

## APPENDIX C

### Stocking Guide for Non-Target Species Management

The following tables identify acceptable non-target species (NTS) for regional waters traditionally stocked with coolwater and warmwater species. Although these species are accepted as NTS with authorized stocking requests, it is imperative that the Assistant Fish Culture Supervisor and each affected regional fisheries supervisor are informed for verification prior to leaving the source facility.

#### Casper Region

IBMNUM	Water Name	Acceptable NTS
CR350320NA	Goldeneye Reservoir	EMS, FHM, GOS, GZS, WAE
CR430075NA	Midwest Reservoir	BLG, CCF, GSF, LMB
CR430265NA	Sheepherder's Reservoir	BLC, WHC
CR430490NA	Burlington Reservoir	GBH, LMB
CR450009PE	Guernsey Slough	CCF, FHM, LMB, PKS
CR450099PE	Cundall Reservoir	LMB
CR450113NA	Bryan Stock Trail Reservoir	BLC, CCF, GSF, LMB, WAE, WHC
CR450145PE	Glendo Reservoir	BLC, CCF, EMS, FHM, GZS, STS, WAE, WHC, YEP
CR450390NA	Alcova Reservoir	FHM, GZS
CR450405CN	Seminole Reservoir	FHM, GZS
CR450435NA	Pathfinder Reservoir	FHM, GZS
CR550090NA	Yesness Reservoir	GSF
CR851005GN	North Platte River, Nebraska to County Line	BLG, CCF, EMS, FHM, GZS, LMB, WAE, WHC, YEP
CR851005PE	North Platte River, County Line to Guernsey	CCF, FHM, GZS, WAE, YEP
CR851008PE	North Platte River, Guernsey to Glendo	CCF, EMS, FHM, GZS, LMB, STS, WAE, WHC
CR851010PE	North Platte River, Glendo to PP&L	GZS, CCF, WAE, YEP, FHM
CR851012CE	North Platte River, PP&L to County Line	CCF, FHM
CR851012NA	North Platte River, County Line to Mills	CCF, FHM

#### Cody Region

IBMNUM	Water Name	Acceptable NTS
CY420040PK	Beck Lake	CCF, YEP, LMB, BLC, WHC
CY821001BN	Big Horn River	SNS
CY420120BN	Big Horn Lake	SNS
CY020670BN	Blue Ridge Reservoir	LMB, BLG, GSB
CY420004PK	Deaver Reservoir	WAE, FHM
CY480054PK	Fubar Reservoir	LMB, SMB, YEP, BLC, WHC
CY822325BN	Greybull River	SNS
CY420715BN	Harrington Reservoir	LMB, BLG, FHM, YEP
CY520757BN	Horseshoe Reservoir	LMB, BLG, GSB, FHM
CY420720BN	Mayland Stock Pond	WAE, YEP, EMS, FHM
CY823040BN	Nowood River	SNS

### Cody Region (Continued)

IBMNUM	Water Name	Acceptable NTS
CY620012PK	Powell Gravel Pit	LMB, YEP, BLC, FHM
CY420662BN	Renner Reservoir	LMB,GBH, FHM, GOS
CY480053PK	Ruff Reservoir	LMB, FHM
CY822040BN	Shell Creek	SNS
CY821090BN	Shoshone River	SNS
CY420581WE	South Worland Pond	LMB, BLH, GBH, FHM
CY420710BN	Wardell Reservoir	WAE, YEP, WHC, BLC, EMS, FHM

### Green River Region

IBMNUM	Water Name	Acceptable NTS
GR440390SR	Flaming Gorge Reservoir	SMB, CCF
GR440005LN	Fontenelle Reservoir	SMB, CCF
GR440370SR	Big Sandy Reservoir	CCF
GR440340SR	Eden Reservoir	CCF
GR440410SR	Jim Bridger Reservoir	SMB, CCF

### Lander Region

IBMNUM	Water Name	Acceptable NTS
LR420028FT	Ocean Lake	WAE, YEP, BLC, WHC, LMB, BLG, FHM
LR420114FT	Boysen Reservoir	CCF, YEP, FHM
LR420025FT	Kinnear Lake	CCF, YEP, LMB, BLG, FHM
LR420001FT	Sand Mesa #2	LMB, BLG, CCF, FHM

