

IDAHO FLOOD RISK PORTFOLIO



MARCH 31, 2011

RiskMAP
Increasing Resilience Together

CTP Cooperating
Technical
Partners



2011 Idaho Flood Risk Portfolio

May 4, 2012

Data Information and Knowledge Management

Production Schedule

January 15, 2011 – March 31, 2011

Ryan McDaniel, CFM PMP
Cooperating Technical Partner Coordinator
Idaho Department of Water Resources

Water Compliance Bureau

322 East Front Street

Boise, ID 83720-0098

Ryan.McDaniel@IDWR.Idaho.gov

Desk: (208) 287-4926

2. EXECUTIVE SUMMARY

Flooding can occur anywhere in the State of Idaho. Flooding is a serious, frequent, and costly natural disaster. Idaho is not immune to the costs associated with flood risks and flooding poses a real threat to the lives and property of residents living near rivers, streams, and lakes. Floodplains are inherently dynamic, a characteristic that makes floodplain management and mapping a challenge. The underlying issue concerning flood hazards is the existing watershed characteristics that influence damage flooding inflicts upon Idahoans. Understanding the existing characteristics of watersheds, and their impact on flood risks, is necessary to protect the people and property of Idaho.

Flood risk evaluations are necessary to identify significant risks so that limited mitigation funds can be prioritized for use in the most at-risk areas. Therefore, an evaluation must be conducted to determine the flood risk of Idaho Watersheds so that precious funds may be sequenced and prioritized where it will benefit the most people and property at risk.

Through funding from the Federal Emergency Management Agency (FEMA), the Idaho Department of Water Resources (IDWR) created the 2011 Idaho Flood Risk Portfolio to describe Idaho's flood risk in 53 distinct watersheds, defined by the USGS Hydrologic Unit Code 8 boundaries (HUC's). Current data on flood risks in Idaho are available regionally from the Federal Emergency Management Agency's (FEMA) National Flood Insurance Program (NFIP), the United States Geological Survey's (USGS) stream gauge program and the Idaho Bureau of Homeland Security and county All Hazard Mitigation Plans (AHMP) but this data was not rolled-up into one authoritative source until the IFRP.

The Idaho Flood Risk Portfolio (IFRP) is a digital geospatial natural hazard risk database and is published with an accompanying desk reference to convey a common vision of flood hazards throughout the Gem State.

3. Business Problem and Solution Description

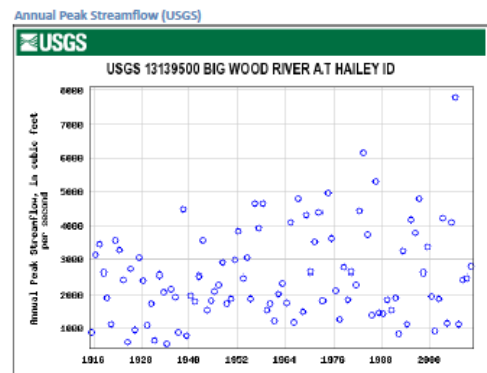
How can the state coordinate the flood risk reduction efforts of the federal, state and local governments, while working to protect life and property?

Repetitive Loss	0
CNMS Stream Miles	Requests: 16.07
# NFIP Communities	6
# NFIP Policies	146
Insurance in Force (\$)	28.4 M

The Idaho Department of Water Resources (IDWR), with funding support from the Federal Emergency Management Agency (FEMA) Region X, created the IFRP with the goal of creating a process that prioritizes flood-related projects at the state level using a consistent map-based approach. The research and geodatabase formats are scalable for easy adoption by other states, enabling the IFRP to be used as a template, for the creation of interstate risk portfolios. Furthermore, the tool is designed to accept a multi-hazard approach to risk management because the IFRP could easily be adapted to represent avalanche, wildfire, straight-line winds and other natural hazard risks in a comprehensive risk mitigation portfolio.

