Risk Analysis

Janine Castro, US Fish and Wildlife Service

https://www.webapps.nwfsc.noaa.gov/apex/f?p=275:1:

NOAA FISHERIES River RAT
River Restoration Analysis Tool
NORTHWEST FISHERIES SCIENCE CENTER

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Project

Welcome to River Restoration Analysis Tool, or RiverRAT. River RAT is a river project development and evaluation tool. It was developed to facilitate consistent and thorough evaluation of the potential impacts of proposed projects on river habitat. The tool is supported by a source document that provides a comprehensive synthesis of the watershed and river sciences relevant to restoration planning and design, a project risk evaluation matrix, and a separate comprehensive checklist of information necessary to review project proposals.

The RiverRAT tool will walk you through a series of 16 questions that parallel the phases of restoration project development. Each question is designed to help you evaluate whether a project has addressed fundamental considerations at each step of the project development process. You will be able to record your responses and thoughts for each question, and print a final report to document your review.

If you would like to explore RiverRAT click here.
If the tool suits your needs, **request your own username and password by contacting us here.**

More...

TRAINING OFFERED SEPTEMBER 18 2013 In Wenatchee, WA by Coastal Training Program
Download the Science Base for Evaluating Stream Project Proposals - (PDF 4MB)
Download the Screening Matrix
Download the Project Information Checklist
RiverRAT Framework
RiverRAT Overview
RiverRAT Development Team and Information

SKIDMORE RESTORATION CONSULTING

The University of Nottingham
UNITED KINGDOM • CHINA • MALAYSIA

RIVER RESEARCH AND APPLICATIONS

River Res. Applic. (2014)

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PROJECT RISK SCREENING MATRIX FOR RIVER MANAGEMENT AND RESTORATION

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Risk = Probability x Consequence

risk to species

risk to owners

risk to ecosystem

social risk and

institutional risk

Project Risk Screening Matrix 2011

Scale of Disturbance (multiple of channel width)
1x 3x 5-7x 10x 20+

Planning Context
Coordinated Watershed Plan Stand-alone Project

Artificial Bed and/or Bank Stabilization
Removed Left in place Added (deformable) Added (non-deformable)

Monitoring and Maintenance Plan
Adaptive Management Isolated Action Multiple Pervasive

Monitoring only None

Stream Sensitivity / Stream Type

Source (>10%)		Transport (3–10%)	Response (<3%)
Bedrock	Colluvial	Alluvial	Incised Channel /Alluvial Fan

Riparian Corridor

Continuous/Wide	Semi-continuous/Wide	Discontinuous/Narrow	Urbanized or Levee Confined

