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CODING INSTRUCTIONS FOR HABITAT & FISH MEASUREMENT DATA SHEETS

I. Introduction

Correct and complete recording of data is essential to the success of the MO River Benthic Fish Study efforts. Failure to comply with data recording procedures could compromise the objectives of the research and could result in unrecoverable waste of sampling effort. **All MO River Benthic field staff who collect fish and habitat data are expected to understand and comply with data recording procedures.**

Data collected during Field sampling are recorded on three data sheets: the *Habitat Measurement Sheet, Fish Field Measurement Sheet* and *Fish Lab Measurement Sheet*. A collection is defined as a sampling venture consisting of a unique combination of location, time, and sampling gear. One Habitat Measurement Sheet (Form 1) is completed for each collection. This sheet is used to document gear-specific sampling effort, detailed spatial data, key physical and chemical measurements, comments and quality assurance data. One or more Fish Field Measurement Sheets (Form 2) is used to record fish catch data from each collection in the field. One or more Fish Lab Measurement Sheets (Form 3) is used to record fish that were placed in jars in the field when the fish are to be taken back and identified in the lab (noted as LAB under species column on Fish Field Measurement Sheet). These data sheets serve as the sole means of recording fish collection and catch data obtained from gear specific sampling efforts.

II. Coding Instructions

General Information

Use a Number 2 pencil to record data. Write ***LEGIBLY*** so that others who are unfamiliar with your handwriting can read it. Record all data accurately. Site definition data in the top portions of data sheets must accurately represent the place a collection was made and must be identical on all sheets for any particular collection. ***Erasure of information is absolutely prohibited.*** If a recording error is made, draw a ***single line*** through the error, write the correction above or adjacent to the error, and sign your initials next to the correction or error. Sampling Crew Leaders are responsible for ensuring that data sheets are complete and accurate. Completion of ALL fields <u>underlined</u> is mandatory.

Never record ancillary data in any field. This requirement is crucial because data entry operators cannot interpret non-standard data and because the data sheets must contain an unambiguous record that can withstand legal challenge.

HABITAT MEASUREMENT SHEET

All fields on each Habitat Measurement Sheet (Form 1) are recorded in the field at the time specific measurements are taken **EXCEPT** for application of total number of pages, latitude and longitude (if a map is used for values), certification by Crew Leader and performing the final QA/QC checks. **MANDATORY** fields are those Field Names that are underlined.

HEADER

Field Name	*Description and coding instructions*
BAR CODE	Affix bar code sticker in the space provided in the upper right margin upon return to office. **Note: Application of the BAR CODE sticker is mandatory; data sheets lacking bar codes will be returned to the field station without being keyed.** If you run out of stickers write LEGIBLY the barcode number on the data sheet.
Page *XX* of *XX*	After returning to the lab for sorting and compiling of data sheets, record the number of each page in the first 2 blocks and the total number of pages for that specific collection in the blocks after the "of". Laboratory data sheets do not have to be included in the total number of pages with the Habitat and Fish Measurement Sheets.
Section #	Two digit code to describe each section. 01 = Montana Coop Unit 02 = Montana Fish, Wildlife & Parks 03 = Montana Fish, Wildlife & Parks - *Yellowstone River* 04 = Idaho Coop Unit: Upper 05 = Idaho Coop Unit: Lower 06 = South Dakota Coop Unit 07 = Iowa Coop Unit 08 = Kansas Coop Unit 09 = Missouri Coop Unit
Segment #	Three digit code to describe each segment investigated by each section. (The first digit is "0" if segment is $\leq$ 99, ex. 099)
Date (MM/DD/YY)	Date on which a gear collection was initiated. Six-digit numeric *mmddyy* format where April 1, 1996 is recorder as

040196.

Macrohabitat — Four digit code which identifies the Macrohabitat the collection was initiated in.

CHXO - Channel Cross Over
ISB - Inside Bend
OSB - Outside Bend
TRM - Tributary Mouth
SCC - Secondary Channel Connected
SCN - Secondary Channel Non-connected
WILD - Macrohabitat sampled not listed above.

Rep # — One digit numeric field that identifies the macrohabitat replicate collection number.

Mesohabitat — Four digit code which identifies the mesohabitat the collection was initiated in. (see SOP 2.2).

