Progress Report:

Expansion of StreamNet Database to Include Habitat Restoration Projects in the States of California, Oregon, Idaho, and Washington

For Period:
September 1, 1998 – June 30, 1999

Submitted by:
Pacific States Marine Fisheries Commission

Submitted to:
U.S. Department of Commerce, NOAA
National Marine Fisheries Service

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June 1999

I. Tasks/Objectives

Refer to Attachment 1 for original task description.

II. Personnel

Contained in fiscal/administrative reports and billings.

III. Accomplishments

During the reporting period the following tasks were worked on and the described accomplishments made:

Habitat Restoration Projects. *Expand the StreamNet database to include habitat restoration projects in the states of California, Idaho, Oregon, and Washington*.

Task 8.1 Standardized Format: *Specify, in a standardized format, the types of information on habitat restoration projects to be included in StreamNet (Project title, Sponsor, Project manager name/address/phone number of project manager, Target stocks, Location/size/physical characteristics of the treated area, Land use and land ownership patterns, Beginning and completion dates, Types and magnitude of restoration activities undertaken, Restoration costs by year with inflation factor).*

The state and tribal agencies, along with PSMFC, examined the types of information currently available for this data type in databases and in paper format. Several drafts were created for a database structure, and on June 16 the StreamNet participants held a meeting to discuss final changes to the StreamNet mitigation projects database structure. We also discussed the status of each state or tribal entity's efforts on data capture for this database. Since then, the group has been working to finalize the table structures, create a data input form, and port existing databases to the new structure.

Information which we will attempt to capture include program names, project names, project goals, dates of work, locations of work and physical extent, funding and implementing participants, individuals to contact for more information, land ownership at project locations, target species and secondarily-affected species (positive or negative), upland land cover and land use types, the availability of monitoring/evaluation data. Costs will be captured where possible, but in general it seems these will be specific to an entire project rather than to costs within a project. An additional complication is that materials are often bought in bulk and distributed among projects, so that allocating some costs to specific projects may not be possible. Annual inflation factors will be obtained from NMFS.

Task 8.2 Enhancement Project Data Development: *Gather and incorporate information on habitat restoration projects since 1980 for the benefit of salmon or steelhead stocks.*

No data have yet been entered in the StreamNet database. We expect data to flow in fairly quickly from one source: Oregon Department of Fish and Wildlife should have their GWEB information in the StreamNet format very soon, as they have been leading the way in its creation and modification and have

created roughly 170 queries of the GWEB database to move the data to StreamNet format. They originally had a target date of June 25 for this task, but database complications such as non-standard data input have slowed them somewhat.

Idaho Fish and Game, Washington Department of Fish and Wildlife, Columbia River Inter-Tribal Fish Commission, and the Shoshone-Bannock tribes all need to enter data, rather than porting an existing database. For these groups it will be more time before data are available - a data entry form will be created by the week of July 5 and we have set an expected data submittal date of September 31. September 31 is also the date we set for California Fish and Game and Montana Fish Wildlife and Parks, but these two agencies have existing databases which may come much sooner. California's database is fairly straightforward and should flow in quite easily (though 1996-1998 data still must be entered). Although they are not funded under this contract, Montana Fish Wildlife and Parks has a database on which ours is based and it should contain valuable information. It should not be too much trouble for them to do the queries for submitting their data to StreamNet. In addition, Montana

After finishing the data input form, our programmer will be working to create the programs needed to query the data via StreamNet. We expect this will be done around the middle of July. This is a complicated data structure and there may be significant delays in creating a functional system. Even if this is delayed, the data would still be available to you for use and query in MS-Access format.

Task 8.3 Technical Guidance and Assistance: *Provide guidance/advice to NMFS regarding the structure and format of the RFA database.*

To date, National Marine Fisheries Service has not requested or inquired about this guidance/advice regarding the structure and format of the RFA database.

Task 8.4 Coordination with NMFS: *Consult regarding problems that may arise in connection with data collection, formatting, etc.*

We have kept NMFS informed regarding short-comings of the available data, and the difficulty we have experienced in creating a usable database structure. We have received guidance regarding the appropriate way to modify our data collection and compilation in light of the quality of the economic data that will be readily available. At this point, we plan to procede with data that are not as item-specific as desired, instead making this database a resource for where to seek more detailed information. We will incorporate these more specific data in the future.

Task 8.5 Meeting Coordination: *Assist in coordinating two meetings of experts to develop and estimate models for predicting restoration costs. Meetings will identify appropriate models and evaluate results of model estimation.*

Meetings have not been identified yet.