### Laramie Region

IBMNUM	Water Name	Acceptable NTS
LE450575GN	Bump Sullivan Reservoir	CCF, LMB, WAE GBH, BLG
LE350231PE	Festo Lake	CCF, LMB TIM, STS
LE450005PE	Grayrocks Reservoir	CCF, WAE, GZS
LE450230GN	Hawk Springs Reservoir	WHC, SMB, CCF, BLC, WAE, BLC, LMB, GZS, STS
LE450020GN	Packers Lake	BLC, CCF, LMB, GZS, WAE WHC, SMB, STS
LE450197PE	Rock Lake	CCF, LMB, WAE, GZS, BLC
LE450545GN	Springer Reservoir	CCF, LMB, WAE, YEP, GZS
LE450195PE	Wheatland Reservoir #1	CCF, WAE, STS, GZS, SMB, BLC

### Sheridan Region

IBMNUM	Water Name	Acceptable NTS
SN430111JN	J Bar U Reservoir	BLB, GSF, LMB
SN430227JN	Desmet Lake	CKC, CRP, EMS, FHM, RKB, WHS, YEP, ELR, BNT, RBT
SN431134JN	Healy Reservoir	BKT, BNT, FHM, LNS, NRH, RBT, SRC, STC, WHS, YEP
SN460007WN	LAK Reservoir	BLB, BLC, BNT, GOS, GSF, LMB, RBT, SMB, TIM, WAE, WHS
SN460174CL	Little Thunder Reservoir	BLB, BLG, GSF, LMB, RBT
SN460177WN	Black Hills P&L Reservoir	BLB, BNT, CCF, GSF, LMB, RBT
SN460230WN	USFS Bentonite 1	BLC, LMB, STS, WHS
SN460245WN	East Iron Creek Reservoir	BLG, LMB, SRC
SN460261CL	Gillette Fishing Lake	BLB, CRP, GSF, LMB, RBT, YEP
SN460371CK	Keyhole Reservoir	BLB, BLC, CCF, CRP, EMS, FHC, FHM, FWD, GSF, GZS, LMB, NOP, NRH, PMN, RCS, RDS, SDS, STS, SMB, WAE, WHC, WHS, YEP
SN530299SN	Mavrakis Fishing Pond	BLB, GSF, LMB, RBT
SN730334SN	Kleenburn Pond 2	BLC, CCF, FHM, LMB
SN730336SN	Kleenburn Pond 1	BLB, BLC, GSF, SMB, WHC, WHS
SN730395SN	Ranchester City Pond	BKT, BLB, CCF, CRP, CUT, FHM, GOS, GSF, RBT, SMB, WHS
SN760258WN	Upton Centennial 1	BLB, FHM, GSF, LMB, PMN, WHS
SN760259WN	Upton Centennial 2	BLB, FHM, GSF, LMB, PMN, WHS
SN760260WN	Upton Centennial 3	BLB, FHM, GSF, LMB, PMN, WHS
SN530300SN	Sheridan Fairgrounds Pond	FHM, GSF, LMB, RBT
SN430210JN	Buffalo Wetlands Pond	BNT, BKT, FHM, LMB, RBT, SMB, SRC, YEP, WHS
SN460210WN	Turner Reservoir	FHM, GSF, LMB, RBT, WHS
SN660235CL	Panther Pond	BLB, CCF, GSF, LMB, RBT, SRC, WHS
SN730130CL	Weston Reservoir	LMB

