given charge of this regulatory program. Over the years the mandate of this program has evolved to include the protection of waterways and certain wetlands. However, the program's administration continues to reside where it has historically—with the U.S. Army. Within the army, the program has been delegated to the U.S. Army Corps of Engineers.

In 1972, amendments to the Clean Water Act expanded the Corps' authority to include the regulation of projects that fill "waters of the United States" (including wetlands). Although the Corps takes the lead in day-to-day administration of Section 404, both the Corps and the U.S.

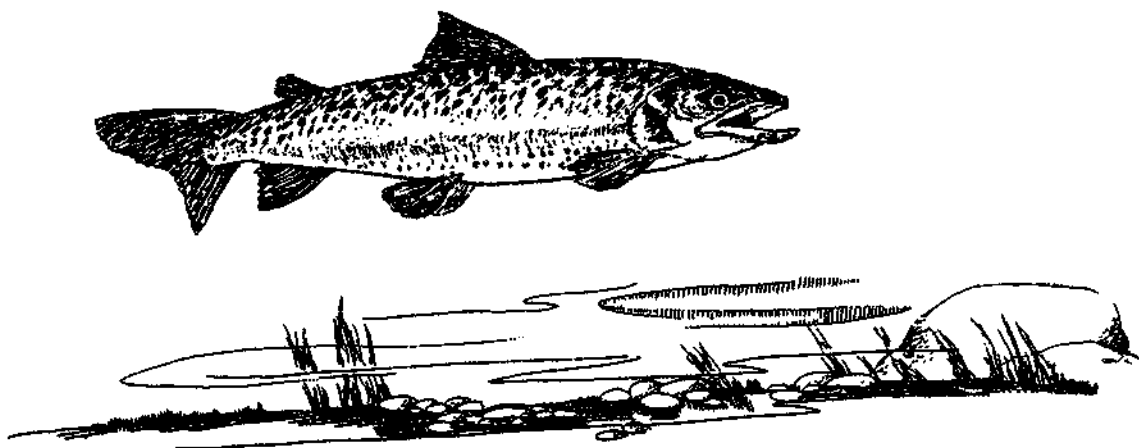
Environmental Protection Agency actually jointly administer the program. For a more complete description of the 404 program, see Chapter 4.

ABOUT MONTANA AUDUBON

Montana Audubon has a long track record of doing projects, advocacy, and research on issues affecting wetlands and streams. Specifically, Montana Audubon has assisted in such projects as mapping the wetlands of the Helena Valley, a cooperative project with Lewis and Clark County and others. It also led efforts to develop the 2003 handbook *A Planning Guide for Protecting Montana's Wetlands and Riparian Areas*, a cooperative project with Montana Watercourse and the Montana Department of Environmental Quality (Ellis and Richard 2003). The organization is a member of the Montana Wetlands Council, works cooperatively with local and state agencies on a regular basis, and has an established credibility within the conservation community and government agencies at the local, state, and federal levels.

In 1993, Audubon completed its first review of the 404 program and published *Protecting Montana's Wetlands: An Overview of Montana's Section 404 Program* (Montana Audubon Council 1993). The main differences between the 1993 and 2004 reports are

- The 1993 review involved pouring through paper files; the 2004 review looked at the Corps' computer database and utilized the computer to tally information.
- The 1993 report covered a 4-and-a-half-year time span and reviewed 1,756 permits; the current report covers 13 years and 6,261 permits.





Why Protect Wetlands, Streams, Rivers and Lakes?

Water is a precious commodity in the arid West. Clean water is a critical element to maintaining public health, sustaining local economies and economic development, preserving fish and wildlife populations, and protecting the quality of life of Montana's communities and citizens. Because of these factors, much attention is currently focused on protecting the state's rivers, streams, lakes, and wetlands and their associated vegetation. The reasons for protection appear below.

Pollution Control of Surface Water. Approximately 54% of Montana's population using public drinking water systems relies on clean surface water for their drinking water. One of the most valuable functions of wetlands and streamside vegetation is its ability to maintain and improve water quality. The plants located in these areas filter out or break down pollutants, including heavy metals, keeping them from entering lakes

and streams. Captured nutrients, including phosphorous and nitrates, are used by plants or are slowly returned to the water, thus stabilizing nutrient loads of water bodies. Bozeman, Butte, Glasgow, Great Falls, Havre, Helena, Kalispell, Libby, Red Lodge, Ronan, Stevensville, Thompson Falls, White Sulphur Springs, Whitefish, and most of the communities along the Yellowstone River (Billings, Forsyth, Glendive, Laurel, Lockwood, and Miles City) depend on clean surface water for their drinking water (J. Meek, Montana Department of Environmental Quality (DEQ), written communication, 2002).

Ground Water Protection. Approximately 46% of Montana's population using public drinking water systems relies on clean ground water for their drinking water. One of the primary ways surface water enters the ground is through seepage from streams, rivers, lakes, and wetlands (Cohen 1997). The vegetation associated with these areas filters out pollutants and enhances the recharging of wells and aquifers by holding water long enough to allow it to percolate into the underlying soil. Most of the people in the Bitterroot and Mission Valleys and the communities of Missoula, Bigfork, Dillon, Livingston, and Twin Bridges depend on clean ground water for their drinking water (J. Meek, DEQ, written communication, 2002).

Clean Water and Public Health. All Montanans depend on clean ground water or surface water from public water supplies or individual wells. Because everyone needs clean water, the maintenance of human health is directly associated with wetlands and streamside vegetation. Vegetated areas break down and hold nutrients, chemical pesticides, salts, sediments, and organic wastes. They also act like giant sponges, absorbing and reducing the amount of pollution entering lakes, streams,



ground water, and—ultimately—drinking water from runoff originating from city streets, lawns, construction sites, and fields. Maintaining clean water is almost always less expensive than cleaning polluted water.

Flood Control. Montana has over 175,000 miles of streams and rivers; all periodically flood (DEQ 2001). Water that inundates vegetated floodplains is soaked up by floodplain wetlands and streamside vegetation and then reenters the main channel slowly (Cohen 1997). This action can lower flood peaks, slow water velocities, recharge local aquifers, and provide temporary water storage, helping to avert damage to downstream landowners. In 1997, floods in Montana caused over \$7.6 million in damages to public agencies, including school districts, cities, counties, and irrigation districts in 23 counties. The Federal Emergency Management Agency (FEMA) picked up 75% of these flood costs—but local entities, including local governments, footed \$1.9 million of the bill (J. Anderson, Montana Disaster and Emergency Services, Montana Department of Military Affairs, written communication, 2002).



Erosion Control. One of the main places that erosion takes place is along Montana's streams and rivers. When people buy land, they expect their property boundary to stay where it was when they purchased the land. If the land is located on a stream or river, this principle does not work—because streams and rivers are dynamic. Banks naturally erode and the material is deposited elsewhere, which in turn builds banks and their associated floodplain. Consequently, stream meanders change location over time. Although stream banks naturally erode, erosion can be accelerated above natural rates by such activities as the removal of riparian vegetation or manipulation of stream channels (e.g., Schmetterling 2001; Ellis 2002).

Economic and Community Values. Clean water goes hand-in-hand with a strong economy (National Association of Counties 2001). Farmers, ranchers, and commercial activities need water to produce crops, livestock, and manufactured goods. Healthy ecosystems attract tourists and recreation dollars. Wetlands and riparian areas are important components of parks, open space, trail systems, and wildlife habitat, contributing significantly to the quality of life for area residents. Additionally, private property values can benefit from the availability of clean water: the protection of ponds, streams, and lakes can increase the value and marketability of nearby parcels of land. Communities throughout Montana recognize the importance of riparian areas to the local economy. For example, a 1983 Madison County study concluded that "development along the Madison River will adversely affect the important economic and recreational opportunities that so many people depend on" (Shouse and Johnson 1983).

Agricultural Benefits. In Montana, farmers and ranchers use approximately 90 million gallons of ground water every day for irrigation and 16 million gallons to supply water for livestock (Solley et al. 1993). The many benefits of wetlands and streamside vegetation to agriculture include maintaining late summer stream flows that are critical for irrigating crops, watering stock, and recharging aquifers; maintaining a higher water table, which increases subsurface irrigation and production of forage; filtering out sediments, which protects water quality, prolongs the life of irrigation pumps, and reduces the siltation of irrigation ditches; filtering out agricultural chemicals such as nitrogen, phosphorous, and pesticides; and providing shrubs and trees that shelter livestock.



Recreational Benefits. The bounty of fish and wildlife species supported by wetlands and riparian areas provides numerous outdoor recreation opportunities, including hunting, fishing, birdwatching, and hiking. In 1995, more than 1,084,000 people participated in wildlife-associated recreation in Montana and spent more than \$678 million on equipment and travel-related expenses. Of the participants surveyed, 336,000 fished, 194,000 hunted, and 554,000 participated in wildlife-watching activities (U.S. Fish and Wildlife Service (USFWS) 1998). Resident and nonresident anglers, hunters, and wildlife watchers are included in these statistics.

Wildlife Habitat. Perhaps the best-known reason for protecting the state's wetlands and waterways is their importance as wildlife habitat. These areas provide critical seasonal or year-round habitat required to support a majority of our state's mammals, including deer, mink, beaver, otter, elk, moose, and bear. This habitat also provides breeding and nesting areas for at least 134 (52%) of Montana's 259 species of breeding birds; much-needed food and resting areas for migrating birds in the spring); and essential breeding, foraging, and over-wintering habitat for Montana's 12 native amphibians, 3 turtles, and at least 5 of Montana's 10 snakes (Montana Audubon, unpublished data, 2003) (Maxell 2000).

Fisheries. Fish depend on healthy riparian areas and wetlands throughout their life cycle. Shallow places located adjacent to streams provide spawning

and feeding areas. Streamside vegetation removes, processes, and releases organic and inorganic material into streams, providing nutrients for invertebrates that, in turn, feed fish. Riparian vegetation also provides underwater hiding places from predators and shade to control and moderate water temperatures, keeping streams cooler in the summer and warmer in the winter. In Montana, all 86 species of fish depend on healthy streams, including 54 species of native fish and 32 non-native species; 31 of these species are considered game fish, which are important to the economy (Holton and Johnson 1996). Without a healthy, functioning stream and its associated vegetation acting as a filter, high levels of eroded sediment can kill aquatic insects and suffocate fish eggs.

Threatened and Endangered Species Habitat. Rivers, streams, lakes, and wetlands provide important habitat for many of the state's rare species of plants and animals. Currently, 17 of Montana's 20 threatened, endangered, or candidate species depend on wetlands and streamside areas for some part of their life cycle (R. Hazelwood, USFWS, oral communication, 2002). The water howellia (*Howellia aquatilis*), a threatened plant species, occurs largely in the glacial potholes and old river oxbows of the Swan Valley. The threatened Bald Eagle depends on riverside forests and cottonwood groves to provide critical nesting and wintering habitat. The threatened bull trout depends on western Montana rivers and mountain streams to spawn.



Montana's Aquatic Resources

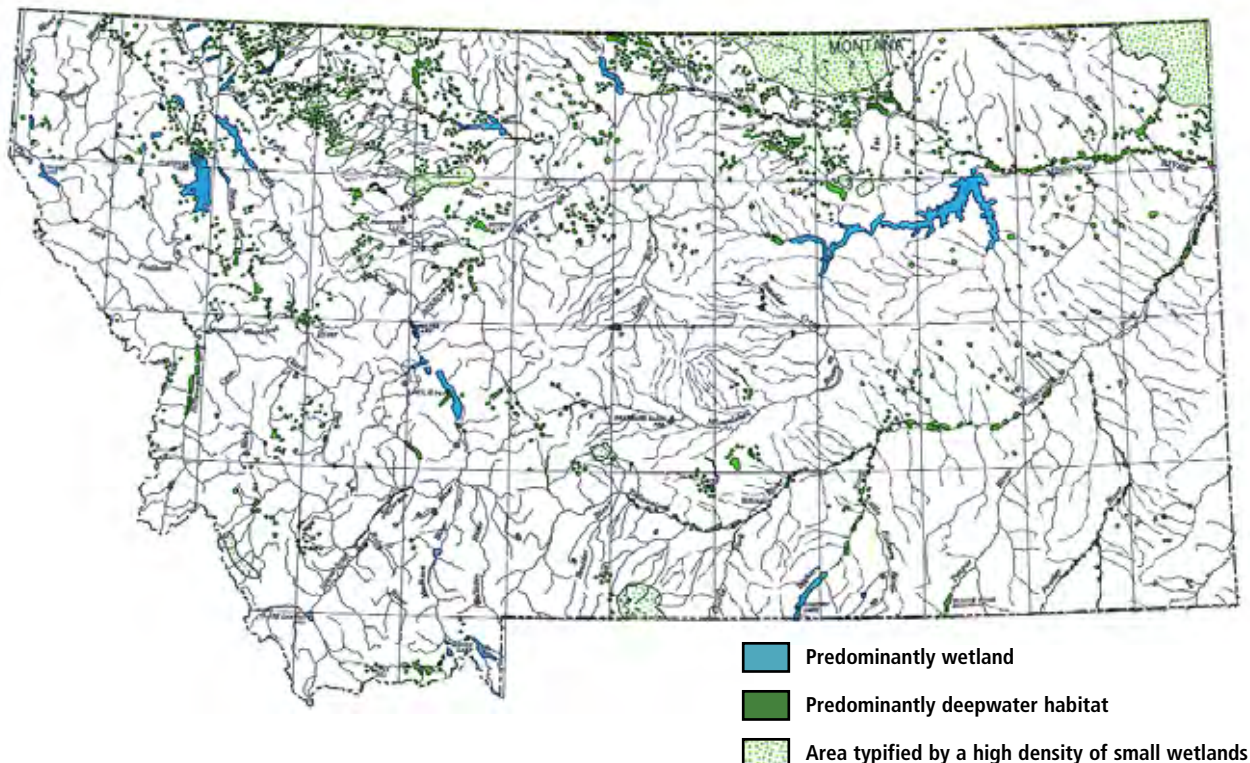
The Section 404 program regulates activities in wetlands, rivers, streams, and lakes in Montana. In order to understand the 404 program, it is helpful to know which wetlands and waterways are affected by this law. This chapter explains

- which wetlands, streams, and lakes are regulated by the 404 program;
- where these resources exist in the state;
- what wetlands are; and
- the main categories of wetlands found in Montana.

Wetlands, rivers, streams, and lakes share two common elements: land and water. Although no statewide on-the-ground inventory has been conducted, estimates of their total area range from less than 2% (1,860,000 acres) to 4% (3,700,000 acres) of Montana's land base (Montana Department of Health and Environmental Sciences 1992; Redmond et al. 1998). An estimated 25% of Montana's wetlands have vanished since statehood (Dahl 1991). Figure 1 shows the general distribution of major wetlands and waterways in the state.

FIGURE 1: DISTRIBUTION OF WETLANDS AND WATERWAYS IN MONTANA.

THIS MAP SHOWS THE GENERAL DISTRIBUTION OF THE STATE'S LARGER WETLANDS AND WATER BODIES (DAHL 1991).



WHICH WETLANDS, STREAMS, RIVERS, AND LAKES ARE REGULATED BY THE 404 PROGRAM?

The 404 program regulates the discharge of dredged material and placement of fill material in “waters of the United States.” Although some exceptions apply, the U.S. Army Corps of Engineers (Corps) generally regulates all activities in

- waters that are, or could be, important to interstate or foreign commerce;
- waterways used for navigation or that lead to navigable waters;
- all rivers, streams, or other waters that are tributaries to navigable waterways;
- interstate waters and wetlands;
- wetlands adjacent to streams, rivers, lakes, and other waters of the United States;
- wetlands and other waters that appear isolated but are connected hydrologically to streams, lakes, or rivers;
- isolated waters and wetlands contributing to interstate commerce; and
- some artificially created water bodies.

The best rule of thumb for determining which activities are regulated under the 404 program is to let the Corps decide; anyone contemplating a project in a wetland or waterway should apply for a 404 permit. Once the Corps receives an application, personnel will then decide whether or not the agency has “jurisdiction” over the project (whether a 404 permit is required).

A DEFINITION OF WETLANDS

The Corps and U.S. Environmental Protection Agency (EPA) use the following definition:

Wetlands are areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil condition.

(40 CFR (Code of Federal Regulations) Part 230.41[a][1]).

WHAT ARE WETLANDS?

“Wetlands” is a catch-all term used to describe marshes, swamps, bogs, fens, and wet lowlands. A wetland can be covered with shallow water that is intermittent (water present for several weeks or months per year) or ephemeral (water present only after precipitation). This term also describes wet meadows, potholes, sloughs, some riparian zones, and river overflow areas, as well as shallow lakes and ponds, usually with emergent vegetation. Although bodies of permanent water deeper than 6 and a half feet are not technically considered wetlands, the term does include the shallow edges of these deeper water bodies.

Three attributes that are generally present in all wetlands include

- water at or near the land surface all or part of the year;
- poorly drained soils that develop certain soil characteristics due to the presence of water and absence of oxygen (e.g., blue-green or gray color or rotten egg smell); and
- water-adapted (or water-tolerant) plants such as rushes, sedges, cattails, or willows.

MONTANA’S WETLAND TYPES

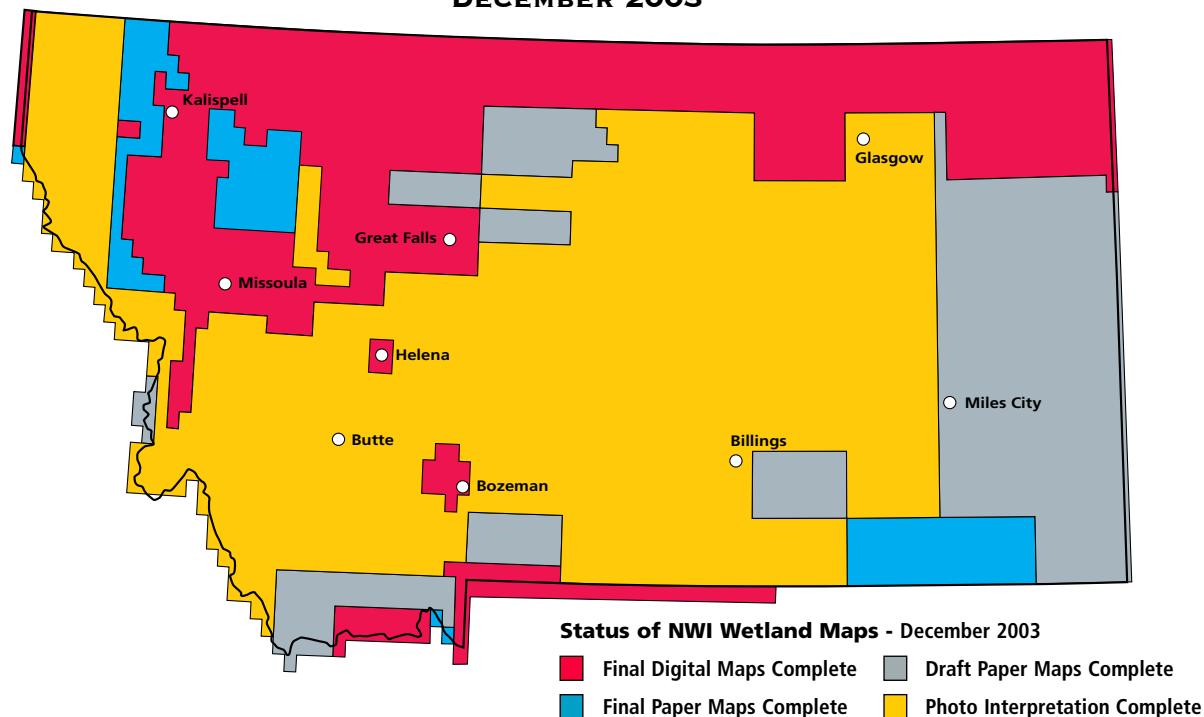
To define wetlands for the 404 program, the Corps uses the 1987 *Corps of Engineers Wetlands Delineation Manual* (EPA 1995). This system classifies wetlands according to a system that takes into account vegetation types, hydrology, and soils. Under this system, all Montana wetlands can be classified as lacustrine, palustrine, or riverine. Each of these terms has a scientific definition (Kendy 1996):

- **Lacustrine:** Wetlands within an intermittently to permanently flooded lake or reservoir. Vegetation, when present, is predominantly non-persistent emergent plants, submersed and (or) floating plants, or both.
- **Palustrine:** Wetlands in which vegetation is predominantly trees; shrubs; persistent or non-persistent emergent, erect, rooted herbaceous plants; or submersed and (or) floating plants. The term also applies to intermittently to permanently flooded bodies of open-water of less than 20 acres in which water is less than 6 and a half feet deep.
- **Riverine:** Wetlands within a channel. Vegetation, when present, is the same as in the lacustrine system.

Using this classification system, the U.S. Fish and Wildlife Service is in the process of mapping wetlands and some riparian areas as a part of the National Wetlands Inventory (NWI) program. Based on interpretation of mid-1980s aerial photographs, the finished maps provide information on the general location and size of the state's larger wetlands. Although mapping is not finished for much of Montana, portions of the state are complete (See Figure 2). Map users need

to be knowledgeable about wetland types and map limitations. The maps' scale is 1 inch = 2,000 feet (1:24,000). As Montana NWI maps are completed, they become available on the Natural Resource Information Center (NRIS) website (<<http://nr.is.state.mt.us/wis/wetlands/mtnwi.html>>) administered by the Montana State Library (1515 East Sixth Ave., Helena, MT 59620-1800; (406) 444-5354).

FIGURE 2: STATUS OF NATIONAL WETLAND INVENTORY MAPS IN MONTANA, DECEMBER 2003



HOW ARE ISOLATED WETLANDS REGULATED?

In 2001, the U.S. Supreme Court issued a decision in the case *Solid Waste Agency of Northern Cook County v. the U.S. Corps of Engineers* (531 U.S. 159 [2001]) (SWANCC) that affects which waters are regulated under the 404 program. The case involved a group of local governments that had selected an abandoned gravel pit to become a solid-waste disposal site. The site, however, had evolved into a series of permanent and seasonal wetlands. Under the 404 program, the Corps asserted jurisdiction over these wetlands. In its decision, the U.S. Supreme Court held that the Corps did not have jurisdiction over these isolated wetlands based solely on the fact that the wetlands provided habitat for migratory birds. Thus, SWANCC implies that in order to be

regulated under the Clean Water Act, wetlands and other waters must have some type of connection with navigable waters—and that certain isolated wetlands likely will not be regulated under the 404 program. Since 2001, some states and local governments (including the city of Bozeman) have developed their own regulations as a means of “filling the gap” to protect isolated wetlands impacted by this decision.

During 12 of the 13 years covered by this report, SWANCC did not have an effect on Corps projects because the Corps regulated virtually all isolated wetlands. Since the SWANCC decision, the Corps and the EPA have worked to develop guidelines to clarify which waters are regulated under the Clean Water Act. Based on these guidelines, the Montana Corps office has determined that 26

permit applications received between 2001 and September 2003 did not need a 404 permit because of SWANCC. These permit applications came from 15 counties (the number of projects per county is indicated in parenthesis): Big Horn (1), Cascade (2), Fallon (1), Flathead (4), Gallatin (5), Glacier (1), Granite (1), Hill (1), Lake (1), Lincoln (1), Madison (2), Missoula (1), Rosebud (1), Sheridan (1), and Yellowstone (3). The projects impacted isolated wetlands through the installation of water or sewer pipelines, road upgrades, railroad maintenance, a mine, several dredging projects, habitat improvement, a water intake facility, construction of a subdivision, and bank protection in an isolated channel adjacent to the Gallatin River.



How the 404 Program Works

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*I*n order to understand what protections wetlands and waterways receive under the 404 program, it is important to understand how the program works.

Section 404 of the Clean Water Act regulates the “**discharge of dredged or fill material**” into “**waters of the United States.**” “Fill material” includes soil, sand, gravel, rocks, or other such material. “Waters of the United States” include all rivers, lakes, streams (including intermittent streams), certain wetlands, and wetlands adjacent to waters of the United States. The “discharge of dredged or fill material” involves the physical placement of dredged or fill material into waters of the United States. Under the Act, it is unlawful to discharge dredged or fill materials into waters of the United States without first receiving a “404 Permit” from the U.S. Army Corps of Engineers (Corps).

LEGISLATIVE AUTHORITY AND AGENCY RESPONSIBILITIES

The Clean Water Act calls for restoring and maintaining the chemical, physical, and biological integrity of the nation’s waters. Section 404 of this act limits activities in “waters of the United States,” including wetlands. The Corps does most of the 404 program’s work. The Corps’ role includes deciding which projects require a 404 permit, evaluating and processing permit applications, issuing or denying permits, developing policy and guidance for permits, and enforcing penalties levied against permit violators. The Corps evaluates permit applications according to guidelines developed by the Corps and U.S. Environmental Protection Agency (EPA). They assess (1) the impact of a project on environmental quality, and (2) whether the project is contrary to the public interest (See “*Environmental Review Guidelines*”, page 23, and “*Public Interest Factors*”, page 24). The mission of

the Corps’ regulatory program is to “protect the Nation’s aquatic resources, while allowing reasonable development through fair, flexible and balanced permit decisions” (Corps 2003a).

The EPA sets the environmental standards to which the Corps must comply. It also shares enforcement authority over unauthorized discharges of material into wetlands and waterways; identifies activities that are exempt from the 404 program; and reviews and comments on 404 permits. If the EPA opposes a permit the Corps intends to issue, the EPA can request a higher level of review. In addition, under Section 404(c), the EPA can veto a permit if the project will have unacceptable impacts. To date, this veto power has been used on fewer than two dozen occasions; no EPA veto has ever occurred in Montana.

CORPS AND EPA CONTACT INFORMATION FOR MONTANA

ARMY CORPS OF ENGINEERS

HELENA REGULATORY OFFICE

10 WEST 15TH STREET, SUITE 2200

HELENA, MT 59626

PHONE: (406) 441-1374

FAX: (406) 441-1380

WEBSITE:

<[HTTP://WWW.NWO.USACE.ARMY.MIL/HTML/OD-RMT/MTHOME.HTM](http://www.nwo.usace.army.mil/html/od-rmt/mthome.htm)>

EMAIL ADDRESSES:

<[HTTP://WWW.NWO.USACE.ARMY.MIL/HTML/OD-RMT/STAFF.HTML](http://www.nwo.usace.army.mil/html/od-rmt/staff.html)>

ENVIRONMENTAL PROTECTION AGENCY

10 WEST 15TH STREET, SUITE 3200

HELENA, MT 59626

PHONE: (406) 457-5021

Section 10 Permits. In addition to Section 404, the Corps has authority to issue permits for projects located in traditionally navigable waters under Section 10 of the Rivers and Harbors Act of 1899. If dredge or fill material is to be placed in navigable waters, both a Section 10 and a Section 404 permit are required; the Corps conducts a combined permitting process in these cases. In Montana, the Corps has designated the Missouri River from Three Forks to the Montana–North Dakota border; the Yellowstone River from Emigrant to its confluence with the Missouri River; and the Kootenai River from the Canadian border to Jennings, Montana, as navigable waters. Although the Corps regulates both Section 404 and Section 10, this report focuses on Section 404 only.

Executive Orders. Overarching direction for the implementation of the Clean Water Act’s Section 404 program comes from presidential executive orders that guide the protection of wetlands and floodplain management. All federal programs, including projects that receive federal funding, are subject to these executive orders:

Executive Order 11990: Protection of Wetlands (1977)

Executive Order 11990 establishes wetland policy for all federal agencies managing federal land, sponsoring federal projects, or providing funding assistance for state and local projects. It requires federal agencies to avoid, if possible, adverse impacts to wetlands and to preserve and enhance the natural and beneficial values of wetlands. A complete copy of the executive order can be found at <<http://www.epa.gov/owow/wetlands/regs/eo11990.html>>.

Executive Order 11988: Floodplain Management (1977)

Executive Order 11988 requires all federal agencies to take action to reduce the risk of flood damage; to minimize the impact of floods to human safety, health, and welfare; and to restore and preserve the natural and beneficial values served by floodplains. Because wetlands are often associated with floodplains and because natural stream processes depend on functioning floodplains, this order has the potential to protect these resources. A complete copy of this executive order can be found at <<http://www.epa.gov/owow/wetlands/regs/eo11988.html>>.

THE 404 PERMIT REVIEW PROCESS

The 404 permit process typically begins when an application is submitted to the Corps. The Corps first determines if a permit is required for the proposed project. If so, the Corps must complete an evaluation of the project based on specific criteria. This evaluation may or may not include input from other government agencies or the public. After the evaluation is completed, the permit is approved or denied. This process is outlined in Figure 3.

THE APPLICATION

Anyone contemplating a project in a wetland or waterway should apply for a 404 permit.

How to Apply

When applying for a 404 permit, applicants can choose between 2 application forms: a Montana-specific form or a Corps-specific form. Both forms request information about the location and purpose of the proposed project; the amount of fill or dredged material to be used; a list of adjoining property owners; a list of any other permits needed for the project; and whether other permits have been approved or denied. Drawings of the described project may also be required.

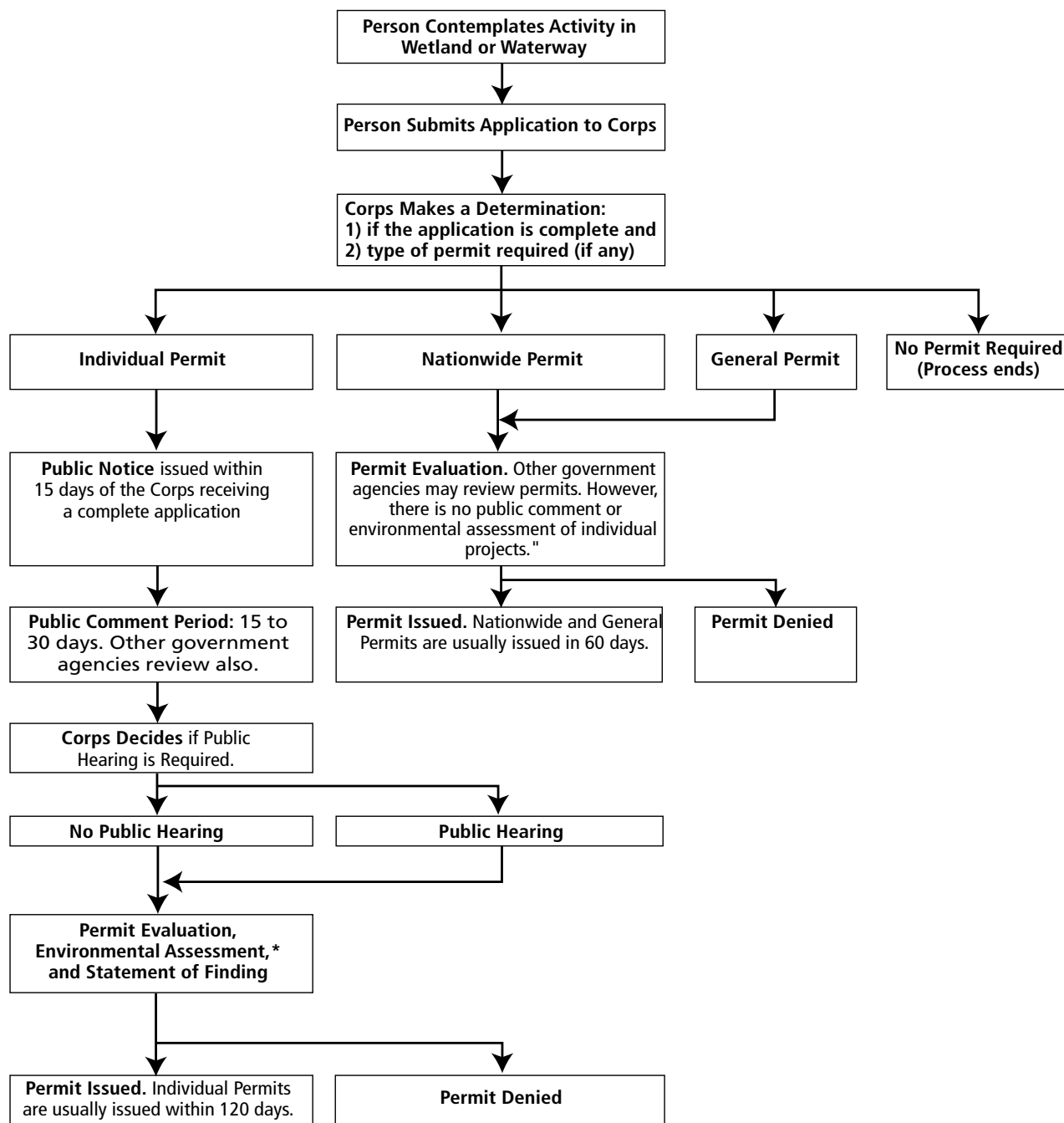
The Montana Corps prefers that all applicants use the Montana-specific form. This form was developed because projects that impact Montana’s wetlands and waterways may require several permits. To assist applicants, certain government agencies have created a Montana-specific form that can be used to apply for several of the required permits.

Both the Corps-specific and Montana-specific forms are available at Corps offices or can be downloaded from <<http://www.nwo.usace.army.mil/html/od-rmt/applications.html>>. The Montana joint application form is also available at the offices of any government agency that regulates stream permitting; it can also be downloaded at <www.dnrc.state.mt.us/permit.html>.

Exemptions

Not all activities in wetlands or waterways are subject to the Section 404 program. Congress specifically exempted normal farming, forestry, and ranching activities from this regulation (EPA 1995). To fall under these exemptions, the activities must be part of an on-going operation, and not associated with bringing a wetland into

FIGURE 3: HOW THE 404 PERMIT PROCESS TYPICALLY WORKS



*AN ENVIRONMENTAL ASSESSMENT MAY DETERMINE THAT A MORE INVOLVED ENVIRONMENTAL IMPACT STATEMENT (EIS) IS REQUIRED. TO DATE, AN EIS HAS NEVER BEEN DONE FOR A 404 PERMIT IN MONTANA.

agricultural production or converting an agricultural wetland to a non-wetland area.