IV. Travel

Contained in fiscal/administrative reports and billings.

V. Costs

Contained in fiscal/administrative reports and billings.

VI. Consultations

None

VII. Major Problems Encountered or Anticipated

This was and continues to be a significant new data compilation effort. Start-up time for this effort was much slower than anticipated. Easily obtained economic data will probably not be specific to work types; we expect such information can be collected in the future.

VIII. Other

None.

IX. Contacts

Stan Allen, Chief - Information Management Services
Mike Banach, Fisheries Biologist – StreamNet
Doug Burch, Regional Data Manager - StreamNet
Pacific States Marine Fisheries Commission
Gladstone, Oregon
(503) 650-5400

X. Documents/Reports/Manuscripts Prepared

Data views, data sources, comprehensive question lists and draft surveys and two reports (Larson) were prepared during this reporting period

ATTACHMENT 1.

Tasks to be Accomplished

Task 1: The first task is to specify, in a standardized format, the types of information on habitat restoration projects to be included in StreamNet. PSMFC will work cooperatively with NMFS to specify this information. Required data elements include project title, sponsoring agency or agencies, name/address/phone number of project manager, salmon and steelhead stocks expected to benefit from the restoration, location/size/physical characteristics of the treated area, predominant land use and land ownership patterns in the treated area, beginning and completion dates of the restoration, types and magnitude of restoration activities undertaken, and restoration costs by year. The data system will also include an inflation factor and several alternative discount factors to allow annual project costs to be corrected for inflation and discounted over time. The data system will be structured to allow the habitat restoration information to be linked to data on salmon and steelhead abundances, hatchery releases and returns, and marine and freshwater harvests that are already available in StreamNet. The specification and format being used in StreamNet for BPA habitat restoration projects will provide a starting point for how the projects will be characterized in the data system, with final specification to be decided in consultation with NMFS.

Task 2: The second task is for PSMFC to gather and incorporate into StreamNet, to the extent feasible, information on all habitat restoration projects initiated since 1980 for the benefit of salmon or steelhead stocks in California, Oregon, Washington and Idaho. These data will be incorporated into StreamNet according to the standardized format specified in Task 1. NMFS will assist PSMFC in identifying key contact persons and in accessing sources of habitat restoration data. These data sources include existing reports documenting habitat restoration projects associated with NOAA's Northwest Emergency Assistance Program, Natural Resource Conservation Service, U.S. Forest Service, Army Corp of Engineers, Environmental Protection Agency, and other projects.

Task 3: The third task is for PSMFC to provide technical guidance and advice to NMFS regarding the structure and format of the RFA database, for the purpose of ensuring linkage of that database with StreamNet. Creation of the RFA database will be the responsibility of NMFS.

Task 4: NMFS and PSMFC will meet periodically in Portland to consult regarding problems that may arise in connection with data collection, data formatting or any other aspects of tasks 1-3, and to discuss progress completion of the habitat restoration data collection.

Task 5: The fifth task is for PSMFC to assist in coordinating up to two meetings of appropriate experts to develop and estimate models for predicting restoration costs according to type of activity (e.g., fencing, revegetation, fish screens), size/extent of the area treated (e.g., miles of fencing), characteristics of the restored habitat (e.g., accessibility) and local economic conditions (e.g., prevailing wage rates). There is no funding provision in this agreement to cover actual workshop expenses.

The purpose of the first workshop will be to identify appropriate models, including models that are likely to make best use of the restoration project data collected in Task 2. The purpose of the second workshop will be to evaluate results of model estimation.

ATTACHMENT 2.

Draft Restoration Project Data Exchange Format

![StreamNet logo]

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Exchange Format Documentation -
Version 99.2-24June99

Prepared by: StreamNet Project Regional Staff
Pacific States Marine Fisheries Commission

Bonneville Power Administration
Columbia River Inter-Tribal Fish Commission
Idaho Department of Fish and Game
Oregon Department of Fish and Wildlife
Montana Fish, Wildlife, and Parks
Pacific States Marine Fisheries Commission
Shoshone-Bannock Tribes
U.S. Fish and Wildlife Service

Washington Department of Fish and Wildlife

F. Mitigation / Restoration Project Data

This section details tables for habitat restoration/mitigation/improvement projects. The ER diagram for fish barrier data is shown in Figure 5.

Error! No topic specified.