Bank Erosion Potential

Naturally Non-erodible	Erosion Resistant	Highly Erodible or Revetted

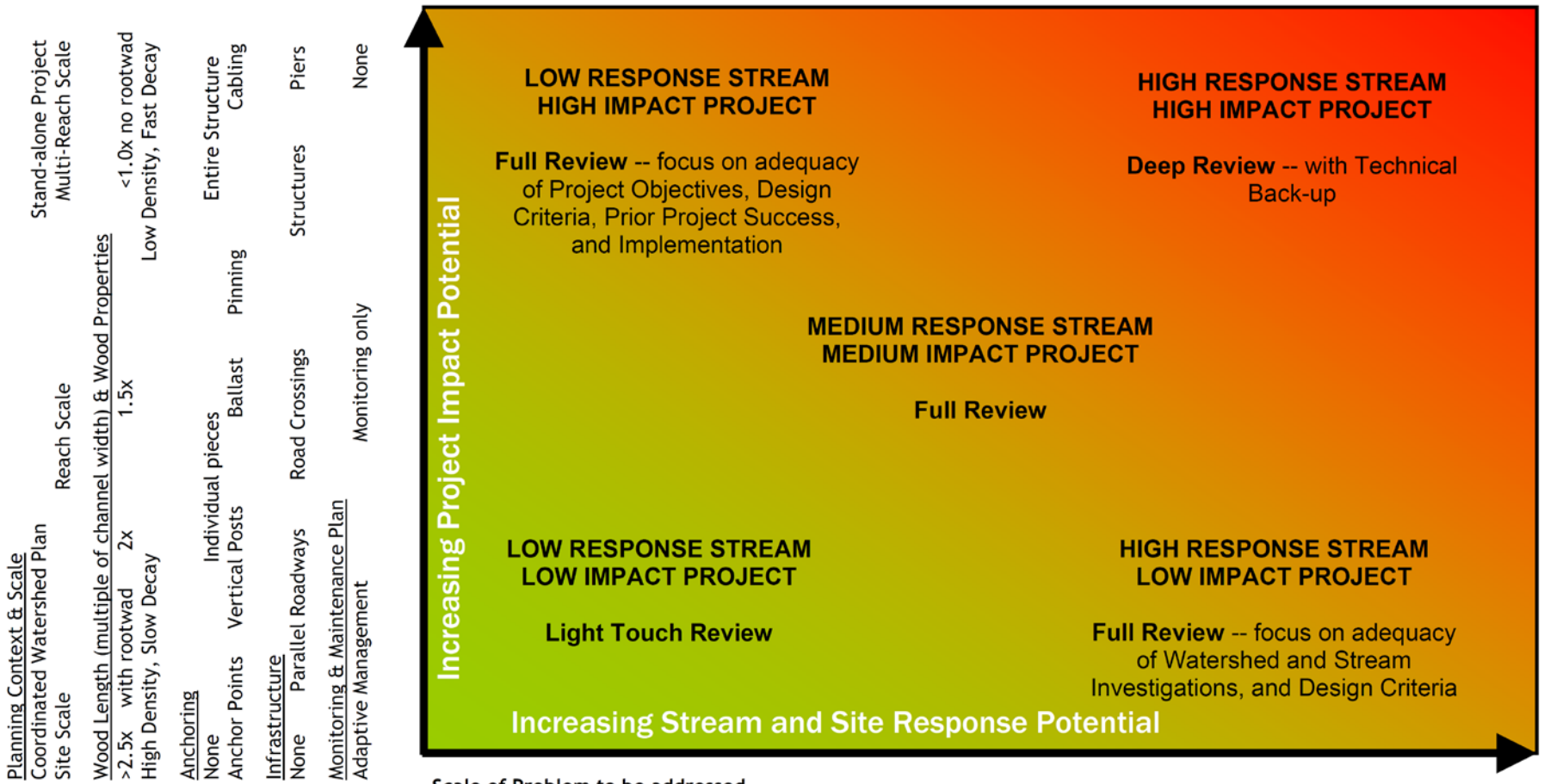
Bed Scour Potential

Boulder/Clay Bed (low)	Gravel/Cobble Bed (moderate)	Sand/Silt Bed (high)

Dominant Hydrologic Regime

Spring-fed	Snowmelt	Rain	Rain-on-Snow	Thunderstorm/Monsoon

Large Wood Risk Screening Matrix



Scale of Problem to be addressed
Site | Reach | Multiple reaches | Watershed

Landscape Sensitivity / Stream Type
Source (>10%) | Transport (3—10%) | Response (<3%)
Bedrock | Colluvial | Alluvial | Incised Channel | Alluvial Fan

Riparian Corridor
Continuous/Wide | Semi-continuous/Wide | Discontinuous/Narrow | Urbanized or Levee Confined

Bank Characteristics
Naturally Non-erodible | Erosion Resistant | Highly Erodible or Revetted

Bed Characteristics
Low (boulder/cobble/clay bed) | Moderate (gravel/silt bed) | High (sand bed)

Dominant Hydrologic Regime
Spring-fed | Snowmelt | Rain | Rain-on-snow | Convective Thunderstorm