Several development activities that cause wetland damage are not regulated under Section 404. These activities include the drainage of wetlands without excavation; lowering of ground water levels; flooding of wetlands; and activities on

upland areas that affect wetlands through soil erosion, pollution, or diversion of water.

The 404 program does not regulate activities in certain wetlands not hydrologically connected to a navigable stream, river, or lake (See "How are Isolated Wetlands Regulated?" on page 17).

TYPES OF 404 PERMITS

Once the Corps determines that a project is within the scope of the 404 program, it then decides if the application is complete (or if more information is required) and what type of 404 permit is needed. The main types of permits issued under the 404 program—Individual, Nationwide, and General Permits—are described below. A permit called a “Letter of Permission” is also described, but this permit is currently not used in Montana.

Individual Permits

The Corps uses Individual Permits for projects that are large in scope, do not qualify for a Nationwide or General Permit, or involve activities that may result in more than minimal adverse effects on the aquatic environment. Examples of Montana projects that required Individual Permits include a subdivision near Bigfork that proposed to fill 2.8 acres of wetlands to construct 9 homes and a road; a Montana Department of Transportation (MDT) project that filled approximately 6 acres of wetlands in the reconstruction of U.S. Highway 2 in Glacier County; and a project on the Yellowstone River to construct up to 14 bendway weirs in order to “stabilize the bank and protect property from continued erosion.” Individual Permits and their uses in Montana are discussed in more detail in Chapter 7.

Individual 404 permits require that a public notice about the project be issued, and the public has a 15- to 30-day comment period. Local, state and federal agencies also review the project at this time. If the project is large and controversial, a public hearing may be held.

It should be noted that public notices are just that: they inform interested individuals about the project’s size, purpose, and location, giving them the opportunity to submit relevant information that should be considered as the Corps makes its decision about the permit. However, the public is not given the opportunity to evaluate the Corps’ environmental review of these permits: the public comment period ends before the environmental review is written.

After the public comment period is over, the Corps examines the submitted comments and evaluates the project in an environmental review. Based on the review and comments received, the Corps can approve the project as submitted, work with the applicant to modify the project, or deny the project. Modifications usually improve the effectiveness of the project and/or reduce its environmental impacts.

Anyone interested in receiving public notices for Montana Individual Permit applications should contact the Corps (See page 19). Public notices also appear on the Corps’ website at <<http://www.nwo.usace.army.mil/html/od-rmt/pn/pn.html>>. When signing up to receive notices, it is possible to specify a preference for notices for the entire state, just for the Missouri River, or just for the Yellowstone River.

Nationwide and General Permits

The Corps can also authorize general permits for categories of activities that cause “only minimal individual or cumulative adverse effects on the aquatic environment” (Corps 2001a). Two types of general permits have been used in Montana: Nationwide Permits, issued on a national level, and Regional General Permits—more commonly referred to as General Permits—issued on a district, state, regional, and watershed level. Projects that receive a Nationwide or General Permit must comply with all permit conditions in order to be valid. A brief description of all Nationwide and General Permits used in Montana appear in Appendixes I and II respectively.

Examples of Nationwide Permits issued in Montana include permits allowing MDT to replace culverts in 13 locations in Carter, Custer and Rosebud Counties, temporarily impacting 0.034 acres of wetlands; the construction of a boat ramp on Martinsdale Reservoir; burying fiber-optic cable across the Clarks Fork of the Yellowstone River; and the installation of 1,300 feet of riprap (400 feet to repair existing riprap) to a side channel of the Yellowstone River. Examples of General Permits issued in Montana include ones allowing the construction of a permanent boat ramp at Devils Creek on Fort Peck Reservoir; the placement of limestone boulders along a pond margin to enhance fish habitat in Broadwater County; and on Prospect Creek in Sanders County, the plugging of a new channel with 30 cubic yards of rock riprap and the reconstruction of the stream bank to protect an existing power line. Nationwide and General Permits, and their use in Montana, are discussed in more detail on pages 37 and 43 respectively.

When a category of Nationwide or General Permits is established or renewed, government agencies, tribal governments, and the general public can review and comment on the proposed permit category. However, individual on-the-ground projects considered under Nationwide or General Permits are treated differently, allowing state, tribal, and federal government agencies only to review projects upon request, and not allowing the general public to review these

projects. Another distinguishing feature about Nationwide Permits is that many of these permits have a size threshold for required notification, which means that if a project is impacting an area smaller than the threshold, the Corps does not need to be notified about the project. Interestingly, even though the Corps does not have to be notified about these below-threshold projects, each project is expected to comply with all applicable Nationwide Permit conditions, whether those conditions are issued at the national or regional level. The Corps retains the authority to place exceptions on minimal thresholds. It can also suspend or revoke a Nationwide or General Permit for specific projects; if this occurs, the project is required to obtain a Section 404 Individual Permit. Suspension may occur if an activity is determined to have more than minimal adverse environmental impacts (either individually or cumulatively) or would be contrary to the public interest.

Letters of Permission

Although Letters of Permission (LOP) are a type of permit that can be used within the 404 program, none have been authorized in Montana. LOPs can be developed for Section 404 permits after consultation with state and federal resource agencies. A public notice to solicit comments on the proposed LOP is required. In Montana, LOPs are currently used only for Section 10 permits (J. Ramer, Corps, oral communication, 2003).

Stacking of Permits

Two or more Nationwide and/or General Permits can be combined to authorize a “single and complete” project, defined as a project proposed or accomplished by one owner or developer. This process—called “stacking of permits”—allows a project that does not fit within one permit type to be permitted without going through the Individual Permit process. Interestingly, Corps regulations also allow Nationwide Permits to be combined with Individual Permits provided that the portions of the project qualifying for the Nationwide Permit would have “independent utility,” meaning that the part of the project permitted under a Nationwide Permit would be able to meet its intended purpose independent of the total project. Permit stacking cannot be used for portions of a multi-phase project when each phase does not have independent utility. However, permit stacking can be used for phases of a project when each phase is a separate single and complete project with independent utility (K. Iske, Corps, written communication, 2004).

Prior to 1999, stacked permits all received the same permit identification number, making them

simple to track. Since 1999, the Corps’ method of record-keeping has changed, and each new permit type now has its own permit identification number. This shift made it impossible for Montana Audubon to track stacked permits in later years.

EVALUATING PERMITS

Once an application is determined to be complete, the Corps begins an evaluation process based on Corps and EPA criteria and any input from other government agencies and the public. During this process, Corps staff can work with applicants to minimize project impacts, change project design, and otherwise modify the project. After the evaluation process is completed, a permit for the project is either approved or denied.

Approval Requirements

Corps regulations state that “the degradation or destruction of special aquatic sites, such as filling operations in wetlands, is considered to be among the most severe environmental impacts [covered by these rules]” (404 [b][1] guidelines; 40 Code of Federal Regulations (CFR) Part 230.1[d]). Therefore, all projects requiring 404 permits must meet certain minimum requirements before they can be approved: they must follow specific environmental guidelines, be water dependent, meet public interest criteria, and follow federal and state water-quality standards. Additionally, if the project can be completed using a less-damaging, practical alternative, then that alternative must be considered and, whenever possible, followed.

Environmental Review Guidelines. The primary review criteria for 404 permit applications are the Section 404 (b)(1) guidelines; these are the substantive environmental criteria established by the EPA in conjunction with the Corps. Wetlands and other “special aquatic sites” (such as pool and riffle complexes) are given special status in the guidelines because their degradation or destruction may represent an irreversible loss of a valuable aquatic resource. In order for a project to be approved, all of the four requirements described below must be satisfied.

1. Alternatives Must Be Examined. No discharge is to be permitted “if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem. . . . An alternative is practicable if it is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes” (40 CFR Part 230.10[a][2]). A less-damaging

alternative cannot simply be discounted because it costs more. The determination of feasible alternatives is called a “404(b)(1) alternatives analysis.”

All projects are also subject to a “water dependency test.” Projects that are not water dependent (e.g., houses, golf courses, roads, etc.) require more analysis before they can receive a 404 permit than projects that are water dependent (e.g., boat docks, irrigation intake structures, bank stabilization structures, etc.). The purpose of this requirement is to prevent the filling of a wetland if there is an upland site where the same project can be completed. If a wetland does not have to be filled to accomplish the same result, the project should not be approved. Practicable alternative sites are *presumed* to exist if the proposed project is not “water dependent” (40 CFR 230.10[a][3]).

2. Impacts Must Be Minimized. No discharge is to be permitted “unless appropriate and practicable steps have been taken which will minimize potential adverse impacts (either individually or cumulatively) of the discharge on the aquatic ecosystem” (40 CFR 230.10[d]). The guidelines specifically identify actions that can be used to minimize adverse effects.

3. Endangered Species Must Be Protected. The guidelines prohibit the issuing of a permit that “jeopardizes the continued existence of species listed as endangered or threatened under the Endangered Species Act” (40 CFR 230.10[b][3]).

4. Water Quality Laws Must Be Followed. The guidelines describe the kinds of factual determinations, evaluations, and tests necessary to determine whether significant water degradation may occur (40 CFR 230.10[b][1] and 230.10[c]). This requirement ensures that state, tribal, and federal water quality standards are met (See “Review of Water Quality” below).

Public Interest Factors. Factors considered in the Corps’ “public interest review” include conservation, economics, aesthetics, environmental quality, historic values, fish and wildlife values, flood damage and prevention, land use, navigation, food production, recreation, water supply, energy needs, safety, and the needs and welfare of the public. Corps regulations state that no permits will be granted involving alterations to wetlands unless “the benefits of the proposed alteration outweigh the damage to the wetlands resource” (33 CFR Part 320.4[b][4]). This review is conducted for every Individual Permit under consideration.

Environmental Review Under NEPA. Pursuant to the National Environmental Policy Act (NEPA), the Corps is required to perform an environmental review of all permits in order to provide a systematic evaluation of their potential environmental impacts. The environmental review for Nationwide and General Permits occurs every 5 years when the permit is issued as a category and does not occur for each on-the-ground project. For Individual Permits, an environmental review is conducted for each on-the-ground project. There are 2 types of environmental reviews: an Environmental Assessment and a more comprehensive Environmental Impact Statement. EISs are required for “major” projects with significant anticipated impacts. If a permit is to be issued in such cases, a Finding of No Significant Impact (FONSI) must be made.

The Role of Government Agencies

The Corps is the primary agency responsible for review of all 404 permits. However, other federal, state, tribal and local governments also can review projects based on authority granted under other sections of law. One way the Montana Corps office facilitates the review and evaluation of permit applications is to regularly hold inter-agency meetings to discuss the most important permit applications under consideration.

Review of Water Quality. Section 401 of the Clean Water Act, the Water Quality Certification program, allows approved state and tribal governments to review federally licensed or permitted activities that may result in the discharge of materials into waters of that state. In Montana, the Montana Department of Environmental Quality, the EPA, and/or certain tribal governments charged with 401 certification generally review all Individual Permits and select Nationwide Permits due to the fact the state recognizes the role of wetlands in water-quality management. Upon review, the designated agency can approve, approve conditionally, or deny a permit based on whether or not the activity will comply with water quality standards. A government agency can only deny 401 certification if the proposed activity does not meet state water quality standards as designed, and the applicant is unwilling or unable to modify the project’s design. The specific Nationwide Permits reviewed by the State of Montana, EPA, and tribal governments are outlined on page 38.

Review of Impacts to Fish and Wildlife. Under the Endangered Species Act, the Corps must consult with the U.S. Fish and Wildlife Service (USFWS) to ensure that 404 projects do not impact threatened or endangered species or their critical

habitat. Under the Fish and Wildlife Coordination Act (1958), the USFWS is also given authority to review Section 404 permits and provide comments to the Corps on the effects of projects on fish, wildlife, or other environmental concerns. Under this act, the Corps must also consult with the state's wildlife agency—Montana Fish, Wildlife and Parks—when “waters of any stream or other body of water are proposed to be controlled or modified.”

The Role of the Public

The public can play a role in the review of 404 permits, but that role is dramatically different depending on the permit type. For Individual Permits, the Corps must issue a public notice on each project. Based on the public's comments, the Corps may also require a public hearing on the project. Public hearings on Individual Permits are extremely rare; to date, only 2 have been held on proposed projects in Montana (P and D Enterprises, Permit 199590547; Crown Butte Mines, Inc., Permit 199390618). For Nationwide and General Permits, the only public comment opportunity comes every 5 years when the different categories of permits are reviewed and approved.

MITIGATION OF IMPACTS

Corps-approved projects that result in more than minimal adverse environmental impacts are supposed to be mitigated. This requirement comes from NEPA, the Fish and Wildlife Coordination Act, Section 404 (b)(1) guidelines, and internal Corps policy. Mitigation efforts typically follow this sequence of decisions:

- avoid impacts by considering alternative locations;
- minimize the impacts of a project on the resource; and
- where impacts are unavoidable, compensate for impacts through restoration, enhancement, or creation of wetlands (EPA-Corps 1990).

This process—often referred to as “sequencing”—was developed to ensure that wetland losses are minimized. Each step of this sequence is discussed below.

Avoid Impacts

The best way to protect wetlands and waterways is to avoid projects that fill, grade, drain, or otherwise damage or destroy these resources. If at all possible, development activities should be located on uplands, avoiding impacts altogether.

To meet this step, the applicant is supposed to show that in order for the project to take place, it *needs* to be located in a wetland, stream, or other waterway to fulfill its basic purpose. For example, a boat ramp is a project that needs to be built in a waterway, but a house does not need to be built in a location that impacts wetlands and waterways.

Minimize the Size of the Impact

If impacts to a wetland or riparian area cannot be avoided, they should be minimized by limiting the magnitude of the action or its implementation. Reducing impacts can preserve at least portions of the wetlands' important functions (e.g., filtration of sediments and pollutants). Developing alternative project designs or adding erosion- and pollution-control features are just a few ways to minimize impacts. The developer of a housing project, for example, might consider building a smaller number of units, clustering units, shifting the building pattern to skirt wetlands or streams, or requiring hook-ups to a public sewer system. In order to meet this requirement, the applicant should be able to show that the project is the least damaging practicable alternative, while continuing to meet the purpose of the development.

Compensation for Impacts

If project impacts are unavoidable and their size has been minimized, mitigation measures are then considered. Compensatory mitigation can take several forms, including

- rectifying the impact by repairing, rehabilitating, or restoring the affected environment;
- restoring an existing degraded area;
- eliminating or reducing the impact over time; and
- compensating for the project's impact by replacing resources, which, in the case of wetlands, can include the construction of human-made wetlands.

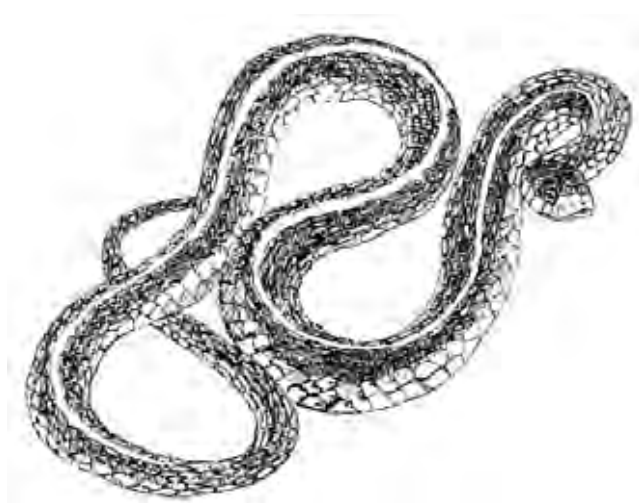
Mitigation ratios that define the amount and type of wetlands or stream work needed to replace lost resources need to be developed at the regional or state level. For example, the Montana Corps office has a 1:1 mitigation ratio for projects that successfully reestablish wetlands that were historically lost. This means that 1 acre of wetland must be successfully reestablished for each acre of wetland that is impacted by a project. For enhancing an already existing wetland, Montana's Corps has a 3:1 mitigation ratio (3 acres of enhanced wetland for each 1 acre of impacted wetland).

The mitigation guidelines for impacts resulting from Individual Permits are outlined in a 1990 Memorandum of Agreement between the Corps and EPA (EPA-Corps 1990). Mitigation for Nationwide and General Permits is more discretionary and requires a less detailed analysis “as long as authorized development results in minimal adverse effect on the aquatic environment, both individually and cumulatively.” Nationwide and General Permits “usually require on-site avoidance and minimization of impacts to the maximum extent practicable, but analysis of off-site alternatives ordinarily is not required of the permit applicant” (Corps 2001a).

Mitigation Policy in Montana

In Montana, Corps’ policy states that “wetland losses greater than 0.1 acre will be mitigated” (Corps 2002a). Established mitigation ratios range from 1:1 for projects that successfully—prior to project impacts—restore an existing wetland and/or create a new wetland (1 acre of wetlands restored for each acre of the original wetland lost) to 4:1 for preserving an already existing wetland (preserving 4 times the number of acres lost). It should be noted that wetland mitigation projects often need a water right permit to ensure their long-term success. The Corps currently does not require that impacts to streams, rivers, or lakes in Montana be mitigated, although it is working on adopting such a policy.

Examples of mitigation projects authorized by the Corps include the creation of 8.16 acres of wetlands in Granite County by MDT to compensate for impacts to wetlands resulting from road projects, and the completion of 6,000 feet of stream restoration that removed mine tailings from a stream and restored the stream’s floodplain by Montana Tunnels.



State and federal agencies (including the Corps) have recently started an in-lieu-fee program in Montana that would provide another option for mitigation of wetland impacts from Section 404 (and Section 10) permit activities (Corps 2004). Initially, this program will allow developers to pay a fee to compensate for each acre of wetland impacted. The funds will be collected by the Montana Wetlands Legacy (1400 South 19th Street, Bozeman, MT 59718; phone (406) 994-7889; <<http://www.wetlandslegacy.org/>>) and made available for larger mitigation projects. Additionally, mitigation can be accomplished through Corps-approved wetland mitigation banks, where for-profit companies create and monitor mitigation projects for a fee. Although there are no mitigation banks in existence in Montana at this time, one company is now in the process of seeking Corps approval for a bank in the Blackfoot Valley.

ENFORCEMENT ACTIONS

The Corps and the EPA jointly hold the authority to take enforcement actions against those who place dredged or fill material in a wetland or waterway without a permit or who violate permit conditions. Enforcement can consist of revocation or suspension of a 404 permit; restoration of an illegally altered area at the cost of the responsible party; acquisition and/or restoration of another wetland area as compensation for the wetland that had been lost; criminal, civil, or administrative penalties and fines; or some combination of these options. Citizens may request the Corps review a permit for compliance and may also sue in federal court to initiate enforcement action. To conduct investigations, the EPA maintains a National Enforcement Investigations Center in Denver, Colorado, and a criminal investigation unit. Reports of suspected violations of the 404 program should be turned over to the Corps.

After-the-Fact Permits. The Corps may issue an After-the-Fact (ATF) Permit to anyone who has placed dredged or fill material in a wetland or waterway without a permit. The Corps may allow the fill to remain, with conditions, or may order the fill removed if the project does not meet the requirements for a permit. ATF Permits provide an opportunity to rectify unauthorized and/or damaging activities. If the applicant knew (or should have known) that filling a wetland was illegal, the Corps and EPA can take enforcement actions against the violator. The Corps will not issue an ATF Permit until all enforcement actions are concluded.



Methods Used to Review the Montana 404 Program

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*T*he U.S. Army Corps of Engineers (Corps) currently manages its permit information in a database called the Regulatory Analysis and Management System (RAMS). This report is based on a review of RAMS database information for the 6,261 projects permitted in Montana by the Corps between January 1, 1990, and December 31, 2002. This report analyzes all permits by year, county, size of impact (linear feet, acres, or cubic yards), and type of wetlands impacted (lacustrine, palustrine, or riverine). Unfortunately, an on-the-ground review of Corps-permitted projects was not possible. The Corps reviewed this report's overall numbers, confirming that the method of analysis used was very close to the Corps' own review of its permit information (J. Ramer, Corps, written communication, November 2002).

ABOUT THE ARMY CORPS OF ENGINEERS' DATABASE

Corps personnel enter data into the RAMS database as permit applications are received and processed. The database currently allows staff to enter information about wetland type, permit type, permit decision, and enforcement actions. It also allows information to be stored about the size of project impacts (as measured in linear feet, acres, or cubic yards of fill), the amount of fill requested, the amount of fill authorized, the location of projects, and the size of mitigation activities approved. The RAMS database is an in-house record-keeping tool that does not capture a complete picture of the 404 program's requirements or results. However, this database is the Corps' main source of information for tracking project impacts as well as documenting the 404 program's "support of the national goal of no net loss of wetlands" (Corps 2001a).

The numbers used in this report were obtained from a copy of the RAMS database that was translated into a Microsoft Access file. This report examines the numbers for final permits issued (Corps codes FIP, FNW, and FGP), After-the-Fact Permits issued (Corps codes FAI, FAN, and FAG), and denied permits (Corps code FDP). To avoid duplication, modified permits (Corps code FIM) were not considered in this analysis; many modified permits appeared to be a reissuance of an older permit with an identical size of impact entered for the project.

The RAMS database and reporting requirements have changed significantly during the timeframe covered by this report. However, it should be noted that RAMS database information for

HOW PERMITS WERE COUNTED

Permit numbers in this report were tallied in the following manner: each single and complete project that received (1) a unique action identification number, and/or (2) a unique permit type in the RAMS database was counted as 1 permit. A single and complete project was defined as the total project proposed or accomplished by 1 owner or developer. For example, Permit 199590161 allowed artificial reef structures to be placed at 25 locations in 4 counties to enhance warm-water fish production; it was issued under General Permit 89-03. For the purposes of this report, this project was counted as 1 permit with 25 locations. Permit 199790848 authorized the rebuilding of sections of road in Glacier National Park along Snyder, Avalanche, and McDonald Creeks; it was issued under Nationwide Permits 3, 13, 14, and 33. Because this 1 project had 4 unique permit types, it was counted as having 4 permits. Documentation of all permit numbers contained in this report is available at the Montana Audubon office in Helena.



Montana is undoubtedly more complete than for other states because (1) Corps staff make the effort to keep the database updated, and (2) a project done by the Montana Natural Resource Information System (NRIS), funded by a Wetland Program Development Grant issued by the U.S. Environmental Protection Agency (EPA) and Montana Department of Environmental Quality (DEQ), enhanced the database's information for records from 1990 through 1999. The NRIS project evaluated approximately 5,350 paper files located at the Corps office and, where possible, added information to the database on project location, description, size, and other pertinent information. The Corps should be commended for fully cooperating with this NRIS project; the project will enhance its long-term ability to monitor cumulative impacts from permitted projects.

MONTANA CORPS DATABASE INFORMATION ON THE INTERNET

Information from the RAMS database is currently available on an interactive website that allows users to examine records for Corps-issued permits. Housed at NRIS, the database can be accessed at

<<http://nris.state.mt.us/mapper/Corp404/corpannounce.html>>.

The website allows users to access information about project descriptions; types of activities; size of project areas (in linear feet or acres); locations (including maps of project locations); and the dates permits were issued. Permit information can be obtained through database queries using a number of categories, including

- Year of Issuance: since 1990;
- Permit Type: Nationwide, General, and Individual Permits; Letters of Permission (for

Section 10 permits only); and modifications to previously issued permits;

- Wetland Type: lacustrine (associated with a lake), riverine (associated with a stream or river), palustrine (most other wetlands), or other waters; and
- Location: by county; Township, Section, and Range; stream name; or United States Geological Survey hydrologic unit.

Users can view a list of issued permits, as well as summary information about selected permits (the total number of acres filled, the total number of permits for a specific year, etc.). In addition, query-specific maps showing permit locations can be created. The opportunity to examine the Corps' database information on the internet is unique to Montana; the project to make this information available was funded by an EPA/DEQ grant. The Corps' cooperation with this effort is important—and should be commended. Internet access allows citizens, landowners, and state and local government officials to better understand the program's permitting impacts in Montana.

The numbers used in this report are different than those found on the NRIS website. For a full understanding of where differences occur, see Recommendation 7-2 on page 70.

PROCESS DEVELOPED FOR PERMIT ANALYSIS

When assessing the impact of the 404 program in Montana, it is easy to get overwhelmed by numbers. In order to make sense of this volume of information and because different information is gathered in the RAMS database for each permit type, a system was developed to enable the comparison of permits across categories (Individual, Nationwide, and General Permits). This system proceeds in 3 steps:

- 1) Individual Permits Classified.** Individual Permits were classified similarly to Nationwide and General Permits so that their impacts could be summarized.
- 2) Impact Information Generated for Individual and General Permits.** Because the size of impact information was not captured in the RAMS database in a form that can be analyzed for Individual and General Permits, a standardized process was set up to record this information.
- 3) All Permits Placed into Two Main Categories.** In order to get a general idea about how the 404 program is impacting Montana's wetlands, streams, and other waterways, all permits were placed into

2 main categories: "permits authorizing permanent resource impacts" and "permits for resource restoration." Nationwide Permits causing temporary (seasonal) impacts were placed in the "resource restoration" category.

Each step in this process is described in detail below.

Individual Permit Classification System

Unlike other permits, Individual Permits are not classified by activity. In order to get a clearer picture of their impacts, each Individual Permit was assigned a category similar to one used by Nationwide and General Permits. The RAMS database contains a short description of many 404 projects. The Individual Permit classification was done by reading this description, and then placing the permit into a category based on the purpose of the permit and other information. Using this process, the following categories of permits were developed: bank stabilization, boat ramps and facilities, bridge and/or road work, dams, mining, recreational facilities, residential or commercial development, restoration projects, water intake facilities, and other activities.

Impact Information Collected

The Nationwide Permit "size of impact" information was obtained from data entered directly by Corps staff in the RAMS database. For Individual and General Permits, however, the RAMS database does not have a place for "size of impact" information. Therefore, this information is generally not collected in a separate field in the RAMS database. As a result, size of impact information for these two permit types was obtained by (1) reading the short description of each project, and (2) entering any impact information in a newly created relational database. Size of impact information was entered in one of three forms: linear feet (generally used for impacts to streams), acres (more commonly used for impacts to wetlands not associated with streams), and cubic yards of fill. If the description of the permit activity had impact information in more than one form, the linear foot or acreage information was chosen over cubic yard information. By creating a new database for Individual and General Permits, searches and tallies could be conducted that would not have otherwise been possible. This information is not available on the NRIS website, but can be obtained from Montana Audubon upon request. Bank stabilization information used in river profiles was also developed by reading the

description of each project, then entering the pertinent information into a newly created relational database.

In order to standardize the method used for counting impact information for Nationwide Permits, information was tabulated from all permits where Corps staff entered a number in the appropriate field, including when the number "0" (zero) was entered. Although it seems unlikely that the Corps would issue a permit for a project that had no impact (instead the applicant would be informed that no permit was required), this method was used because the large number of Nationwide Permits prohibited a review of individual files to confirm or correct computer information. As a result, impact information is probably undercounted.

In addition, the number of permits containing "no information" about the size of impact was documented in order to understand more accurately the total impact of the 404 program. For Nationwide Permits, "no information" means that no number was placed in the appropriate database field by Corps staff. For Individual and General Permits, "no information" means that the written description of the permit contained no size of impact information.

The Corps issues two broad permit types, Section 404 and Section 10. This report focuses on Section 404 permits only. If the Corps issued a permit only under Section 10, that permit was not counted in permit totals. However, if the Corps issued both a 404 and Section 10 permit for one project, the permit was counted in 404 totals. Of the more than 6,261 permits analyzed, only 32 Nationwide Permits and 2 General Permits were issued solely under Section 10; most Section 10 permits were handled by Letters of Permission.



Permit Impacts Categorized

In order to assess the overall impact of the 404 program, all Individual, Nationwide, and General Permits were placed into one of nine categories. Then, in order to permit a more broad discussion of the impacts of the 404 program, these nine

categories were classified as either a “permit authorizing resource impacts” or “permit for resource restoration” (See Table 1). Descriptions of each Nationwide (NWP) and General Permit (GP) found in Table 1 can be found in Appendixes I and II respectively.

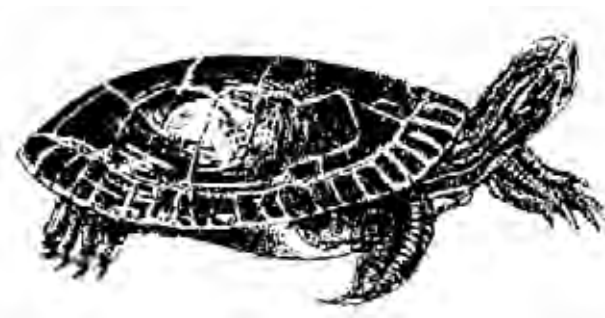
TABLE 1: CATEGORIES OF INDIVIDUAL, NATIONWIDE, AND GENERAL PERMITS USED IN ANALYZING IMPACTS OF THE 404 PROGRAM

Permits Authorizing Resource Impacts			
Activity	Individual Permits*	Nationwide Permits	General Permits
Bank Stabilization	Bank Stabilization	NWP 13, NWP 37	GP 76-05, GP 97-02
Bridge and/or Road Work	Bridge and Road Work	NWP 14, NWP 15, NWP 23	
Mining/Hazardous Waste	Mining	NWP 20, NWP 21, NWP 38	
Residential or Commercial Development	Residential/Commercial Development	NWP 29, NWP 39, NWP 40, NWP 43	
Maintenance of Existing Projects		NWP 3, NWP 19	GP 89-04
Utility Work		NWP 12	
Filling Wetlands		NWP 18, NWP 26	
Other Activities	Boat Ramps/Facilities, Dams, Recreation Facilities, Water Intake Facilities, and Other Activities	NWP 5, NWP 6, NWP 7, NWP 16, NWP 17, NWP 22, NWP 25, NWP 32, NWP 35, NWP 36, NWP 41, NWP 42	GP 82-10, GP 87-02, GP 90-01
Permits for Resource Restoration			
Activity	Individual Permits*	Nationwide Permits	General Permits
Restoration Projects	Restoration Projects	NWP 11, NWP 27, NWP 30, NWP 33	GP 88-01, GP 88-02, GP 89-03, GP 98-07, GP 00-02
Mitigation Projects			
Projects with Temporary Impacts			

*CATEGORIES FOR INDIVIDUAL PERMITS ARE BASED ON THE CLASSIFICATION SYSTEM OUTLINED ON PAGES 28-30.

This classification system follows the same basic system used in the report *Evaluation of an In-Lieu-Fee Wetlands Mitigation Program for the State of Montana* (Kruer 2002), with the following exceptions:

- Individual and General Permits are placed into the classification system; Kruer did not classify these 2 permit types.



- Nationwide Permits “authorizing resource impacts” include NWP 5 (Scientific Measuring Devices), NWP 15 (U.S. Coast Guard Approved Bridges), NWP 16 (Return Water/Upland Disposal Area), NWP 17 (Hydropower Projects), and NWP 41 (Reshape Existing Drainage Ditches); Kruer did not classify these permits.
- Nationwide Permits for “resource restoration” include NWP 11 (Temporary Recreational Structures) and NWP 33 (Temporary Construction, Access and Dewatering). Although Kruer classified these 2 permits as “resulting in impacts,” these permits were placed in a category with restoration activities because of the temporary nature of those impacts.

All of the Nationwide Permits listed in the exceptions above were used relatively infrequently and do not significantly change the overall number tallies found in this report.



404 Permits Issued in Montana by Year and Location

This chapter examines the overall number of permits issued by the U.S. Army Corps of Engineers (Corps) in Montana during a 13-year period, including the number of permits denied, the location of permitted projects, and the types of wetlands impacted by authorized projects.

Between January 1, 1990, and December 31, 2002, the Corps issued 6,261 permits. Table 2 contains a breakdown of the types of permits issued in Montana. For a description of *How Permits Were Counted*, see page 27.

404 PERMITS DENIED IN MONTANA

Between 1990 and 2002, the Corps denied only 11 permits; in other words, the Corps approved 99.8% of all 404 applications. Of the 11 denied applications, 10 were for Individual Permits and one was a Nationwide Permit. In order to better understand the circumstances surrounding denied permits, files of these applications, when available, were examined individually. Appendix III contains a summary of the information available for each denied permit. It should be noted that a denied application did not always mean that a project did not proceed: at least 2 projects were later authorized under different permit numbers (See *Permit 198911995* and *Permit 199390404* in Appendix III).

PERMITS BY YEAR

The annual use of 404 permits has increased over the 13-year study period. Peaks of activity occurred in 1997 and 1998, the 2 years after 100-year flooding events on many Montana streams and rivers (See *Figure 4*). That a cause-effect relationship exists between flooding and an

increase in 404 permits issued is supported by the fact that most of the increased permitting can be traced to 2 types of Nationwide Permits (NWP): NWP 13, issued for bank stabilization projects, and NWP 3, issued for maintenance of existing structures (including bank stabilization structures). In 1998, NWP 13 alone was responsible for most of the increase in activity. Individual Permits for bank stabilization projects also increased significantly during these 2 years.

A closer look at annual permit activity also reveals another trend: the Corps is processing a higher percentage of its permits through the Nationwide Permit system, and fewer permits through the Individual and General Permit processes. This trend could be attributed to several factors,

**TABLE 2: TYPES OF 404 PERMITS
ISSUED IN MONTANA BETWEEN
1990 AND 2002**

Issued Permits		
Individual Permits	377	6.0%
Nationwide Permits	5,489	87.7%
General Permits	395	6.3%
Total Activity	6,261	100.0%



including the type and size of projects being sought, and changes in the Nationwide Permit system that make more projects eligible for Nationwide Permits.