F1. MitProject Table

This table contains the core fields for organizing tables related to mitagation and habitat restoration projects.

Smallest Spatial Resolution: Stream section
Largest Spatial Resolution: Supercode
Time Span for Reporting: Annual

Field Name	Field Description	Req	Max Wid	Type	Codes/ Conventions
General Project Information
ProjID	StreamNet Primary key for the projects database that uniquely identifies a project	Yes	N/A	Int	WDFW = 100,000 to 199,999 CRITFC = 200,000 to 299,999 USFWS = 300,000 to 399,999 IDFG = 400,000 to 499,999 ODFW = 500,000 to 599,999 PSMFC = 600,000 to 699,999 CDFG = 700,000-799,999 MFWP = 800,000-899,999
Date	Date data on project submitted or updated	Yes	N/A	Datetime	Date the data were obtained by a StreamNet participant from an outside database.
FrequencyID	How often the project data are updated	Yes	N/A	Smallint	1 = Yearly 2 = Monthly 3 = Weekly 4 = Daily 5 = Other 6 = Not expected to be updated 7 = Project completed 99 = Unknown
ProgramID	Code for the program the project is a part of.	No	N/A	Tinyint	Program names listed in MitProgram table. Contact StreamNet to assign new ID codes.
ProjectNo	Agency Number associated with project (if any).	No	50	Varchar	Project numbers from agencies stored verbatim
ProjectName	Official name of project	Yes	255	Varchar	
SubbasinID	The code for the primary subbasin in which the project is located.	No	N/A	Smallint	Refer to the StreamNet Subbasin table, ftp://ftp.streamnet.org/pub/streamnet/ASCII_Data/Subbasin.txt
BeginYear	Year the project was implemented	Yes	N/A	Smallint	Project start year must be >1800 and consist of four digits, e.g., '2001'.
EndYear	Year the project was or will be completed	No	N/A	Smallint	Project end year must be >1800 and consist of four digits, e.g., '2001'.
RefID	The reference ID for the project data source	Yes	N/A	Int	
StatusID	The status of the project	Yes	N/A	Smallint	1 = Completed 2 = Ongoing 3 = Planned 99 = Unknown
Anonymous	This field is for indicating whether any participant associated with the project wants their information kept confidential.	Yes	N/A	Bit	0 = All project information may be made public. 1 = Some project information must NOT be

Field Name	Field Description	Req	Max Wid	Type	Codes/ Conventions
					made public.
SourcePerson	Name of person who supplied the data for the database. Should be a good contact to find further information about the project.	Yes	50	Varchar	
SourceAgencyID	Agency the SourcePerson was with when the data were supplied.	Yes	N/A	Smallint	Refer to the StreamNet Agency table. (down loadable from ftp://ftp.streamnet.org/pub/ streamnet/ASCII_Data/Agency.txt)
Goals/Monitoring Information					
Limiting	Limiting factors addressed by the project.	No	N/A	Text	
TimeFrame	Time frames expected benefits were expected to occur by.	No	N/A	Text	
Analysis	Things that facilitated, complicated, or would help the project.	No	N/A	Text	
Comments	Additional information or comments.	No	N/A	Text	

F2. MitParticipant Table

Many to one relationship with the MitProject table via ProjID.

Smallest Spatial Resolution: N/A
Largest Spatial Resolution: N/A
Time Span for Reporting: Annual

Field Name	Field Description	Req	Max Wid	Type	Codes/ Conventions
ProjID	StreamNet project ID. Cross reference to MitProject table.	Yes	N/A	Int	Refer to MitProject table for assigned ranges.
Year	Calendar or fiscal year of project funding.	Yes	4	Smallint	Use four digit numbers: yyyy.
ParticipantID	Unique StreamNet codes for agency and non-agency participants. ParticipantID coded are the same as StreamNet's AgencyID codes.	Yes	N/A	Smallint	Refer to the StreamNet Agency table: ftp://ftp.streamnet.org/pub/streamnet/ ASCII_Data/Agency.txt. Contact StreamNet to assign new agency codes as needed. When adding a new record to the Agency table, be sure to also assign a TypeID.
Anonymous	This field is for indicating whether information related to this participant may be released to the public.	Yes	N/A	Bit	0 = Participant information may be made public. 1 = Participant information must NOT be made public.
ProjectNo	Agency number associated with the project (if any).	No	50	Varchar	Agency project number
ClassID	Duties of the participant in conducting the project.	Yes	N/A	Tinyint	1 = Funder only 2 = On-ground implementor only 3 = Both funder and on-ground implementor 99 = Unknown
Responsibility	Description of the level of responsibility.	No	N/A	Tinyint	1 = primary coodinator 2 = participant
TechSupport	Did this participant provide technical support?	No	N/A	Tinyint	0 = No 1 = Yes
ContactID	Code for participant's contact or project manager.	No	N/A	Smallint	Cross reference to MitContact table.