Required:	Optional:
BARS	BAYS
CHNB	STBM
DEEP	TLWT
LRGE	WILD
POOL	
SHLW	
SMLL	
STPS	

Bed Form — One digit alphanumeric field to be marked with an "X" if the bed form measurement was taken. If not leave blank and make note in comment section. (Record barcode # on chart for bedform determination later.)

Bed Form QF — One digit numeric field. Use QF Codes from Water Quality Paramerters.

GLOBAL POSITION SYSTEM (GPS)

GPS or MAP — Two, one digit fields to identify the method used to record latitude and longitude, GPS or MAP.

Latitude	Seven digit numeric field to record latitudinal (north/south) coordinates of the collection location. Latitude will be measured in degrees, minutes and seconds, 000º00'00". The first digit is zero.
Longitude	Seven digit numeric field to record longitudinal (east/west) coordinates of the collection location. Latitude will be measured in degrees, minutes and seconds, 000º00'00".

GEAR

Gear	Four digit character field to identify the type of gear used in fish collection. EF - Electrofishing BT - Benthic Trawl SGNU - Stationary Gill net - Small mesh, Up or Right SGND - Stationary Gill net - Small mesh, Down or Left DTN - Drift Trammel Net BS - Bag Seine WILD - Gear Not Listed Above
Sub-Sample	Two digit numeric field to identify the number of the gear sub-sample sampled. The first digit is "0" if sub-sample ≤ 9, ex. 09.

WATER QUALITY

Depth	Three digit numeric field to record water depth to the nearest 0.1 m. Quality Factor codes are printed on the data sheets.
Velocity	Three digit numeric field to record water velocity to the nearest 0.1 M/S. Quality Factor codes are printed on the data sheets.
Velocity Depth	Two digit numeric field to record the percent of the total depth the velocity reading was taken. The first column is for 0.2 (20%), and 0.6 (60%) readings and the second column is for 0.8 (80%) readings.
Conductivity	Five digit numeric field to record conductivity to the

	nearest 0.1 uS/cm. Quality Factor codes are printed on the data sheets.
Turbidity	Four digit numeric field to record turbidity to the nearest tenth (0.1). Meter is set on autorange. Quality Factor Codes are printed on the data sheets.
Quality Factor Codes (QF)	One digit character field to identify the quality of the sample taken (record equipment problems). The following codes are to be used for depth, velocity, and conductivity measurements. The Codes are on the data sheet. Blank - No problems 0 = Equipment inoperative 1 = Equipment in question 3 = Reading Off Scale(High) 4 = Used proximate measurement - no measurement at this site 5 = Sample Unusable/Unobtained 7 = Other Instrument Used - See Comments 8 = Replicate; identical habitat value 9 = Non-Standard Method Used
Air Temperature	Three digit numeric field to record air temperature to the nearest tenth in degrees Centigrade.
Water Temperature	Three digit numeric field to record water temperature to the nearest tenth in degrees Centigrade.

ELECTROFISHING SETTINGS

Power Goal	Four digit field to record the watts used for electrofishing power goal (in watts). (3,000 watts is the power goal to try to obtain.)
Power Used	Four digit field to record the actual average electrofishing power (in watts) consumption.
Volts and QF	Three digit numeric field to record DC volts. The Quality Factor (QF) is a one digit numeric field. Blank = Normal operation/acceptable measurement

	0 = Voltage meter inoperative 1 = Unstable voltage reading (varies by >70 V); equipment questionable
Amps and QF	Three digit numeric field to record DC currents (in amperes). The Quality Factor (QF) is a one digit numeric field. Blank = Normal operation/acceptable measurement 0 = Ammeter inoperative 1 = Unstable current reading (varies by >10 amps)
Pulse (Hz)	Three digit numeric field to record pulse frequency (Hertz [=cycles/sec]).
Duty Cycle	Three digit numeric field to record electrofishing duty cycle (percentage of time current is flowing).

SUBSTRATE

Cobble	One digit numeric to identify the prominence of cobble and/or boulders. 0 = None 1 = Incidental 2 = Dominant 3 = Ubiquitous
% Gravel	Three digit field to measure the percentage of sample that is gravel.
% Sand	Three digit field to measure the percentage of sample that is sand.
% Silt	Three digit field to measure the percentage of sample that is silt.