LOCATION OF PERMITTED PROJECTS

Figure 5 shows the location of all 404 permits issued in Montana between 1990 and 2002. Section 404 permits were issued in each of Montana's 56 counties. It should be noted that most impacts were to streams and rivers. In fact, the permit locations form an outline of many of Montana's waterways. Additionally, pipeline projects appear prominently.

Permit numbers can also be viewed on a county-by-county basis (See Figure 6). In general, Montana counties with the largest population had the highest number of 404 permits issued. The 10 counties with the most permits were Lewis and Clark (402 permits), Gallatin (381 permits), Madison (357 permits), Flathead (354 permits), Cascade (306 permits), Missoula (304 permits), Yellowstone (269 permits), Ravalli (240 permits), Park (239 permits), and Sanders (232 permits). According to the 2000 census, Yellowstone,

Missoula, Cascade, Flathead, Gallatin, Lewis and Clark, and Ravalli Counties were the 7 counties in Montana with the largest population (U.S. Census Bureau 2000). Three of the counties with a high number of 404 permits issued do not follow this pattern: Park County (ranked 12th in terms of population), Sanders County (ranked 18th in population), and Madison County (ranked 30th in population). In part, Park and Sanders Counties' permit levels stem from the 1996 and 1997 floods that caused some of the highest flood-damage costs to local governments in the state (J. Anderson, Montana Disaster and Emergency Services, Montana Department of Military Affairs, written communication, 2002). In Park County, local government entities claimed \$783,459 in damages from these 2 floods (the 4th highest claim in the state); in Sanders County the claim was \$659,896 (the 5th highest claim in the state).

TYPES OF WETLANDS IMPACTED

In its database, the Corps documents the main type of wetlands impacted by each 404 permit issued by classifying the wetland as lacustrine, palustrine, or riverine. Instead of using the

FIGURE 4: NUMBERS OF 404 PERMITS ISSUED IN MONTANA BETWEEN 1990 AND 2002

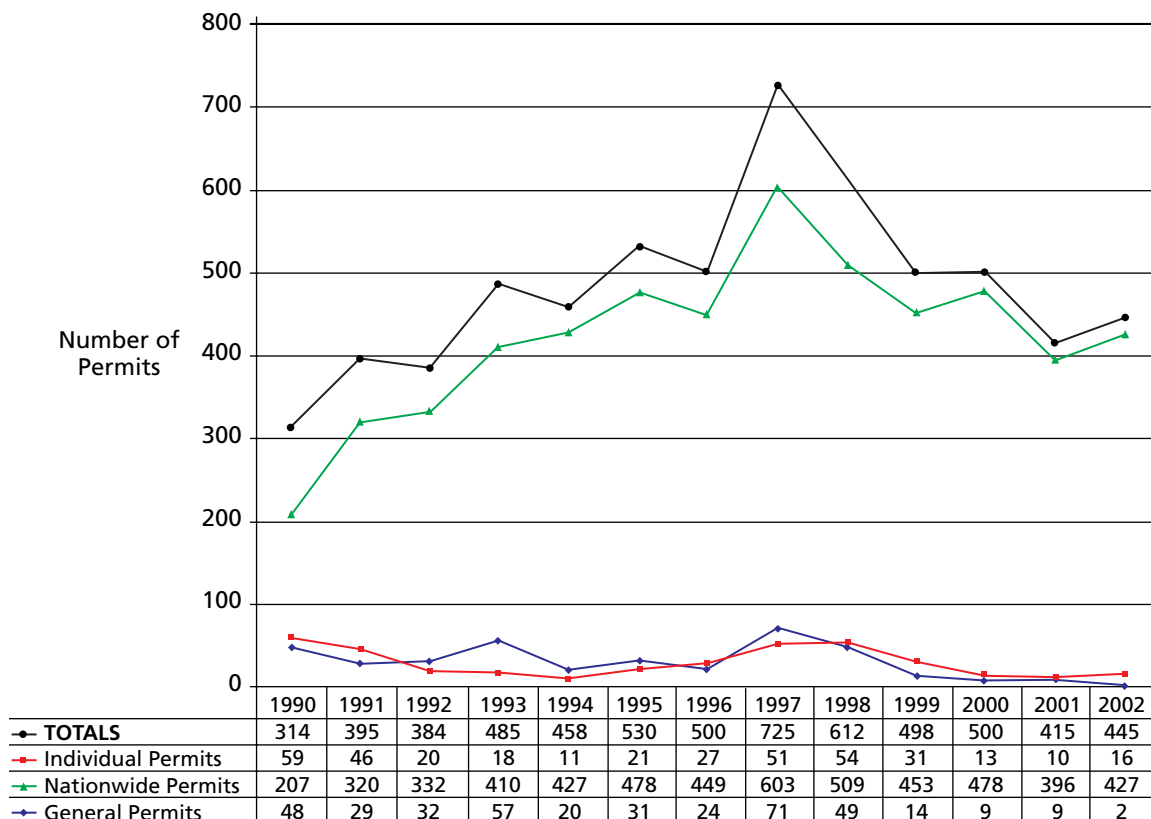


FIGURE 5: LOCATION OF ALL 404 PERMITS ISSUED BETWEEN 1990 AND 2002

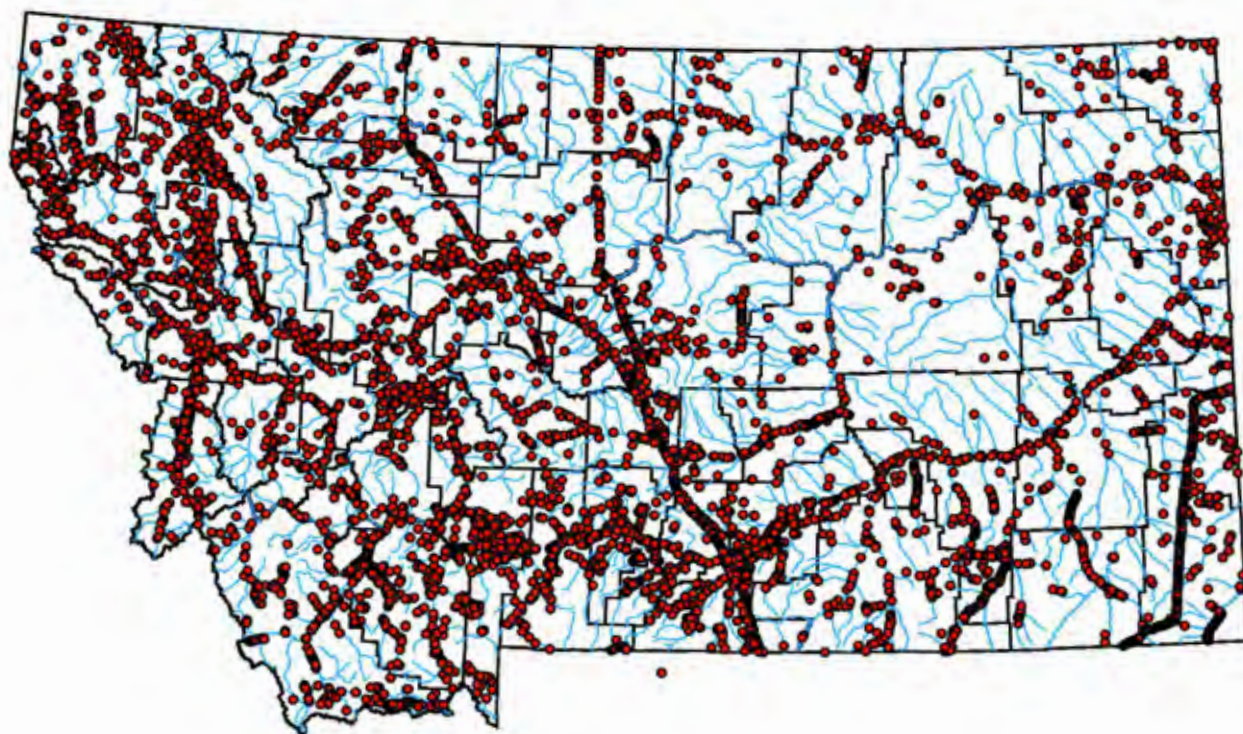
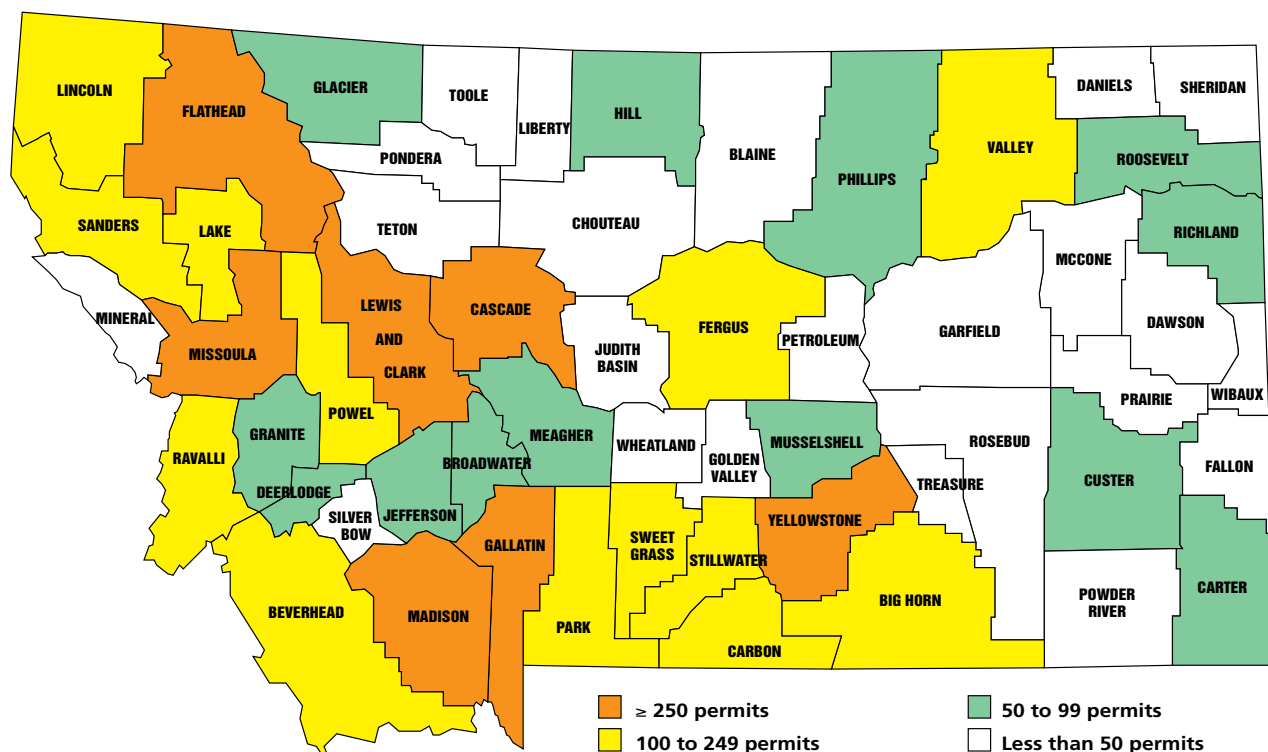


FIGURE 6: TOTAL NUMBER OF 404 PERMITS ISSUED BY COUNTY BETWEEN 1990 AND 2002



THE ACTUAL NUMBER OF PERMITS BY COUNTY APPEARS IN APPENDIX IV. ALL PERMIT TYPES (INDIVIDUAL, NATIONWIDE AND GENERAL PERMITS) ARE INCLUDED IN THE TOTALS.

definitions for these terms outlined in Chapter 3, however, the Montana Corps office generally uses these terms to mean:

- lacustrine: wetlands found along lakeshores;
- palustrine: wetlands not associated with a lake, stream or river; and
- riverine: wetlands found along streams and rivers (A. Steinle, Corps, oral communication, 2003).

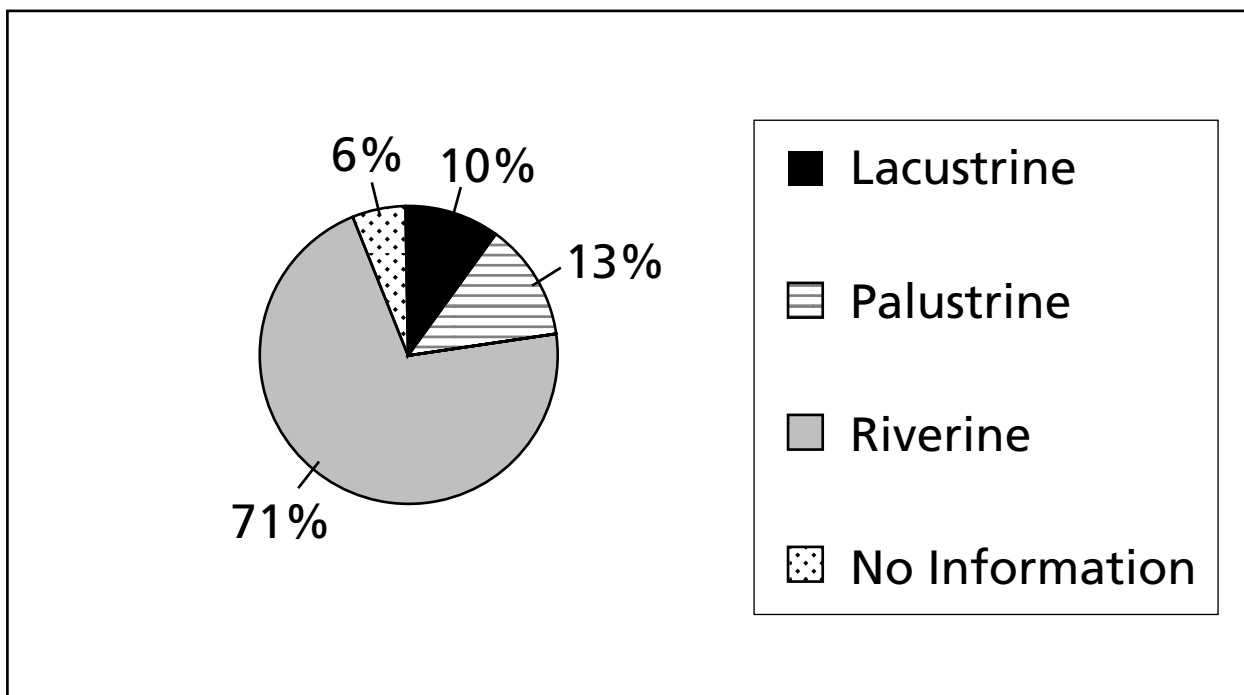
Consequently, the Corps' database reveals more about the *location* of affected wetlands in Montana, than about their scientific classification. For example, the Corps' database shows most 404 projects as impacting riverine wetlands because most projects are associated with streams or rivers. However, scientists mapping Montana's wetlands describe most of the state's wetlands along streams and rivers as palustrine. This different use of terms can cause confusion.

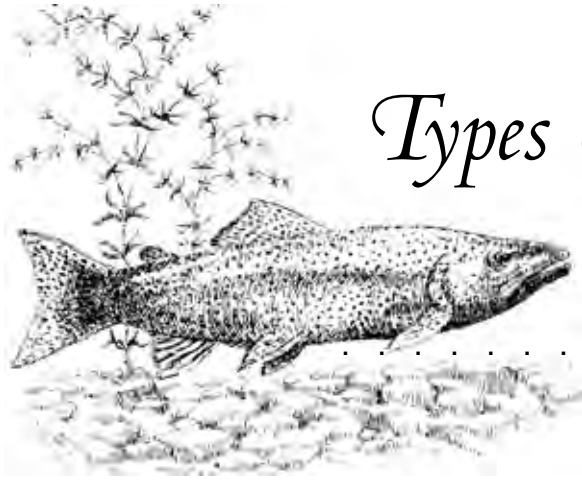
Regardless of the definitions used, the Corps' database confirms that between 1990 and 2002,

most of the 404 permits issued affected rivers and streams (71%); these impacts totaled over 1.6 million linear feet (311.4 miles), 341.5 acres, and involved the placement of almost 752,000 cubic yards of fill (See Figure 7). These numbers do not include information from the 6% of permits issued that contained no information about the type of wetlands affected.

It should be noted that the Montana Corps uses National Wetland Inventory (NWI) maps to identify wetland types when these maps are available. Unfortunately these maps are completed for a relatively small part of the state (See Figure 2). However, as more NWI maps are finished, wetland-classification information included in 404 project applications will improve; the Corps currently has a computer interface with NWI maps, allowing information about wetlands type to be directly entered into the Corps' database when the location of a project is pinpointed on a map.

FIGURE 7: TYPES OF WETLANDS IMPACTED BY 404 PERMITS IN MONTANA BETWEEN 1990 AND 2002





Types of 404 Permits Used in Montana

There are three main types of permits issued under the 404 program: Individual, Nationwide, and General Permits. Each permit type is profiled in this chapter. The figures include all final issued permits, After-the-Fact (ATF) Permits issued, and final denied permits. Modified permits issued were not considered in this analysis. A description of the system used to classify Individual Permits and the methods used to obtain impact data is found on pages 28-30.

In reviewing the following information, it is important to keep in mind the main differences between the review processes used for Individual, Nationwide, and General Permits:

- The public gets a chance to comment on each Individual Permit project but not on each separate project being considered through the Nationwide or General Permit process.
- Environmental impacts are analyzed on a project-by-project basis for Individual Permits only; projects going through the Nationwide or General Permit process are analyzed not on a project-by-project basis, but on a regional or national basis.
- The average review time for Individual Permits is 120 days, while the review time for Nationwide or General Permits is 60 days.

In general, the public prefers the Individual Permit system, which allows individuals the opportunity to provide input during the evaluation process; applicants prefer the expedited Nationwide or General Permit system.

INDIVIDUAL PERMITS

The U.S. Army Corps of Engineers (Corps) uses Individual Permits for projects that are large in scope or involve activities that may result in more than minimal adverse effects on the aquatic environment.

Application Review Process

Government Agency Review. Federal, state, and tribal government agencies can review each Individual Permit project.

Public Review. Individual 404 permits require a public notice about the project. The notice contains information about the location, the amount of fill to be placed in identified wetlands or waterways, the amount of excavation proposed, and the purpose of the project. The public has 15 to 30 days in which to comment on the project. The public comment period occurs before the environmental review; the Corps uses the public comments to identify issues that might need to be addressed.

Based on the public comments, the Corps may require a public hearing on the project. In Montana, only 2 public hearings have been held on Individual Permits; both hearings occurred in 1994. Permit 199590547, from P and D Land Enterprises, would have allowed the placement of fill material in 5.56 acres of a spruce bog in order to build a conference center complex near Whitefish Lake. The applicant had previously received a Nationwide Permit (NWP) number 26 to fill 0.9 acres of the wetland for a parking lot. The application was later modified and approved as a NWP 14 (road crossing) in 1998. Permit 199390618, from Crown Butte Mines, Inc., was an ATF Permit application resulting from unauthorized filling

activity. The applicant requested after-the-fact authorization for the placement of fill material into the headwaters of Daisy and Fisher Creeks in conjunction with mining reclamation activities. The Corps' database contains no information about the size of impact for this project. A permit was issued in August 1995.

Environmental Review. Each Individual Permit requires an Environmental Assessment (EA). An EA may determine that a more involved Environmental Impact Statement (EIS) is required. To date, an EIS has never been done for a Montana 404 permit.

Approval Time. Completed applications are generally approved within 120 days. More time is often needed to process larger and more complex projects.

Duration of Permits. Individual Permits are valid for anywhere from 3 to 10 years.

Evaluation of Individual Permit Numbers

Between 1990 and 2002, the Corps issued 377 Individual Permits in Montana. The use of these permits has generally decreased annually, from a high of 59 permits in 1990 to a low of 10 permits authorized in 2001. For a description of *How Permits Were Counted* for this analysis, see page 27.

The most common Individual Permits were for bank stabilization projects, which accounted for more than two-fifths (41.6%) of those issued in Montana. Each of the other permits accounted for less than 14% of the total permits issued.

Permits Denied. Individual Permits were denied 10 times between 1990 and 2002 (2.7% of the time). A summary of each denied permit appears in Appendix III. The reasons for denial include project design flaws, denial of an additional required permit (e.g., 310 permit or 401 certification), less damaging alternatives available, land ownership problems, safety issues, solid waste issues, and enforcement actions. A denied application did not always mean that a project could not proceed: at least one Individual Permit was later authorized under a different permit number (See *Permit 198911995 in Appendix III*).

After-the-Fact Permits. Nine of the issued permits were ATF permits issued in cases in which the landowner had already done the work. Individual ATF Permits were issued for the following

activities: bank stabilization (2 permits), a boat ramp (1 permit), bridge and road work (1 permit), a mining project (1 permit), a water intake facility (1 permit), and other activities (3 permits).

Stacking of Permits. Although Corps regulations allow Individual Permits to be combined with Nationwide Permits under specific circumstances, this combination was not used in Montana during the study period (See "*Stacking of Permits*", page 23).

Impacts Resulting from Individual Permits

Table 3 contains a summary of the Individual Permits issued in the state from 1990 to 2002. A brief look at the largest projects appears below. A discussion of the problems associated with impacts recorded for restoration projects appears on page 51.

Linear Feet. Bank stabilization projects resulted in the most linear feet of impact (158,912 feet), with projects on Careless Creek in Golden Valley County (17,500 feet) and the Ruby River in Madison County (14,090 feet) as the 2 largest projects. Restoration activities accounted for 78,074 feet of impacts to streams and rivers, with one project on the Ruby River credited with almost 30% (23,760 feet) of the total. This "streambank stabilization and fishery habitat enhancement" project used "riprap and barbs, geotextile rolls, bank sloping, gravel platforms, gravel bars, pools and riffles" to accomplish a combination of restoration and bank stabilization work.

Acres. Residential and commercial development projects caused the most acreage of wetlands loss (114.2 acres). The 360 Ranch Corporation subdivision in Gallatin County accounted for 87.0 of these acres; no mitigation was required for this 1998 project. Bridge and roadwork also resulted in significant wetland losses (90.4 acres). The largest project was a Highway 93 project in the Bitterroot Valley, which filled 46.9 acres of wetlands. Restoration activities associated with Highway 93 accounted for 80.0 acres of the 131.1 acres of restoration projects.

Cubic Yards. Dams ranked as having the most impact measured in cubic yards (505,900 cubic yards). One dam project at Bonneau Reservoir in Choteau County accounted for almost all of the impact (505,000 cubic yards). The construction of boat ramps and related facilities resulted in the use of 227,812 cubic yards of fill, with one project at Painted Rocks Reservoir and Little Boulder

Creek in Ravalli County responsible for 217,000 cubic yards of the total. Finally, bridge and road work accounted for 140,699 cubic yards of impact, with the largest project a Burlington Northern Railroad bridge near Havre with 80,000 cubic yards of material used.

No information. The Corps' database contained no information about the size of impact for 27.1% of the Individual Permits issued (102 of the 377 permits issued). As a result, the impacts for Individual Permits are significantly underestimated in this report.

It should be noted that the Montana Corps office has realized the importance of recording impact information for Individual Permits, and beginning in December 2002, it began to make an effort to record this data in the its database. However, a review of the Individual Permits issued between December 2002 and September 2003 revealed that only 6 of the 11 permits issued during that timeframe contained impact information.

Mitigation. According to the Corps' database, mitigation was required for 5 of the 377 Individual Permits issued between 1990 and 2002 and included 1,500 linear feet and 84.43 acres. A larger discussion of mitigation occurs on page 53.

NATIONWIDE PERMITS

Permit Description

The Corps provides blanket authorization for certain activities that it believes will have minimal adverse effects both individually and cumulatively. Nationwide Permits are blanket authorizations issued on a nationwide basis. These permits apply to a wide range of activities—from bank stabilization to small hydropower projects. The various Nationwide Permits contain restrictions and conditions. During the study, there have been 44 authorized Nationwide Permits in the United States, 34 of which have been used in Montana between 1990 and 2002. Of these permits, NWP 26 has expired. A description of the Nationwide Permits used in the state between 1990 and 2002 appears in Appendix I.

Many Nationwide Permits have a size threshold for required notification, called a Pre-construction Notification (PCN) threshold (*See Appendix I*). This means that if a project will affect an area smaller than the threshold, the Corps does not need to be notified about the project. Because of these minimal thresholds, the cumulative impacts for certain Nationwide Permits are underestimated in

TABLE 3: NUMBER, DESCRIPTION, AND SIZE OF IMPACTS FROM INDIVIDUAL PERMITS ISSUED IN MONTANA BETWEEN 1990 AND 2002

Permit Activity	All Permits		No Project Size	Impact in Linear Feet		Impact in Acres		Impact in Cubic Yards	
	Number of Permits	Percent	Number of Permits	Linear Feet	Number of Permits	Acres	Number of Permits	Cubic Yards	Number of Permits
Permits Authorizing Resource Impacts									
Bank Stabilization	157	41.6%	9	158,912	105	0.1	2	34,347	41
Boat Ramp/Facility	22	5.8%	5	1,822	6	9.5	2	227,812	9
Bridge and Road Work	32	8.5%	5	4,333	4	90.4	16	140,699	7
Dams	8	2.1%	3	915	3	0.000	0	505,900	2
Mining	7	1.9%	4	1,620	1	5.8	2	0	0
Recreational Facilities	6	1.6%	2	620	1	0.7	1	350	2
Residential/Commercial Development	12	3.2%	2	1,500	1	114.2	8	8,173	1
Water Intake Facilities	26	6.9%	16	1,565	8	0.1	1	501	1
Other Activities	14	3.7%	2	2,224	7	2.8	1	2,786	4
Subtotal	284	75.3%	48	173,511	136	223.5	33	920,568	67
Permits for Resource Restoration*									
Restoration Projects	50	13.3%	11	78,074	19	131.1	13	84,570	7
No Information on Permit Type	43	11.4%	43						
Totals	377	100.0%	102	251,585	155	354.6	46	1,005,138	74

THE CLASSIFICATION SYSTEM USED IN THIS TABLE IS EXPLAINED ON PAGES 28-30.

*ALL ANALYSIS OF RESTORATION PROJECTS MUST CONSIDER THE PROBLEMS WITH THIS DATA DISCUSSED UNDER *Permits for Resource Restoration* ON PAGE 51.

this report. For example, for NWP 13, which allows bank stabilization along streams and rivers, the Corps does not require notification unless more than 500 linear feet of stream bank will be impacted. Therefore, individuals who are doing bank stabilization projects smaller than the 500 linear feet do not have to report their project to the Corps. Without notification, the Corps cannot systematically track the size and location of these smaller projects. However, there can be exceptions to established minimal thresholds. In fact, the Montana Corps office requires notification on *all* projects—no matter what size—on the Bitterroot, Missouri, and Yellowstone Rivers.

Application Process

Government Agency Review. Under Section 401 of the Clean Water Act, the State of Montana, the U.S. Environmental Protection Agency (EPA), and/or tribal governments can review permits that may result in a discharge into state or tribal waters. Upon review, the appropriate agency can approve, approve with conditions, or deny the permit based on whether or not the activity will comply with water quality standards. These entities generally review select Nationwide Permits.

DEQ currently reviews Nationwide Permits numbers 12, 13, and 27 for all state waters. On tribal lands, the local tribal government or the EPA reviews permits. In Montana, the Confederated Salish and Kootenai Tribes currently review Nationwide Permit numbers 7, 12, 13, 14, 16, 17, 18, 23, 27, 29, 31, 33, 37, 39, 40, 41, 42, 43, and 44. The Fort Peck Tribes review Nationwide Permit numbers 12, 13, 14, 23, and 33. The EPA reviews Nationwide Permit numbers 21, 33, and 44 for projects on all other tribal land and conditionally certifies Nationwide Permit numbers 3, 7, 12, 13, 14, 21, 27, 33, 37, 39, 40, 41, 42, and 43. Note that NWP 44, for mining projects, has not been used to date in Montana.

Public Review. Nationwide Permit regulations do not provide an opportunity for public comment on separate projects. The only public comment periods on Nationwide Permits are at the time they are established as a permit category or when they are reauthorized every 5 years. The current Nationwide Permits were authorized in 2002 and will expire in 2007. When they are reissued, public comment will be solicited. However, there is a provision that allows the challenge of a Nationwide Permit on the grounds that the project has “more than minimal adverse environmental effects, individually or cumulatively, or would be contrary to the public

interest.” In such cases, the Corps may require an Individual Permit for these projects.

Environmental Review. Nationwide Permit regulations do not require a site-specific environmental review (EA or EIS) on a project-by-project basis; however, threatened and endangered species coordination may be required. Environmental reviews on Nationwide Permits are completed at the time they are established as a permit category or when they are reauthorized. The next environmental review on currently authorized Nationwide Permits will be completed when they are reissued in 2007. During the time period covered by this report, Nationwide Permits have expired and new ones issued 4 times; the general trend is for these permits to become more restrictive when reissued.

Approval Time. Completed applications are generally approved within 60 days.

Duration of Permits. Nationwide Permits are issued for a given project for up to 2 years. As mentioned above, Nationwide Permit categories (e.g., NWP 3, NWP 12, NWP 13) are reviewed every 5 years and are slated to expire in 2007.

Evaluation of Nationwide Permit Numbers

Between 1990 and 2002, there were 5,489 Nationwide Permits issued in Montana. The use of these permits has increased in recent years, from a low of 207 permits in 1990 to a high of 603 permits in 1997. For a short description of each Nationwide Permit used, see Appendix I. For a description of *How Permits Were Counted* in the analysis of this section of the report, see page 27.

The Nationwide Permit most commonly used in Montana is NWP 13, relating to bank stabilization. During the review period, NWP 13 accounted for one-fifth (20.1%) of all Nationwide Permits issued. A profile of NWP 13 appears on page 41. Other significant activity included NWP 3 (maintenance of existing projects) accounting for 14.8% of the permits issued; NWP 12 (utility line backfill and bedding) accounting for 12.4%; NWP 14 (road crossings) accounting for 13.5%; and NWP 26 (fill placed in headwaters and isolated wetlands) accounting for 11.7%.

Permits Denied. One Nationwide Permit was denied between 1990 and 2002. Because it was archived, Montana Audubon was unable to examine it (*See Permit 199390404 in Appendix III*). At least some portion of this project was later approved under a NWP 13.

After-the-Fact Permits. Forty-five of the issued permits were ATF Permits used in situations where the landowner had already done the work. Nationwide ATF permits were issued for bank stabilization (6 permits), bridge and/or road work (11 permits), enforcement actions (1 permit), filling wetlands (3 permits), minor dredging (5 permits), a recreational facility (1 permit), residential or commercial development (6 permits), restoration projects (2 permits), utility work (3 permits), and a temporary construction project (1 permit). Additionally, Nationwide ATF Permits were issued 6 times where the permit type was not specified.

Although ATF permits accounted for a small number of the permits issued, they account for a significant portion of specific permit types. For example, they were used for development projects more often than other categories, accounting for 4 of the 9 (44.0%) NWP 29 permits (single family homes) issued and 2 of the 21 (9.5%) NWP 39 permits (residential, commercial or industrial development) issued. Five of these ATF permits impacted 0.75 acres, and one permit contains no project size information.

Stacking of Permits. The Corps allows the use of multiple Nationwide Permits or combinations of

TABLE 4: NUMBER, DESCRIPTION, AND SIZE OF IMPACT OF NATIONWIDE PERMITS ISSUED IN MONTANA BETWEEN 1990 AND 2002

	Permits Activity	All Permits		No Project Size		Impact in Linear Feet		Impact in Acres		Impact in Cubic Yards	
		Number of Permits	Percent	Number of Permits	Percent	Linear Feet	Number of Permits	Acres	Number of Permits	Cubic Yards	Number of Permits
	Permits Authorizing Resource Impacts										
NWP 3	Maintenance	810	14.8%	328	40.5%	89,962	395	13.7	58	14,461	29
NWP 4	Fish and Wildlife Harvesting	1	0.0%	1	100.0%						
NWP 5	Scientific Measuring Devices	30	0.5%	9	30.0%	445	14	0.0	5	34	2
NWP 6	Survey Activities	22	0.4%	13	59.1%	262	5	0.0	2	3	2
NWP 7	Outfall Structures	36	0.7%	10	27.8%	510	21	3.1	4	50	1
NWP 12	Utility Line Backfill and Bedding	679	12.4%	285	42.0%	81,931	309	36.3	78	92	7
NWP 13	Bank Stabilization	1,101	20.1%	104	9.4%	338,217	972	4.1	17	518	8
NWP 14	Road Crossings	742	13.5%	197	26.5%	41,425	335	39.3	180	6,499	30
NWP 15	U.S. Coast Guard Approved Bridges	1	0.0%		0.0%	240	1				
NWP 16	Return Water/Upland Disposal Area	3	0.1%	1	33.3%					21	2
NWP 17	Hydropower Projects	1	0.0%	1	100.0%						
NWP 18	Minor Discharge	295	5.4%	113	38.3%	5,706	91	7.9	51	431	40
NWP 19	Minor Dredging: 25-Cubic Yards	38	0.7%	20	52.6%	1,086	11	0.0	4	45	3
NWP 20	Oil Spill Cleanup	4	0.1%	2	50.0%	15	1			35	1
NWP 21	Surface Mining Activities	6	0.1%	3	50.0%			109.6	3		
NWP 22	Removal of Vessels	10	0.2%	7	70.0%	2,063	3				
NWP 23	Approved Categorical Exclusions (Highways)	265	4.8%	54	20.4%	33,315	40	190.5	154	13,036	17
NWP 25	Structural Discharge	23	0.4%	8	34.8%	625	8	0.2	5	160	2
NWP 26	Headwaters and Isolated Wetlands	643	11.7%	192	29.9%	78,141	141	243.3	310		
NWP 29	Single Family Homes	9	0.2%		0.0%			1.2	9		
NWP 32	Completed Enforcement Actions	8	0.1%	1	12.5%	1,151	2	20.1	4	2,500	1
NWP 35	Maintenance Dredging of Marina	2	0.0%		0.0%	16	1			11,000	1
NWP 36	Boat Ramps	114	2.1%	14	12.3%	3,108	82	0.3	15	91	3
NWP 37	Emergency Watershed Protection	11	0.2%	2	18.2%	7,673	8	0.1	1		
NWP 38	Cleanup of Hazardous or Toxic Waste	15	0.3%	2	13.3%	18,170	9	0.8	4		
NWP 39	Residential, Commercial, Industrial Development	21	0.4%	1	4.8%	16	2	2.6	18		
NWP 40	Farm Buildings	9	0.2%	1	11.1%	30	1	0.7	7		
NWP 41	Reshape Existing Drainage Ditches	2	0.0%		0.0%	4,800	1			64	1
NWP 42	Recreational Facilities	16	0.3%		0.0%	195	2	0.8	8	2,422	6
NWP 43	Stormwater Management Facilities	4	0.1%		0.0%	425	3			2	1
	Subtotal	4,921	89.7%	1,369	27.8%	709,524	2,458	674.5	937	51,463	157
	Permits for Resource Restoration*										
NWP 11	Temporary Recreational Structure	52	0.9%	17	32.7%	1,155	34	0.0	1		
NWP 27	Wetland Restoration Activities	320	5.8%	58	18.1%	440,702	185	55.9	63	8,800	14
NWP 30	Management for Wildlife	2	0.0%		0.0%			0.3	2		
NWP 33	Temporary Construction and Access	158	2.9%	43	27.2%	12,621	75	2.0	14	853	26
	Subtotal	532	8.7%	118	22.2%	454,478	294	58.3	80	9,653	40
	No Information on Permit Type	36	0.7%	36	100.0%						
	TOTAL	5,489	100.0%	1,523	27.7%	1,164,002	2,752	732.8	1,017	61,116	197

*ALL ANALYSIS OF RESTORATION PROJECTS MUST CONSIDER THE PROBLEMS WITH THIS DATA DISCUSSED UNDER *Permits for Resource Restoration* ON PAGE 51.