Pre-App Meeting Screening Matrix

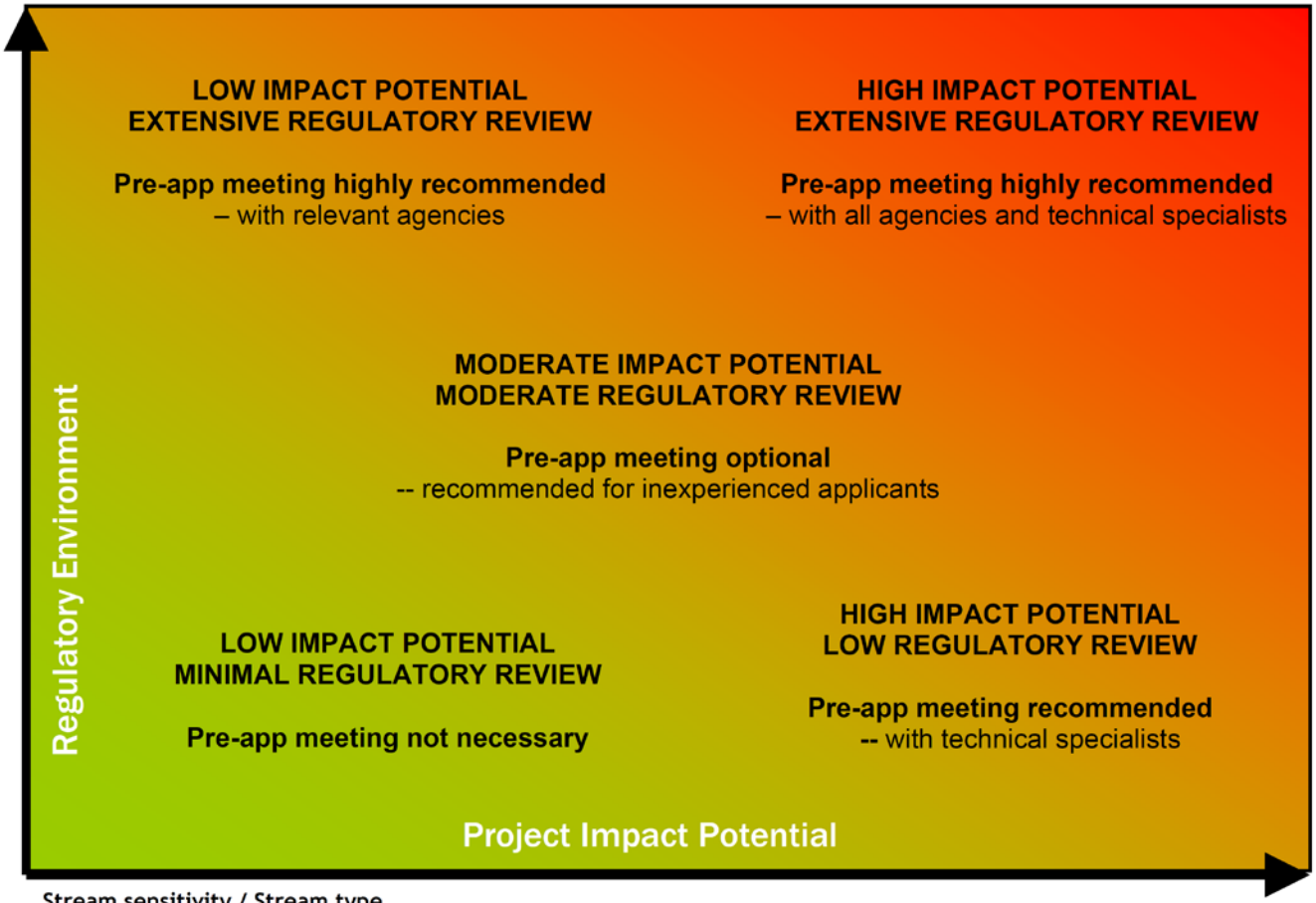
Endangered Species Act
No Effect | Programmatic | NLAA | LAA | Individual Consultation | Potential Jeopardy

Corps/DSL: acres of impact
<0.1 acres | Nationwide/General Authorization | >0.1 -- <0.5 acres | RGP/GP | Individual permit | >0.5 acres

Public Interest
Low | Moderate | Significant/Potential Litigation

Project Complexity and Constraints
Common Action | Site Specific Design | Experimental
No jump | 6" jump | >1' jump, channel spanning
no in-water work | within window | outside window

Cultural or Historic
Not present | Unknown | Present (known)



Stream sensitivity / Stream type
Source (>10% slope) | Transport (3—10%) | Response (<3%)
Bedrock | Colluvial | Alluvial | Incised Channel / Alluvial Fan