WEATHER

Wind	One digit numeric field to record conditions. 0 = No or light wind 1 = Moderate wind

	2 = High wind 3 = Extreme wind
Cloud Cover	One digit numeric field to record cloud cover. 0 <= 25% cloud cover 1 = 25 to 50% cloud cover 2 = 50%<cloud cover<100% 3 = 100% cloud cover
Precipitation	One digit numeric field to record precipitation conditions. 0 = No precipitation 1 = Light/Moderate Rain 2 = Heavy Rain 3 = Hail/Sleet 4 = Light/Moderate Snow 5 = Heavy Snow

COMMENTS

Comments	Seventy seven character field to record miscellaneous comments and observations. Only the first 77 characters are keyed. **Print one character per box (including spaces).** Abbreviate to capture key ideas. If more space is needed, write in bottom margin of data; however, any writing outside the boxes will **NOT** be keyed.

CERTIFICATION

Recorder's Initials	Three digit field for the data recorder to sign his/her initials to verify the information collected is correct.
Observer's Initials	Three digit field for the observer to sign his/her initials to verify the information collected is correct.
Crew Leader's Initials	Three digit field for the designated Crew Leader for the sample collection must initial to validate compliance with the QA/QC data recording procedures agreed upon by the MO River Benthic Fish Consortium. There must be a designated Crew Leader (the person who is responsible for decisions in difficult situations).

FISH FIELD & LAB MEASUREMENT SHEETS

Fish Field Measurement Sheets are used in the field. Fish that can be identified and enumerated in the field, all data fields (except the total number of pages, total fish, and total number of jars sampled) are recorded at the collection site. When it is necessary to preserve specimens and return them to the lab for positive identification record the sample as LAB species. Record the total number of fish retrieved. When Id is made in the lab, age structure sampling or enumeration, measurements are recorded on the *Fish Lab Measurement Sheets* in the lab. When preserving fish at the collection site, the page number, header block, and jar # fields are completed and accompanies the jars to the lab with the preserved fish. When recording fish measurements in the lab, verify that the *Fish Lab Measurement Sheet* header information, including the BAR CODE number matches the corresponding *Habitat Measurement Sheet* **EXACTLY**, and that the page numbers are in proper sequence.

See instructions under the *Habitat Measurement Sheet* for the following fields; Section #, Segment #, Date, Macrohabitat, Rep#, Mesohabitat, Gear, Sub-sample, Recorder's Initials, Observer's Initials and Crew Leader's initials. These fields are **MANDATORY** for the *Fish Field and Lab Measurement Sheets.*

Field Name	Field Description
Start Date	Eight digit , date format (mmddyy)
Finish Date	Eight digit field, data format (mmddyy); Use *ONLY* with gill nets.
Start Time	Four digit 2400-h (military) time begins. Record to nearest minute, (HH/MM).
Finish Time	Four digit 2400-h (military) time ended. Record to nearest minute, (HH/MM).
Number of Jars Sampled	Two digit numeric field to record the total number of jars used for sampling for that matches that specific collection.
Distance Estimate	Three digit numeric field to record the distance sampled, for gear used in fish collection. Measurement is estimated as close as possible.
ID#	Three digit numeric field used as a unique identifier for individual samples; individual fish, total number of fish and jar samples. (This number is already generated for you. Do NOT record anything within this column.)

Species Code	Four digit alphabetic field to record species code identifiers. These species codes are found in Form # 4. **A species code must be entered for each and every completed row.** *Never* indicate continued measurements from a species on successive rows by a vertical line drawn below the first occurrence of a code. Species codes for jar samples will be completed in the lab .
Jar #	Two digit numeric field to track jar samples. Jar numbers start with 1 and increase by 1 with each jar sampled.
Length (mm)	Four digit numeric field to record individual lengths. Record all measurements of individual lengths to the nearest mm. Total length will be used for all target species except the sturgeon, fork length will be used and when paddlefish are collected length will be taken from eye to fork. This field is left blank only to designate unmeasured fish; otherwise, it must be completed.
Weight (g)	Five digit numeric field to record individual weights (g). Fish > 1200g will be weighed to the nearest 50 g. Fish < 1200 g will be weighted to the nearest 0.1 g. Weights are only taken on individual target fish.
Fish Count	Four digit numeric field to record counts of non-target fish represented by the row of data, and the total number target fish sampled for Population, Age and Growth measurements See SOP# 4.1. Use 0 (zero) when species code = NFSH.
Age Structure Sampled	One digit field to record the type of age structure sampled for those fish identified by SOP# 4.1 Population, Age, Growth to be sampled for growth analysis. Scale, Ray, Otolith, or Spine; place an "X" in the box corresponding to the type of sample taken. May mark more than one box. See SOP # 4.1.
Pathogen Code	Three digit field to record fish health/pathogen codes as follows: 0 or blank = No visible abnormality 1 = Parasite 2 = Skeletal abnormality

3 = Tumors
4 = Injury
5 = Skin/fin/eye
6 = Other
Space is provided for 3 or less codes to be recorded.