General Permits and Nationwide Permits to authorize projects with minimal impacts, provided that an individual project does not exceed total impact limits. This process is known as “stacking of permits.” Nationwide Permits were used in at least 72 projects where permits were stacked (D. Teer, Corps, written communication, 2004). The following Nationwide Permits were used in a project that involved stacking of permits: NWP 3, NWP 5, NWP 7, NWP 11, NWP 12, NWP 13, NWP 14, NWP 18, NWP 19, NWP 21, NWP 22, NWP 23, NWP 25, NWP 26, NWP 27, NWP 30, NWP 33, NWP 36, and NWP 38. The most common combination of stacked permits included NWP 3 (maintenance of an existing structure) and NWP 13 (bank stabilization). This combination was used together at least 13 times. Projects with stacked permits impacted approximately 33,000 feet (6.3 miles) and 9.5 acres of wetlands; 24 projects with stacked permits had no size of impact information recorded.

Impacts of Nationwide Permits

Table 4 contains a summary of the size of impact from Nationwide Permits authorized in the state. A summary of the Nationwide Permits with the largest impacts appears below.

Linear Feet. Projects classified as restoration projects (NWP 27) accounted for the most linear feet of impact (440,702 feet). A discussion of the problems associated with impacts recorded for restoration projects (NWP 27, NWP 30, and NWP 32) appears on page 51. Bank stabilization projects (NWP 13), impacting 338,217 feet of streams and rivers, came in second in terms of linear impacts. The top ten streams with the largest impacts from NWP 13 are identified in Table 5. It should be noted that restoration

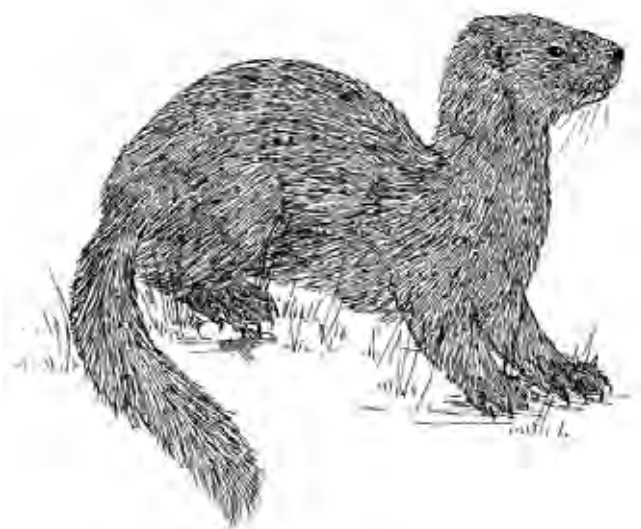
projects tend to occur on smaller streams (creeks), while bank stabilization projects generally involve rivers.

Acres. The now-expired NWP 26 permits, which authorized the filling of up to 10 acres of wetlands, caused the loss of the most acreage (243.3 acres). The largest NWP 26 project, a gravel mine, filled 10.0 acres of wetlands in Gallatin County. The permit causing the second highest wetlands loss was NWP 23 (190.5 acres); the Montana Department of Transportation (MDT) uses this permit almost exclusively for road projects. The largest MDT project using NWP 23 involved filling 14.5 acres of wetlands in Madison County between Ennis to McAllister on Highway 287. Finally, surface mining (NWP 21) accounted for the third highest loss of wetlands (109.6 acres), with the Spring Creek Coal Company in Big Horn County credited with 72.5 acres of the impacts.

Cubic Yards. NWP 3 for maintenance of existing structures (14,461 cubic yards) resulted in the greatest impacts as measured in cubic yards. The largest project involved repairs to an existing dam and spillway. The second most common permit with cubic yards of impact was NWP 23 for road projects (a total of 13,036 cubic yards). As mentioned above, this permit is used almost exclusively by MDT. The largest MDT project involved using 5,580 cubic yards of fill in 8 stream crossings in Custer County.

No Information. No information about size of impact was recorded for 27.7% of all Nationwide Permits issued (1,523 of the 5,489 permits issued). As a result, size of impact for Nationwide Permits is significantly underestimated in this report. It is important to recognize that Corps staff have progressively gotten better about entering size of impact information into their database over the study period. During the 3-year period from 1990 to 1992, no information on size of impact was found in the database an average of 66.9% of the time (for 575 out of 859 permits issued). During the 3-year period from 2000 to 2002, no size of impact information was found in the database an average of 13.3% of the time (173 out of 1,301 permits issued).

Mitigation. According to the Corps’ database, mitigation was required for 266 of the 5,489 Nationwide Permits issued between 1990 and 2002. Including “permits authorizing resource impacts” and “permits for resource restoration,” the total mitigation area authorized included 143,755 linear feet and 537.0 acres. A larger discussion of mitigation for projects resulting in resource impacts occurs on page 51.



SEVEN SIGNIFICANT NATIONWIDE PERMITS

This section profiles the 7 Nationwide Permits most frequently used in Montana: NWP 3, NWP 12, NWP 13, NWP 14, NWP 23, NWP 26, and NWP 27. Each permit is also discussed in other sections of this report.

NWP 3: Maintenance of Existing Structures and Fill

This permit authorizes the repair, rehabilitation, or replacement of any previously authorized structure or fill. Minor changes in the configuration or area of the structure or fill are permitted, provided that the environmental impacts are minimal. Consequently, once a project has been approved under the 404 program, it can usually be rebuilt under NWP 3. Some uses of NWP 3 have little impact, such as the routine cleaning of culverts or ditches. However, the most controversial use of this permit—for the repair or replacement of bank stabilization structures damaged or destroyed by floods—can impact resources through construction activities, create secondary impacts to the surrounding resources, and make temporary impacts permanent. The Corps issued 810 NWP 3 permits in Montana between 1990 and 2002, with impacts of a minimum of 89,962 linear feet to streams, 13.7 acres to wetlands, and 14,461 cubic yards of fill. The Corps does not need to be notified for maintenance activities that repair, rehabilitate, and replace previously authorized “currently serviceable” structures or fill. Additionally, the Corps’ database contains no information about the size of project impacts for 40.5% of all NWP 3 permits issued. Consequently, the size of the impacts from these projects is underestimated.

NWP 12: Utility Line Backfill and Bedding

This permit authorizes activities required for the construction, repair, and maintenance of utility lines and their associated facilities. “Utility lines” include all pipelines for gas and other “slurry substances”; any cable or wire for the transmission of electrical energy or telephone messages; and radio and television communication lines. The permit also is issued for the repair or construction of utility line substations; foundations for overhead utility-line towers, poles, and anchors; and access roads. The largest NWP 12 project impacting linear feet involved the burying of a communication cable near Libby (Permit 200290497), which filled 13,829 feet of wetlands; the largest project impacting acres, burying a natural gas pipeline in Glacier County (Permit 199590239), affected 52 sites and 9.88 acres. The

Corps issued 679 NWP 12 permits in Montana between 1990 and 2002, with impacts of a minimum of 81,931 linear feet to streams, 36.3 acres to wetlands, and 92 cubic yards of fill. The Corps’ database contains no information about the size of project impacts for 42.0% of all NWP 12 permits issued. Consequently, the size of the impacts from these projects is underestimated.

NWP 13: Bank Stabilization Projects

NWP 13 is the most commonly used Nationwide Permit issued in Montana. This permit authorizes bank stabilization activities for erosion prevention. The Corps does not need to be notified if bank stabilization projects (1) are less than 500 feet in length; (2) do not exceed an average of 1 cubic yard per linear foot of bank; and (3) do not place material in any special aquatic site, including wetlands. Projects longer than 500 feet in length and/or placing more than 1 cubic yard per linear foot can be approved under this permit if other conditions are met. Notification exceptions exist on the Bitterroot, Missouri, and Yellowstone Rivers, where all bank stabilization activities must be reported, regardless of size.

The Corps issued 1,101 NWP 13 permits in Montana between 1990 and 2002, impacting a minimum of 338,217 linear feet (64.1 miles) of streams and 4.1 acres of wetlands. Size of impact information is available in Montana for 90.6% (997 out of 1,101) of the permits issued. These numbers do not take into account the bank stabilization structures that were put into place before 1990 or those authorized under NWP 23, NWP 3, General Permits, or Individual Permits. Consequently, the size of the impacts from these projects is underestimated.

Most of the impact from NWP 13 projects comes from permits authorizing 500 feet or more of bank stabilization. Between 1990 and 2002, at least 197 projects over 500 feet were authorized, stabilizing 194,940 linear feet of river. This total represents 57.6% of the impacts from NWP 13. The largest project authorized was 5,280 feet long in Teton County.

Impacts to Rivers. By definition, Nationwide Permits are not supposed to significantly impact the environment, either individually or cumulatively. The top ten streams with NWP 13 projects appear in Table 5. Between 1990 and 2002, the total amount of restoration work recorded for these streams was 2,292 feet (0.4 miles), indicating that restoration work is not generally happening on the same streams where NWP 13 projects are being authorized.

TABLE 5: TOP 10 STREAMS WITH MOST LINEAR FEET OF IMPACT FROM NWP 13 PERMITS ISSUED BETWEEN 1990 AND 2002

Stream Name	Feet	Number of Permits
1. Yellowstone River	61,722	134
2. Missouri River	42,829	132
3. Musselshell River*	22,872	48
4. Clark Fork River*	17,465	48
5. Flathead River (no forks)*	13,268	33
6. Sun River*	10,291	13
7. Bitterroot River (no forks)	10,152	25
8. Ruby River*	9,609	35
9. Big Hole River*	7,352	16
10. Clarks Fork of Yellowstone River*	7,255	14
TOTALS	202,815	498

*ONLY PROJECTS GREATER THAN 500 FEET ARE REQUIRED TO BE REPORTED TO THE CORPS ON THESE RIVERS. CONSEQUENTLY, THE NUMBER OF PERMITS AND LINEAR FEET OF PROJECTS ON THESE RIVERS IS UNDERESTIMATED.

NWP 14: Road Crossings

This permit authorizes activities required for the construction, expansion, modification, or improvement of “linear transportation crossings.” A “linear transportation crossing” includes single crossing of a highway, railway, trail, or airport runway over waters of the United States. The Corps issued 742 NWP 14 permits in Montana between 1990 and 2002, with impacts to a minimum of 41,425 linear feet to streams, 39.3 acres to wetlands, and 6,499 cubic yards of fill. The Corps’ database contains no information about the size of project impacts for 26.5% of all NWP 14 permits issued. Consequently, the size of the impacts from these projects is underestimated. The largest NWP 14 project measured in linear feet was the reconstruction of a bridge in Cascade County (Permit 199390168), impacting 1,000 feet of stream; the largest project measured in acres filled 10.1 acres to reconstruct an existing road in Pondera County (Permit 199590014). Both of these projects were done by MDT.

NWP 23: Approved Categorical Exclusions

This permit authorizes activities undertaken, assisted, authorized, regulated, funded, or financed, in whole or in part, by another federal agency or department. In Montana, NWP 23 is used almost solely for highway projects completed by MDT. The Corps issued 265 NWP 23 permits in Montana during the review period, with impacts to at least 33,315 linear feet (6.3 miles) of streams, 190.5 acres to wetlands, and 13,036 cubic yards of fill. The Corps’ database contained no information about the size of project impacts for 20.4% of all NWP 23 permits issued; consequently, the size of the impacts from these projects is underestimated.

According to the Corps’ database, a substantial percentage of the acres impacted by highway projects were mitigated (142.8 acres out of 187.2 acres, or 76.3%). However, like all other applicants, MDT is not required to mitigate impacts to streams: highway projects caused 33,315 linear feet of impact, yet the Corps’ database only documents 50 feet of mitigation. MDT should be commended for the development and continued refinement of its program for mitigating wetland losses. Through this program, the agency closely tracks its mitigation projects in Montana. For this reason, the mitigation program for NWP 23—and all other MDT projects—is discussed independently in Chapter 8 (See page 55).

NWP 26: Filling Wetlands and the Headwaters of Streams

Perhaps the most controversial Nationwide Permit, NWP 26, was eliminated on June 5, 2000. This permit allowed the filling of up to 10 acres of isolated wetlands, the headwaters of streams (under 5 cubic feet per second average annual flow), and lakes. To understand NWP 26, it is important to understand what 10 acres—and 1 acre—means. Ten acres equals the size of 7 football fields; NWP 26 authorized the filling of up to 10 acres of isolated wetlands, headwaters, or lakes with no public input or environmental review—and generally no mitigation of impacts.

From January 1990 until it expired in June 2000, NWP 26 was used 643 times in Montana, allowing 78,141 feet (14.8 miles) and 243.3 acres (170 football fields) of fill to be placed in wetlands and/or riparian areas. These numbers can also be used to estimate the annual impact of this permit: it was used on average 61 times per year, impacting 7,442 feet and 23.2 acres of wetlands. The permit was used for the following types of activities: agriculture (165 permits), bank

stabilization (12 permits), bridge and road work (72 permits), dam maintenance and construction (11 permits), filling wetlands (12 permits), mining/hazardous waste (40 permit), residential and commercial development (37 permits), restoration projects (26 permits), ponds (191 permits), water supply (35 permits), and other categories (18 permits). No project information was provided for 24 permits issued. The majority of the agriculture activities included creating watering areas for livestock and activities related to irrigation. As a general observation about restoration and pond projects, a number of these activities resulted in "creation" of wetlands. In many of these projects, one wetland type was "traded" for another (usually a pond was substituted for a wet meadow). Government agencies and scientists discourage trading one wetland type for another because each type plays a unique role in flood prevention, ground and surface water recharge, water-quality improvement, wildlife habitat, etc.

In place of NWP 26, 5 new permits were issued (NWP 39, NWP 41, NWP 42, NWP 43, and NWP 44), and 6 permits were expanded (NWP 3, NWP 7, NWP 12, NWP 14, NWP 27, and NWP 40). The Corps also modified 9 NWP general conditions and added 2 new general conditions.

NWP 27: Restoration and Creation Activities

This permit authorizes activities associated with the restoration and enhancement of altered and degraded wetlands and streams and the creation of wetlands on private lands in accordance with the rules of the U.S. Fish and Wildlife Service or Natural Resources and Conservation Service. This permit is not supposed to authorize the conversion of natural wetlands to another aquatic use.

One of the problematic aspects of this permit is the way in which restoration projects are recorded in the Corps' database. For this reason, NWP 27 permits and related restoration projects are discussed independently from other permits in Chapter 8 (See page 51).



GENERAL PERMITS

Regional General Permits—more commonly called General Permits—are the third category of permits used by the Corps in the state of Montana.

Permit Description

General Permits can be issued on a district basis, a statewide basis, or on a waterway basis (for example, on Flathead Lake or Fort Peck Reservoir). There were 11 different General Permits (GP) used in Montana between 1990 and 2002. All of these permits have expired. It should be noted that, there are 2 other General Permits currently in use in Montana: (1) GP 03-01, for boat ramps on Fort Peck Lake, and (2) GP 03-02, for boat ramps on all other Montana waterways. Additionally GP 00-02 will be reissued in 2005. Because these last 2 permits were not used during the study period of this report, they are not described in detail; however, they are described on the Montana Corps' website, <<http://www.nwo.usace.army.mil/html/od-rmt/mtspecific.html>>. A description of the General Permits used in the state between 1990 and 2002 appears in Appendix II.

Application Process

Government Agency Review. Government agencies review General Permits at the time they are established as a permit category. Currently, the Corps is the only agency that examines individual projects.

Public Review. The only chance for public comment on General Permits is at the time they are established as a permit category. There is no opportunity for public comment on separate projects. A General Permit may be challenged only on the grounds that the project has "more than minimal adverse environmental effects, individually or cumulatively, or would be contrary to the public interest." In such cases, the Corps may use its discretionary authority to require an Individual Permit for these projects.

Environmental Review. Environmental review is completed on General Permits at the time they are established as a permit category. No environmental review occurs on site-specific General Permit projects.

Approval Time. Completed applications are generally approved within 60 days.

Duration of Permits. General Permits on individual projects are valid for up to 2 years. Because General Permits are blanket authorizations issued on a state or regional level, each type of permit (e.g., GP 00-02) is reviewed every 5 years. This evaluation includes an environmental review on the permit as a whole.

Evaluation of General Permit Numbers

Of the 11 different General Permits used in Montana between 1990 and 2002, permits were issued 395 times, with the number of authorizations ranging from a high of 71 in 1997 to a low of 2 in 2002 (See Table 6). For a short description of each General Permit used, see Appendix II. For a description of *How Permits Were Counted* in the analysis of this section of the report, see page 27.

Permits Denied. No General Permits were denied in Montana between 1990 and 2002.

After-the-Fact Permits. Two of the issued General Permits were ATF permits, used in cases where the landowner had already done the work before the Corps issued the permit. One of these permits was issued for a boat ramp installed on Seeley Lake in Missoula County (GP 82-10); the second was for 2 barbs installed in the Yellowstone River in Park County (GP 97-02).

Stacking of Permits. Corps regulations allow for the use of combinations of General Permits and Nationwide Permits to authorize projects with minimal impacts, provided that an individual project does not exceed total impact limits. This process is known as "stacking of permits." General Permits were used in at least 4 projects of this type (D. Teer, Corps, written communication, 2004). The permits were always used in conjunction with 1 or 2 Nationwide Permits (General Permits were never stacked together). The following General Permits were used in a project that involved stacking: GP 89-03, GP 98-07, GP 97-02, and GP 00-02. With two exceptions, all projects were wildlife habitat

TABLE 6: NUMBER, DESCRIPTION, AND SIZE OF IMPACT OF GENERAL PERMITS ISSUED IN MONTANA BETWEEN 1990 AND 2002

Permit Activity		All Permits		No Project Size	Impact in Linear Feet		Impact in Acres		Impact in Cubic Yards	
		Number of Permits	Percent	Number of Permits	Linear Feet	Number of Permits	Acres	Number of Permits	Cubic Yards	Number of Permits
Permits Authorizing Resource Impacts										
GP 76-05	Riprap for Bank Protection	5	1.3%	1	2,470	4	0.0	0	0	0
GP 82-10	Boat Ramp	49	12.4%	27	1,387	8	0.2	2	1,887	12
GP 87-02	Fill for Boat Ramps and Docks on Flathead Lake	3	0.8%	2	0	0	0.0	0	26	1
GP 89-04	Existing Structures on Corps Lands	4	1.0%	1	0	0	0.0	0	969	3
GP 90-01	Water Intake Facilities	63	15.9%	39	9,295	22	0.0	0	200	2
GP 97-02	Flood Repair and Protection	78	19.7%	13	46,584	42	0.4	6	13,443	17
Subtotal		202	51.1%	83	59,736	76	0.7	8	16,525	35
Permits for Resource Restoration*										
GP 88-01	Mitigation Projects	1	0.3%	0	0	0	4.0	1	0	0
GP 88-02	Restoration Related to Enforcement Action	2	0.5%	1	0	0	0.0	0	30	1
GP 89-03	Habitat Improvement	177	44.8%	102	147,937	52	1.8	6	3,070	17
GP 98-07	Wetland Enhancement	2	0.5%	1	800	1	0.0	0	0	0
GP 00-02	Fish Habitat Structures	10	2.5%	7	110	1	0.0	0	90	2
Subtotal		192	48.6%	111	148,847	54	5.8	7	3,190	20
	No Information on Permit Type	1	0.3%		40	1				
Totals		395	100.0%	194	208,623	131	6.5	15	19,715	55

*ALL ANALYSIS OF RESTORATION PROJECTS MUST CONSIDER THE PROBLEMS WITH THIS DATA DISCUSSED UNDER *Permits for Resource Restoration* ON PAGE 51.

improvement projects or restoration projects. The two exceptions involved GP 97-02, used for flood repair and protection. Both of these permits were stacked with NWP 3 (maintenance of an existing project), for a total size of impact of 1,652 feet of bank stabilization.

Impacts of General Permits

Table 6 contains a summary of the General Permit activity conducted in the state from 1990 to 2002. Most of the General Permits issued were for restoration and habitat improvement projects (GP 88-01, 88-02, 89-03, 98-07, and 00-02), resulting in almost 150,000 linear feet (28 miles) of stream restoration and 5.8 acres of wetland restoration. Two of the largest projects occurred in Powell County, one restored 22,176 feet of Monture Creek and another established 1.0 acre of

wetlands near Dry Creek (A discussion of the problems associated with impacts recorded for restoration projects appears on page 51). The second most common use of General Permits was for bank stabilization activities (GP 76-05, 97-02), resulting in approximately 49,000 linear feet (9.3 miles) of impacts to streams and rivers. The 2 largest bank stabilization projects impacted 12,144 feet on the Big Hole River in Madison County and 5,280 feet on the North Fork of the Smith River in Meagher County.

No information. No information about size of impact was found for 194 of the 395 permits issued (49.1%). As a result, size of impact for General Permits is significantly underestimated here.

Mitigation. Mitigation was not required for any General Permit projects between 1990 and 2002.

A GENERAL PERMIT FOR THE UPPER YELLOWSTONE RIVER?

One of the tools available to the Corps is called a Special Area Management Plan (SAMP). The goal of a SAMP is to provide a streamlined process for individuals to receive 404 permits—usually through the issuance of a General Permit.

Although no SAMP has been completed in Montana to date, one is currently underway in Park County. Floods on the Yellowstone River in 1996 and 1997 modified the floodplains and resulted in property losses for many landowners along the river. As a result, many landowners requested permits for bank stabilization projects. The number of bank stabilization projects, undertaken with little or no regard for cumulative effects, convinced many individuals of the need for a more comprehensive planning effort. In 1997, the Upper Yellowstone Task Force was created to address issues surrounding floods and flooding. In cooperation with the task force, the Corps initiated the development of a SAMP for the Upper Yellowstone River, from Gardiner to Springdale.

The Upper Yellowstone SAMP process will result in an assessment of the long-term effects of bank stabilization on this section of river and potentially include the issuance of a General Permit. This SAMP is scheduled for completion in 2005.

At the end of this process, local landowners will likely have a streamlined process for receiving a General Permit for bank stabilization projects on the Upper Yellowstone. Conservation organizations are concerned about this process because individual General Permits do not allow for public comment, and they do not require site-specific environmental assessments.

For more information, contact the U.S. Army Corps of Engineers, Helena Regulatory Office, 10 West 15th Street, Suite 2200, Helena, MT 59626, (406) 441-1374.



Impacts from 404 Projects in Montana

This chapter examines the impacts for all U.S. Army Corps of Engineer (Corps) 404 permits authorized between 1990 and 2002. Because the Corps' database does not contain the same information for each permit type, Montana Audubon set up a system with which to make this comparison (See pages 28-30). Projects are divided into 3 main categories: permits authorizing resource impacts, permits for resource restoration, and permits with no information on size of impact (See Table 7).

PERMITS AUTHORIZING RESOURCE IMPACTS

This section examines projects that directly affect wetlands and waterways. Of all 404 permits issued in Montana between 1990 and 2002, a total of 5,407 permits (86.4%) resulted in resource impacts (See Table 7). A discussion of mitigation projects for resource impacts occurs on page 53.

TABLE 7: SIZE OF IMPACT AND NUMBER OF 404 PERMITS ISSUED IN MONTANA BETWEEN 1990 AND 2002

Type of Activity	All Permits		No Project Size	Impact in Linear Feet		Impact in Acres		Impact in Cubic Yards	
	Number of Permits	Percent	Number of Permits	Linear Feet	Number of Permits	Acres	Number of Permits	Cubic Yards	Number of Permits
Permits Authorizing Resource Impacts									
Bank Stabilization	1,352	21.6%	129	553,856	1,131	4.7	26	48,308	66
Bridge and Road Work	1,040	16.6%	256	79,312	380	320.3	350	160,233	54
Filling Wetlands	938	15.0%	305	83,847	232	251.2	361	431	40
Maintenance of Prior Projects	852	13.6%	349	91,048	406	13.7	62	15,475	35
Mining/Hazardous Waste	32	0.5%	11	19,805	11	116.2	9	35	1
Residential or Commercial Development	55	0.9%	4	1,971	7	118.6	42	8,175	2
Utility Work	679	10.8%	285	81,931	309	36.3	78	92	7
Other Activities	459	7.3%	161	31,003	194	37.7	50	755,807	54
Subtotal	5,407	86.4%	1,500	942,771	2,670	898.7	978	988,557	259
Permits for Resource Restoration									
Restoration Projects	774	12.4%	240	681,399	367	195.2	100	97,413	67
No Information on Permit Type	80	1.3%	79	40	1	0.0	0	0	0
Totals	6,261	100.0%	1,819	1,624,210	3,038	1,093.9	1,078	1,085,969	326

*ALL ANALYSIS OF RESTORATION PROJECTS MUST CONSIDER THE PROBLEMS WITH THIS DATA DISCUSSED UNDER *Permits for Resource Restoration* ON PAGE 51.

HOW IMPACTS ARE MEASURED IS IMPORTANT

Project impacts are measured in one of three ways: linear feet, acres, or cubic yards of fill. Because there is only one field in the Corps' database in which to enter information about project impact, only one type of measurement is used per project. For example, a look at 3 bridge and road projects reveals the 3 ways of recording size of impact: for Permit 199890400, 1,230 linear feet of impact was recorded; Permit 199990392 authorized 1.0 acre of wetlands filled; and Permit 200190361 recorded 356 cubic yards of riprap.

Linear feet. The linear foot measurement is generally used to describe the impact of projects on rivers or streams. In order to get a better understanding of the impact of these projects, it may help to convert linear feet into miles. One problem with recording impacts to streams and rivers in linear feet is that this description is two dimensional. The use of linear feet does not describe a project's *area* of impact. A project might impact only a narrow strip of land along a stream or it might impact a wide band, but there is no way to determine the area of impact from this measurement.

Acres. Measurement in acres is generally used to describe the impact of projects on wetlands not associated with lakes or streams. To visualize an acre of wetlands, compare it to a football field. According to *Webster's New Collegiate Dictionary*, a football field measures 130 yards by 53-1/3 yards, or 6,933 square yards. One acre equals 4,840 square yards, or 70% of a football field; 10 acres equals the size of 7 football fields.

Cubic yards. The cubic yard measurement is sometimes used to describe the impacts of projects. When cubic yards are used, impacts are recorded in this measurement exclusively; they are not also recorded in feet or acres. Impacts recorded in cubic yards are impossible to translate into area because the measurement reflects the amount of fill material used, not the area of land affected by a project. For example, the impact from cubic yards of fill placed in a dam is quite different than cubic yards of fill placed along a stream bank or a lakeshore. Because cubic yards of fill do not adequately describe project impacts, analysis of these projects is minimal in this report.

Impacts Measured in Linear Feet

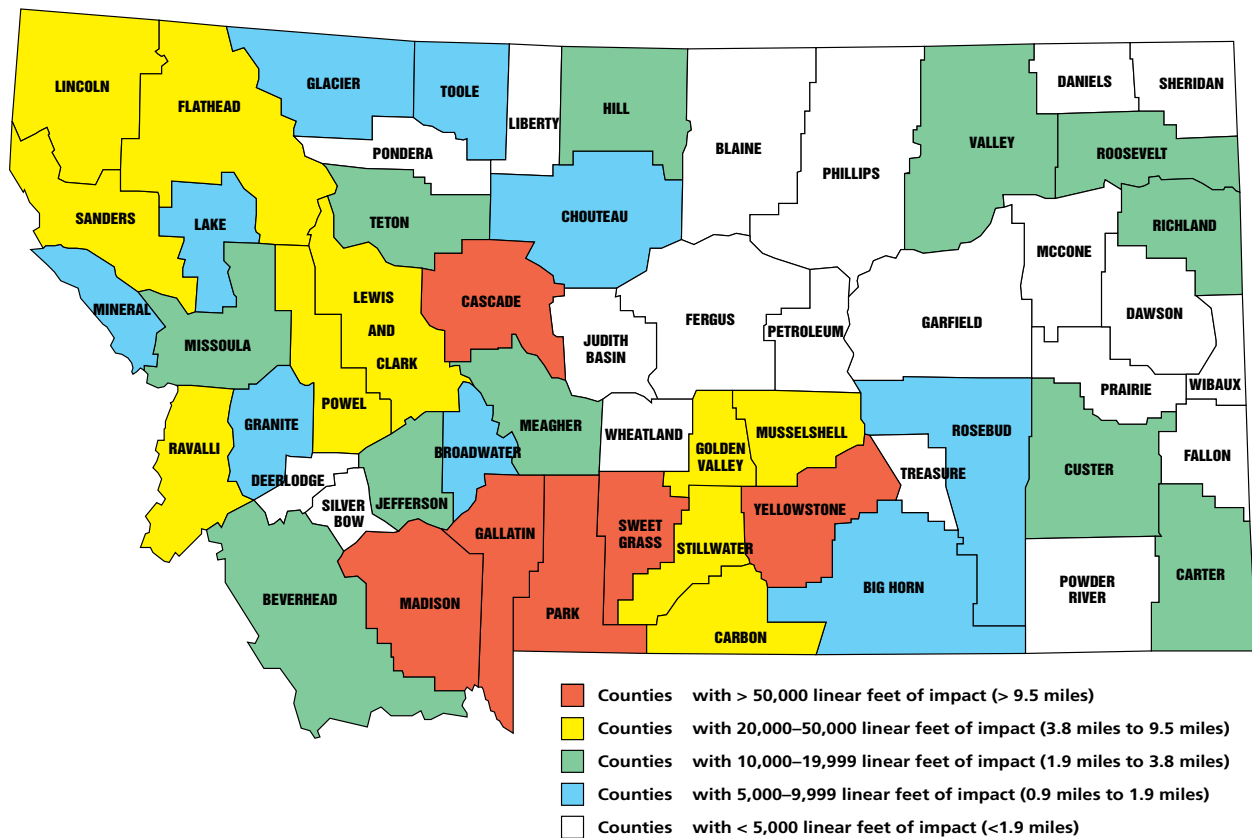
Most linear impacts occur on rivers or streams. Projects authorizing resource impacts altered 942,771 feet (179 miles) of Montana's waterways, with Individual Permits responsible for 173,511 feet (18.4%) of the total, Nationwide Permits for 709,524 (75.3%), and General Permits for 59,736 (6.3%). Figure 8 shows a map indicating the amount of impact per county.

Bank stabilization structures accounted for most of the linear feet of impacts, with 1,131 permits impacting more than 550,000 feet (104 miles) of streams. There were 7 bank stabilization projects at least 1 mile in length: Careless Creek in Golden Valley County (17,500 feet); the Ruby River in Madison County (14,090 feet); the Big Hole River in Madison County (12,144 feet); Brackett Creek in Park County (11,645 feet); Mill Coulee in Cascade County (7,920 feet); Spring Coulee near Fairfield (5,280 feet); and the North Fork of the Smith River

in Meagher County (5,280 feet). A more complete description of the individual and cumulative impacts of bank stabilization projects appears on page 55.

Other project categories accounted for impacts totaling between 75,000 and 91,000 linear feet of resource impacts: maintenance of existing projects (many involving bank stabilization) (91,048 feet); placement of fill material in wetlands (83,847 feet); utility work (includes pipelines) (81,931 feet); and bridge and road work (79,312 feet).

FIGURE 8: TOTAL LINEAR FEET BY COUNTY FROM PERMITS AUTHORIZING RESOURCE IMPACTS ISSUED BETWEEN 1990 AND 2002



THE ACTUAL NUMBER OF FEET BY COUNTY APPEARS IN APPENDIX IV . ALL PERMIT TYPES (INDIVIDUAL, NATIONWIDE AND GENERAL PERMITS) ARE INCLUDED IN THE TOTALS.