## Wyoming Game & Fish Department Species Codes

Species Code	Species Name		Species Code	Species Name
BBT	Burbot		GRB	Gerrard Rainbow
BHS	Bluehead Sucker		GRL	Grayling
BKT	Brook Trout		GSF	Green Sunfish
BLB	Black Bullhead		GUP	Guppy
BLC	Black Crappie		GZS	Gizzard Shad
BLG	Bluegill		HHC	Hornyhead Chub
BMN	Brassy Minnow		IDT	Iowa Darter
BMS	Bigmouth Shiner		JDT	Johnny Darter
BNT	Brown Trout		KCR	Kemmerer City RBT
BRC	Bear River Cutthroat		KOE	Kokanee Salmon
BRS	Bonneville Redside		KRB	Kamloops Rainbow
BXT	Brook x Temiscamie		LAT	Lake Trout
CCF	Channel Catfish		LKC	Lake Chub
CKC	Creek Chub		LMB	Largemouth Bass
COS	Coho Salmon		LND	Longnose Dace
CRC	Colorado River Cutthroat		LNS	Longnose Sucker
CRP	Carp		LSC	Leatherside Chub
CSH	Common Shiner		MCR	McConaughy RBT
CUT	Cutthroat Trout		MSC	Mottled Sculpin
ELR	Eagle Lake RBT		MTS	Mountain Sucker
EMS	Emerald Shiner		MWF	Mountain Whitefish
FHC	Flathead Chub		NOP	Northern Pike
FHM	Fathead Minnow		NPD	Pearl Dace
FHR	Firehole Rainbow		NRH	Shorthead Redhorse
FLB	Florida Largemouth Bass		ODT	Orange Throat Darter
FLC	Flathead Catfish		PKF	Plains Killifish
FMS	Flannelmouth Sucker		PMK	Pumpkinseed
FRB	Fall Rainbow		PMN	Plains Minnow
FSD	Finescale Dace		PSC	Paiute Sculpin
FWD	Freshwater Drum		PTM	Plains Topminnow
FXW	FlannelmouthxWhite		QBK	Quillback
GAM	Western Mosquitofish		RBT	Rainbow Trout
GBH	GSF X BLG Hybrid		RCS	River Carpsucker
GBW	Goldbow		RCS	River Carpsucker
GCP	Grass Carp		RDS	Red Shiner
GDE	Goldeye		RES	Redear Sunfish
GDT	Golden Trout		RKB	Rock Bass
GOF	Goldfish		RSS	Redside Shiner
GOS	Golden Shiner		RTC	Roundtail Chub

**Wyoming Game & Fish Department Species Codes (Continued)**

<b>Species Code</b>	<b>Species Name</b>		<b>Species Code</b>	<b>Species Name</b>
RVS	River Shiner		STS	Spottail Shiner
SAR	Sauger		TBK	Temiscamie Brook
SDS	Sand Shiner		TGT	Tiger Trout (BKT X BNT)
SGC	Sturgeon Chub		TIM	Tiger Muskie
SMB	Smallmouth Bass		UTC	Utah Chub
SMM	Suckermouth Minnow		UTS	Utah Sucker
SMN	Western Silvery Minnow		WAE	Walleye
SNS	Shovelnose Sturgeon		WHB	White Bass
SPD	Speckled Dace		WHC	White Crappie
SPK	Splake		WHS	White Sucker
SRC	Snake River Cutthroat		WIP	Wiper
STC	Stonecat		YEP	Yellow Perch
STK	Brook Stickleback		YSC	Yellowstone Cutthroat
STR	Central Stoneroller			

# APPENDIX D

## Wyoming Game and Fish Department Fish Division Risk Assessment Matrix For Aquatic Importation And Transplant

### Introduction

The movement of fish by Department employees is critical to address many of the aspects, thus the intent, of our mission. However, the act of moving or importing fish presents risk, risk with the potential to jeopardize our mission. To address this conflict a method to determine the relative level of risk associated with any proposed fish importation and/or transplant was needed. The goal was to develop an objective procedure to identify the potential risk associated with the importation and/or transplanting of fish.

### Procedure

Aspects from the Hazard Analysis and Critical Control Point (HACCP) procedure (Gunderson and Kinnunen 2001) have been adopted to develop a Risk Assessment Matrix. An understanding of the HACCP procedure is necessary to understand the Matrix. Attending the Aquatic Nuisance Species Hazard Analysis and Critical Control Point Training is recommended to help understand the concepts and terminology used in the matrix.