Fish Data Sheet Log

The Fish Data Sheet Log (Form 4) is completed and sent with each submission of data sheets to the Data Base Manager.

QA/QC Procedures for Submission

Overview

Properly completed, *originals*, data sheets are submitted to the Data Base Manager as soon as possible, no longer than 4 weeks after final sampling. Submission on a regular basis during the collection period will help ensure that data are available and will avoid development of a back log at the end of the season. A complete set of data sheets for a collection consists of the *Habitat Measurement Sheet* and *Fish Field Measurement Sheets* listing all fish caught for that collection. Only completed sets may be submitted to the data entry contractor.

When, for any collection, fish are returned to the lab for identification, it will usually not be possible to complete all *Fish Lab Measurement Sheets* within a short period of time. When there are fish that must be returned to the lab for identification, the *Habitat Measurement Sheet* and any *Fish Field Measurements Sheets* (field sampled) recorded in the field can be sent to the database manager. Data recorded in the lab, such as; identification, weights, or growth samples should be mailed as soon as possible after completion of measurements. (Be sure that the *Habitat Measurement Sheets* have already been sent.) *Fish Lab Measurement Sheets originals* are sent to the Data Base Manager after the Crew Leader has performed all pre-submission QA/QC procedures.

The pre-submission procedures performed by the Crew Leader for QA/QC are:

1) Recheck all data sheets. Ensure that the Header Block Information from each *Habitat Measurement Sheet* and all corresponding *Fish Field Measurements Sheets* match ***EXACTLY.***

2) Affix one sticker from a set of bar code stickers onto the space provided at the top of the first *Habitat Measurement Sheet*. **Use barcodes in numeric order**. Place the other sticker(s) from this set of stickers in the next available bar code field on the Fish Measurement Sheet(s). These bar codes MUST match.

3) Record the total number of pages in the "Page XX of XX" field on all data sheets.

4) Initial in the last three columns to document completion of QA/QC steps 1-3.

5) Make ***ONE*** photocopy of all data sheets, for yourself.

6) Continue as in Steps 1-5 for any additional collections.

7) Data submission: Mail the originals along with the Fish Data Sheet Log (Form # 5) to Data Base Manager. Send via a carrier that tracks their deliveries (ie. UPS, Federal Express).

The Data Base Manager will be responsible for:

1) Providing information to verify that all data sheets are keyed by the data entry contractor.

2) Document the chain-of-custody of the data (Fish Data Sheet Log, Form #4).

3) Providing an additional safeguard against dissociation of corresponding Habitat Collection Sheets and Fish Measurement Sheets because of discrepant header information.

4) Submission of data to data entry contractor for input, and

5) Provide a readable copy of data to participants of Consortium.

References:

Gutreuter, S., R. Burkhardt, and K. Lubinski. 1995. Long Term Resource Monitoring Program Procedures: Fish Monitoring. National Biological Service, Environmental Management Technical Center, Onalaska, Wisconsin, July 1995. LTRMP 95-P002-1. 42 pp. + Appendices A-J

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Forms 1, 2, 3 & 4 Attached

Table 1.

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Missouri River Benthic Fish Consortium list of fishes arranged alphabetically by common name. Nomenclature follows Robins et al. (1990).