Sub-Basin Characteristics	
Sq. Miles	1232
Canal Miles	542
Stream Miles	3165
ID Pop. (2010)	34125
Management Agency (in ID)	
Private	58.90
Federal	33.90
Indian Reservation + BIA	.00
State	6.52
Out of State	.00
Elevation (Feet)	
Minimum	2126
Maximum	8284

The IFRSP functions just like any other portfolio that simultaneously depicts assets and liabilities (such as a checkbook, vehicle mileage and maintenance record, et cetera). A powerful component of the IFRP is the ability to convey an array of highly technical information in an intuitive and simple fashion to a variety of audiences. The IFRP presents a common flood risk vision within the state, while invoking regional thinking to promote the expenditure of limited government funds, to be used to address the greatest at-risk areas. The portfolio is published as a powerful geodatabase and general desk reference that describes the flood and seismic risks in 84 watersheds, and includes United States Geological Survey stream gauge charts, Idaho Bureau of Homeland Security mitigation projects, flood insurance data, a summary narrative written for a lay-person, and a vicinity map.



Local land use jurisdictions are the purview of the state and the IFRP is designed to assist communities with achieving their own preferred future of reduced flood and seismic risk.

The primary purpose of the IFRP is to sequence flood hazard map production, risk assessment and mitigation activities.

The watershed flood risk ranking is

PORTFOLIO

IDWR Rank	HUC 8	Sub-Basin Name
1	17050122	Payette
2	17050114	Lower Boise
3	17040219	Big Wood
4	17040204	Teton
5	17040203	Lower Henrys
6	17040202	Upper Henrys
7	17040201	Idaho Falls
8	17010303	Coeur D'alene Lake
9	17010305	Upper Spokane
10	17040206	American Falls

predicated on three selection criteria:

- 1) Population (Census 2010 Blocks)
- 2) Property (% private ownership and flood insurance policies in effect)
- 3) Professional Judgment

The presence of available elevation data, flood history and institutional memory supplement information contained in FEMA's Coordinated Needs Management Strategy (CNMS). IDWR's ranking considers these factors, as well as qualitative and quantitative factors within HUCs such as population data, the percentage of lands that are privately-owned, the number and total value of flood insurance policies in force, elevation and stream gage data, flood history and institutional knowledge as qualitative ranking factors.

4. SIGNIFICANCE

The beauty of the IFRP is in its utility: a desk reference and a powerful Geographic Information System analysis database all-in-one. The IFRP appeals to all audience types: expert, lay-person, planning and zoning commissioners, media, and federal, state and local elected and appointed officials. The IFRP supports multiple state and local applications: USACE levee safety; 504 permitting; flood risk reduction; FEMA Risk MAP; NFIP and mitigation divisions; and IBHS All-Hazard Mitigation Planning. The database can also be immediately used in life safety situations, pulled into the common operating picture of emergency response teams or serve as an excellent jumping off point for more in depth analysis. The IFRP is significant because this level of coordination was not present until an appropriate communication tool was created.