Field Name	Field Description	Req	Max Wid	Type	Codes/ Conventions
Cash	Amount of money provided by this participant	Yes	N/A	Money	Enter 0 if no funds were provided
Inkind	Value of in-kind contribution provided by this participant	Yes	N/A	Money	Enter 0 if no in-kind contributions were made
LaborCost	Cost of labor for project for year for this participant	No	N/A	Money	Rounded to dollars
EquipCost	Cost of equipment for the project for year for this participant	No	N/A	Money	Rounded to dollars
MaterCost	Cost of materials for the project for year for this participant	No	N/A	Money	Rounded to dollars
TotalCost	Total expenditures for the project for the year for this participant	No	N/A	Money	Rounded to dollars
Comments	Additional information or comments.	No	N/A	Text	

F3. MitOwnership Table

Many to one relationship with MitProject table via ProjID.

Smallest Spatial Resolution: N/A
Largest Spatial Resolution: N/A
Time Span for Reporting: N/A

Field Name	Field Description	Req	Max Width	Type	Codes/ Conventions
ProjID	StreamNet project ID. Cross reference to MitProject table.	Yes	N/A	Int	Refer to MitProject table for assigned ranges.
OwnerName	Name of owner of project site	No	255	Varchar	Name of primary land owner, e.g., U.S. Forest Service, John Doe, etc.
Percent	Percentage of project site owned	No	N/A	Tinyint	Round to nearest whole number from 0 to 100.
ContactID	Code for person to contact for information.	No	N/A	Smallint	Cross reference to MitContact table.
ParcelTypeID	Code for the ownership category for the parcel.	Yes	N/A	Smallint	1 = Federal 2 = State 3 = Tribal 4 = City 5 = County 6 = Private Industrial 7 = Private Nonindustrial 99 = Unknown
Comments	Additional information or comments.	No	N/A	Text	

F4. MitLocation Table

Many to one relationship with the MitProject table via ProjID.

Smallest Spatial Resolution: Point
Largest Spatial Resolution: Polygon
Time Span for Reporting: Annual

Field Name	Field Description	Req	Max Wid	Type	Codes/ Conventions
ProjID	StreamNet project ID. Cross reference to MitProject table.	Yes	N/A	Int	Refer to MitProject table.
WLID	ID code unique to each work type by location, within a project.	Yes	N/A	Tinyint	Assign a value from 1 to 255 for each unique location X work type combination in a project.
WorkTypeID	Code for general work category	Yes	N/A	Tinyint	1 = Instream work 2 = Riparian work 3 = Upland work 24 = Wetland work 25 = Road work 99 = Unknown
SiteTypeID	General classification of project site	No	N/A	Tinyint	1 = Springs, watering holes 2 = Basin (i.e. whole watersheds) 3 = Classroom (mtg room. Information center) 4 = Dam (hydro-electric, reclamation, etc.) 5 = Roads, bridges, culverts 6 = Riparian zone 7 = Right of way (transmission line) 8 = Hatchery (acclim. ponds, release site) 9 = Labs (research centers, etc.) 10 = Mine, dredged site 11 = Office (business, hdqrs., university) 12 = Passage (ladders, screens) 13 = Reservoir (incl. lakes, ponds,etc.) 14 = Stream (river, creek, canal, etc.) 15 = Upland (wildlife sites, veg mgt. Sites) 16 = Wetland (marsh, bog, swamp) 17 = Other 99 = Unknown
SpatialTypeID	Code describing the spatial type of the site, and hence, the table that will be used for specific location data	Yes	N/A	Tinyint	1 = Stream length or stream point location 3 = Non stream point location 4 = Polygon or area location
SiteName	Name used by project to identify the site	No	255	Varchar	
LandCoverID	Dominant land cover of the stream work location before the project began - might want to allow multiple answers.	No	N/A	Tinyint	1 = young forest 2 = 2nd growth 3 = large timber 4 = mature forest 5 = old growth 6 = active harvest 7 = partial cut forest 8 = cropland 9 = pasture 10 = ungrazed grasslands 11 = shrub 12 = wetland 13 = barren 14 = urban 15 = other 1-5 may be difficult to define consistently, especially across ecoregions. 99 = unknown
LandUseID	Dominant land use of the stream work location before the project began- might want to allow multiple answers.	No	N/A	Tinyint	1 = managed forest 2 = orchard 3 = grazing 4 = row crop agriculture 5 = rural residential 6 = urban residential 7 = urban industrial/commercial 8 = wildland recreation/conservation 9 = other 10 = wetland