Impacts Measured in Acres

Projects resulting in permanent loss of wetlands totaled 898.7 acres, with Individual Permits responsible for 223.5 acres (24.8%) of the total, Nationwide Permits for 674.5 acres (75.1%), and General Permits for 0.7 acres (less than 1.0%). Figure 9 shows the amount of impact per county. A discussion of mitigation of impacts appears on page 53. Wetland losses from the following types of projects totaled more than 100 acres (approximately 70 football fields):

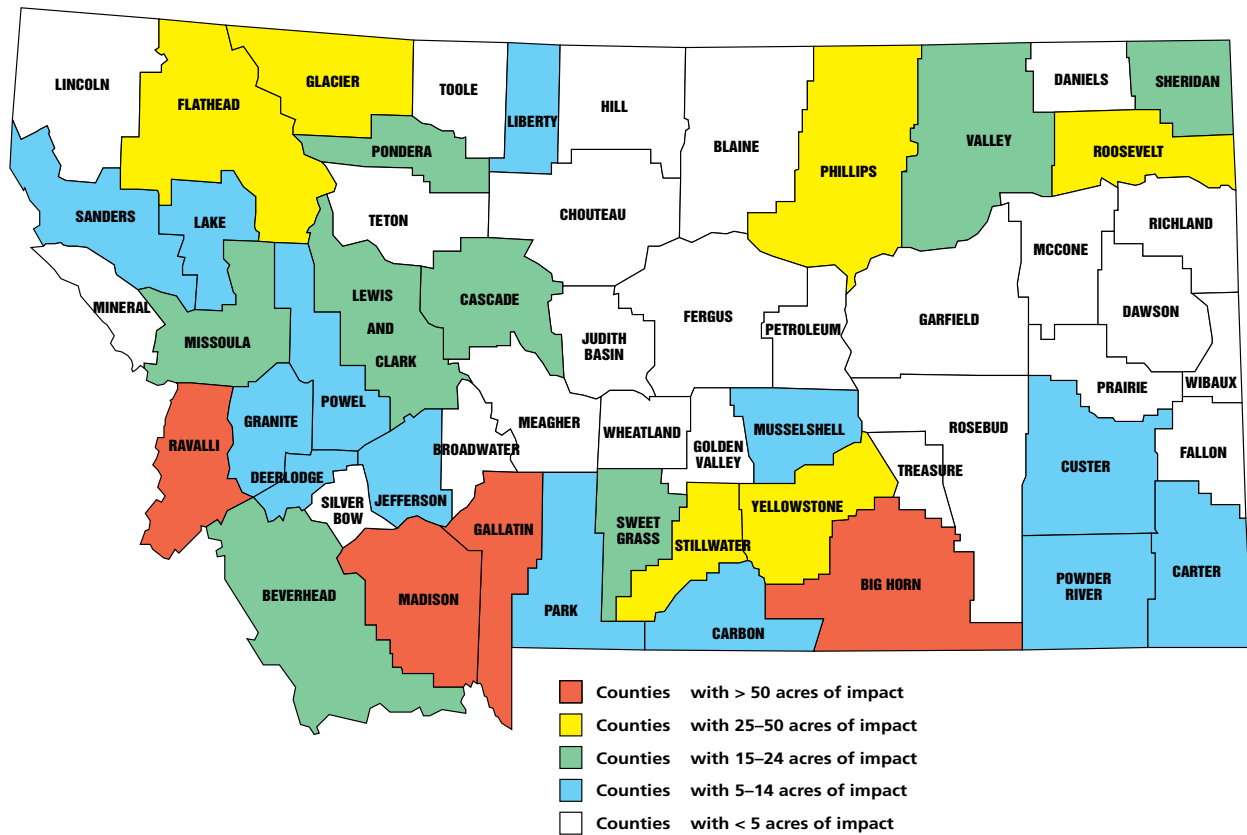
Bridge and roadwork resulted in the greatest loss of wetlands (320.3 acres). The Montana Department of Transportation (MDT) accounted for the majority of these impacts, although railroads and local government road projects also contributed. The largest project was the reconstruction of Highway 93 in the Bitterroot Valley, which resulted in a loss of 46.9 acres of wetlands; 2 other MDT projects filled 14.5 acres of wetlands in Madison County and 10.7 acres in Valley County.

Projects directly filling wetlands accounted for the second largest loss in acres. Fill projects accounted for the loss of 251.2 acres of wetlands. Projects authorized by Nationwide Permit (NWP) number 26, a permit that expired in 2000 which allowed the filling of up to 10 acres of wetlands for a variety of reasons, make up the majority (243.3 acres from 310 projects). The largest NWP 26 project, a Gallatin County gravel mine, filled 10.0 acres of wetlands. Fifty-six of the projects authorized under this permit were larger than 1 acre.

Residential and commercial development projects caused the third highest loss of wetlands when impacts were measured in acres (118.6 acres). The 360 Ranch Corporation subdivision in Gallatin County was the largest project, accounting for 87 acres.

Surface mining and hazardous waste projects accounted for the fourth highest loss of wetlands (116.2 acres), with the Spring Creek Coal Company in Big Horn County credited with 72.5 acres of the impacts.

FIGURE 9: TOTAL ACRES BY COUNTY FROM PERMITS AUTHORIZING RESOURCE IMPACTS ISSUED BETWEEN 1990 AND 2002



THE ACTUAL NUMBER OF ACRES BY COUNTY APPEARS IN APPENDIX IV . ALL PERMIT TYPES (INDIVIDUAL, NATIONWIDE, AND GENERAL PERMITS) ARE INCLUDED IN THE TOTALS.

Impacts Measured in Cubic Yards

Even though cubic yards are not meaningful in terms of measuring size of impact, it is the only way impacts are recorded for some projects. The Corps' database contains impact information measured in cubic yards for 259 (4.8%) of the 5,407 permits authorizing resource impacts. Despite the fact that only a small number of permits issued use this measurement, there were 988,557 cubic yards of fill (soil, sand, gravel, rocks, or other such material) placed in wetlands and streams from projects, with Individual Permits responsible for 920,568 of the total (93.1%), Nationwide Permits for 51,463 cubic yards (5.2%), and General Permits for 16,525 cubic yards (1.7%).

One dam, located at Bonneau Reservoir in Choteau County, accounted for almost half of the cubic yards of impact (505,900 cubic yards). Boat ramps and related facilities accounted for 229,740

cubic yards, with one project at Painted Rocks Reservoir and Little Boulder Creek in Ravalli County responsible for 217,000 cubic yards of the total. Bridge and roadwork resulted in 160,233 cubic yards of impact, with the largest project a Burlington Northern Railroad bridge near Havre with 80,000 cubic yards of material used. The largest MDT project used 5,580 cubic yards of fill in 8 stream crossings in Custer County.

Summary

Impacts from the 404 program in Montana are significant. In the 13 years between 1990 and 2002, projects were authorized to alter almost 943,000 feet (180 miles) of streams and rivers and to cause the loss of 898.7 acres of wetlands (almost 630 football fields). These figures amount to an annual loss of almost 70 acres of wetlands and impacts to 72,500 feet (almost 14 miles) of streams and rivers.

An additional 1,500 permits (27.7%) had no record of the size of project impacts. However, if these permits had an equivalent effect, an additional 20 acres of wetlands and 21,000 feet of stream would be affected annually. These impacts are particularly striking given the fact that 81.6% of the projects that impact rivers, streams, and wetlands have no site-specific environmental analysis done and no opportunity for public comment because they are issued under Nationwide or General Permits. Considering that state agencies are required to do a site-specific environmental review every time they issue a permit, and many of these reviews allow public comment, it seems that thresholds need to be established for initiating a site-specific environmental review of more 404 projects.

PERMITS FOR RESOURCE RESTORATION

Restoration projects are designed to improve the function and value of wetlands and waterways over the long-term; 774 of these projects were permitted between 1990 and 2002. Because of problems with the data for these permits, their impacts were not analyzed in this report. This section describes the main problems associated with these projects. In addition to restoration projects, projects with temporary impacts (such as a seasonal boat dock or the short term dewatering of a construction site) are included in this category because it did not seem accurate to place these permits in the category for "permits authorizing resource impacts" when they cause only temporary, minor impacts.

Problems in Recording Project Impacts

One problematic aspect of restoration projects is the way they are recorded in the Corps' database. Before a restoration or enhancement project begins, the project site usually contains functioning wetlands and/or streams (the "before" picture). After the project is completed, a certain amount of wetlands or stream has been restored (the "after" picture). Therefore, the net gain in functioning wetlands or stream can be described by a formula: the size of the restored area ("after" picture) minus the size of the functioning wetlands/streams before the project started ("before" picture). This number is, in fact, the way the Corps is supposed to be recording the effects of restoration projects in its database (Corps 2002b). However, in practice, the data has not been recorded this way. For example, NWP 27 permits were issued 320 times between 1990 and 2002. Impacts recorded from these projects (the "before" picture) affected 440,702 feet and 55.9

acres. The mitigation (the "after" picture) indicated that 122,689 feet and 210.3 acres were restored. Consequently, the database indicates that the net effect of these projects was a net impact on 318,013 feet of streams and a net gain of 154.4 acres of wetlands.

Prior to 2002, it appears that Corps staff (on a nationwide basis) frequently recorded the total size of the restoration project (the "after" picture) in the "impact" field of its database instead of in the mitigation fields. As a result, in the Corps' 2002 Draft Environmental Impact Study (EIS) reviewing impacts of National Permits, the Corps wrote that there is an "exceptional error in over-reporting negative impact[s]" from NWP 27 projects (Corps 2001a). As a result, the Corps excluded NWP 27 from its analysis of impacts in the Draft EIS. A memo to Corps staff in 2002 clarified the way in which NWP 27 project impact information should be recorded so that the information in the Corps' database will be more meaningful in the future (Corps 2002b).

Project Size Does Not Always Appear Accurate

A second problem with restoration projects is the accuracy of information recorded in the Corps' database. For example, when someone applies for a permit for bank stabilization projects, the Corps approves a specific length and location for the actual work done. This information is then recorded in the database. When someone applies to do stream or river restoration work, the Corps seemingly does not always approve a specific length and location for the work done on site. In fact, the Corps' database seems to describe an entire area where work may be performed—and not the actual length of the on-site work. Two examples illustrate the problem:

- The Corps' description for the project approved under Permit 199990286, a NWP 27 permit, is "rehabilitate 5 sites along 9000' of creek. The five sites worked on are 4580' total. The project includes rechannelization of the creek and stabilization of the banks. 290 rootwads, 290 crosslogs, and 1735 rocks (2–3' diameter) will be used to construct the revetment." The Corps' database contains the project size as 9,000 feet—but that figure overstates the amount of stream "restored" since the 5 "sites" specifically only impact 4,580 feet.
- The Corps' description of the project approved under Permit 200190388, a NWP 27 permit, reads: "approximately 1.75 miles of restoration work using rootwads, brushbars, and some channel reshaping. 38 sites will be

treated along the 1.75 miles.” The project size is recorded as 9,240 feet—but that figure likely overstates the length of stream “restored” since the 38 “sites” probably do not cover the entire 1.75 miles.

Recording the impacts of restoration projects in this way exaggerates the actual on-the-ground restoration work. If restoration totals were compared to projects resulting in resource impacts, which are subject to more precise measurements, it would dramatically misrepresents the benefits and effectiveness of the permit program.

Some Restoration Projects May Not Restore

One final point regarding restoration projects needs to be mentioned: in general, these projects are supposed to restore the functions and natural processes of wetlands, streams, and rivers. However, some people’s enhancement measures may be considered by biologists to have negative impacts. For example, the installation of open water for a fish or waterfowl pond could inadvertently degrade a wetland’s existing functions and eliminate the native amphibian community. Additionally, the amount of bank stabilization approved for some stream restoration projects has been controversial because many resource managers do not think that bank stabilization always enhances or improves aquatic resources. Finally, stream restoration efforts may have mixed results since many restoration

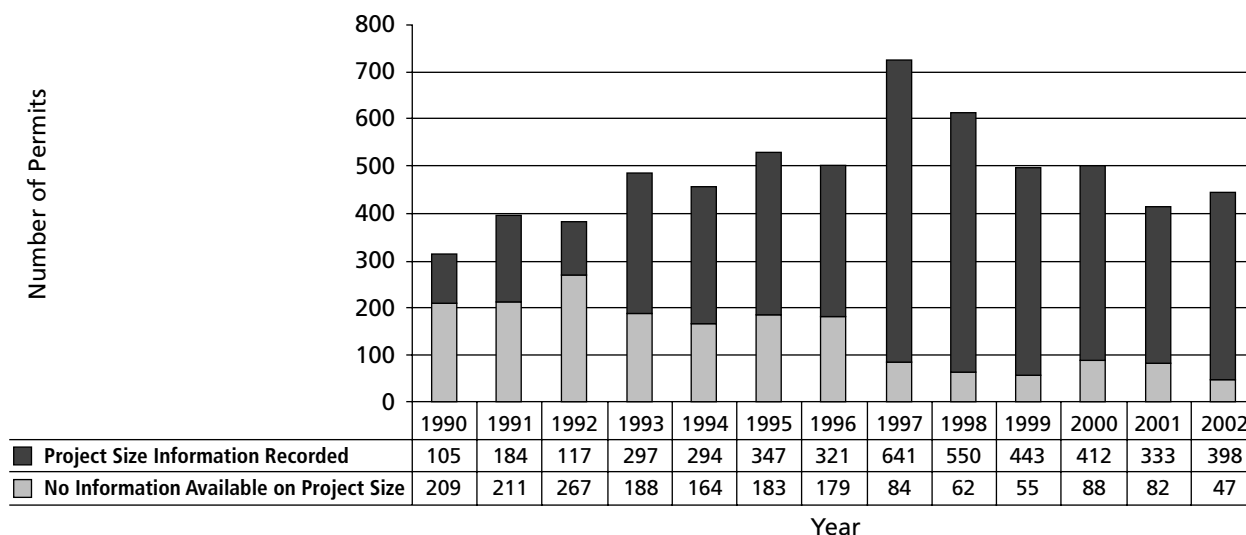
techniques are still experimental and don’t always perform as anticipated. The Corps’ database information is seldom, if ever, adjusted to account for “partially successful” stream restoration projects (Montana Department of Environmental Quality (DEQ), written communication, 2004). Consequently, it is important that strict criteria be established to clearly define which projects are classified as restoration projects. In addition, it is important that larger projects with significant manipulation of, for example, stream banks, be reviewed under the Individual Permit process, so that a more thorough environmental review is conducted and public comment received.

PERMITS WITH NO INFORMATION ABOUT IMPACTS

The Corps’ database contains no information about the size of project impacts for 29.1% of all 404 permits issued (1,819 of the 6,261 permits issued), with missing data for 27% of Individual Permits, 28% of Nationwide Permits, and 49% of General Permits. As a result, impacts from the 404 program are significantly underestimated in this report.

Figure 10 shows missing data by year. It should be noted that there has been significant improvement over the course of the study period regarding the entering of impact information into the Corps’ database. As a comparison, during the 3-year

FIGURE 10: ANNUAL NUMBER OF PERMITS WHERE SIZE OF PROJECT INFORMATION WAS RECORDED OR NOT RECORDED FOR THE YEARS 1990 TO 2002



period from 1990 to 1992, the database contained no information on size of impact an average of 62.9% of the time (for 687 out of 1,093 permits issued). During the 3-year period from 2000 to 2002, Corps staff did not enter information about size of impact an average of 16.0% of the time (217 out of 1,360 permits issued).

Impact information is one of the main tools available to the Corps for measuring cumulative effects and evaluating its permitting program. Because of this, it is important for Corps staff to record this information all the time.

MITIGATION OF IMPACTS

When 404 permits are issued, the Corps should require mitigation of impacts. In fact, as part of its responsibilities, the Corps made a commitment in 2002 that Nationwide Permits “achieve at least one-for-one mitigation of all wetlands impacts, on an acreage basis for the [Corps] District as a whole” (Corps 2002b). In order to gain a better understanding of the mitigation authorized under the 404 program in Montana, this section assesses mitigation projects using the method used in the Corps Draft EIS reauthorizing Nationwide Permits (Corps 2001a). In their Draft EIS, the Corps did an assessment of mitigation projects based on a review of the Corps’ database in terms of the 3 “sequencing” steps typically followed for mitigation (See page 25):

- **Avoid impacts** through an evaluation of a project’s goals relating to necessity, water dependency, public benefit, and upland alternatives;
- **Minimize the size of the impact** by designing the project so that it has the least impact on aquatic resources possible; and
- **Compensate for impacts** through restoration, enhancement, creation, or (rarely) preservation.

Avoid Impacts

There is no place in the Corps’ database to record decisions made to avoid wetland impacts. It is difficult to know whether denied permits, which accounted for 11 permits between 1990 and 2002 (0.2%), can be attributed to the mitigation process “avoidance” requirement.

Minimize the Size of the Impact

Of the 3 permit types, only Nationwide Permits have a field in the Corps’ database in which to document the minimization of impacts. In that

section, Corps staff record the area of impact requested and the area of impact authorized. The difference between these numbers represents the amount that project impacts have been “minimized.” In its 2001 Draft EIS, the Corps indicated that on a national basis the acreage authorized under Nationwide Permits was 79% of the initial request (Corps 2001a). In Montana, however, the Corps documented impact reductions of 3,805 feet (out of 709,524 feet of impacts authorized) to streams and 1.8 acres (out of 674.5 acres of impacts authorized) to wetlands. Consequently, it is not clear that in Montana the Corps is “minimizing” the size of 404 project impacts at the same level that is done nationally.

Compensation for Impacts

Taking into account solely those permits authorizing resource impacts (restoration projects excluded), compensatory mitigation was required for 271 of the 5,407 issued permits (4.3%) (See Table 8). The following observations can be made about these projects:

- The Corps recorded 22,557 feet of mitigation for almost 943,000 feet of resource impacts for projects measured in linear feet, which is a mitigation rate of 2.4% of the impacted area.
- There were 371.2 acres of mitigation recorded for 898.7 acres of wetland losses, which is a mitigation rate of 41.3% of the impacted area.
- The Corps documented mitigation for 4 Individual Permits with resource impacts. These projects were either a dam, road project, or subdivision.
- No mitigation was authorized for any General Permits.

Mitigation numbers reflect the fact that there is currently no Montana Corps policy requiring mitigation for impacts to streams, rivers, or lakes. It is important to note, however, that the Corps is currently in the process of developing a stream mitigation policy. In addition, not all projects classified as “authorizing resource impacts” require mitigation. For example, NWP 3 (which authorizes the repair, rehabilitation, or replacement of any previously authorized structure or fill) currently has no mitigation requirements. However, even if the impacts from NWP 3 are removed from the analysis, the number of recorded mitigation projects in the Corps’ database remains low.

The Montana Corps currently has a policy requiring compensatory mitigation for all wetland

losses greater than 0.1 acres. This policy has been in effect since at least March 18, 2002. Taking into account only those permits authorizing resource impacts (restoration projects excluded), the following observations can be made about compensatory mitigation for permits issued between March 18, 2002, and September 15, 2003* that impacted more than 0.10 acre of wetlands (*Note: Because the 0.1 acre mitigation policy is relatively new in Montana, 9 months of 2003 information was included in the analysis above):

- 33 projects impacted more than 0.1 acre of wetlands.
- The 4 Individual Permits included in this total impacted 25.4 acres, and the Corps' database documents mitigation for 3 of the 4 projects, with a total of 35.3 acres of mitigation.
- The 29 Nationwide Permits issued impacted 21.9 acres; the Corps' database documented mitigation for 13 of these projects, with 5.1 acres of mitigation.
- Looking at only permits where Corps policy requires mitigation, mitigation was reported for 48.5% (16 of the 33) permits; 85% of the impacted area had documented mitigation

(40.3 acres of mitigation for 47.3 acres of impact).

- Numbers do not reflect the 4 Individual Permits and 48 Nationwide Permits with no information found in the Corps' database about size of impacts.
- There is no indication if mitigation projects were successful, in other words that they resulted in viable restored, enhanced or created wetlands.

Although Montana Corps policy is to mitigate wetland losses greater than 0.1 acres, Corps documentation of compliance shows that mitigation falls short of impacts. These numbers are especially low considering that Corps mitigation ratios generally require more than a 1:1 mitigation ratio (1 acre of mitigation per acre of wetland lost).

It should also be noted that on a national level, between 1993 and 2000, approximately 24,000 acres of wetlands were allowed to be filled through Corps permits, and 42,000 acres were required as mitigation, meaning nearly 2 acres should have been gained for every 1 acre lost (National Research Council 2001). Mitigation for

TABLE 8: DOCUMENTED MITIGATION FOR PERMITS AUTHORIZING RESOURCE IMPACTS FOR 404 PERMITS ISSUED BETWEEN 1990 AND 2002

	Totals	Individual Permits	Nationwide Permits	General Permits
Number of Permits				
Total Number of Permits Issued	6,261	377	5,489	395
Number of Permits Authorizing Resource Impacts	5,407	284	4,921	202
Total Number of Permits with Mitigation	271	5	266	0
Percent of Permits with Mitigation	4.3%	1.3%	4.8%	0.0%
Linear Feet of Impact				
Linear Feet in Permits Authorizing Resource Impacts	942,771	173,511	709,524	59,736
Total Linear Feet with Mitigation Authorized	22,557	1,500	21,057	0
Total Linear Feet Mitigated/Linear Foot Impacted	0.02	0.01	0.03	0.00
Percent of Linear Feet Mitigated	2.4%	0.9%	3.0%	0.0%
Acres of Impact				
Acres in Permits Authorizing Resource Impacts	898.7	223.5	674.5	0.7
Total Acres with Mitigation Authorized	371.2	36.5	334.7	0.0
Total Acres Mitigated/Acre Impacted	0.41	0.16	0.50	0.00
Percent of Acres Mitigated	41.3%	16.3%	49.6%	0.0%
Cubic Yards of Impact				
Cubic Yards in Permits Authorizing Resource Impacts	988,557	920,568	51,463	16,525
Total Cubic Yards with Mitigation Authorized	35	0	35	0
Total Cubic Yards of Mitigation/Cubic Yard of Impact	0.00	0.00	0.00	0.00
Percent of Cubic Yards Mitigated	0.0%	0.0%	0.1%	0.0%

wetland losses in Montana have not kept pace with documented mitigation in this national study.

Montana Department of Transportation

MDT is one of the few entities in Montana that has an active program for mitigating wetland losses. Importantly, through this program, the agency closely tracks its mitigation projects, including information about the size of project impacts, the size of mitigation projects, the cost of mitigation per acre, the long-term success of mitigation projects, and more. According to a recent study, MDT averages about 20 projects per year that require wetland mitigation. These projects impact about 35 acres of wetlands per year (Kruer 2002). MDT's mitigation ratio is about 1.8 acres of mitigation per 1.0 acre of impact; the highest mitigation ratio involved a project with 3.0 acres of mitigation per 1.0 acre of impact. Because of the failure rate of mitigation projects, these ratios are not unusual. In 1998, MDT spent approximately \$25,753 per acre for restoration of wetlands and \$10,884 per acre for the enhancement of wetlands (Kruer 2002). Since 1990, MDT estimates that its average mitigation cost has been \$14,611 per acre. Nationally, the Federal Highways Administration indicates that the "mitigation costs for transportation agencies nationwide averages around \$48,000" per acre (J. Riley, MDT, written communication 2004).

According to MDT, between January 1, 1997, and October 1, 2003, the agency created and restored "approximately 483.8 acres to replace 192 acres of wetlands impacted by transportation projects" (J. Riley, MDT, written communication, 2004). These numbers do not correspond to the figures in the Corps' database; both the acres of impact and size of mitigation projects documented by MDT in the past 6 years are larger than those documented in the Corps' database in the past 13 years. Some of the difference could be attributed to the fact that MDT's numbers include projects in 2003, which are not covered in this report. However, the fact that the Corps relies on MDT's wetlands ledger for tracking this information indicates that the Corps' system is not as reliable as that established by MDT (L. Urban, MDT, oral communication, 2004).

Like all other applicants, MDT is not required to mitigate impacts on streams. The Corps' database reflects this fact. Although a substantial percentage of the MDT projects recorded in acres were reported as mitigated (142.8 acres out of 187.2 acres of impact [76.3%] between 1990 and 2002), impacts to streams do not appear to be mitigated; highway projects caused at least 32,024 linear feet of impact (6.1 miles) between 1990 and

2002, yet the Corps' database only documented 50 feet of mitigation. MDT projects recorded in cubic yards of fill were never mitigated.

Montana Corps Mitigation Program Development

Although the Corps must require mitigation of certain impacts, documentation of mitigation projects is not keeping pace with recorded impacts. In light of this fact, the recently agreed to in-lieu-fee compensatory mitigation program adopted for Montana could be significant in offsetting impacts to wetlands and waterways (Corps 2004) (See page 26). This program is designed to include mitigation for acres of wetlands lost, as well as linear feet of impact to streams and rivers. The wetland mitigation requirements reflect the Corps policy that requires compensatory mitigation for all impacts to wetlands over 0.1 acres; the stream mitigation policy is still under development (See <<http://www.nwo.usace.army.mil/html/od-rmt/mthome.htm>>). Because certain 404 projects are recorded in cubic yards only, the in-lieu-fee program should also specifically address how these impacts will be mitigated.

CUMULATIVE IMPACTS

One of the Corps's most challenging tasks is the evaluation of the cumulative impacts of the 404 program on the aquatic environment. The Corps' database is an important tool available to the Corps for accomplishing this evaluation. As project managers review new applications, they can consult their database to see what other projects have already been approved in the immediate vicinity. This knowledge can aid Corps staff in their determination of whether or not a new project will, individually or cumulatively, significantly affect the environment. Because the Corps' database is one of the primary tools available for such an assessment, it is important that the database is accurate and that it contains size of impact information for all permits issued.

This section looks at cumulative impacts in two ways. First, it examines a popular category of permits—bank stabilization projects—to see how these projects are impacting a few of Montana's streams and rivers. Secondly, impacts on threatened and endangered species are discussed.

Cumulative Impacts of Bank Stabilization

Perhaps no other category of permits has been as controversial over the last ten years as those authorizing bank stabilization projects to prevent erosion. Individual Permits are used for the largest projects; NWP 13 accounts for most of the projects;

2 General Permits (GP) (GP 76-05 and GP 97-02) available between 1990 and 2002 also authorized these projects.

The Corps issued 1,352 bank stabilization permits in Montana between 1990 and 2002, with impacts of 553,856 linear feet (104.9 miles), 4.7 acres, 48,308 cubic yards of fill. Size of impact information is not available for 9.5% (129 out of 1,352) of the permits. These numbers do not take into account projects authorized for maintenance of existing structures and fill or permits for road and bridge work. Mitigation was documented in the Corps' database for 7 of these projects, for a total of 8,236 linear feet. However, a closer look at these mitigation projects revealed that "mitigation" appeared to be the use of rootwads and cabled trees versus rock, a practice many biologists do not consider mitigation.

During the 1990s, Montana regulatory agencies at several levels discussed bank stabilization projects:

- The U.S. Fish and Wildlife Service repeatedly alerted the Montana Corps office regarding its concerns about secondary and cumulative impacts from projects on the Yellowstone River (McMaster 1998).
- The Corps was successfully sued in 1999 by 6 conservation organizations over its failure to conduct cumulative impact assessments for 14 individual bank stabilization permits on the Yellowstone River (*Montana Council of Trout Unlimited v. U.S. Army Corps of Engineers*, U.S. District Court, Billings Division, No. 99-59-BLG-JDS [D. Mont., May 11, 2000]). The court specifically found that the Corps failed to consider the cumulative impacts of each of the projects adequately and that the environmental analysis fell "far short" of what was required under both National Environmental Policy Act (NEPA) and the Clean Water Act. It ordered the Corps to reopen the challenged permits and complete a cumulative impact analysis for each project.

Impacts to Rivers

Although bank stabilization projects are perceived as an easy solution to erosion control at the local level, they can ultimately degrade natural stream processes and the health of rivers and streams by hindering the formation of meander patterns, the formation and maintenance of sandbars and backwater areas, the regeneration of riparian vegetation, and the maintenance of critical fish and other habitat (Schmetterling, et al. 2001).

Bank stabilization projects have both downstream and upstream adverse impacts. This fact is important to recognize, particularly when cumulative impacts of projects are being assessed and mitigation projects developed. Among the potential upstream and downstream impacts are increased stream velocity, which, in turn, can increase scour, sediment transport, channel incision (including down-cutting, an upstream impact), and more. Stabilization can increase bankfull heights, increasing and moving the impacts of bankfull events downstream. It can also straighten streams, thus reducing their lateral movement and impeding the dynamic equilibrium inherent in a natural meander pattern. Additionally, stabilization modifies near-bank habitat and can cut off high-water channels, potentially affecting aquatic communities that move throughout a stream system (e.g., Schmetterling 2001; Ellis 2002).

The concern about bank stabilization projects is that, incrementally, rock-by-rock, they intrude on natural stream processes in a variety of ways, including not allowing streams to access their floodplains. The most comprehensive information on these projects has been assembled on Montana's Yellowstone River, the longest free-flowing river in the lower 48 states:

- Between 1990 and 2002, almost 82,000 linear feet (16.4 miles) of new bank stabilization structures were authorized on the Yellowstone River in 4 counties: Park, Stillwater, Sweet Grass, and Yellowstone.
- In the Billings area, channel training (dikes and armoring) has increased from approximately 21% of channel length in 1957 to 41% in 1999 (Aquoneering and Womack and Associates 2000). Dikes and armoring have simplified the channel, leading to a significant reduction in total channel length in some reaches.
- The Yellowstone River in Park County already contains at least 9,134 feet of riprap, 108 rock barbs, 106 rock jetties, and 32 car bodies. One 8-mile section of the river, from Pine Creek to Carters Bridge, has 16% of the channel length covered by rock riprap; at least 62 rock barbs and jetties were added to this stretch between 1987 and 1998 (Natural Resources Conservation Service 1998). Additionally, numerous levees have been built along the Yellowstone River in Park County; some of those built during 1996 and 1997 were never authorized (DEQ, written communication, 2004). Levees can increase water speed during flooding, reduce storage of water on the

floodplain, increase flooding and erosion downstream, and more.

- A Corps-funded study that looked at 9 sites on the Yellowstone River in Park County concluded that there was a “significant decline in FCI [Functional Capacity Index] scores in the upper Yellowstone River floodplain assessment areas” between 1976 and 2000 and that “[t]hese declines are attributable to addition of riverbank and floodplain stabilization structures over the 25-year period at those assessment areas. The ecological integrity of the riparian vegetation has also been affected among the study floodplains” (Hauer, et al. 2001). Additionally, a cumulative effects study done by the Corps in 2001 for a project near Livingston stated that “[t]here has already been significant adverse impacts to this reach of the river with regard to its ability to meander and obtain access to its natural floodplain and sediment...” (Corps 2001b).

Impacts from bank stabilization similar to those seen on the Yellowstone River may be happening on other rivers and streams in the state. Table 9 shows the 10 streams with the most bank stabilization projects, a total of 289,097 feet (55 miles). The total amount of restoration work on these streams was 9,052 feet, indicating that

restoration work is not generally happening on the streams where bank stabilization projects are common.

Smaller streams also are being affected by bank stabilization projects. In Missoula County, the channelization of Grant Creek was responsible for the 1997 flooding of a subdivision and a \$2.3 million lawsuit holding the property developer, the developer’s engineer, local real estate agents, and Missoula County responsible. When it was approved, this subdivision appeared outside the 100-year floodplain boundary on Federal Emergency Management Agency (FEMA) Flood Insurance Rate maps. A 2001 study showed that, because Grant Creek had been channelized, 45 of the homes are now located in the regulated floodway. The only feasible way to resolve this problem appears to be to restore 5 miles of Grant Creek, including its riparian vegetation and floodplain, a project that will cost millions of dollars (Ellis and Richards 2003).

A Case Study: The Bitterroot River

The Bitterroot River is 84.3 miles long from the junction of the East and West Forks to its confluence with the Clark Fork River. Of the 82 projects permitted on the Bitterroot River

**TABLE 9: TOP 10 STREAMS WITH BANK STABILIZATION
AUTHORIZED BETWEEN 1990 AND 2002**

Stream	Bank Stabilization TOTALS		Restoration TOTALS	
	Linear Feet	Number of Permits	Linear Feet	Number of Permits
1. Yellowstone River	81,924	189	2,210	2
2. Missouri River	44,325	139	611	3
3. Musselshell River*	27,147	53		
4. Ruby River*	26,299	38		
5. Clark Fork River*	22,650	55		
6. Big Hole River*	21,170	19		
7. Bitterroot River	18,298	31	476	1
8. Careless Creek (Golden Valley County)*	18,010	4		
9. Sun River*	14,976	17	5,755	4
10. Flathead River (no Forks)*	14,298	33		
TOTALS	289,097	578	9,052	10

INFORMATION ON RESTORATION PROJECTS FOR EACH STREAM IS ALSO PRESENTED. IMPACT INFORMATION IS FROM ALL PERMIT TYPES (INDIVIDUAL, NATIONWIDE AND GENERAL PERMITS).

* ONLY PROJECTS GREATER THAN 500 FEET ARE REQUIRED TO BE REPORTED TO THE CORPS ON THESE RIVERS.

between 1990 and 2002, 62 authorized bank stabilization structures on 18,298 feet of the river. Fifteen (24%) of these projects were greater than 500 feet in length. Total authorization included

- riprap: approximately 8,759 feet authorized in 29 permits; 0.07 acres authorized in 1 permit; 25 cubic yards in 1 permit; no information in the length of the riprap in 4 permits;
- barbs: 4 permits; 15 barbs authorized;
- vanes: 8 permits; 12 vanes authorized in 4 permits; no information on the number of vanes in 3 permits;
- weirs: 2 permits; 2 weirs authorized in 1 permit; no information on the number of weirs in 1 permit
- dikes: 1 permit; 1,300 feet authorized;
- rootwads: 17 permits; 178 rootwads authorized in 8 permits; no information on the number of rootwads in 9 permits;
- other structures: 1,500 feet authorized for revetment; 12 linear feet authorized for a boat ramp; and
- unknown structures (but bank stabilization specifically authorized): 3 permits.