Recognizing a no risk condition does not exist, 10 levels of risk were identified based the source of the fish and destination water. This matrix is to be used only to evaluate importation and/or transplanting of fish from state and federal hatcheries or by Department biologists. The matrix also does not attempt to address any management objectives, genetic considerations nor implications associated with introduction, restoration or maintenance stocking. These issues must be address separately and prior to considering the risk associated with the act of moving fish.

Each level of risk is defined by criteria associated with that level of risk. The criteria are offered as a yes/no condition. To establish the potential risk, proceed through the various levels until you can answer yes to all criteria at a particular level. To assist you in the process the criterion that changed and increased the level of risk is underlined within the category.

Level 3 Low Risk is the highest level of risk acceptable to obtain approval to move fish. There are two approaches to reach an acceptable level of risk. First, criteria associated with the movement of fish are at or below risk Level 3. Second, by conducting a HACCP procedure, adequate control points and techniques are identified to reduce the risk to an acceptable level.

### Definitions

**ANS (Aquatic Nuisance Species).** An aquatic species that if introduced is reasonably likely to establish reproducing population that could negatively impact existing species, recreation or other existing use of water resources in the absence of control. Additional information can be obtained at these web sites: <http://nas.er.usgs.gov>, <http://www.sgnis.org>, <http://wwwnbii.gov/invasive/spp.html> and <http://www.answest.fws.gov>.

**Barrier.** An object or water quality, either natural or man-made, preventing movement of an aquatic organism.

**Closed Water Supply Facility.** A hatchery with a water supply from a spring or well that is enclosed preventing access by aquatic species or other possible vectors for disease and parasites.

**Drainage.** A specific stream or river including all streams and standing waters, which drain into that river or stream within a river basin (e.g., Goose Creek in the Tongue River Basin).

**HACCP (Hazard Analysis and Critical Control Point).** A preventive system of hazard control to reduce the risk of spread of unwanted species into new water bodies.

**HACCP Upper Limit.** The acceptable limit of risk for importation or transplant **before or after** HACCP procedures are employed.

**Like Habitats.** We expect similar species assemblages with similar habitat attributes (e.g., elevation, geomorphology). When knowledge of specific species assemblages is lacking, if habitat attributes are similar, we will assume similar species assemblages.

**NTS (Non-Target Species).** Any species (plant or animal) not requested or desired.

**Open Water Supply Facility.** A hatchery with a water supply that is not protected from access by aquatic species or other possible vectors for disease and parasites.

**ORVI (Optical Recognition is Virtually Impossible) Organism.** Life stage or pathogen that is not visible to the naked eye (i.e., no-see'um).

**River Basin.** The large river systems of the state: Bear River Basin, Belle Fourche River Basin, Cheyenne River Basin, Great Divide Basin, Green River Basin, Little Missouri River Basin, Little Snake River Basin, Madison River Basin, Niobrara River Basin, North Platte River Basin, Powder River Basin, Snake River Basin, South Platte River Basin, Tongue River Basin, Wind-Bighorn River Basin and Yellowstone River Basin.

**Source.** Location of fish; however, more than one definition is possible. The location of the fish can be the initial location of the fish (hatchery or water), the distribution tank (or equivalent) after loading or fish load to be stocked after the HACCP process.

## **References**

Gunderson, J.L., and R.E. Kinnunen. editors. 2001. Sea Grant Aquatic Nuisance Species Hazard Analysis and Critical Control Point Training Curriculum Minnesota Sea Grant Publication Number: MNSG-F11, Minnesota Sea Grant, 2305 E 5th Street, Duluth, Minnesota.