					11 = shrub 12 = ungrazed grasslands 13 = wilderness 14 = mining 99 = unknown
Comments	Additional information or comments.	No	N/A	Text	

F5. MitStrLoc Table

One to one relationship with the MitLocation table (using the SpatialType value in the Location table to direct to this table).

Smallest Spatial Resolution: Stream Segment
Largest Spatial Resolution: Stream Segment
Time Span for Reporting: Annual

Field Name	Field Description	Req	Max Wid	Type	Codes/ Conventions
ProjID	StreamNet project ID. Cross reference to MitProject table.	Yes	N/A	Int	Refer to MitProject table.
WLID	ID code unique to each work type by location, within a project. Cross reference to MitLocation table.	Yes	N/A	Tinyint	Refer to MitLocation table.
LLID	The LLID of the stream	Yes	13	Char	Refer to the Trend table
BegFt	The distance in feet from the mouth of the stream to the downstream end of the work site	Yes	N/A	Int	
EndFt	The distance in feet from the mouth of the stream to the upstream end of the work site	No	N/A	Int	
Comments	Additional information or comments.	No	N/A	Text	

F6. MitNonStrPtLoc Table

One to one relationship with the MitLocation table (using the SpatialType value in the Location table to direct to this table).

Smallest Spatial Resolution: Geographic Point
Largest Spatial Resolution: Geographic Point
Time Span for Reporting: Annual

Field Name	Field Description	Req	Max Wid	Type	Codes/ Conventions
ProjID	StreamNet project ID. Cross reference to MitProject table.	Yes	N/A	Int	Refer to MitProject table for assigned ranges.
WLID	ID code unique to each work type by location, within a project. Cross reference to MitLocation table.	Yes	N/A	Tinyint	Refer to MitLocation table.
Longitude	Longitude coordinate of point in decimal degrees	Yes	8	Decimal 3.4	Use decimal degrees, not degrees-minutes-seconds.
Latitude	Latitude coordinate of point in decimal degrees	Yes	7	Decimal 2.4	Use decimal degrees, not degrees-minutes-seconds.

Comments	Comment field	No	N/A	Text	

F7. MitPolygonLoc Table

One to one relationship with the MitLocation table (using the SpatialType value in the Location table to direct to this table).

Smallest Spatial Resolution: Two points
Largest Spatial Resolution: Polygon
Time Span for Reporting: Annual

Field Name	Field Description	Req	Max Wid	Type	Codes/ Conventions
ProjID	StreamNet project ID. Cross reference to MitProject table.	Yes	N/A	Int	Refer to MitProject table for assigned ranges.
WLID	ID code unique to each work type by location, within a project. Cross reference to MitLocation table.	Yes	N/A	Tinyint	Refer to MitLocation table.
PolygonID	GIS identifier linked to polygon coverage.	No	N/A	Int	StreamNet will prefix with agencyID.
HUC	Hydrologic Unit Code associated with project	No	8	Char	Cross reference to 4th code HUC.
Comments	HUC specific comments	No	N/A	Text	

F8. MitDetails Table

Many to one relationship with the MitLocation table, via WLID and ProjID.

Smallest Spatial Resolution: Stream segment
Largest Spatial Resolution: Polygon
Time Span for Reporting: Annual

Field Name	Field Description	Req	Max Wid	Type	Codes/ Conventions
ProjID	StreamNet project ID. Cross reference to MitProject table.	Yes	N/A	Int	Refer to MitProject table.
WLID	ID code unique to each work type by location, within a project. Cross reference.	Yes	N/A	Tinyint	Refer to MitLocation table.
DetailsID	Treatment type details	Yes	N/A	Smallint	**Instream Treatments** 1 = large woody debris 2 = rootwads 3 = side channels created 4 = log weirs 5 = pools created 6 = upgrade culverts / bridges 7 = stabilize bank 8 = boulders 9 = brush bundles 10 = alcoves 11 = rock weirs 12 = deflectors 13 = culvert / bridge / corregated pipe removal 14 = fish ladder installation