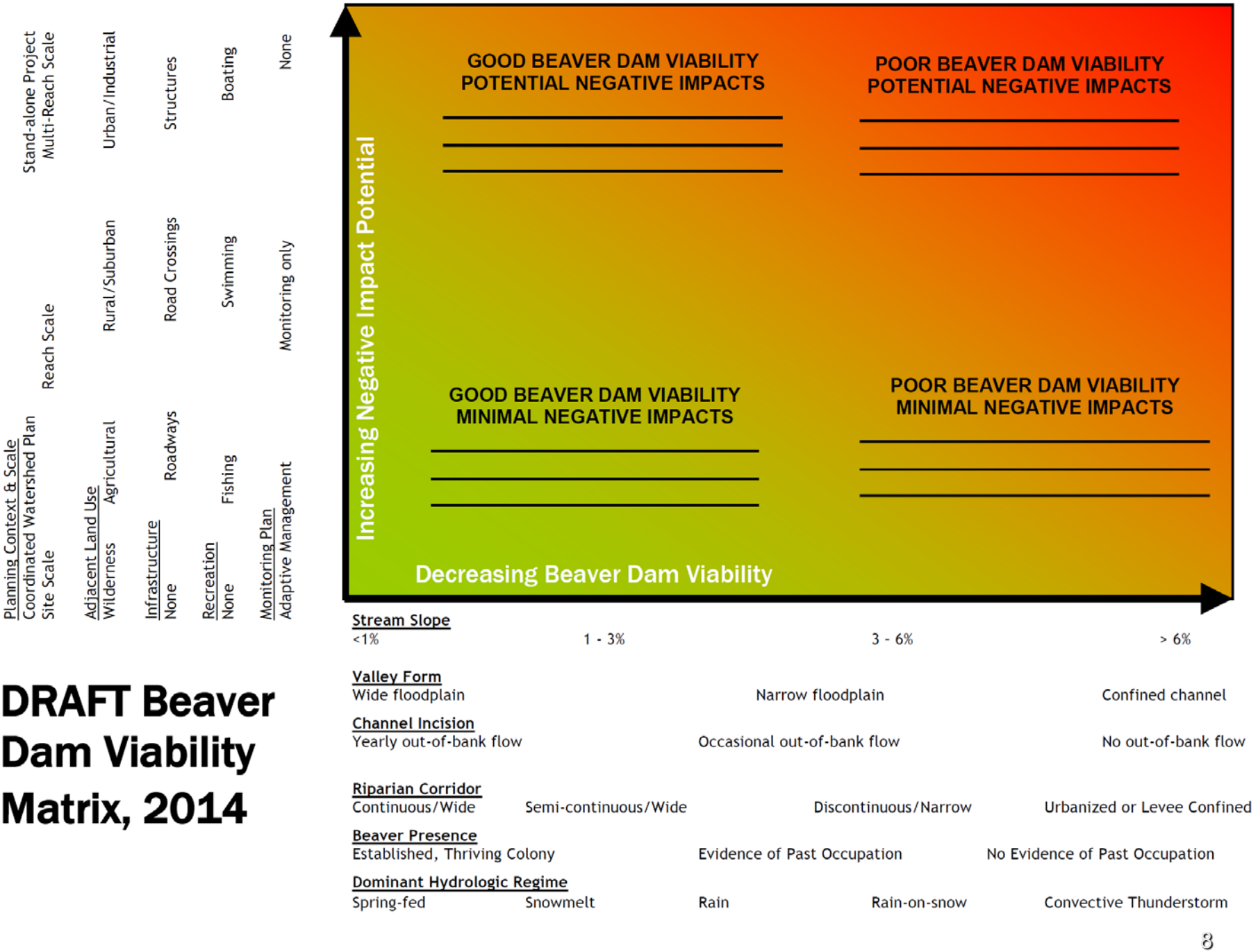
Wetland quality
Prior Converted | Degraded | Pristine/Unique

Aquatic species
Common or tolerant | Connected | Sensitive or isolated

Water quality and quantity
Unimpaired | Impaired | TMDL | Contaminants
No use of water/no need for water right | Point of diversion/change in water right

Scale of Disturbance (stream or mining)
1x | 3x | 5 - 7x | 10x | 20+
<5000 cubic yards removed | >5000 cubic yards removed

DRAFT Beaver Dam Viability Matrix, 2014



Stream Slope

<1%	1 - 3%	3 - 6%	> 6%

Valley Form

Wide floodplain	Narrow floodplain	Confined channel

Channel Incision

Yearly out-of-bank flow	Occasional out-of-bank flow	No out-of-bank flow

Riparian Corridor

Continuous/Wide	Semi-continuous/Wide	Discontinuous/Narrow	Urbanized or Levee Confined

Beaver Presence

Established, Thriving Colony	Evidence of Past Occupation	No Evidence of Past Occupation

Dominant Hydrologic Regime

Spring-fed	Snowmelt	Rain	Rain-on-snow	Convective Thunderstorm

Planning Context & Scale

Coordinated Watershed Plan			Stand-alone Project
Site Scale		Reach Scale	Multi-Reach Scale