Common name	Scientific name	Code
Age-0 fish (young-of-the-year)	Unidentified	YOYF
Alabama shad	*Alosa alabamae*	ALSD
Alewife	*A. pseudoharengus*	ALWF
American eel	*Anguilla rostrata*	AMEL
American grayling	*Thymallus articus*	AMGL
Banded darter	*Etheostoma zonale*	BDDR
Banded killifish	*Fundulus diaphanus*	BDKF
Banded sculpin	*Cottus carolinae*	BDSP
Bigeye shiner	*Notropis boops*	BESN
Bighead carp	*Hypopthalmichthys nobilis*	BHCP
Bigmouth buffalo	*Ictiobus cyprinellus*	BMBF
Bigmouth shiner	*Notropis dorsalis*	BMSN
Black buffalo	*Ictiobus niger*	BKBF
Black bullhead	*Ameiurus melas*	BKBH
Black crappie	*Pomoxis nigromaculatus*	BKCP
Black redhorse	*Moxostoma duquesnei*	BKRH
Blacknose dace	*Rhinichthys atratulus*	BNDC
Blacknose shiner	*Notropis heterolepis*	BNSN
Blackside darter	*Percina maculata*	BSDR
Blackspotted topminnow	*Fundulus olivaceus*	BPTM
Blackstripe topminnow	*F. notatus*	BTTM
Bleeding shiner	*Luxilus zonatus*	BDSN
Blue catfish	*Ictalurus furcatus*	BLCF
Blue sucker	*Cycleptus elongatus*	BUSK
Bluegill	*Lepomis macrochirus*	BLGL
Bluestripe darter	*Percina cymatotaenia*	BTDR
Bluntnose minnow	*Pimephales notatus*	BNMW
Bonneville ciscoe	*Prosopium cylindraceum*	BVSC
Bowfin	*Amia calva*	BWFN
Brassy minnow	*Hybognathus hankinsoni*	BSMW
Brook silverside	*Labidesthes sicculus*	BKSS
Brook stickleback	*Culaea inconstans*	BKSB

Table 1. continued

Common name	Scientific name	Code
Brook trout	*Salvelinus fontinalis*	BKTT
Brown trout	*Salmo trutta*	BNTT
Bullhead minnow	*Pimephales vigilas*	BHMW
Burbot	*Lota lota*	BRBT
Central stoneroller	*Campostoma anomalum*	CLSR
Channel catfish	*Ictalurus punctatus*	CNCF
Chestnut lamprey	*Ichthyomyzon castaneus*	CNLP
Chinook salmon	*Oncorhynchus tshawytscha*	CNSM
Ciscoe	*Coregonus artedi*	CSCO
Coho salmon	*Oncorhynchus kisutch*	CHSM
Common carp	*Cyprinus carpio*	CARP
Common shiner	*Luxilus cornutus*	CMSN
Creek chub	*Semotilus atromaculatus*	CKCB
Crystal darter	*Ammocrypta asprella*	CLDR
Cutthroat trout	*Salmo clarki*	CTTT
Emerald shiner	*Notropis atherinoides*	ERSN
Fantail darter	*Etheostoma flabellare*	FTDR
Fathead minnow	*Pimephales promelas*	FHMW
Finescale dace	*Phoxinus neogaeus*	FSDC
Flathead catfish	*Pylodictus olivaris*	FHCF
Flathead chub	*Platygobio gracilis*	FHCB
Freckled madtom	*Noturus nocturnus*	FKMT
Freshwater drum	*Aplodinotus grunniens*	FWDM
Ghost shiner	*Notropis buchanani*	GTSN
Gilt darter	*Percina evides*	GLDR
Gizzard shad	*Dorosoma cepedianum*	GZSD
Golden redhorse	*Moxostoma erythrurum*	GDRH
Golden shiner	*Notemigonus crysoleucas*	GDSN
Golden trout	*Salmo aguabonita*	GDTT
Goldeye	*Hiodon alosoides*	GDEY
Goldfish	*Carassius auratus*	GDFH
Grass carp	*Ctenopharyngodon idella*	GSCP
Grass pickerel	*Esox americanus vermiculatus*	GSPK
Gravel chub	*Erimystax x-punctatus*	GVCB
Green sunfish	*Lepomis cyanellus*	GNSF