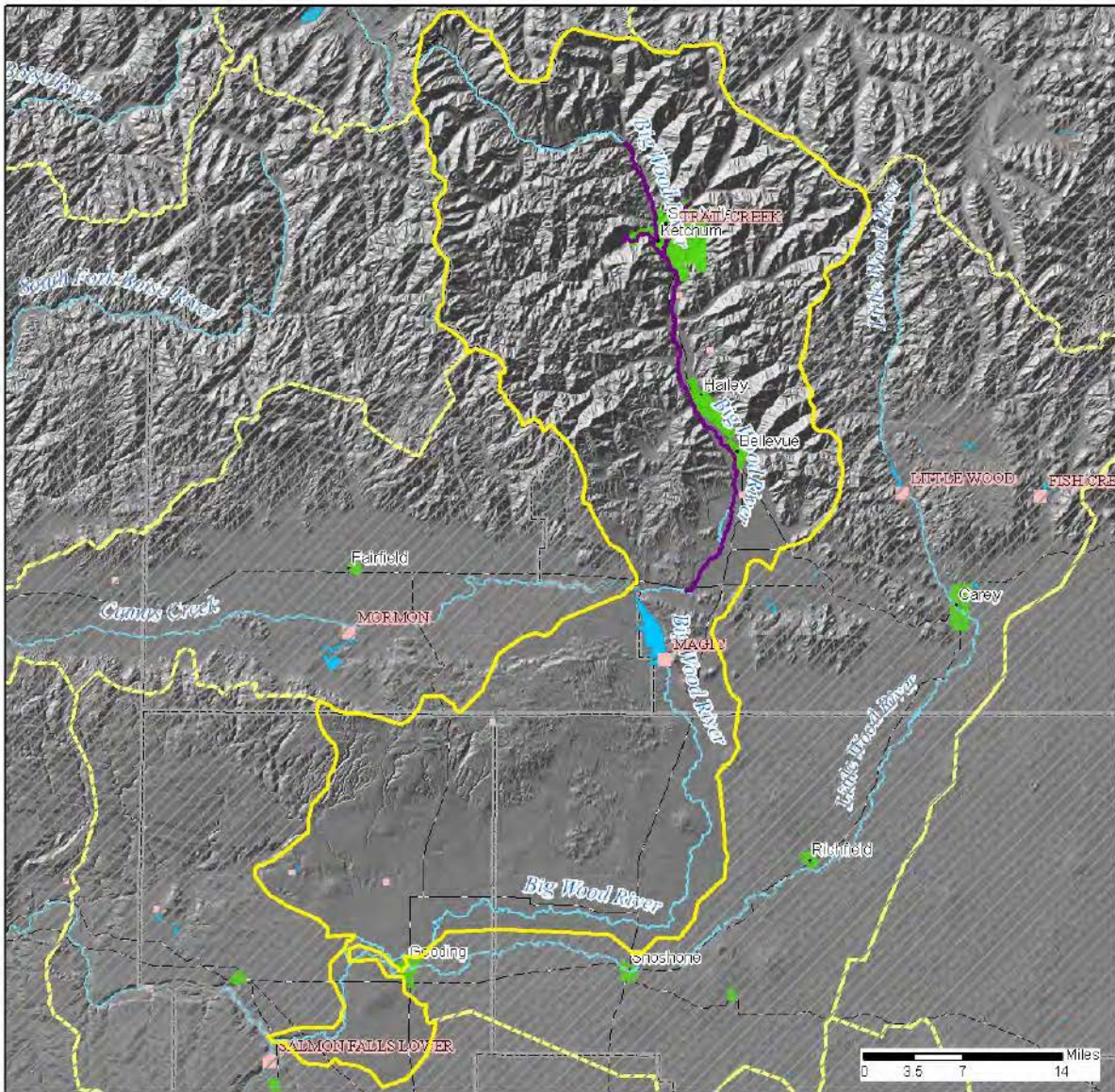
5. BENEFIT OF THE PROJECT

The IFRP will remain in effect from 2011 until 2012, after which it will be updated to include all 84 watersheds in Idaho and include a seismic component. Until that time, the benefits of the IFRP include:

- supporting improved flood risk communication and outreach;
- providing assistance in identifying and prioritizing actions that reduce risk;
- facilitating strategic planning;
- identifying, leveraging and increasing efficient use of available information and resources while promoting wise stewardship of taxpayer funds; and finally,
- developing more comprehensive flood reduction strategies that increase the discipline of flood hazard management as a whole.

A specific example includes the use of the IFRP by local governments to help validate the value of a mitigation project while quantifying the potential reduced risk to life and property in a grant application, public works project or enhanced land use planning standards. The IFRP goes a long way to increasing access to quality data that increases public awareness and leads to action reducing hazard risks to life and property in Idaho.