## Risk Assessment Matrix For Aquatic Importation And Transplant

Risk Level	Department Cool/Warmwater Aquaculture Importation	Department Aquatic Transplant
<b>Level 0 No Risk</b>	<b>Does Not Exist</b>	<b>Does Not Exist</b>
<b>Level 1 Low Risk</b>	<ul style="list-style-type: none"> <li>• <u>Closed Water Supply Facility</u></li> <li>• Multiple Species Reared, All Found In Destination Drainage</li> <li>• No NTS, ANS, ORVI In Source</li> </ul>	<ul style="list-style-type: none"> <li>• <u>Transplant In Immediate Drainage W/O Barriers (Continuous, Tributaries Within Drainage)</u></li> <li>• Like Habitat, No Differences In Known Species Assemblages</li> <li>• No NTS, ANS, ORVI In Source</li> </ul>
<b>Level 2 Low Risk</b>	<ul style="list-style-type: none"> <li>• <u>Open Water Supply Facility</u></li> <li>• Multiple Species Reared, All Found In Destination Drainage</li> <li>• No NTS, ANS, ORVI In Source</li> </ul>	<ul style="list-style-type: none"> <li>• <u>Transplant In Immediate Drainage W/ Barriers (Barriers Between Tributaries Within Drainage)</u></li> <li>• Like Habitat, No Differences In Known Species Assemblages</li> <li>• No NTS, ANS, ORVI In Source</li> </ul>
<b>Level 3 Low Risk</b>	<ul style="list-style-type: none"> <li>• <u>Multiple Species Reared, Not All Present In Destination Drainage</u></li> <li>• No NTS, ANS, ORVI Present In Source</li> </ul>	<ul style="list-style-type: none"> <li>• <u>Transplant In Common Drainage W/ Barriers Or Isolation (Non-Continuous)</u></li> <li>• Like Habitat, No Differences In Known Species Assemblages</li> <li>• No NTS, ANS, ORVI In Source</li> </ul>
<b>Hazard Analysis Critical Control Point Upper Limit</b>		
<b>Level 4 Low Risk</b>	<ul style="list-style-type: none"> <li>• Multiple Species Reared, Not All Present In Wyoming</li> <li>• <u>Potential NTS In Source</u></li> <li>• No ANS, ORVI In Source</li> </ul>	<ul style="list-style-type: none"> <li>• Transplant In Common Drainage W/ Barriers Or Isolation (Non-Continuous)</li> <li>• <u>Known Difference In Habitat And/Or In Species Assemblages From Source To Destination</u></li> <li>• Potential Of NTS In Source, But Not A Concern</li> <li>• No ANS, ORVI In Source</li> </ul>
<b>Level 5 Low Risk</b>	<ul style="list-style-type: none"> <li>• <u>NTS Present In Source</u></li> <li>• No ANS, ORVI In Source</li> </ul>	<ul style="list-style-type: none"> <li>• Transplant Within River Basin</li> <li>• <u>Potential Of NTS In Source And A Concern</u></li> <li>• No ANS, ORVI In Source</li> </ul>
<b>Level 6 Moderate Risk</b>	<ul style="list-style-type: none"> <li>• <u>ANS In Drainage, But Not In Source</u></li> <li>• No ORVI In Source</li> </ul>	<ul style="list-style-type: none"> <li>• <u>Transplant Out Of River Basin</u></li> <li>• No ORVI, ANS In Source</li> </ul>
<b>Level 7 Moderate Risk</b>	<ul style="list-style-type: none"> <li>• <u>ANS May Be Present, But Controllable In Source</u></li> <li>• No ORVI In Source</li> </ul>	<ul style="list-style-type: none"> <li>• <u>ANS Present In Drainage, But Not Identified In Source</u></li> <li>• No ORVI In Source</li> </ul>
<b>Level 8 Moderate Risk</b>	<ul style="list-style-type: none"> <li>• <u>ANS Present In Source, But Controllable</u></li> <li>• No ORVI In Source</li> </ul>	<ul style="list-style-type: none"> <li>• <u>ANS Present In Source, But Controllable</u></li> <li>• No ORVI In Source</li> </ul>
<b>Level 9 Moderate Risk</b>	<ul style="list-style-type: none"> <li>• <u>ORVI Present In Drainage, But Controllable In Source</u></li> </ul>	<ul style="list-style-type: none"> <li>• <u>ORVI Present, But Controllable In Source</u></li> </ul>
<b>Level 10 High Risk</b>	<ul style="list-style-type: none"> <li>• <u>ANS, Or ORVI W/ Fish</u></li> <li>• <u>HACCP Not Effective In Removal Or Control</u></li> </ul>	<ul style="list-style-type: none"> <li>• <u>ANS, or ORVI In Water Body</u></li> <li>• <u>HACCP Not Effective In Removal Or Control</u></li> </ul>