During the same period, 4 restoration projects were authorized: one for 476 feet, one for 6.0 acres, one for 100 cubic yards, and the last with no information about size. No mitigation was authorized for bank stabilization projects on the Bitterroot River.

To date, no comprehensive study looking at bank stabilization structures lining the Bitterroot has been completed; one study, however, did examine the 20.6 miles of the river in Missoula County. That study found 28 bank stabilization projects totaling 4.8 miles in length (Brandt and Ringelberg 1999). Because of the meanders and multiple channels, it was estimated that 12% of this section of the Bitterroot River was covered in bank stabilization.

Impacts Add Up

As a result of the documented impacts, the Corps has agreed to examine all projects impacting the Bitterroot, Missouri, and Yellowstone Rivers, regardless of the project size. From the information in the Corps' database, it looks like other Montana rivers on the "top 10 list" warrant similar scrutiny of permits (See *Table 9*).

One of the concerns with bank stabilization projects is that the Corps has no way of determining when to stop issuing permits for these projects. This practice "goes against current practices and philosophies of stream renaturalization and

impedes future restoration work" (Schmetterling, et al. 2001). Bank stabilization and restoration programs need to be aligned toward the goal of maintaining and restoring natural stream processes for Montana's rivers and streams. One set of recommendations on how to accomplish this goal came from engineers conducting a bank stabilization inventory for the Yellowstone Conservation District. They recommended that projects

- require geomorphic analyses;
- examine the impact of channel loss on fisheries;
- require all new bridges to be longer (1.5 times the bankfull width or "regime" has been suggested);
- not allow long riprap lengths;
- ensure that secondary channels are never blocked by projects; and
- require that any armoring be consistent with river morphology, maintaining channel geometry, meander radius, etc. (Aquoneering and Womack and Associates 2000).

These recommendations were developed after the engineers documented (1) bank stabilization structures on the Yellowstone River from Laurel to Billings increasing from 21% in 1957 to 41% in 1999; (2) dikes and armoring causing a simplified channel leading to significant reductions in total channel length (i.e., channelization); (3) channel armoring causing a tendency for braided reaches to become narrower and have lower width/depth ratios; and (4) bridges that were short compared to the width of the meander belt confining the river and causing widening of adjacent reaches.

THREATENED AND ENDANGERED SPECIES

One measure of the impact of 404 permits is their effect on plants and animals protected under the Endangered Species Act (ESA). As a federal permitting agency, the Corps must ensure that the 404 program complies with Section 7 of the ESA by consulting with the U.S. Fish and Wildlife Service (USFWS) on projects that may affect threatened or endangered species or their critical habitat. If Corps staff determines that a permitted activity may affect a listed species or its habitat, they must also determine if that activity would be likely to cause an adverse effect. For projects that are deemed not likely to cause an adverse effect, the USFWS must concur with the determination. For projects likely to adversely affect listed species or critical habitat, the USFWS issues a biological opinion containing a conclusion regarding whether

or not the permitted action would jeopardize the continued existence of the species or destroy or adversely modify critical habitat.

Of the 6,261 permits issued between 1990 and 2002, the Corps' database recorded projects in locations that might impact bull trout (194 permits), Bald Eagles (15 permits), Peregrine Falcons (2 permits), and gray wolves (2 permits). Of these projects, the USFWS was consulted under Section 7 of the Endangered Species Act on at least 16 occasions. The Corps made a determination in 45 cases that the project was "not likely" to impact an ESA-protected species. A "no impact" decision was made for 3,329 permits, and 9 "no jeopardy" decisions were made; it is unclear if the Corps or the USFWS made these "no jeopardy" determinations.

The number of 404 permits issued compared to the number of Corps consultations with the USFWS does not seem to align, especially given the number of ESA-protected species that depend on wetlands and waterways in Montana (See page 13). The threatened Bald Eagle is a good example. A database housed at the Montana Natural Heritage Program tracks the legal description of each Bald Eagle nest. There are currently approximately 300 active nests in Montana (S. Jackson, written communication, 2004). Each year eagles construct 15–20 new nests. These nests are almost always within a mile of water. Most 404 projects are located along rivers and streams. However, the Corps' database indicates that impacts from 404 projects on the Bald Eagle were examined 15 times between 1990 and 2002, and no permits seem to have been modified to avoid impacting these birds.

This problem becomes more acute with less well-known species. In addition to the Bald Eagle, threatened and endangered species in Montana that could be affected by projects include the Piping Plover, Least Tern, pallid and white sturgeon, bull trout, water howellia (*Howellia aquatilis*), and Ute ladies-tresses (*Spiranthes diluvialis*). Given these circumstances, the number of projects involving ESA species is expected to be higher.

A second identified problem with the current system revolves around the minimum thresholds established for notification under the Nationwide Permit system. Because the Corps is not required to be notified of projects below a certain size, the burden of the decision about whether a project will impact ESA-protected species is shifted from resource managers to applicants. With few exceptions (such as MDT biologists and applicants

using consulting firms), most applicants are not trained in making this determination. This situation does not seem in compliance with the ESA. Under the current process, the Corps and, perhaps more importantly, an untrained applicant, could run the risk of violating the ESA.

ENFORCEMENT ACTIONS

Sometimes wetlands and waterways are filled before the necessary permits are obtained. Additionally, permit applicants periodically violate the terms and conditions of their permit. Both the U.S. Environmental Protection Agency (EPA) and the Corps share the 404 program enforcement responsibility. The Corps generally is responsible for violations of provisions of a 404 permit as well as violations for activities that are smaller in size. The EPA usually takes the lead on activities that occurred without 404 authorization, violations for repeat offenders, and flagrant violations. Both agencies can issue "cease and desist" orders to stop illegal filling activity. This section briefly reviews the enforcement actions taken by the Corps and EPA.

According to the Corps' database, between 1990 and 2002, the Corps investigated 318 complaints, sent 89 "cease and desist" letters, issued 53 After-the-Fact (ATF) Permits for projects (discussed below), and had restoration completed on 33 projects. The types of activities triggering Corps enforcement actions included using a bulldozer in the river to complete work, filling a wetland for a road and utility line to a new home, completing bank stabilization work without a permit, completing a project that destroyed significant archeological resources, installing a culvert or bridge without a permit, bulldozing a road along a creek and spilling dirt into the stream, channelizing a stream, diverting a stream into an irrigation system, and constructing a motorcycle course in a wetland. The Montana Corps office has become progressively more active in enforcement; since 2001 one staff person has been dedicated to enforcement efforts.

A review of EPA files between 1990 and 2001 shows that the EPA was involved in 15 enforcement actions during this period. Penalties were collected for several of the violations. The types of activities that triggered an EPA enforcement action included filling a wetland for a gravel mine, installing 2 dikes in the Yellowstone River; placing fill in the Jefferson River to construct a dike/dam; placing fill material in the Little Bighorn River for 2 miles; dredging and modifying a side channel and floodplain of the Yellowstone

River; constructing a diversion channel to bypass and dewater a portion of Rosebud Creek and adjacent wetlands for a road construction project; filling 1.9 acres of wetlands adjacent to the East Gallatin River; excavating a slough near Somers, creating 4 islands and filling adjacent wetlands; placing waste rock from a mining operation into 3.7 acres of streams near Zortman; placing waste rock and tailings from a mining operation in 2.5 acres of streams near Whitehall; and depositing waste rock from a mining operation into 2.5 acres of wetlands in Browns Gulch.

After-the-Fact Permits

The Corps can issue ATF permits when fill is placed in a wetland or waterway without a permit. ATF permits are generally issued for smaller projects that would qualify as a Nationwide or General Permit, although they can be given for Individual Permits also. Between 1990 and 2002, this type of permit was used 56 times. Specifically, ATF permits were used 9 times out of 377 Individual Permits issued (2.4%); 45 times out of 5,489 Nationwide Permits issued (0.8%); and 2 times out of 395 General Permits issued (0.5%). A more detailed review of ATF permits appears under the Individual, Nationwide, and General Permit Profiles (See pages 35, 37 and 43 respectively).

ATF Permits were issued for bank stabilization, boat ramps, bridge and road work, filling wetlands, mining/hazardous waste, residential or commercial development, restoration projects, utility work, and water intake facilities. Additionally, Nationwide ATF permits were issued 5 times where the permit type was not specified.

Excluding permits issued for restoration work, ATF permits impacted at least 4,883 linear feet and 2.2 acres. Mitigation was recorded for 1 of these ATF permits, resulting in 20 linear feet of stream mitigation (for NWP 14).



HOW MONTANA COMPARES NATIONALLY

In order to better understand how Montana's 404 regulatory program compares to the program nationally, information from the years 1998, 2001, and 2002 was compared (See Table 10). This comparison showed that the Montana Corps office approves and denies permits at a rate identical to the program nationwide, with 99.8% of permits approved and 0.02% of permits denied.

This comparison also reveals that Nationwide Permits are used more frequently in Montana than they are used nationally. In Montana, these permits account for almost 72% of the authorized linear foot impacts to streams and 67% of the authorized acreage impacts to wetlands. General Permits tend to be used more often by other states. They have two advantages over Nationwide Permits: (1) they can be better tailored to local conditions, and (2) when they are issued, an environmental review must be conducted that examines impacts at the state (or regional) level. An environmental review done at the state level allows local resource managers to better assess the impacts of these permits on state-specific resources and conditions.

TABLE 10: COMPARISON OF ALL CORPS PERMITS ISSUED OR DENIED IN MONTANA AND NATIONALLY FOR THE YEARS 1998, 2001, AND 2002

	Montana	National 404 Program*
Approved Permits		
Individual Permits	6.0%	5.3%
Nationwide Permits	87.7%	46.7%
General Permits	6.3%	47.8%
Subtotal	100.0%	99.8%
All Permits		
Approved Permits	99.8%	99.8%
Denied Permits	0.2%	0.2%
Total	100.0%	100.0%

*INFORMATION FROM (CORPS 2003B) AND (CORPS 2001A)



Conclusions and Recommendations

When examining the Section 404 program, it is easy to get lost in the numbers. As a result, it is difficult to keep in mind that Section 404 of the Clean Water Act was developed to provide resource protection. Based on the findings of this report, this chapter focuses on how the 404 program can be improved to better provide resource protection and how the U.S. Army Corps of Engineers (Corps) could improve its database management. In considering these conclusions and recommendations, it is important to remember that this report reviewed database information, not on-the-ground projects.

CONCLUSION 1: The Section 404 program in Montana does not appear to be meeting the national goal of no net loss of wetlands because of a lack of mitigation requirements and/or a lack of mitigation reporting in the Corps' database.

Between 1990 and 2002, the Montana Corps approved 99.8% of all 404 permits. Permitted projects caused the loss of almost 900 acres of wetlands, with only 371 acres of documented wetland mitigation. At the same time, projects altered almost 943,000 feet (180 miles) of streams and rivers, with only 22,557 feet (4 miles) of mitigation documented. Although the Corps is approving mitigation projects, it is not doing so at a pace equal to the authorization of impacts. To solve this problem, the Corps should require mitigation of impacts when 404 permits are issued. As a partial solution, state agencies and the Corps have recently developed a payment-in-lieu-fee mitigation program that will formalize mitigation requirements and give permit applicants another mitigation option (Corps 2004).

Recommendation 1-1. *The Corps should require mitigation of 404-project impacts to wetlands.*

Under existing law, mitigation is required to replace aquatic resources unavoidably lost or adversely affected by authorized activities. Nationally, there is a goal of no net loss of wetlands,

and Montana Corps policy requires compensatory mitigation for wetland losses greater than 0.1 acre. As detailed in this report, and with the exception of activities carried out by the Montana Department of Transportation (MDT), there is very little mitigation documented for impacts to wetlands. In order to ensure adequate mitigation, the following steps are recommended:

- An interagency-interest group task force (described in Recommendation 5-1) should examine the Montana Corps' policy that requires mitigation only if wetland losses are greater than 0.1 acres and make recommendations on whether this policy adequately protects Montana's wetlands. This recommendation is not meant to lead to equal protection of a roadside ditch and a spring creek. However, it makes sense to require mitigate for the loss of all high-quality wetlands no matter what their size.
- All mitigation projects need to be consistently documented in the Corps' database, as outlined under Recommendation 4-4.
- In the past, when impact information was recorded in cubic yards, virtually no mitigation information was recorded. Therefore, if the Corps continues to record impact information in cubic yards, it needs to develop a mitigation policy for these projects.

Recommendation 1-2. *The Corps should require mitigation of 404-project impacts to streams, rivers, and lakes.*

Currently, there is no Corps policy in Montana requiring mitigation of impacts to streams, rivers, or lakes, although efforts are now underway at the Corps to develop a stream mitigation program for the state. In order to ensure adequate mitigation, the following steps are recommended:

- The Corps should complete its draft stream mitigation policy as soon as possible, allowing government agencies and interested citizens sufficient time to review and comment on this document before it is adopted. See <<http://www.nwo.usace.army.mil/html/od-rmt/mthome.htm>>).
- All mitigation projects need to be consistently documented, as outlined under Recommendation 4-4.
- If the Corps continues to record size of impact information for some waterway projects in cubic yards, then mitigation policy for these projects must be developed.

Recommendation 1-3. *The Corps should require mitigation for all permit categories (Individual, Nationwide, and General Permits).*

Traditionally, mitigation is required for impacts arising from Individual Permits because these projects are generally the largest. Between 1990 and 2002, 404 permits altered 942,771 feet of Montana's waterways, with Nationwide Permits responsible for 709,524 (75%) of the total and General Permits for 59,736 (6%). Permanent loss of wetlands totaled 899 acres, with Nationwide Permits responsible for the loss of 675 acres (75%) and General Permits for 0.7 acres (less than 1%). Clearly, mitigation of impacts from Nationwide and General Permits needs to be part of all programs in order to achieve the no-net-loss goal.

In Montana, the Corps routinely requires mitigation for projects that impact more than 0.1 acres of wetlands. As part of its responsibilities, the Corps made a commitment in 2002 that Nationwide Permits "achieve at least one-for-one mitigation of all wetlands impacts, on an acreage basis for the [Corps] District as a whole" (Corps 2002b). In other Corps District offices, mitigation is often required for impacts from Nationwide Permits. In its 2001 Draft Environmental Impact Statement (EIS), the Corps examined mitigation of projects in 38 District offices for the year 2000 (Corps 2001a). Mitigation was documented for impacts from the following Nationwide Permits (NWP) by one or more Districts: NWP numbers 3, 5,

6, 7, 8, 12, 13, 14, 15, 18, 19, 21, 23, 25, 27, 29, 30, 32, 33, 34, 36, 37, 38, 39, 40, 41, 42, 43, and 44.

Mitigation should also be required for General Permits that authorize resource impacts. Two General Permits in effect in Montana allow for boat dock installation and repairs. In the past, General Permits have also been issued for bank stabilization activities (83 permits issued during the review period impacted 9.3 miles of stream). Additionally, the anticipated Upper Yellowstone River General Permit for bank stabilization should require mitigation (See page 45).

Recommendation 1-4. *The Corps should require that mitigation projects be evaluated according to measurable criteria to ensure that impacted and replacement resources are of equal quality.*

Different projects require different mitigation. For example, a 1-acre roadside ditch is not equivalent to a 1-acre spring creek. Replacement resources need to be, at a minimum, as valuable biologically as the resource lost (National Research Council. 2001). Additionally, because streams and rivers are so important to recreation in Montana, public access to replacement sites should be no less available than it was to the site lost.

Criteria guiding the location of mitigation projects in relationship to the impact site need to be developed. Impacts to wetlands are generally mitigated on a watershed basis (mitigation projects must be within the same watershed as lost wetlands). This watershed approach might not work for streams and rivers because most bank stabilization projects are on rivers (not smaller streams) and if mitigation is required on a watershed basis, rivers may continue to degrade. Instead, stream mitigation policy should assure that a significant portion of mitigation is in-stream and on-site.

Recommendation 1-5. *Scientifically supported mitigation ratios should be established for impacts to wetlands, streams and rivers.*

The Montana Corps has developed mitigation ratios for impacts to wetlands. However, the adequacy of these ratios should be examined. For example, the Corps currently has a 1.5:1 mitigation ratio for newly created wetlands. Creation of wetlands, however, is the most difficult type of mitigation to do successfully because it requires that all the components of the wetland system—soils, hydrology, and a seed source for desired wetland plants—need to be imported and established. Such a small mitigation ratio is difficult to justify given that created wetlands have

an extremely high failure rate. In contrast, restoration projects usually have all the necessary components available but in a degraded state. Thus, restoration and enhancement projects should take priority over creation activities (National Research Council, 2001). The majority of the 404 permits issued in Montana affect rivers and streams, with almost 943,000 feet (180 miles) of authorized resource impacts recorded between 1990 and 2002. Because of the size, scale, and cumulative impacts of these projects, the stream mitigation policy currently being developed by the Corps must contain scientifically supported mitigation ratios.

The proposed interagency-interest group task force in Recommendation 5-1 (below) should review the science behind mitigation ratios and make recommendations for statewide standards. Additionally, the public should be given the opportunity to review and comment on all mitigation ratios before they are finalized.

Recommendation 1-6. *The Corps should require that mitigation projects have a long-term monitoring plan that can be evaluated against performance standards.*

In order to ensure the long-term success of mitigation projects, a plan should be developed for each mitigation project that includes

- a consistent, science-based evaluation of the existing wetlands' or waterway's function to both the land to be altered and the mitigation site (e.g., Hauer, F.R., et al. 2001);
- clearly defined and measurable goals for the mitigation site;
- management provisions for transitional habitat between upland and the wetland/stream area, including a buffer zone from nearby developed areas;
- water rights for all wetland projects;
- management provisions for protection of the site from public access damage;
- a specific monitoring plan with performance standards, targets, timelines (for example, 80% vegetative cover within the first 5 years of planting), and a reporting requirement; and,
- contingency plans should the mitigation plan fail to achieve measurable success.

The interagency-interest group task force in Recommendation 5.1 (below) should decide the necessary components of long-term mitigation and monitoring plans. In that way, the Corps' mitigation program—including permittee mitigation, the in-lieu-fee mitigation program,

and future mitigation banks—will be held to a consistent statewide standard.

CONCLUSION 2: The continuation of the current implementation of the Section 404 program will result in cumulative adverse impacts to Montana's wetlands, streams, and rivers over the long term.

Projects permitted under the 404 program are not supposed to have significant environmental impacts, either individually or cumulatively. However, in 13 years, Montana projects have altered almost 943,000 feet (180 miles) of streams and rivers and resulted in the loss of almost 900 acres of wetlands. State and federal agencies need to develop ways to address the cumulative impacts of 404 projects, especially in areas where those impacts are more concentrated. Without this, Montana's wetlands, rivers, and streams will slowly be lost or degraded.

Upon close examination of the 404 program, it becomes apparent that there is no clear mechanism to stop the permitting process. The program is designed to authorize more and more impacts to both wetlands and waterways. By not requiring mitigation, the program causes continued loss of wetlands and degradation of streams and rivers. This is especially true because once a project is authorized, it can almost always continue to be rebuilt under NWP 3 (maintenance of existing structures and fill) with little or no Corps oversight. Therefore, with the authorization of each new project, wetlands and waterways will suffer additional impacts.

Because many of the recommendations in this section may be outside the scope of the 404 program, the interagency-interest group task force identified in Recommendation 5-1 (below) should determine how best to implement the recommendations in this section. Additionally, the public should be given the opportunity to review and comment on all mitigation ratios before they are finalized. It should be noted that the recommendations outlined in the section need to be implemented in conjunction with Recommendations 1-1 and 1-2 above, which call for a compensatory mitigation of resource impacts.

Recommendation 2-1. *The State of Montana should lead efforts to identify priority areas where all 404 activities are closely examined.*

As a result of documented impacts of 404 projects coming to light, the Corps has agreed to closely examine all 404 projects impacting the Bitterroot, Missouri, and Yellowstone Rivers, regardless of size. This review is facilitated by discussions of each

404 project that take place at regularly held inter-agency meetings. (Agencies routinely attending these meeting include the Corps, Montana Fish, Wildlife and Parks (FWP), Montana Department of Environmental Quality (DEQ), Montana Department of Natural Resources and Conservation, U.S. Environmental Protection Agency (EPA), and U.S. Fish and Wildlife Service (USFWS)). Because of this policy, Nationwide Permit thresholds, such as the 500-foot minimum threshold for reporting bank stabilization projects under NWP 13, have been abandoned, and *all* projects on these 3 rivers are evaluated and documented.

In order to better protect all Montana wetlands and waterways, a formal process for subjecting other waterways to this level of scrutiny needs to be developed. To accomplish this goal, the State should require that once authorization for bank stabilization has reached more than, for example, 5% of the stream's length, then all activities on that stream would be scrutinized. Using this scenario, the Ruby River would qualify for increased scrutiny of all projects; between 1990 and 2002, 5.0 miles of the 95.7-mile Ruby River (5.2%) was authorized for stabilization. Other Montana streams may also be candidates. Setting a threshold like 5% makes sense because the Corps' database does not contain information about banks stabilized pre-1990, or project involving stabilization of banks under permits for maintenance (e.g., NWP 3) or bridge and road projects (e.g., NWP 23), thus the total amount of bank stabilization on any stream or river will likely be underestimated in the Corps' database. The development of a process to increase scrutiny of a particular stream (or stream reach) would benefit from involvement by citizens and local watershed group.

Although this type of review is best suited to streams and rivers, the institution of a similar process should be considered for areas in which a

significant number of permits to fill wetlands and other waterways have been granted.

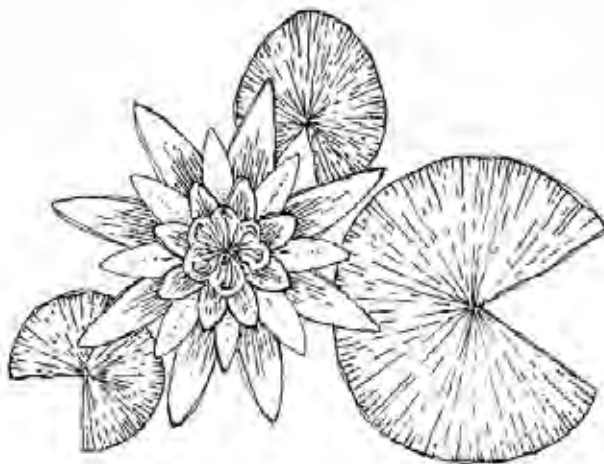
Recommendation 2-2. *The State should establish thresholds that curtail future projects and trigger restoration efforts in areas where consequential cumulative impacts are documented.*

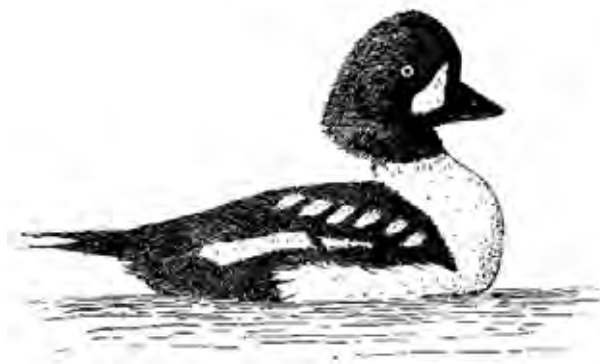
Evaluating and documenting all activities impacting wetlands and waterways is an important first step in efforts to ensure that Montana's aquatic resources do not become degraded through 404 program activities. Primarily because of the effects of bank stabilization projects, the Corps decided to review all activities on the Bitterroot, Missouri, and Yellowstone Rivers. However, the next logical step also needs to happen: projects that impact these rivers need to stop unless mitigation and restoration efforts are initiated. To accomplish this restoration, a threshold should be established for a foot-for-foot mitigation program, in which "stabilization credits" could be traded. For example, when 15% of a stream reach has bank stabilization structures, a foot-for-foot mitigation program would be required if more bank stabilization was to be allowed (a foot of bank stabilization removed for each new foot authorized); otherwise, permits would have to be denied. Additionally, mitigation should be required for all bank stabilization projects authorized under NWP 3 (maintenance of existing structures) when no mitigation was associated with the project when it was first installed. In this way, Montana would be able to assure that projects do not ultimately channelize and degrade the state's streams and rivers.

When a river reaches the point that resource managers review all projects, a bank stabilization inventory should be required and a foot-for-foot mitigation program or similar requirements needs to be enacted. This approach would work on rivers as well as on smaller streams. The Corps could accomplish this recommendation through a Special Area Management Plan (SAMP) process similar to the one currently being undertaken on the Upper Yellowstone River (See page 45).

Recommendation 2-3. *The Corps should eliminate pre-construction notification thresholds for all permits that can cause consequential resource impacts.*

For many Nationwide Permits, minimum thresholds, called Pre-construction Notifications (PCNs) thresholds, are established (See Appendix I). Corps policy allows projects impacting an area smaller





than these thresholds to be completed without notification. For example, the Corps' PCN threshold is 500 feet for NWP 13, which allows bank stabilization structures to be placed in rivers and streams. Therefore, projects less than 500 feet can be completed without contacting the Corps. NWP 14 (which authorizes road, railroad, and bridge projects), NWP 39 (which authorizes residential, commercial, and institutional development projects), and NWP 42 (which authorizes the development of recreational facilities, including hiking and horse trails and campground facilities) all have a PCN threshold of 1/10th of an acre, so that projects less than 1/10th acre can be completed without contacting the Corps. Even though the individuals doing these projects do not need to notify the Corps about their project, regulations require these individuals to comply with all Corps guidelines and permit conditions. This policy makes it almost impossible to (1) get the necessary permit conditions to the individuals doing smaller projects, and (2) enable the Corps to monitor permit compliance. PCN thresholds also make it virtually impossible to (1) track cumulative impacts within the 404 program, (2) make sure that impacts are adequately mitigated, and (3) ensure compliance with the Endangered Species Act. Because Montana's wetlands, streams, and rivers are so important to clean water, quality of life, and wildlife, it makes sense to eliminate PCN thresholds for most Nationwide Permits.

Recommendation 2-4. Resource managers in Montana, working in cooperation with the Corps, should reach consensus on how to determine the size of impacts for bank stabilization projects and what qualifies as a mitigation project.

The Corps issued 1,352 bank stabilization permits in Montana between 1990 and 2002, with impacts to 553,856 linear feet (105 miles). The Corps' database documented mitigation for 7 of these projects, a total of 8,236 linear feet. However, a closer look reveals that the "mitigation" appears

to be the use of root wads and cabled trees (instead of rock). Many biologists do not consider root wads and similar bank stabilization structures as mitigation measures.

For permits issued for bank stabilization, the size of the impact area should include an estimation of the upstream and downstream effects of a project. Without this assessment, it is difficult to accurately consider the cumulative effects of stream projects.

CONCLUSION 3: Section 404 project proposals are not being adequately reviewed for environmental impacts, including impacts to threatened and endangered species.

As mentioned previously, the majority of 404 projects authorizing resource impacts have no site-specific environmental review. In particular, Nationwide Permits, which require no site-specific environmental review on a project-by-project basis, were responsible for over 75% of these impacts authorized in Montana between 1990 and 2002.

Additionally, 404(b)(1) Guidelines and the federal Endangered Species Act (ESA) require that projects be reviewed for their impacts to threatened and endangered species. With the current process, the Corps—and many applicants—run the risk of violating the ESA.

Recommendation 3-1. The Corps should conduct more site-specific environmental reviews of projects and establish a threshold for initiating site-specific environmental review.

By definition, Nationwide and General Permits should not have a significant effect on aquatic resources, either individually or cumulatively. Between 1990 and 2002, projects issued under these two permit types accounted for almost 770,000 feet (82%) of impacts to streams and rivers and 675 acres (75%) of impacts to wetlands. No site-specific environmental review was done on any of these projects. Additionally, the public was not allowed to specifically comment on any of these projects. In Montana, state agencies are required to do a site-specific environmental analysis every time they issue a permit, and many of these reviews allow public comment. Thresholds need to be established for initiating a site-specific environmental review of more 404 projects. If the Corps cannot do this review through the Individual Permit process, the State of Montana should initiate a program for these reviews, especially in areas with concentrated environmental impacts from 404 projects.

It should be noted that the environmental review of Nationwide Permits occurs once every 5 years when the permits are reissued. When these permits were reauthorized in 2002, the environmental review done at the national level was inadequate for two reasons. First, the Draft Environmental Impact Statement contained almost no state-specific review of environmental impacts. Second, this Draft EIS was never finalized; it was only released in a draft form. The next environmental review of Nationwide Permits will occur in 2007.

Recommendation 3-2. *The Corps should require that each 404 project be reviewed for compliance with the Endangered Species Act.*

Of the 6,261 permits issued between 1990 and 2002, the Corps' database recorded projects in locations that might impact endangered species, including bull trout (194 permits), Bald Eagles (15 permits), Peregrine Falcons (2 permits), and gray wolves (2 permits). Since most of Montana's ESA-protected species depend on wetlands and waterways, the number of 404 permits issued compared with the number of projects involving ESA-protected species does not seem to align. A better system needs to be developed to ensure that impacts on rare plants and animals are being addressed.

In order to ensure compliance with the ESA, the Corps should send all permit applications to the Montana Natural Heritage (Heritage) Program or a similar program for review. The purpose of the Heritage Program is to track the location of rare, threatened and endangered species. If the Heritage Program found a species located within an established distance from a project, applicable conditions could be added to the permit. It should be noted that as of summer 2004, the Corps was discussing plans to implement a similar strategy. Instead of sending its projects to the Heritage Program for review, the Corps planned to obtain up-to-date copies of Heritage Program maps so that it could pinpoint likely impacts to ESA species (S. Jackson, USFWS, written communication, 2004). As this new system is developed, the Corps and USFWS will need to agree on which types of projects should be reviewed, and the Corps will need to develop a system to keep their Heritage Program maps up-to-date.

With the minimum PCN thresholds established under the Nationwide Permit system, the current 404 program allows untrained landowners/applicants to determine impacts of 404 permits on threatened or endangered species. This process could be in violation of the ESA. To remedy this situation, the Corps should screen all projects

(regardless of size) using one of the processes described above. Then, based on an agreement with the USFWS, the Corps should send all proposed projects at certain locations to the USFWS for ESA consultation. This process would effectively eliminate the minimum thresholds for Nationwide Permits at identified locations. Regardless of the mechanisms established, the Corps and USFWS need to improve their cooperation and coordination on ESA determinations. Policy developed between these two agencies should be made public.

Recommendation 3-3: *The Corps should solicit public comment during the environmental review process for Individual Permits.*

The only 404 projects that the public is allowed to review and evaluate on a site-specific basis are those categorized as Individual Permits. However, public comments are currently solicited in the Individual Permit process too early. Public notices briefly describe the project's size, purpose, and location, but the public is not given the opportunity to comment on the environmental review (which the Corps calls a "Permit Evaluation and Decision Document"). Public comments would be more meaningful if they were solicited during the environmental review process. The current way that the Corps solicits public comments is more like the "scoping" process used by Montana's state agencies, where agencies identify issues and concerns that should be examined during the environmental review. Montana's state agencies responsible for issuing permits for projects that may have adverse effects on the environment almost always allow public comment on environmental assessments. The Corps should follow suit. This process allows citizens the opportunity to access important background information so that their comments can focus on how those impacts should be weighed in agency decisions.

CONCLUSION 4: *Section 404 project information is not recorded in the Corps' database in a manner that allows resource managers to accurately and reliably track information about individual projects and cumulative impacts.*

Recommendation 4-1. *Information about the size of project impacts needs to be collected and reported in the Corps' database for all permitted projects.*

The Corps' database contains no information about the size of project impacts for 29% of all 404 permits issued (1,819 of the 6,261 permits issued) between 1990 and 2002. Data was missing for 27%

of the Individual Permits, 28% of the Nationwide Permits, and 49% of the General Permits. Significant improvements in data entry was evident over the course of the study period, with no information on size of impact occurring an average of 16% of the time during the 3-year period between 2000 and 2002. However, information about the size of project impacts is one of a project managers' main tools for understanding environmental impacts, measuring cumulative effects, and evaluating the permitting program. Therefore, it is important for Corps staff to record this information 100% of the time. One implication of the missing data is that impacts from the 404 program on wetlands and waterways are significantly underestimated in this report.

Recommendation 4-2. *Impact information should be collected and reported in the Corps' database for all Individual and General Permits.*

The Corps' database allows project managers to enter the size of project impacts for Nationwide Permits only. However, beginning in December 2002, the Montana Corps office started to include impact information for Individual Permits in the database due to the importance of tracking the size of impacts from Individual Permits, which are generally used for the largest projects. Because there is no database field for Individual Permits' size of impact information, staff places the information in a Nationwide Permit field. A review of the Individual Permits issued between December 2002 and September 2003 revealed that 11 permits had been issued, with impact information being recorded for only 6 of those permits. Because Individual Permits generally cover the largest projects, impact information should always be recorded for these permits.

Impact information should also be collected for General Permits. This information will be especially important if a General Permit is developed for bank stabilization projects on the Upper Yellowstone River through the SAMP process (See page 45). It will be difficult to justify to the public a General Permit on a river that is 16% armored in one stretch without tracking the size of impacts and mitigation projects in a readily accessible way.