Big Wood



Legend

Sub-basins	Repetitive Flood Damage	LIDAR Existing
Counties	Flood Studies - Invalid/Unknown	LIDAR Planned
City Limits	Flood Studies - Requested	Area Outside of Sub-basin
Highways	Dams	
Streams	Downstream Hazard	
Water bodies	HIGH	SIGNIFICANT
Tribes		



Big Wood

IDWR Rank: 3

FEMA Rank: 20 (Total Score:322.304)

Repetitive Loss	0
CNMS Stream Miles	Invalid: 49.90
# NFIP Communities	5
# NFIP Policies	406
Insurance in Force (\$)	106.2 M

Introduction

The Big Wood Sub-Basin is home to thousands of people that live in or near to the Big Wood River floodplain. The populated areas within the Big Wood boundaries include Sun Valley, Ketchum and Hailey.

What is the risk?

Flooding within the Big Wood Sub-Basin could greatly disrupt life and property to Blain County. Much of the population to the sub-basin is along the Big Wood River. Annual precipitations in these areas are 16 to 30 inches per year¹. At the USGS gage in Hailey, the Big Wood river bankfull discharge is 2,290 cfs⁸. The table below shows potential for flood risk has occurred recently with high flows that exceed 7,000 cfs. There are 8 dams in the sub-basin that pose high to significant risk which are tributary to the Big Wood and Malad River; the largest include Magic and Trail Creek dam. The Trail Creek dam is within the city limits of Sun Valley while Magic dam poses high risk to grain cropland, holding back the water of Magic Reservoir⁵.

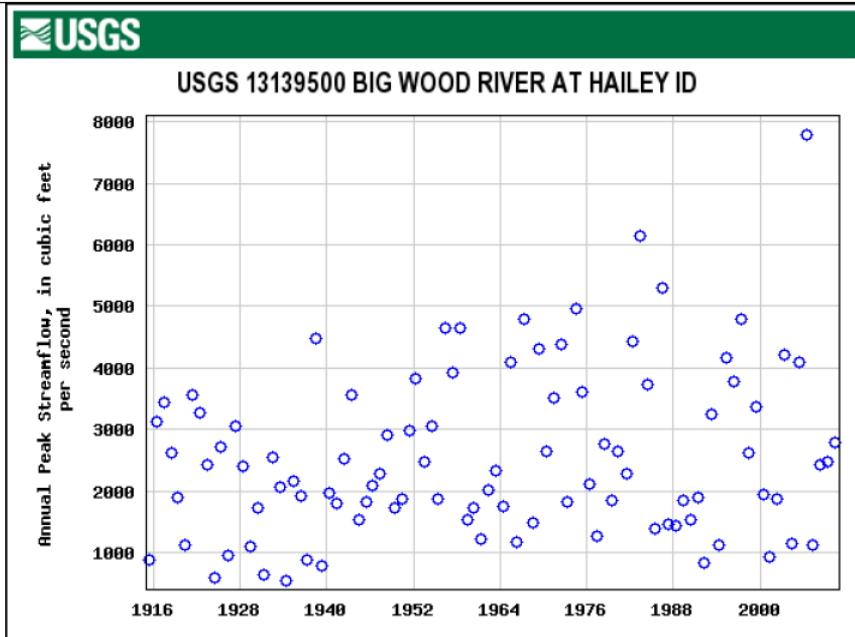
Available LiDAR data?

- No LiDAR data is available or planned.

Conclusion

With high population in risk of flooding, there is a high number of NFIP policies to the basin. High costs are associated with these risks. Dam breaches are also a high risk to the area. For these reasons, there is a high need for further study.

NFIP Communities: Custer Co.
Bellevue, Hailey, Ketchum, Sun Valley



Sub-Basin Characteristics	
Sq. Miles	1499
Canal Miles	424
Stream Miles	2829
ID Pop. (2010)	23866
Management Agency (in ID)	
Private	22.31
Federal	74.81
Indian Reservation + BIA	.00
State	2.87
Out of State	.00
Elevation (Feet)	
Minimum	2654
Maximum	11955