Table 1. continued

Common name	Scientific name	Code
Greenside darter	*Etheostoma blennioides*	GSDR
Highfin carpsucker	*Carpiodes velifer*	HFCS
Hornyhead chub	*Nocomis biguttatus*	HHCB
Hybognathus spp.	*Hyybognathus sp.*	HBNS
Iowa darter	*Etheostoma exile*	IODR
Johnny darter	*Etheostoma nigrum*	JYDR
Lab	fish to be ID in lab	LAB
Lake chub	*Couesius plumbeus*	LKCB
Lake sturgeon	*Acipenser fulvescens*	LKSG
Lake trout	*Salvelinus namaycush*	LKTT
Lake whitefish	*Coregonus clupeaformis*	LKWF
Largemouth bass	*Micropterus salmoides*	LMBS
Largescale stoneroller	*Campostoma oligolepis*	LSSR
Larval fish	Unidentified	LVFS
Larval lamprey	Unidentified	LVLP
Least darter	*Etheostoma microperca*	LTDR
Logperch	*Percina caprodes*	LGPH
Longear sunfish	*Lepomis megalotis*	LESF
Longnose dace	*Rhinichthys cataractae*	LNDC
Longnose gar	*Lepisosteus osseus*	LNGR
Longnose sucker	*Catostomus catostomus*	LNSK
Mimic shiner	*Notropis volucellus*	MMSN
Mississippi silvery minnow	*Hybognathus nuchalis*	SVMW
Missouri saddled darter	*Etheostoma tetrazonum*	MSDR
Mooneye	*Hiodon tergisus*	MNEY
Mosquitofish	*Gambusia affinis*	MQTF
Mottled sculpin	*Cottus bairdi*	MDSP
Mountain sucker	*Catostomus platyrhyncus*	MTSK
Mountain whitefish	*Prosopium williamsoni*	MTWF
Muskellunge	*Esox masquinongy*	MSKG

Table 1. continued

Common name	Scientific name	Code

No fish caught	*Nocatchus pisces*	NFSH
Northern brook lamprey	*Ichthyomyzon fossor*	NBLP
Northern hog sucker	*Hypentelium nigricans*	NHSK
Northern pike	*Esox lucius*	NTPK
Northern redbelly dace	*Phoxinus eos*	NRBD
Northern studfish	*Fundulus catenatus*	NTSF
Orangespotted sunfish	*Lepomis humilis*	OSSF
Orangethroat darter	*Etheostoma spectabile*	OTDR
Ozark minnow	*Notropis nubilus*	OZMW
Paddlefish	*Polyodon spathula*	PDFH
Pallid sturgeon	*Scaphirhynchus albus*	PDSG
Peamouth	*Mylocheilus caurinus*	PEMT
Pearl dace	*Margariscus margarita*	PLDC
Plains killifish	*Fundulus zebrinus*	PKLF
Plains minnow	*Hybognathus placitus*	PNMW
Plains topminnow	*Fundulus sciadicus*	PTMW
Pugnose minnow	*Opsopoeodus emiliae*	PGMW
Pumpkinseed	*Lepomis gibbosus*	PNSD
Quillback	*Carpiodes cyprinus*	QLBK
Rainbow darter	*Etheostoma caeruleum*	RBDR
Rainbow smelt	*Osmerus mordax*	RBST
Rainbow trout	*Oncorhynchus mykiss*	RBTT
Red shiner	*Cyprinella lutrensis*	RDSN
Redside shiner	*Richardsonius balteatus*	RDSS
River carpsucker	*Carpiodes carpio*	RVCS
River darter	*Percina shumardi*	RRDR
River redhorse	*Moxostoma carinatum*	RVRH
River shiner	*Notropis blennius*	RVSN
Rock bass	*Ambloplites rupestris*	RKBS
Rosyface shiner	*Notropis rubellus*	RYSN
Rudd	*Scardinius erythrophthalmus*	RUDD