Recommendation 4-3. *The Corps should standardize the way impact information is entered into its database.*

The following recommendations are made to ensure that the information in the Corps' database accurately reflects project impacts:

- **Acres and Linear Feet.** At a minimum, data should be entered in acres and linear feet. Nationally, the Corps prefers impact data to be recorded in acres. Acres of impact are easily translated into acres of mitigation. Linear feet are more commonly used to measure impacts for projects located along streams and rivers. One problem with recording information in linear feet is that projects along streams can involve a narrow strip of land or a wide band. Consequently, linear feet do not completely describe the area of impact. However, the impacts from projects along streams and other smaller watercourses can be misrepresented when recorded by acres alone. For example, if a project along a stream impacted an area 1 mile in length and only 3 feet wide, only 0.36 acre would be affected. Measuring this project in acres, therefore, understates the effect of the project on a specific stream. Thus, impacts to streams should have an acreage and linear-foot component.
- **Cubic Yards.** Impact data should not be solely entered in cubic yards of fill. This information is almost impossible to translate into area of impact in any meaningful way and makes planning mitigation difficult (See page 50). According to the Corps' database, mitigation has been required only 1 time for a project recorded in cubic yards. Cubic yards measurement should be used in conjunction with linear-foot or acreage measurements. Resource managers should decide which measurements work best; their decision should be consistently applied and made public.

Recommendation 4-4. *If Montana is going to rely on mitigation to protect wetlands and waterways, a mitigation tracking system needs to be developed that can accurately document the size of project impacts as well as the size, location, and long-term success of mitigation projects.*

Montana Corps policy currently requires compensatory mitigation for all wetland losses greater than 0.1 acres. This policy has been in effect since at least March 18, 2002. In the Corps' database, for those permits authorizing resource impacts to wetlands greater than 0.1 acre (restoration projects excluded) between March 18, 2002, and September 15, 2003, mitigation was reported for 16 of the 33 permits (49%); 85% of the impacted area had documented mitigation (40.3 acres out of 47.3 acres impacted).

In contrast, MDT has an active program for mitigating wetland losses. Through this program, the agency closely tracks its mitigation projects, including information about the size of project impacts and the size and long-term success of mitigation projects. In fact, the Corps often relies on MDT's system for tracking this information rather than its own database (L. Urban, MDT, oral communication, 2004).

The Corps needs to establish a reliable system to track all mitigation projects associated with 404 permits for wetlands and streams alike. It does not matter whether this system is established within the Corps' database or as an independent ledger system similar to MDT's. However, the system should be designed to allow corresponding Corps permits and mitigation projects to be tracked so that Corps project managers, other government officials, permit applicants, and the public can ensure that mitigation is happening and that it is successful over the long-term. Such a system seems particularly important as the Corps increases the amount of mitigation required by applicants and increases the ways that mitigation can be accomplished.

Recommendation 4-5. *The Corps should consistently enter mitigation information into its database in a format that is standardized and meets national guidelines.*

The Montana Corps office needs to document mitigation projects so that the information can be used to evaluate the Corps' mitigation program, including the Corps' ability to reach the national goal of no net loss of wetlands. This report identified several problems with the way the Montana Corps office currently enters mitigation data:

- **Units.** There is currently no database field in which to enter the units for mitigation projects (linear feet, acres, or cubic yards). Nationally, the Corps assumes that mitigation is recorded in acres (Corps 2001a). Montana mitigation information is generally recorded in the same unit as used to record project impacts. However, lack of standardization can create problems. For example, under Permit 199990274, MDT was authorized to stabilize 225 linear feet of bank on the Musselshell River. The mitigation level reads "50." Is this number in feet or acres? In Permit 200090756, which authorized the excavation of a fish pond on an ephemeral stream channel in Gallatin County, the project impact was recorded as 140 linear feet, but the mitigation was recorded as "0.07." In this

case, the mitigation is undoubtedly recorded in acres, but because there is no unit recorded with mitigation projects, it is difficult to tally the mitigation field reliably. Also, mitigation numbers accurately need to be compatible with the national Corps program. For example, if national Corps staff assumed that mitigation projects were always recorded in acres, impacts recorded as linear feet in Montana would greatly inflate the size of mitigation projects nationally.

- **Use of Fields.** The Montana Corps office needs to use the mitigation fields in a way that is consistent with national policy. For example, in the Corps' database *mitbank* (mitigation through a mitigation bank) and *mitlieu* (mitigation through a payment-in-lieu program) fields currently have data in them even though the Montana Corps office does not have an approved mitigation bank and only on April 4, 2004, approved a payment-in-lieu program. When the Corps evaluates its mitigation program on a national level, the fact that these data fields are being used in a state that doesn't have either of these programs may skew the information received from Montana.
- **NWP 27.** The Montana Corps should follow national guidelines for recording both impacts and mitigation for NWP 27 (Corps 2002b). As discussed on page 51, NWP 27 projects cannot currently be accurately evaluated because of the problems associated with how impacts and mitigation are recorded in the database. Only the successful portion of a restoration project should be entered into the Corps' database. A ledger system recording impacts may need to be established for stream restoration projects as well as for wetlands.
- **Location Information.** For greater accuracy about project location, Global Positioning System (GPS) devices should be used to pinpoint the location of projects whenever possible. Users of the Corps' database will notice that location information is sometimes very inaccurate, which can throw off mapping of project locations (J. Souvigny, oral communication, 2003).

Recommendation 4-6. *Resource managers should determine what (if any) improvements can be made to the way in which the Corps records the type of wetlands impacted by the 404 program.*

Wetland types recorded by the Montana Corps are inconsistent with other federal definitions of

wetlands. Specifically, the Montana Corps does not use the definitions for *lacustrine*, *riverine*, and *palustrine* that appear on National Wetland Inventory (NWI) maps (See pages 16 and 34).

As more NWI maps for the state are completed and as mitigation programs are developed, this fact could create problems. It will be difficult to explain to local government officials and others that the majority of impacts recorded in the Corps' database are to riverine wetlands even though NWI maps show Montana as having primarily palustrine wetlands. Mitigation programs usually require replacement of similar wetland types. If the Corps is recording the wrong information about the type of wetland affected, mitigation programs may have a problem identifying the type of wetlands that projects should replicate. The Corps should also determine how this information would be used in future mitigation programs and in communicating to the public about which wetland resources are being impacted.

Recommendation 4-6. *The Corps should only allow Nationwide Permit numbers to be entered in one location in its database.*

The Corps' database currently has 2 data fields in which the type of Nationwide Permit (e.g., NWP 3, NWP 12, etc.) can be entered—a situation that allows one project to get 2 Nationwide Permit numbers. For example, Permit 200290602 is entered in the *root_flags* database table as NWP 13 and in the *asci_nwp* database table as NWP 3. Dual entry of this information can lead to mistakes. Montana Audubon counted this error 16 times in the years 2000 through 2002; although researchers originally thought that these errors represented projects with stacked permits, the Corps informed them these were all data entry errors (J. Ramer, Corps, oral communication, 2004). This dual-entry system also allows project managers to enter Nationwide Permit numbers into only one field, which may mean that impact totals for Nationwide Permits are not tallied properly. To ensure consistency, the Corps should have only one location where the Nationwide Permit number can be entered in its database.

CONCLUSION 5: *The Section 404 program alone will not protect Montana's wetlands, streams, rivers, and lakes.*

The Clean Water Act was not designed to be a wetland or stream protection act. Because of ambiguous statutes, administrative interpretations, and court decisions, it is unclear if no net loss of wetlands can be achieved using the 404 program alone.

Recommendation 5-1. *An interagency-interest group task force needs to be established to determine the next steps to achieving increased protection of wetlands and waterways in Montana.*

The 404 program is the main federal regulatory tool available to protect wetlands, streams, rivers, and lakes in Montana. For this reason, many recommendations in this chapter are directed at the Corps. However, because all Montanans benefit from healthy wetlands and waterways and because Corps policy is sometimes unchangeable due to national policy, recommendations may have to be implemented by other entities if resource protection is to be adequately provided. For this reason, an interagency and interest group task force that will systematically examine and resolve resource protection issues raised in this report should be established. The Montana Wetlands Council should spearhead this task force. It should be made of representatives from government agencies interested in resource protection, such as the Corps, DEQ, FWP, and USFWS as well as representatives from nonprofit interest groups such as Trout Unlimited, Audubon, and the Blackfoot Challenge. Local government entities such as Conservation Districts, in addition to private consultants who advise landowners about stream bank stabilization, should also be considered for the group. This task force is referred to throughout this chapter as the interagency-interest group task force. Without such a group, many recommendations in the chapter for resource protection will not occur.

Recommendation 5-2. *If increased protection of wetlands and waterways is to occur, the State of Montana may have to take control of the 404 program.*

State assumption of the 404 program has occurred in other states. Many of these state programs exceed the scope of the federal 404 program (National Research Council 2001). The hurdles to the implementation of this recommendation include state statutes and limitations to staff and budgets. However, it makes sense for the Corps and EPA to work with the State of Montana to expand permitting and watershed programs to fill gaps in wetlands and stream permitting programs.

CONCLUSION 6: A database study of the 404 program is inadequate to fully and accurately determine impacts to Montana's wetlands and waterways; therefore, recommendations directed at improving the 404 program in order to reach no-net-loss goals are incomplete.

Because this report was based on a review of a database, with no field component, conclusions and recommendations about on-the-ground impacts to Montana's aquatic resources, functional losses and gains, and the extent of illegal activities were not evaluated.

Recommendation 6-1: *A follow-up study should investigate on-the-ground results of the 404 program in Montana.*

Because of Montana's large geographic area and the large number of permits issued, a watershed-based study aimed at evaluating one watershed where all permit activities are currently being reviewed (e.g., Bitterroot, Missouri, or Yellowstone Rivers) and one watershed outside this area should be conducted. This study should provide information on project impacts, purpose, affected wetland types, functional wetland and stream losses and gains, compliance with permit conditions, and the Corps' acceptance of recommendations by resource agencies for special conditions. Information should also be gathered on wetland mitigation sites and their success compared to performance standards or conditions included in the permit. Additionally, the study should be structured to gather information



on the type and extent of impacts that have occurred that were either not reviewed or authorized by the Corps 404 program (i.e., projects smaller than PCN thresholds and illegal activities). This study should make further recommendations for improvements to resource protection.

CONCLUSION 7: *Improvements to the Montana Natural Resource Information System (NRIS) website will make information provided to decision-makers and the public more accessible and accurate.*

The Corps' database is available on the web through NRIS at <<http://nris.state.mt.us/mapper/Corp404/corpannounce.html>>. This section makes recommendations on ways that the website can be changed to provide more accurate and accessible information.

Recommendation 7-1: *Website access to 404 permit information should continue.*

The fact that the Corps allows access to its database is unique to Montana. When government agencies allow such access, open discussions can occur about decisions that affect the environment. In a state that believes in open government, this practice should continue—and the Montana Corps staff should be thanked for allowing access to this information. The State of Montana should work with the Corps to continue to update its information for the NRIS website. Currently the Corps information on the website was last updated in September 2003.

Recommendation 7-2: *The accuracy of the information available on the NRIS website should be improved.*

The following changes will improve the accuracy of the information that appears on the NRIS website. Needed changes were discovered by comparing the information received by Montana Audubon to the information found on the NRIS website.

- **Missing Nationwide Permit Information.** Until approximately 1999, the Corps' database had up to 6 locations where Nationwide Permit numbers could be entered; currently there are 2 locations. Depending on where Corps staff enter this information, it does or does not show up on the NRIS website. When Corps staff enter the information into its *asci_nwp* database table (data field: *nwp*), it appears on the website. When Corps staff enters numbers only into the *root_flags* database table (data fields: *gpn1*, *gpn2*, *gpn3*, *gpn4*, or

gpn5), it does not show up on the NRIS website. There are more than 270 final Nationwide Permits, but because their permit numbers are only recorded under the *root_flags* database table, they do not appear on the NRIS website. This report uses tallies from all Nationwide Permits authorized, regardless of which location in the database the permit number was entered.

As an example, Permit 199790195 is listed as NWP 3 under the *asci_nwp* database table (data field: *nwp*) and in the *root_flags* database table as NWP 3 (data field: *gpn2*) and NWP 13 (data field: *gpn1*). It only shows up on the website as a NWP 3, which is inaccurate.

- **Project Detail Report.** The project description under the Project Detail Report on the NRIS website is incomplete. For example, permit number 200090773 has the following project description on the NRIS website: "Bridge replacement project. New bridge is a 160 ft long, 28 ft wide three span steel girder structure with five sixteen inch diameter pipe piles lined up for each of the two piers. Class I riprap used at end abutments. Horizontal curve in road will be im"

The following information is cut off: ". . . proved, resulting in 0.40 Acres of MDT Category III wetland impact. Mitigation for the 0.40 Acres will be on-site and in kind, accomplished through complete removal down to water level of the old (existing) highway bridge and fills. The old existing bridge was."

Indeed, project descriptions were cut off for many other permits (e.g., Permit 199690805). This problem should be corrected. Interestingly, the version of the Corps' database used by Montana Audubon seems to end in mid-sentence for many permits, indicating that either the copy was incomplete or that the Corps' database cuts off descriptions.

- **Letters of Permission.** Letters of Permission (LOP) and Section 10 of the Rivers and Harbors Act should be explained on the NRIS website. When "Letters of Permission" is selected as a permit type, 136 permits appear. There are no LOPs authorized for 404 activities in the state; consequently, this information is misleading (See page 23). Section 10 permits could be incorporated into the website.
- **No Information.** The NRIS website summary page should note that many permits contain no information about impacts. This information would aid users in understanding

the accuracy of information presented. For example, if 15.0% of the impact information was missing for a type of permit, the user would be able to conclude that the database significantly underestimated impacts from projects.

Recommendation 7-3: Information about the size of impacts for projects authorized as Individual and General Permits should be made available on the NRIS website.

As described in this report, size of impact information is not generally available in the Corps' database for projects authorized as Individual and General Permits (See pages 28-30). However, as part of the research for this report, a database containing this information was developed. This relational database could be added to the NRIS website. If so, the method used to obtain this information should be explained on the website. By adding information about the size of projects authorized under Individual and General Permits, computer searches and tallies that would not otherwise be possible could be conducted. Additionally, resource managers could use this information in assessing the cumulative impacts associated with projects.

It should be noted that as of December 2002 the Corps committed to track impact information for Individual Permits in its database. As this information becomes available, it should also be accessible through the NRIS website.

Recommendation 7-4: The NRIS website should allow new searches to be made.

In an effort to make the Corps' database information more useful for resource managers and citizens, the NRIS website should allow the following searches to be made:

- **Action Identification Number (Permit Number).** Government officials and the public can comment on specific Corps projects during the review process. Each of these projects has an action identification number. It would be useful to be able to search the database for a specific permit number. If this search is not feasible on the NRIS website, a link should be provided to the webpage on the Corps' website where current status of Corps permits can be checked. The Corps website address is <<http://per2.nwp.usace.army.mil/>>. Montana 404 permits are found on this site under the Omaha District.
- **Size of Projects.** For individuals who want to understand the ramifications of Corps permits, it would be helpful to be able to

search the NRIS website by size of projects. For example, this search would allow the user to determine which projects authorized under NWP 13 were larger than 500 linear feet or which NWP 39 projects impacted more than 1.0 acre, etc.

- **Type of Approval.** The type of approval granted a permit should appear in the project summary information. There are 3 basic types of permits: final permits issued (Corps codes FIP, FNW, and FGP), After-the-Fact (ATF) Permits (Corps codes FAI, FAN, and FAG), and modified permits (Corps code FIM). In particular, it would be helpful to be able to track after-the-fact permits. For example, permit number 200090234 was issued as an After-the-Fact permit for filling 0.25 acres of a wetland for a home. Because issuing ATF Permits for such projects can be controversial, users want to know how often the Corps is using these permits. This information could be added to the summary information page for projects.
- **Mitigation Information.** It would be helpful to track mitigation project information over the internet, especially as the number of mitigation projects expand.
- **Denied Permits.** It would be useful to track denied permit information over the internet.
- **Endangered Species Information.** Knowing which projects are located in areas where there may be impacts to species protected under the ESA would help both resource managers and citizens.
- **Impaired Stream Information.** For those individuals working on stream and river management issues, it would be useful to know whether a stream where a project is located is on DEQ's 303(d) list of impaired streams.

Recommendation 7-5: Additions to the NRIS website could make information more accessible to users unfamiliar with the Section 404 program.

Currently, the NRIS website allows users with an understanding of the 404 program to access information. Users unfamiliar with the 404 program would have a difficult time understanding what information is available as well as what the information means.

- **More Instructions.** Instructions should be added to the NRIS website to give more information about permit types (Individual Permits, each Nationwide Permit, and each General Permit) and define terms (e.g. lacustrine, palustrine, riverine, and "other waters"). Additionally the units (1= linear feet, a = acres, c = cubic yards) should be described. With no explanation of terms and permit types, a novice would have no idea what the information means. If permit description information is provided by linking the NRIS website to a Corps website, permits that have expired (such as NWP 26 or old General Permits) would need to be explained.
- **Number of Projects Summarized by Year.** Project summary information should include the number of projects by year as well as the number of project sites. The number of projects could appear in a column next to the number of project sites. This improvement is suggested because the public generally looks at each project as the unit of measurement; it has a unique identification number.
- **Queries Should Allow More than 100 Permits to Be Viewed.** When queries are made, it would be helpful to be able to look at more than 100 permits of a particular type at 1 time. This view could be achieved by only displaying the first 100 sites from a query. Then, at the bottom of the query list, users could be allowed to access the next 100 permits of the query (and the next, etc.). Currently, when a query is made that brings up more than 100 permits, the user must go back and figure out how to divide up the query (e.g., into years, permit type, or some other unit) in order to look at all the projects.
- **Data Reports by Stream Should Include Total Stream Length.** It would be helpful to have total stream length be part of the data report for stream queries. For example, when a query was made of the 404 permits on the Ruby River, the data report would indicate that the river is 95.67 miles. A query about the Yellowstone River in Park County would list the river length (in that county) as 230.07 miles. This information is available on the NRIS website. Its addition to the portion of the NRIS website containing 404 permit information would allow a quick assessment of cumulative impacts of projects.



Appendices

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Appendix I – Nationwide Permits

The following list briefly describes Nationwide Permits that were used in Montana from January 1, 1990, to December 31, 2002.

This list does not contain a complete description of each Nationwide Permit. The descriptions were taken from a fact sheet series produced by the Army Corps of Engineers (accessed on May 11, 2005 at URL <<http://www.nwo.usace.army.mil/html/od-r/nwp-newtext.htm>>).

For more detailed information regarding specific Nationwide Permits, contact the Corps office in Helena or visit their website.

	Name and Description	# of Permits	Statutory Authority	Limits	Pre-construction Notification (PCN) Threshold	Delineation Required?	Applicable Waters in Montana	Other Information
NWP 3	Maintenance. The repair, rehabilitation, or replacement of any previously authorized, currently serviceable structure or fill.	810	404/10					
	(i) Repair, rehabilitation, and replacement of previously authorized, currently serviceable structures or fills			Authorizes only minor deviations for maintenance	PCN not required	No	All waters of the U.S.	If damage is due to a discrete event, maintenance activity must be done within 2 years, unless time limit waived by Corps.
	(ii) Discharges associated with removal of accumulated sediments and debris in the vicinity of existing structures			200 feet from structure	all activities	No	All waters of the U.S.	Also authorizes placement of riprap to protect the structure.
	(iii) Discharges associated with restoration of upland areas damaged by a storm, flood, or other discrete event			none	PCN not required	No	All waters of the U.S.	PCN to Corps within one year of damaging event; work must start or be under contract within 2 years of date of damage.
NWP 4	Fish and Wildlife Harvesting, Enhancement and Attraction Devices and Activities	1	404/10	none	PCN not required	No	All waters of the U.S.	Does not authorize impoundments or artificial reefs.
NWP 5	Scientific Measurement Devices. Devices whose purpose is to measure and record scientific data such as staff gauges, water recording devices, water quality testing and improvement devices, and similar structures.	30	404/10	25 cubic yards for weirs and flumes	10 to 25 cubic yards for weirs and flumes	No	All waters of the U.S.	
NWP 6	Survey Activities. Survey activities including core sampling, seismic exploratory operations, plugging of seismic shot holes, and other exploratory-type bore surveys and sampling.	22	404/10	none	PCN not required	No	All waters of the U.S.	Does not authorize fills for roads or pads; does not authorize permanent structures; does not authorize the drilling and the discharge of excavated material from test wells for oil and gas exploration; the plugging of such wells is authorized.
NWP 7	Outfall Structures and Maintenance. Activities related to the construction of outfall structures (from a drain) and their associated intake structures.	36	404/10					
	(i) construction of outfall structures and associated intake structures			none	all activities	No	All waters of the U.S.	Activity must comply with National Pollutant Discharge Elimination System Program.
	(ii) Maintenance excavation and dredging to remove accumulated sediments.			restore to original capacity	all activities	Yes	All waters of the U.S.	For maintenance dredging, PCN must describe original design capacities and configurations of facility.
NWP 11	Temporary Recreational Structures. Temporary buoys, markers, small floating docks, and similar structures placed for recreational use during specific seasons or events.	52	10	none	PCN not required	No	Navigable waters of the U.S.	Structures must be removed within 30 days after use.

	Name and Description	# of Permits	Statutory Authority	Limits	Pre-construction Notification (PCN) Threshold	Delineation Required?	Applicable Waters in Montana	Other Information
NWP 12	Utility Line Activities. Activities required for the construction, maintenance, and repair of utility lines. "Utility line" includes all pipelines for gas or other liquids, and cables or wires for electric energy, telephone, or similar purposes.	679	404/10	1/2 acre	see text of NWP	Yes		
	(i) Utility lines				see text of NWP	Yes	All waters of the U.S.	Must restore area to pre-construction contours.
	(ii) Utility line substations			1/2 acre	>1/10th acre	Yes	All waters of the U.S.	
	(iii) Foundations for overhead utility line towers, poles, and anchors			Minimum necessary	see text of NWP	Yes	All waters of the U.S.	Separate footings for each tower leg should be used where feasible.
	(iv) Access roads			1/2 acre	> 500 linear feet in waters of the U.S.; construction with impervious materials	Yes	All waters of the U.S.	Access roads should be constructed as near as possible to pre-construction contours and elevations.
NWP 13	Bank Stabilization	1,101	404/10	Minimum necessary	> 500 linear feet; or > 1 cubic yard per running foot	No	All waters of the U.S., except special aquatic sites	Does not authorize bank stabilization activities in wetlands and other special aquatic sites.
NWP 14	Linear Transportation Crossings. Activities required for the construction, expansion, or modification of linear transportation crossings (e.g. roads, railroads, trails, and airport runways) provided that certain restrictions are met concerning the size and location of the project.	742	404/10	1/2 acre	> 1/10 acre, discharges into special aquatic sites	Yes	All waters of the U.S.	Does not authorize storage buildings, parking lots, train stations, or other non-linear transportation facilities; PCN must include compensatory mitigation proposal and minimization statement.
NWP 15	U.S. Coast Guard Approved Bridges	1	404	none	PCN not required	No	Navigable waters of the U.S.	Causeways and approach fills for bridges are not authorized by this NWP; these activities may require an Individual or General Permit.
NWP 16	Return Water From Upland Contained Disposal Areas. Return water from an area used to deposit dredged material in an upland.	3	404	none	PCN not required	No	All waters of the U.S.	Water quality issues are addressed through Section 401 certification process.
NWP 17	Hydropower Projects. Discharges of dredged or fill material associated with small hydropower projects at existing reservoirs, licensed by the Federal Energy Regulatory Commission (FERC).	1	404	none	all activities	No	All waters of the U.S.	Applies to activities licensed by the FERC or activities exempt from licensing requirements. The total generating capacity of a project may not be more than 5,000 kilowatts.
NWP 18	Minor Discharges. Minor discharges of dredged or fill material into all waters of the United States.	295	404/10	25 cubic yards; 1/10 acre of special aquatic sites	> 10 cubic yards or discharges into special aquatic sites	Yes	All waters of the U.S.	Does not authorize stream diversions.
NWP 19	Minor Dredging. Dredging of no more than 25 cubic yards below the ordinary high water mark from navigable waters of the United States.	38	404/10	25 cubic yards	PCN not required	No	Navigable waters of the U.S.	Does not authorize activities in submerged aquatic vegetation beds, anadromous fish spawning areas, or wetlands.
NWP 20	Oil Spill Cleanup. Activities required for the containment and cleanup of oil and hazardous substances.	4	404/10	none	PCN not required	No	All waters of the U.S.	Authorizes activities subject to the National Oil and Hazardous Substances Pollution Contingency Plan and any existing state contingency plan.
NWP 21	Surface Coal Mining Activities. Activities associated with surface coal mining.	6	404/10	none	all activities	Yes	All waters of the U.S.	Authorizes surface coal mining and reclamation approved by specified programs (see permit text).

	Name and Description	# of Permits	Statutory Authority	Limits	Pre-construction Notification (PCN) Threshold	Delineation Required?	Applicable Waters in Montana	Other Information
NWP 22	Removal of Vessels. Temporary structures or minor discharges of dredged or fill material required for the removal of wrecked, abandoned, or disabled vessels, or the removal of man-made obstructions to navigation.	10	404/10	none	removal of vessels listed or eligible for the National Register of Historic Places	No	All waters of the U.S.	Does not authorize maintenance dredging or riverbank snagging.
NWP 23	Approved Categorical Exclusions. Activities undertaken, assisted, authorized, regulated, funded or financed, in whole or in part, by another federal agency or department.	265	404/10	none	PCN not required	No	All waters of the U.S.	The Corps must approve categorical exclusions. In Montana this permit is primarily used by the MT Dept. of Transportation.
NWP 25	Structural Discharge. Discharges of material such as concrete, sand, rock, etc. into forms or cells used in bridges, transmission lines, and similar structures.	23	404	none	PCN not required	No	All waters of the U.S.	Structure may require Section 10 permit if located in navigable waters; does not authorize building of support pads.
NWP 26	Headwaters and Isolated Waters Discharges. Discharges of dredged or fill material into isolated wetlands, headwaters of streams (under 5 cubic feet per second, average annual flow) and lakes, as long as the discharge did not cause the loss of more than 10 acres of waters of the United States.	643						This permit expired in June 2000.
NWP 27	Wetland and Riparian Restoration and Creation Activities. Activities in waters of the United States associated with the restoration or enhancement of wetlands and riparian areas.	320	404/10	none	Certain activities on public and private land (see text of NWP)	No	All waters of the U.S.	Does not authorize stream channelization, conversion of streams to another aquatic use, or net conversion of wetlands to other aquatic uses.
NWP 29	Single Family Homes. Discharges of dredged or fill material into waters of the United States for the construction or expansion of a single-family home and attendant features (such as a garage, driveway, storage shed and/or septic field).	9	404/10	1/4 acre	all activities	Yes	All waters of the U.S.	PCN must include statement that the housing activity will be a personal residence of the permittee; can authorize work in 100-year floodplain if activity complies with floodplain management requirements.
NWP 30	Management for Wildlife. Discharges of dredged or fill material and maintenance activities that are associated with wildlife management activities on state or federally owned or managed property.	2	404	none	PCN not required	No	All waters of the U.S. except navigable waters	Does not authorize construction of new dikes, roads, water control structures, etc.; does not authorize conversion of wetlands to uplands; does not authorize impoundments.
NWP 32	Completed Enforcement Actions. Any structure, work or discharge of dredged or fill material undertaken for mitigation, restoration, or environmental benefit in compliance with the terms of the Clean Water Act, a federal court decision or settlement, or similar enforcement measure.	8	404/10	5 acres of wetlands (see text of NWP)	all activities	No	All waters of the U.S.	
NWP 33	Temporary Construction, Access and Dewatering. Temporary structures and discharges necessary for construction activities, access, or dewatering of construction sites.	158	404/10	none	all activities	No	All waters of the U.S.	Associated primary activity must be authorized by the Corps, Coast Guards, or be exempt from permit requirements; PCN must include restoration plan.
NWP 35	Maintenance Dredging of Existing Marinas. Excavation and removal of accumulated sediment for maintenance of existing marinas or boat slips.	2	10	Dredging to previously authorized depths or controlling depths, whichever is less	PCN not required	No	Navigable waters of the U.S.	Dredged material must be deposited at upland site.

	Name and Description	# of Permits	Statutory Authority	Limits	Pre-construction Notification (PCN) Threshold	Delineation Required?	Applicable Waters in Montana	Other Information
NWP 36	Boat Ramps. Activities required for the construction of boat ramps, provided that the discharge into waters of the United States	114	404/10	50 cubic yards of fill; 20 foot width for boat ramp	PCN not required	No	All waters of the U.S. except special aquatic sites	Does not authorize placement of material into special aquatic sites.
NWP 37	Emergency Watershed Protection and Rehabilitation. Work done by or funded by 1) the Natural Conservation Service (NRCS) requiring immediate action under its Emergency Watershed Protection Program or 2) the U.S. Forest Service under its Burned-Area Emergency Handbook.	11	404/10	none	all activities	No	All waters of the U.S.	
NWP 38	Cleanup of Hazardous or Toxic Waste. Activities required for containing, stabilizing, or removing hazardous or toxic waste materials that are performed, ordered, or sponsored by a government agency.	15	404/10	none	all activities	Yes	All waters of the U.S.	Does not authorize the establishment of new disposal sites to the expansion of existing disposal sites.
NWP 39	Residential, Commercial or Institutional Development. Discharges of dredged or fill material into waters of the United States for the construction or expansion of residential, commercial, and institutional buildings and their attendant features (roads, parking areas, garages, utility lines, and recreational features such as playgrounds, playing fields, or golf courses).	21	404/10	1/2 acre; 300 linear feet of perennial or intermittent stream bed	> 1/10 acre; discharges into open waters	Yes	All waters of the U.S.	PCN must include avoidance and minimization statement and a compensatory mitigation proposal; activities that do not require a PCN must be reported to the Corps; Waiver can be issued by Corps to authorize loss of greater than 300 linear feet of intermittent stream.
NWP 40	Farm Buildings. Discharges of dredged or fill material into waters of the United States for the purpose of improving agricultural production and the construction of farm buildings.	9	404	1/2 acre; 300 linear feet of perennial or intermittent stream bed	> 1/10 acre; > 300 linear feet of intermittent stream bed; construction of farm buildings in farmed wetlands	Yes	All waters of the U.S.	NRCS takes lead for most activities undertaken by U.S. Dept. of Agriculture program participants; activities where NRCS is not lead must be reported to the Corps; PCN must include compensatory mitigation.
NWP 41	Reshaping Existing Drainage Ditches. Discharges of dredged or fill material into waters of the United States to modify drainage ditches. The centerline of the reshaped drainage ditch must stay approximately the same.	2	404	none	reshape > 500 linear feet of drainage ditch	Yes	All waters of the U.S.	Reshaping drainage ditch cannot increase capacity of ditch or drain additional waters of the U.S.; does not authorize relocation of drainage ditches constructed in waters of the U.S.
NWP 42	Recreational Facilities. Discharges of dredged or fill material into waters of the United States for the construction or expansion of recreational facilities, including hiking trails, bike paths, horse paths, nature centers, and campgrounds (excluding trailer parks). The construction or expansion of golf courses and ski areas may also qualify to be authorized under this permit.	16	404	1/2 acre; 300 linear feet of perennial or intermittent stream bed	> 1/10 acre; > 300 linear feet of intermittent stream	Yes	All waters of the U.S.	Recreational facilities are integrated into natural landscape and do not substantially change pre-construction grades or contours; PCN must include compensatory mitigation.
NWP 43	Stormwater Management Facilities. Discharges of dredged or fill material into waters of the United States for the construction and maintenance of stormwater management facilities.	4	404	1/2 acre for construction of new facilities; 300 linear feet of perennial or intermittent stream bed	> 1/10 acre; > 300 linear feet of intermittent stream	Yes	All waters of the U.S.	Does not authorize construction of new facilities in perennial streams; PCN must include avoidance and minimization statement, maintenance plan, and compensatory mitigation proposal.

Appendix II – General Permits

The following is a brief description of the General Permits (GP) used in Montana between January 1, 1990 and December 31, 2002. This list does not contain a complete description of each permit. Conditions apply to each authorized activity. Additionally, it should be noted that 2 permits were issued in 2003, which is outside the scope of this report: GP 03-01 authorizes using fill for boat ramps on Fort Peck Lake, and GP 03-02 authorizes fill for boat ramps on other Montana waterways; and GP 00-02 will be reissued in 2005. Both of these newer permits will expire in 2008. For more detailed information regarding General Permits, contact the U.S. Army corps of Engineers (Corps) office, or visit their website at <<http://www.nwo.usace.army.mil/html/od-rmt/mtspecific.html>>.

GP 76-05 - Riprap for Bank Protection. Allowed for the construction of small riprap projects for the purpose of bank protection. The permit applied to 2 segments of the Missouri River (from North Dakota to the Milk River and from Fort Benton to the Smith River), and to the Yellowstone River from North Dakota to the Shields River. This permit has expired.

GP 82-10 - Boat Ramp. Allowed the construction of boat ramps on all waters. This permit has expired.

GP 87-02 - Fill for Boat Ramps and Docks on Flathead Lake. Allowed the placement of fill for boat ramps and docks on Flathead Lake. This permit has expired.

GP 88-01 - Mitigation Projects. Allowed for filling related to mitigation identified during public interest review processes. The project was limited to the minimum amount of work required to accomplish mitigation. This permit has expired.

GP 88-02 - Restoration Projects. Allowed retention or discharge of dredged or fill material into waters in conjunction with voluntary and/or enforcement related restorations. Restoration had to be ordered by the Corps or the U.S. Environmental Protection Agency. This permit has expired.

GP 89-03 - Habitat Improvement. Allowed habitat improvement projects relating primarily to fisheries, including the placement of artificial reefs, the improvement of spawning grounds, and other similar activities. This permit has expired.

GP 89-04 - Existing Structures on Corps Lands. Allowed the construction or extension of existing structures on Corps lands. This permit has expired.

GP 90-01 – Water Intake Facilities on Fort Peck Reservoir. Allowed the construction of temporary and permanent water intake facilities in Fort Peck Lake. Up to 100 cubic yards of dredged or fill material could be authorized. This permit has expired.