Adjacent Land Use

Wilderness	Agricultural	Rural/Suburban	Urban/Industrial

Infrastructure

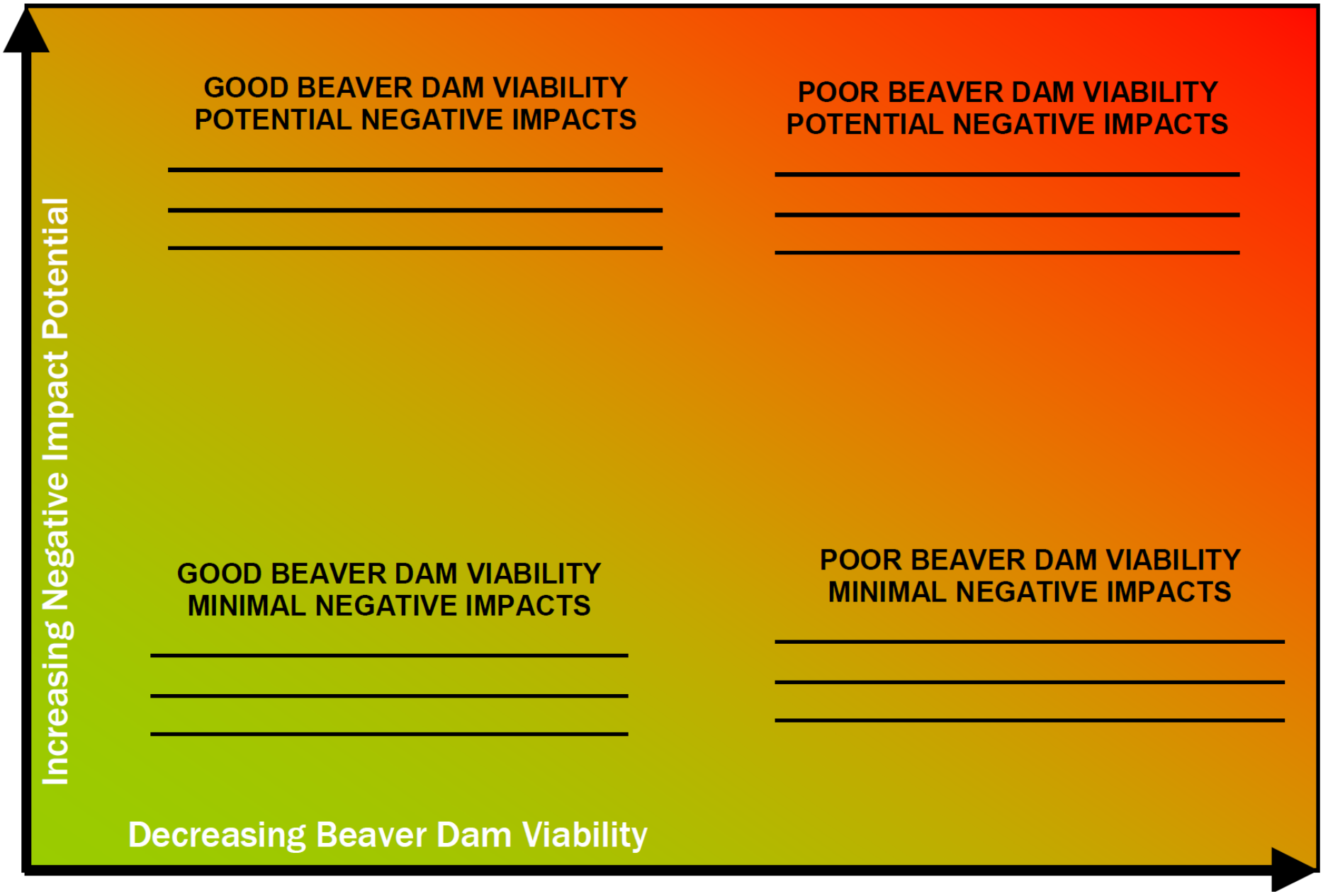
None	Roadways	Road Crossings	Structures

Recreation

None	Fishing	Swimming	Boating

Monitoring Plan

Adaptive Management	Monitoring only	None


GOOD BEAVER DAM VIABILITY
POTENTIAL NEGATIVE IMPACTS
POOR BEAVER DAM VIABILITY
POTENTIAL NEGATIVE IMPACTS
GOOD BEAVER DAM VIABILITY
MINIMAL NEGATIVE IMPACTS
POOR BEAVER DAM VIABILITY
MINIMAL NEGATIVE IMPACTS
Increasing Negative Impact Potential
Decreasing Beaver Dam Viability

- Floodplain Excavation,
- Levee Set-Back/Removal,
- Floodplain Reconnection,
- Revegetation,
- Food Supplementation,
- Construction Material Supplementation,
- Beaver Dam Analogues ,
- Recolonization,
- Reintroduction,
- Population Management,
- Mitigation Techniques

DRAFT Beaver Dam Viability Matrix, 2014