Table 1. continued

Common name	Scientific name	Code
Sand shiner	*Notropis stramineus*	SNSN
Sauger	*Stizostedion canadense*	SGER
Sauger x Walleye	*Sizostedion canadense* x *vitrieum*	SGWE
Shorthead redhorse	*Moxostoma macrolepidotum*	SHRH
Shortnose gar	*Lepisosteus platostomus*	SNGR
Shovelnose sturgeon	*Scaphirhynchus platorynchus*	SNSG
Sicklefin chub	*Macrhybopsis meeki*	SFCB
Silver carp	*Hypopthalmichthys molitrix*	SVCP
Silver chub	*Macrhybopsis storeriana*	SVCB
Silver lamprey	*Ichthyomyzon unicuspis*	SVLP
Silver redhorse	*Moxostoma anisurum*	SVRH
Silverband shiner	*Notropis shumardi*	SBSN
Silverstripe shiner	*Notropis stilbius*	SSPS
Skipjack herring	*Alosa chrysochloris*	SJHR
Slender madtom	*Noturus exilis*	SDMT
Slenderhead darter	*Percina phoxocephala*	SHDR
Slough darter	*Etheostoma gracile*	SLDR
Smallmouth bass	*Micropterus dolomieu*	SMBS
Smallmouth buffalo	*Ictiobus bubalus*	SMBF
Sockeye salmon	*Oncorhynchus nerka*	SESM
Southern brook lamprey	*Ichthyomyzon gagei*	SBLR
Southern redbelly dace	*Phoxinus erythrogaster*	SRBD
Speckled chub	*Macrhybopsis aestivalis*	SKCB
Speckled chub x Sturgeon chub	*Macrhybopsis aestivalis* x *gelida*	SPST
Spotfin shiner	*Cyprinella spiloptera*	SFSN
Spottail shiner	*Notropis hudsonius*	STSN
Spotted bass	*Micropterus punctulatus*	STBS
Spotted gar	*Lepisosteus oculatus*	STGR
Spotted sucker	*Minytrema melanops*	SPSK
Stippled darter	*Etheostoma punctulatum*	STPD
Stonecat	*Noturus flavus*	STCT
Striped bass	*Morone saxatilis*	SDBS
Striped bass x White bass	*Morone saxatilis x chrysops*	SBWB
Striped shiner	*Luxilus chrysocephalus*	SPSN
Sturgeon chub	*Macrhybopsis gelida*	SGCB
Sturgeon chub x Sticklefin chub	*Macrhybopsis gelida x meeki*	SCSC
Suckermouth minnow	*Phenacobius mirabilis*	SMMW

Table 1 continued

Common name	Scientific name	Code
Tadpole madtom	*Noturus gyrinus*	TPMT
Threadfin shad	*Dorosoma petenense*	TFSD
Topeka shiner	*Notropis topeka*	TPSN
Trout-perch	*Percopsis omiscomaycus*	TTPH
Unidentified	Unidentified	UNID
Unidentified *Etheostoma*	*Etheostoma* sp.	U-ET
Unidentified *Lepomis*	*Lepomis* sp.	U-LP
Unidentified Percidae	Unidentified Percidae	U-PC
Unidentified *Percina*	*Percina* sp.	U-PN
Unidentified *Stizostedion*	*Stizostedion* sp.	U-ST
Unidentified buffalo	*Ictiobus* sp.	U-BF
Unidentified carpsucker	*Carpiodes* sp.	U-CS
Unidentified chub	*Macrhybopsis* sp.	U-HY
Unidentified darter	*Percina* or *Etheostoma* sp.	U-DR
Unidentified lamprey	*Petromyzontidae*	U-LY
Unidentified minnow	Unidentified Cyprinidae	U-CY
Unidentified redhorse	*Moxostoma* sp.	U-RH
Unidentified shiner	*Notropis* sp.	U-NO
Unidentified sucker	Unidentified Catostomidae	U-CT
Unidentified sunfish	Unidentified Centrarchidae	U-CN
Walleye	*Stizostedion vitreum*	WLYE
Warmouth	*Lepomis gulosus*	WRMH
Wedgespot shiner	*Notropis greenei*	WSSN
Western redfin shiner	*Lythrurus umbratilis*	WRFS
Western silvery minnow	*Hybognathus argyritis*	WSMW
White bass	*Morone chrysops*	WTBS
White crappie	*Pomoxis annularis*	WTCP
White perch	*Morone americana*	WTPH
White sucker	*Catostomus commersoni*	WTSK
Yellow bass	*Morone mississippiensis*	YWBS
Yellow bullhead	*Ameiurus natalis*	YLBH
Yellow perch	*Perca flavescens*	YWPH

Table 1 continued

Common name	**Scientific name**	**Code**
Gizzard shad x Threadfin shad	*Dorosoma cepedianum* x *petenense*	GSTS
Goldfish x Common carp	*Carassius auratus* x *Cyprinus carpio*	GFCC
Flathead chub x sicklefin chub	*Platygobio gracilis* x *Macrhybopsis meeki*	FCSC
Blue catfish x Channel catfish	*Ictalurus furcatus* x *punctatus*	BCCC
Green sunfish x Bluegill	*Lepomis cyanellus* x *macrochirus*	GSBG
Green sunfish x unknown	*Lepomis cyanellus* x sp.	GN*?
Green sunfish x Orangespotted	*Lepomis cyanellus* x *L. humilis*	GSOS