GP 97-02 – Flood Repair and Protection. Authorized the following types of activities: repair and reconstruction of existing roads, temporary levee construction, levee repair, bridge embankment repair, protection and/or repair of utility structures, and placement of suitable rock and/or dirt fill for bank protection. The permit was limited to measures performed to fix damages incurred during recent flooding. It allowed the damaged area to be restored to pre-flood conditions; the structure was not to extend beyond its original dimensions. This permit expired June 30, 2002.

GP 98-07 – Wetland Enhancement. Allowed the following types of restoration, enhancement and management projects in wetlands: 1) ditch plugs, instream channel drop structures, and water control structures; 2) small impoundments for wetlands creation; 3) dike projects built to create impoundments; 4) re-contouring and excavation of wetlands for vegetation management to increase wetland longevity; 5) construction of nesting islands; and 6) rehabilitation and strengthening of dikes and roads on wildlife areas used for management purposes. This permit expired June 30, 2001.

GP 00-02 – Fish Habitat Structures. Authorizes the following types of projects designed to enhance fish habitat: construction of reefs made of plants; tree shelters in rivers and streams; random boulder placement for habitat enhancement; placement of gravel for spawning habitat; native material bank revetments; and random tree placement or woody debris recruitment. Although this permit expired on June 30, 2005, it will be reissued in 2005.

Appendix III – Denied 404 Permits

The following list contains details describing the eleven 404 permits that were denied by the U.S. Army Corps of Engineers (Corps) in Montana between January 1, 1990, and December 31, 2002. The list is organized by the date the permit was denied. Ten of these permits were denied as Individual Permits; one was a Nationwide Permit (Permit 199390404).

Application Number: 198911995

Date Denied: January 5, 1990

Project Description: Activities associated with the construction of a concrete floor/drop structure across a channel of the Gallatin River in Gallatin County. The project would tie into the existing irrigation intake structure; it also involved placing 150–200 cubic yards of riprap on the riverbank. The purpose of the project was to provide water to Valley Ditch and to prevent the channel from cutting deeper.

Reasons for Denial: The project was begun before the 404 permit was approved. The Gallatin River was bulldozed without a 310 permit, and one of the participants pled guilty to a misdemeanor. State officials called this “one of the worst violations of water quality and stream protection laws they’ve seen.”

Objections/Concerns from the Following: Gallatin County Conservation District and the Montana Department of Health and Environmental Sciences (DHES).

Project Redesigned and Approved: This project resulted in 2 court actions, one by the Gallatin Conservation District and one by DHES. Valley Ditch completed restoration work because of both court actions.

Additional Information: The Conservation District eventually approved the 310 permit; the Montana Department of Natural Resources and Conservation indicated that a floodplain permit was required. Although the permit was initially denied, the project was subsequently approved after the permit was amended to meet a number of conditions.

Application Number: 199170416

Date Denied: April 9, 1991

Project Description: Applicant proposed to cable rubber tires and ash trees to the right bank of the Missouri River in Richland County, for a total length of 1.75 miles. Applicant proposed to plant

cottonwood trees 50–80 feet from the edge of the riverbank. The purpose of the project was to stop or slow erosion. The project was started before the need for a permit was realized; that part of the project was later authorized by a Nationwide Permit 13 (Permit Number 199170491), which authorized 480 feet of work to be completed.

Reasons for Denial: No evaluation of practicable alternatives was done and the least damaging alternative was not selected; 401 certification was denied because of adverse water-quality impacts; the use of tires in this situation, particularly where icing may occur, would provide limited protection; the use of tires usually becomes a solid waste problem for downstream landowners; loose tires are a pollution of state waters; this type of project rarely works; and if tires are used, the project would have to be modified to meet more stringent criteria.

Objections/Concerns from the Following: U.S. Environmental Protection Agency (EPA); DHES; Seattle District of the Corps; and U.S. Fish and Wildlife Service (USFWS).

Additional Information: The Montana Department of State Lands indicated that the use of the riverbed requires a permit. The Montana Department of Natural Resources and Conservation indicated that a floodplain permit was required.

Number: 199170151

Date Denied: May 15, 1991

Project Description: Construct 3–4 rock jetties on the Yellowstone River, approximately 4.5 miles east of Greycliff in Sweet Grass County. The purpose of the project was to protect the riverbank, land, and associated timber from further erosion by high water and ice, and to safeguard an adjacent residence.

Reasons for Denial: Jetties placed in this portion of the Yellowstone River have created serious erosion problems, particularly downstream from their placement; the jetties would be required to be



much larger to accomplish the desired purpose; and alternatives with less environmental impact were available and should be considered.

Objections/Concerns from the Following: EPA; Montana Department of Fish, Wildlife and Parks (FWP); USFWS.

Application Number: 199170442
Date Denied: September 18, 1991

Project Description: Place riprap along a bank of the Yellowstone River in Yellowstone County for a distance of 1,500 feet. The project called for 600 to 700 cubic yards of riprap material, involving clean concrete fragments and, depending on the availability, a suitable amount of appropriate rock to be used as cover. The project was on the downstream end of an existing bank stabilization project completed in the summer of 1990, under Nationwide Permit 13 (Permit Number 199174664). The purpose of the project was to prevent further erosion, stabilize the bank, and prevent possible loss of property.

Reasons for Denial: Confusion over ownership of the property where the project would occur; no 310 permit was obtained for the project from the conservation district; 401 certification was denied because of adverse water quality impacts; clean concrete should not be used as the final cover; and the applicant failed to complete a previous 310 permit for an associated project. The Billings Motorcycle Club objected on the grounds that they owned most of the land involved and did not want the project done. Additionally, they stated that the applicant had not completed previous work to standards.

Objections/Concerns from the Following: Billings Motorcycle Club; EPA; FWP; DHES; USFWS; Yellowstone County Conservation District; and Yellowstone Valley Audubon

Additional Information: The Montana Department of Natural Resources and Conservation (DNRC) indicated that a floodplain permit was required.

Application Number: 199390404

Date Denied: August 27, 1993

Project Description: Place a total of 600 feet of concrete and rock riprap on the bank of the Yellowstone River in Yellowstone County. The riprap would be placed in 2 sites, 300 feet apart. The purpose of the project was to prevent bank erosion during high water.

Reasons for Denial: No information

Objections/Concerns from the Following: No information

Additional Information: The file was archived, and Montana Audubon was unable to access it to see the reasons for denial. At least some portion of this project was approved under a Nationwide Permit 13 on October 1, 1993.

Application Number: 199690187

Date Denied: August 21, 1996

Project Description: Proposal to excavate and shape a channel on the Flathead River in Flathead County to serve as a boat harbor.

Reasons for Denial: 310 certification was denied because the Flathead Conservation District rules prohibit this type of project; the entire stretch of riverbank at this location was very unstable and the main force of the river was hitting this bank, which could have resulted in increased instability of the riverbank; the project could have led to bank erosion on adjacent properties; creating a lagoon would result in degraded water quality and would require future dredging to keep the channel deep enough; and other means of boat storage were available with less impact on the riverbank.

Objections/Concerns from the Following: Flathead Conservation District and FWP.

Application Number: 199690687

Date Denied: February 28, 1997

Project Description: Development of a residential subdivision along Fred Burr Creek in Granite County in the Upper Clark Fork Basin. The project was completed before a Corps permit was obtained. The project included construction of a road and a series of 18 ponds along the creek. The applicant indicated that he would impact less than 1 acre of wetlands but create over 2 acres of higher-quality wetlands. The purpose of the project was to provide recreation and leisure opportunities for the subdivision property owners.

Reasons for Denial: The 310 permit was denied by the Granite Conservation District; 401 certification was denied because of adverse water-quality impacts; high levels of mercury and cadmium in water samples taken onsite and potential of toxic metals being washed downstream; the road culverts had no outlet; the banks of the creek had been extremely degraded and the fill material was pushed into the creek and riparian zone; poorly constructed roads may be a source of storm water pollution from the site; and the excavated ponds were not done in a way that would sustain them long term. This permit denial was an After-the-Fact permit.

Objections/Concerns from the following: Flathead Audubon Society; Granite Conservation District; Montana Audubon; Montana Department of Environment Quality; DNRC; and 9 individuals.

Additional Information: The project included violations of the Montana Water Quality Act and the Montana Natural Streambed and Land Preservation Act (310 permit). This project is currently the subject of an EPA enforcement action.

Application Number: 199890277

Date Denied: May 5, 1998

Project Description: Remove a gravel bar and shorten the channel on the Musselshell River in Musselshell County. The purpose of the project was to return a portion of the river to its historic channel location in order to protect a bank from erosion and provide flood protection.

Reasons for Denial: 310 certification was denied by the Lower Musselshell Conservation District because of the environmental impacts of channel shortening.

Objections/Concerns from the following: Lower Musselshell Conservation District and FWP.

Additional Information: Mr. Harper submitted 4 permit applications for work on the Musselshell River; 3 of the applications were permitted.

Application Number: 200090788

Date Denied: July 9, 2001

Project Description: Yellowstone Mountain Club applied for an After-the-Fact permit for a culvert crossing of a creek.

Reasons for Denial: The project was turned over to the EPA for enforcement action due to several violations of the Clean Water Act.

Objections/Concerns from the Following: No information

Additional Information: The file was turned over to the EPA for enforcement action, and Montana Audubon was unable to access it to see the reasons for denial.

Application Number: 199890686

Date Denied: November 29, 1999

Project Description: Remove a 65-foot, 400-foot long bank on into Holter Lake on the Missouri River in Lewis and Clark County. Push the bank material out 60 feet into the lake and place rock riprap along the 400-foot section of bank. The purpose of the project was to stabilize an eroding bank, remove a cliff, and redesign the shoreline to create an aesthetically pleasing natural shoreline.

Reasons for Denial: The State of Montana owns the submerged land between the low water marks of a navigable waterway; the state does not allow the placement of fill on its lands. The project would affect adjacent landowners.

Objections/Concerns from the Following: FWP and DNRC.

Additional Information: Two families owned the site of the project; the landowner of half the site submitted the proposal.

Application Number: 200190166

Date Denied: June 4, 2001

Project Description: Construction of a dam across Elk Creek in Sweet Grass County to create a pond for a 2-week movie shoot.

Reasons for Denial: The 310 permit was denied for this project due to potential significant impacts; the stream banks may become unstable; destruction of riparian vegetation as it become saturated by pond water; downstream erosion if the dam would fail; and there were other less damaging alternatives available to the applicant (ponds built off-stream and supplied by a diversion or separate water source are far less destructive to the stream).

Objections/Concerns from the Following: FWP and the Sweet Grass County Conservation District.

Appendix IV – 404 Permits by County

This appendix contains five tables of 404 permit information by county:

- Total Number of 404 Permits Issued by County between 1990 and 2002
- Total Linear Feet of Impact from 404 Permits Issued by County between 1990 and 2002
- Total Acres of Impact from 404 Permits Issued by County between 1990 and 2002
- Total Cubic Yards of Impact from 404 Permits Issued by County between 1990 and 2002
- Total Number of 404 Permits Issued by County between 1990 and 2002 with No Information about Size of Impact

These charts summarize all permits issued under the 404 program between January 1, 1990, and December 31, 2002. Please note that all analysis of restoration projects must consider the problems with this data discussed under *Permits for Resource Restoration* on page 51.



Table 11: Total Number of 404 Permits Issued by County between 1990 and 2002. All permit types are included in the totals (Individual, Nationwide and General Permits). Permits are divided into 3 categories: 1) permits resulting in impacts, 2) permits for restoration projects, and 3) permits with no information; these 3 categories are explained on page 30. The table is sorted by the total number of permits issued in each county.

	Totals				Individual Permits			Nationwide Permits			General Permits		
	Totals	Permits Resulting in Impacts	Restoration Projects*	No Information	Permits Resulting in Impacts	Restoration Projects	No Information	Permits Resulting in Impacts	Restoration Projects	No Information	Permits Resulting in Impacts	Restoration Projects	No Information
Lewis & Clark	402	318	80	4	18	2	1	297	62	3	3	16	
Gallatin	381	331	50	0				326	34		5	16	
Madison	357	299	56	2	14	7		276	22	2	9	27	
Flathead	354	304	45	5	17	2	3	283	16	2	4	27	
Cascade	306	276	29	1	10	3		263	23	1	3	3	
Missoula	304	270	27	7	8	2	4	254	18	3	8	7	
Yellowstone	269	245	19	5	7		4	225	15	1	13	4	
Ravalli	240	189	45	6	14	6	4	171	33	1	4	6	1
Park	239	200	37	2	25	7	1	172	28	1	3	2	
Sanders	232	194	36	2	6			179	29	2	9	7	
Sweet Grass	209	188	20	1	9			165	10	1	14	10	
Lincoln	192	157	35	0	10	3		137	20		10	12	
Stillwater	177	165	12	0	7			156	12		2		
Beaverhead	172	144	26	2	6	1		136	22	2	2	3	
Lake	160	136	21	3	1			130	16	3	5	5	
Carbon	137	126	10	1	6	1		118	8	1	2	1	
Valley	131	125	5	1	6	1		65	3	1	54	1	
Big Horn	130	120	5	5	7		4	113	5	1			
Powell	118	80	37	1	6		1	74	25			12	
Fergus	102	76	25	1	2	1		73	23	1	1	1	
Rossevelt	98	93	4	1	9		1	83	4		1		
Musselshell	85	82	3	0	3			74	3		5		
Broadwater	75	60	15	0	5			52	6		3	9	
Glacier	75	63	12	0	5			58	12				
Granite	70	59	11	0		3		59	6			2	
Richland	68	64	1	3	5		1	56	1	2	3		
Jefferson	64	53	11	0	1			50	11		2		
Phillips	61	51	10	0	1	3		46	5		4	2	
Deer Lodge	57	52	5	0	3	1		49	3			1	
Meagher	57	51	6	0				48	5		3	1	
Custer	55	50	4	1	3	1		46	3	1	1		
Carter	51	50	1	0				50	1				
Hill	51	45	6	0	1	1		42	4		2	1	
Blaine	49	44	2	3	1		1	42	2	2	1		
Fallon	49	48	0	1	3			45		1			
Choteau	48	42	5	1	3			39	2	1		3	
Teton	48	38	10	0	2	1		36	6			3	
Judith Basin	44	37	7	0				37	7				
McCone	41	39	2	0	1			30	2		8		
Pondera	39	36	3	0				36	3				
Silver Bow	33	31	2	0	2	1		29				1	
Golden Valley	32	32	0	0	2			30					
Dawson	30	28	2	0	1			26	2		1		
Mineral	30	26	4	0		1		25			1	3	
Sheridan	29	23	6	0	6	1		17	5				
Wheatland	27	25	2	0	4			21	2				
Garfield	25	25	0	0	2			15			8		
Rosebud	24	24	0	0				24					
Powder River	22	20	2	0				20	2				
Toole	22	20	1	1	1			17	1	1	2		
Treasuer	19	19	0	0	2			14			3		
Liberty	18	13	5	0				12	2		1	3	
Petroleum	17	14	3	0	1			13	2			1	
Daniels	16	13	3	0				13	3				
Prairie	16	16	0	0				16					
Wibaux	13	12	1	0				12	1				
No Information	35	28	5	2		1		26	2	2	2	2	
TOTALS	6,261	5,407	774	80	284	50	43	4,921	532	36	202	192	1

*ALL ANALYSIS OF RESTORATION PROJECTS MUST CONSIDER THE PROBLEMS WITH THIS DATA DISCUSSED UNDER *Permits for Resource Restoration* ON PAGE 51.

Table 12: Total Linear Feet of Impact from 404 Permits Issued by County between 1990 and 2002. All permit types are included in the totals (Individual, Nationwide and General Permits). Permits are divided into 3 categories: 1) permits resulting in impacts, 2) permits for restoration projects, and 3) permits with no information; these 3 categories are explained on page 30. The table is sorted by the total linear feet of impact in each county.

	Totals				Individual Permits			Nationwide Permits			General Permits		
	Totals	Permits Resulting in Impacts	Restoration Projects*	No Information	Permits Resulting in Impacts	Restoration Projects	No Information	Permits Resulting in Impacts	Restoration Projects	No Information	Permits Resulting in Impacts	Restoration Projects	No Information
Madison	163,091	80,343	82,748	0	19,308	23,760		48,291	21,828		12,744	37,160	
Powell	146,110	34,148	111,962	0	2,500			31,648	77,766			34,196	
Gallatin	116,112	51,531	64,581	0	3,275			45,991	38,918		2,265	25,663	
Park	92,484	63,209	29,275	0	35,812	13,580		27,072	15,195		325	500	
Lewis & Clark	80,803	44,915	35,888	0	9,957	5,825		34,958	27,003			3,060	
Yellowstone	72,666	72,198	468	0	16,435			47,163	468		8,600		
Ravalli	72,521	28,595	43,886	40	6,078			21,167	43,436		1,350	450	40
Sweet Grass	69,938	56,218	13,720	0	11,075			41,243	11,130		3,900	2,590	
Lincoln	69,744	40,204	29,540	0	6,768	7,300		33,349	22,040		87	200	
Cascade	68,304	56,530	11,774	0	13,305	6,950		42,240	3,914		985	910	
Flathead	67,942	42,501	25,442	0	1,430	303		41,071	9,300			15,839	
Beaverhead	66,587	14,781	51,806	0	240	7,984		14,541	43,822				
Sanders	63,033	25,788	37,245	0	2,185			21,146	37,245		2,457		
Missoula	40,482	18,923	21,559	0	2,394			14,831	15,125		1,698	6,434	
Jefferson	36,234	10,847	25,387	0				10,747	25,387		100		
Granite	32,946	8,939	24,007	0		7,392		8,939	16,090			525	
Carbon	31,971	23,521	8,450	0	1,160			22,361	3,680			4,770	
Musselshell	24,336	24,336	0	0				20,946			3,390		
Broadwater	23,892	7,632	16,260	0	2,000			4,332	7,050		1,300	9,210	
Golden Valley	23,458	23,458	0	0	17,500			5,958					
Stilwater	22,616	22,116	500	0	1,245			18,031	500		2,840		
Teton	19,901	12,901	7,000	0	1,400			11,501	6,340			660	
Valley	16,068	13,798	2,270	0	140	270		4,413			9,245	2,000	
Meagher	15,288	15,118	170	0				9,688	170		5,430		
Lake	14,871	5,790	9,081	0				5,790	9,081				
Carter	12,661	12,661	0	0				12,661					
Fergus	11,742	3,795	7,947	0	465	4,000		3,330	3,947				
Richland	11,707	11,707	0	0	2,875			8,832					
Custer	11,565	10,855	710	0	2,640	710		7,495			720		
Choteau	11,371	5,691	5,680	0				5,691	3,000			2,680	
Glacier	11,205	7,720	3,485	0	2,100			5,620	3,485				
Roosevelt	10,485	10,371	114	0	5,080			5,291	114				
Hill	10,376	10,341	35	0				10,171	35		170		
Rosebud	9,378	9,378	0	0				9,378					
Mineral	8,593	8,593	0	0				8,593					
Big Horn	7,329	7,184	145	0	475			6,709	145				
Toole	7,328	7,328	0	0	1,300			6,028					
Judith Basin	7,199	3,749	3,450	0				3,749	3,450				
Pondera	4,834	3,944	890	0				3,944	890				
McCone	4,268	4,168	100	0	1,480			2,563	100		125		
Phillips	4,102	3,128	974	0	250			2,748	974		130		
Silver Bow	3,899	1,899	2,000	0				1,899				2,000	
Treasurer	3,529	3,529	0	0	150			1,879			1,500		
Wheatland	3,167	1,867	1,300	0	1,185			682	1,300				
Powder River	3,052	3,012	40	0				3,012	40				
Dawson	2,968	2,768	200	0	400			2,368	200				
Fallon	2,934	2,934	0	0	904			2,030					
Deer Lodge	2,237	1,197	1,040	0				1,197	1,040				
Daniels	1,457	1,457	0	0				1,457					
Blaine	1,355	1,355	0	0				1,355					
Garfield	1,309	1,309	0	0				1,134			175		
Petroleum	911	811	100	0				811	100				
Liberty	819	819	0	0				619			200		
Prairie	590	590	0	0				590					
Sheridan	285	115	170	0				115	170				
Wibaux	110	110	0	0				110					
No Information	50	50	0	0				50					
TOTALS	1,624,210	942,771	681,399	40	173,511	78,074	0	709,524	454,478	0	59,736	148,847	40

*ALL ANALYSIS OF RESTORATION PROJECTS MUST CONSIDER THE PROBLEMS WITH THIS DATA DISCUSSED UNDER
Permits for Resource Restoration ON PAGE 51.

Table 13: Total Acres of Impact from 404 Permits Issued by County between 1990 and 2002. All permit types are included in the totals (Individual, Nationwide and General Permits). Permits are divided into 3 categories: 1) permits resulting in impacts, 2) permits for restoration projects, and 3) permits with no information; these 3 categories are explained on page 30. The table is sorted by the total acres of impact in each county.

	Totals				Individual Permits			Nationwide Permits			General Permits		
	Totals	Permits Resulting in Impacts	Restoration Projects*	No Information	Permits Resulting in Impacts	Restoration Projects	No Information	Permits Resulting in Impacts	Restoration Projects	No Information	Permits Resulting in Impacts	Restoration Projects	No Information
Ravalli	165.4	70.8	94.6	0.0	61.1	89.3		9.7	5.3				
Gallatin	155.8	151.3	4.5	0.0	100.1			51.2	4.5				
Big Horn	93.8	93.8	0.0	0.0	6.0			87.8					
Madison	84.9	68.0	16.9	0.0		10.2		67.9	6.6		0.1	0.0	
Beaverhead	38.8	24.1	14.7	0.0	8.0			16.0	14.7				
Yellowstone	38.1	38.1	0.0	0.0	9.8			28.3					
Phillips	36.4	33.3	3.1	0.0		3.0		33.3	0.1				
Sweet Grass	32.5	22.5	10.0	0.0				22.5	10.0				
Flathead	30.7	30.7	0.0	0.0	6.8			23.9				0.0	
Roosevelt	30.7	30.7	0.0	0.0				30.7					
Missoula	30.7	17.9	12.7	0.0	4.2	12.6		13.6	0.1		0.1		
Glacier	28.2	28.2	0.0	0.0	3.8			24.4					
Stillwater	27.2	26.2	1.0	0.0	11.1			15.1	1.0				
Lewis & Clark	23.2	19.2	4.0	0.0	3.6			15.4	0.0		0.2	4.0	
Cascade	20.9	20.9	0.0	0.0				20.9					
Sheridan	20.0	19.4	0.6	0.0				19.4	0.6				
Valley	18.6	18.6	0.0	0.0				18.6	0.0				
Lake	17.0	13.3	3.7	0.0				13.3	3.7				
Carbon	16.7	11.1	5.6	0.0		5.6		11.1	0.0		0.0		
Pondera	16.5	16.4	0.1	0.0				16.4	0.1				
Musselshell	13.8	12.2	1.6	0.0	2.0			10.2	1.6				
Sanders	13.2	12.4	0.9	0.0				12.4	0.9				
Park	12.8	10.7	2.1	0.0	0.2			10.6	2.1				
Deer Lodge	12.8	12.5	0.3	0.0	4.0			8.5	0.3				
Mineral	10.0	0.0	10.0	0.0		10.0							
Jefferson	9.0	8.9	0.1	0.0	1.8			7.1	0.1		0.0		
Carter	9.0	9.0	0.0	0.0				9.0					
Granite	9.0	5.5	3.5	0.0		0.4		5.5	3.1				
Powder River	9.0	7.7	1.3	0.0				7.7				1.3	
Custer	8.7	7.7	1.0	0.0				7.7	1.0				
Liberty	7.6	7.6	0.0	0.0				7.6					
Powell	5.4	5.2	0.3	0.0				5.2	0.3				
Hill	4.3	4.3	0.0	0.0				4.3					
Lincoln	4.2	4.2	0.0	0.0	1.0			3.2					
Choteau	4.1	4.1	0.0	0.0				4.1	0.0				
Rosebud	4.0	4.0	0.0	0.0				4.0					
Meagher	3.6	3.1	0.5	0.0				3.1				0.5	
Toole	3.0	2.9	0.1	0.0				2.8	0.1		0.1		
Silver Bow	2.7	2.7	0.0	0.0				2.7					
Richland	2.6	2.6	0.0	0.0				2.6					
Broadwater	2.6	1.2	1.4	0.0				1.2	1.4				
Fergus	2.3	2.1	0.1	0.0				2.1	0.1				
Garfield	2.0	2.0	0.0	0.0				2.0					
Teton	1.8	1.3	0.5	0.0				1.3	0.5				
Prairie	1.6	1.6	0.0	0.0				1.6					
Daniels	1.5	1.5	0.0	0.0				1.5					
Fallon	1.5	1.5	0.0	0.0				1.5					
Blaine	1.5	1.4	0.0	0.0				1.4	0.0				
McCone	1.2	1.2	0.0	0.0				1.2					
Golden Valley	1.1	1.1	0.0	0.0				1.1					
Wibaux	0.6	0.6	0.0	0.0				0.6			0.0		
Wheatland	0.4	0.1	0.3	0.0				0.1	0.3				
Dawson	0.4	0.4	0.0	0.0				0.4					
Petroleum	0.1	0.1	0.0	0.0				0.1					
Treasurer	0.0	0.0	0.0	0.0				0.0					
Judith Basin	0.0	0.0	0.0	0.0				0.0					
No Information	0.4	0.4	0.0	0.0				0.4			0.0		
TOTALS	1,093.9	898.7	195.2	0.0	223.5	131.1	0.0	674.5	58.3	0.0	0.7	5.8	0.0

*ALL ANALYSIS OF RESTORATION PROJECTS MUST CONSIDER THE PROBLEMS WITH THIS DATA DISCUSSED UNDER *Permits for Resource Restoration* ON PAGE 51.

Table 14: Total Cubic Yards of Impact from 404 Permits Issued by County between 1990 and 2002. All permit types are included in the totals (Individual, Nationwide and General Permits). Permits are divided into 3 categories: 1) permits resulting in impacts, 2) permits for restoration projects, and 3) permits with no information; these 3 categories are explained on page 30. The table is sorted by the total cubic yards of impact in each county.

	Totals				Individual Permits			Nationwide Permits			General Permits		
	Totals	Permits Resulting in Impacts	Restoration Projects*	No Information	Permits Resulting in Impacts	Restoration Projects	No Information	Permits Resulting in Impacts	Restoration Projects	No Information	Permits Resulting in Impacts	Restoration Projects	No Information
Choteau	506,300	506,300	0	0	506,100			200					
Ravalli	227,247	227,127	120	0	222,920			3,426			781	120	
Flathead	91,047	89,416	1,631	0	88,018			1,398	87			1,544	
Phillips	63,420	860	62,560	0		62,310		860	250				
Sanders	34,932	33,711	1,221	0	33,025			331	1,141		355	80	
Madison	21,396	1,396	20,000	0	1,040	19,670		76	5		280	325	
Lincoln	20,866	20,866	0	0	20,786						80		
Yellowstone	13,137	13,097	40	0	6,501			909	20		5,687	20	
Broadwater	11,630	11,391	239	0	140			11,251	3			236	
Beaverhead	9,679	9,289	390	0	8,654			635	375			15	
Lake	8,390	5,890	2,500	0	5,600			211	2,500		79		
Meagher	7,340	7,340	0	0				7,140			200		
Custer	6,585	6,585	0	0	950			5,635					
Big Horn	5,212	5,197	15	0	3,950			1,247	15				
Gallatin	4,893	2,393	2,500	0	1,918			475	2,400			100	
Lewis & Clark	4,776	4,676	100	0	3,691			133			852	100	
Park	4,775	3,756	1,019	0		800		1,256	219		2,500		
Richland	4,617	4,607	10	0	2,500			1,450	10		657		
Missoula	3,893	2,583	1,310	0	1,075	1,050		285	260		1,223		
Carbon	3,805	3,805	0	0	2,620			1,095			90		
Dawson	3,573	3,573	0	0				3,513			60		
Glacier	3,405	1,358	2,047	0				1,358	2,047				
Garfield	3,210	3,210	0	0	2,720			15			475		
Silver Bow	2,538	2,538	0	0	2,510			28					
Deer Lodge	2,324	2,324	0	0	750			1,574					
Roosevelt	1,911	1,911	0	0	1,877						34		
Jefferson	1,633	1,625	8	0				1,625	8				
Sweet Grass	1,397	1,397	0	0	300			277			820		
Carter	1,305	1,255	50	0				1,255	50				
Musselshell	1,104	1,104	0	0	812			292					
Hill	1,056	311	745	0		740		311	5				
Powell	911	901	10	0				901	10				
Stilwater	885	856	29	0				856	29				
Teton	850	850	0	0	850								
Valley	839	811	28	0				10	28		801		
McCone	744	744	0	0				41			703		
Wheatland	665	665	0	0	580			85					
Liberty	630	0	630	0					160			470	
Treasurer	590	590	0	0	590								
Cascade	587	557	30	0	12			545				30	
Mineral	490	340	150	0							340	150	
Fergus	377	355	22	0				20	22		335		
Prairie	225	225	0	0				225					
Granite	206	206	0	0				206					
Daniels	168	158	10	0				158	10				
Pondera	150	150	0	0				150					
Golden Valley	85	85	0	0	79			6					
Toole	73	73	0	0							73		
Blaine	0	0	0	0									
Fallon	0	0	0	0									
Judith Basin	0	0	0	0									
Petroleum	0	0	0	0									
Powder River	0	0	0	0									
Rosebud	0	0	0	0									
Sheridan	0	0	0	0									
Wibaux	0	0	0	0									
No Information	100	100	0	0							100		
TOTALS	1,085,969	988,557	97,413	0	920,568	84,570	0	51,463	9,653	0	16,525	3,190	0

*ALL ANALYSIS OF RESTORATION PROJECTS MUST CONSIDER THE PROBLEMS WITH THIS DATA DISCUSSED UNDER
Permits for Resource Restoration ON PAGE 51.

Table 15: Total Number of 404 Permits Issued by County between 1990 and 2002 With No Information About Size of Impact. All permit types are included in the totals (Individual, Nationwide and General Permits). Permits are divided into 3 categories: 1) permits resulting in impacts, 2) permits for restoration projects, and 3) permits with no information; these 3 categories are explained on page 30. The table is sorted by the total number of permits with no information by county.

	Totals				Individual Permits			Nationwide Permits			General Permits		
	Totals	Permits Resulting in Impacts	Restoration Projects*	No Information	Permits Resulting in Impacts	Restoration Projects	No Information	Permits Resulting in Impacts	Restoration Projects	No Information	Permits Resulting in Impacts	Restoration Projects	No Information
Yellowstone	130	99	13	18	7		17	87	10	1	5	3	
Flathead	111	88	18	5	4		3	80		2	4	18	
Lewis & Clark	99	73	22	4	5	1	1	67	14	3	1	7	
Missoula	87	70	10	7			4	69	4	3	1	6	
Gallatin	81	66	11	4	2	1	4	63	2		1	8	
Lake	80	66	11	3				63	6	3	3	5	
Cascade	75	67	7	1	3			63	6	1	1	1	
Sanders	71	59	10	2	1			55	4	2	3	6	
Madison	65	53	10	2	1			50		2	2	10	
Big Horn	63	57	1	5	1		4	56	1	1			
Valley	63	61	1	1	4			28	1	1	29		
Park	62	54	6	2	2	1	1	52	4	1		1	
Lincoln	52	36	16	0	1	1		27	4		8	11	
Beaverhead	50	44	4	2				42	2	2	2	2	
Roosevelt	50	47	2	1	3		1	44	2				
Ravalli	48	28	15	5	1	2	4	27	10	1		3	
Stillwater	45	38	7	0	3			35	7				
Fergus	43	28	14	1	1			27	13	1		1	
Carbon	42	39	2	1				39	2	1			
Sweet Grass	33	23	9	1				20	1	1	3	8	
Richland	26	23	0	3	1		1	21		2	1		
Powell	24	16	7	1	1		1	15	4			3	
Deer Lodge	21	19	2	0		1		19				1	
Phillips	21	18	3	0				15	1		3	2	
Broadwater	19	15	4	0	1			13	1		1	3	
Custer	19	16	2	1	1			15	2	1			
Blaine	18	14	1	3	1		1	12	1	2	1		
Fallon	18	17	0	1	1			16		1			
Hill	18	15	3	0	1			13	2		1	1	
McCone	17	17	0	0				11			6		
Musselshell	16	14	2	0				14	2				
Choteau	15	13	1	1	1			12		1		1	
Glacier	15	14	1	0				14	1				
Pondera	13	13	0	0				13					
Teton	13	10	3	0		1		10				2	
Carter	12	11	0	1			1	11					
Jefferson	12	11	1	0				11	1				
Silver Bow	12	11	1	0		1		11					
Judith Basin	11	11	0	0				11					
Meagher	11	10	1	0				10	1				
Powder River	11	10	1	0				10	1				
Garfield	10	10	0	0				5			5		
Golden Valley	10	10	0	0				10					
Granite	10	7	3	0		1		7	1			1	
Petroleum	9	7	2	0	1			6	1			1	
Wibaux	8	7	1	0				7	1				
Dawson	7	6	1	0				6	1				
Toole	7	6	0	1				5		1	1		
Liberty	6	4	2	0				4				2	
Prairie	6	6	0	0				6					
Rosebud	6	6	0	0				6					
Daniels	5	3	2	0				3	2				
Wheatland	5	5	0	0				5					
Mineral	4	2	2	0				2				2	
Treasuer	2	2	0	0				2					
Sheridan	1	1	0	0				1					
No Information	31	24	5	2		1		23	2	2	1	2	
TOTALS	1,819	1,500	240	79	48	11	43	1,369	118	36	83	111	0

*ALL ANALYSIS OF RESTORATION PROJECTS MUST CONSIDER THE PROBLEMS WITH THIS DATA DISCUSSED UNDER *Permits for Resource Restoration* ON PAGE 51.

Appendix V – References

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