Field Name	Field Description	Req	Max Wid	Type	Codes/ Conventions
					15 = fish screens 16 = spawning gravel placement 17 = rock gabions 18 = fish traps 19 = other instream treatment 20 = permanent removal of pushup dam 21 = fish barrier removal 23 = fish ladder improvement 24 = side channel access improvement 25 = removal / modification of flow impediment (log fill) 26 = pushup dam replacement 27 = off-channel ponds 28 = Water management (release, store) **Riparian Treatments** 101 = conifer planting 102 = hardwood conversion 103 = livestock rotation 104 = beaver introduction 105 = hardwood planting 106 = fencing/livestock exclusion 107 = develop off-channel livestock watering facility 109 = other riparian treatment 110 = beaver removal 111 = beaver management: unspecified 301 = water gap development (for livestock water access) **Stabilization Treatments** 201 = road upgrade/maintenance 202 = ditches/drainage culverts maintenance 203 = drainage culverts replaced/installed 204 = road design/construction improvement 205 = harvest/land management practices changed 206 = road decommission/obliteration 207 = other stabilization treatment 208 = roadside planting 209 = Mine site restoration **Upland Treatments** 302 = upland erosion control 303 = upland vegetation management 304 = irrigation improvements 305 = other upland treatment 306 = Agricultural or grazing modification **Wetland Treatments** 401 = dike breached 402 = wetland creation 403 = restored previously filled or drained wetland 404 = improve existing wetland 405 = other wetland treatment **Other Codes**

Field Name	Field Description	Req	Max Wid	Type	Codes/ Conventions
					501 = site purchase 502 = water right purchase 30000 = survey, study, research 30001 = building (plan, construction) 30002 = O & M 30003 = education, training, workshops 30004 = fish protection (predator control, law enforcement) 30005 = audiovisual (video, display) 30006 = management / administration 30007 = collect, raise / transport / plant fish 30008 = consult, model / plan devel, gather data 30009 = rental /purchase (rooms, equipment) 30010 = secretarial, misc. overhead 30011 = wildlife management, trapping, transport 30012 = harvest control, buy back 98 = N/A 99 = Unknown
Quantity	Quantity or measure of treatment identified in the DetailID field.	No	N/A	Real	Use in tandem with Units field.
Units	Unit of measure in Quantity field.	No	20	Varchar	Use in tandem with Quantity field.
Comments	Additional information or comments.	No	N/A	Text	

F9. MitPartXDetails Table

Many to one to relationship with the MitDetails table. This table is for future use, to allow for additional data fields to be added to the database.

Field Name	Field Description	Req	Max Wid	Type	Codes/ Conventions
ProjID	StreamNet project ID. Cross reference to MitProject table.	Yes	N/A	Int	Refer to MitProject table.
WLID	ID code unique to each work type by location, within a project. Cross reference to MitDetails table.	Yes	N/A	Tinyint	Refer to MitLocation table.
DetailsID	Treatment type details.	Yes	N/A	Smallint	Refer to MitDetails table information.
ParticipantID	Refer to MitParticipant table information.	Yes	N/A	Smallint	Refer to MitParticipant table information.
Quantity	Quantity or measure of treatment identified in the DetailID field which was conducted by participant.	No	N/A	Real	Use in tandem with Units field.
Units	Unit of measure in Quantity field.	No	20	Varchar	Use in tandem with Quantity field.
Comments	Comments related to a participant's detailed activities	No	N/A	Text	

F10. MitSpecies Table

Many to one relationship with MitProject table via ProjID.

Field Name	Field Description	Req	Max Wid	Type	Codes/ Conventions
ProjID	StreamNet project ID. Cross reference to MitProject table.	Yes	N/A	Int	Refer to MitProject table for assigned ranges.
SpecieID	Species code for affected species	Yes	N/A	Smallint	Refer to Trend table information.
RunID	Run code for affected run	No	N/A	Smallint	StreamNet run code.
SubrunID	The subrun of the target species	No	N/A	Smallint	StreamNet subrun code.
BenefitID	Is species a primary or secondary beneficiary of project	Yes	N/A	Tinyint	1 = Primary target species 2 = Secondarily affected species: positive effect 3 = Secondarily affected species: detrimental effect
Comments	Additional information or comments.	No	N/A	Text	

F11. MitMonType Table

Many to one relationship with the MitLocation table, via WLID and ProjID.

Smallest Spatial Resolution: Project
Largest Spatial Resolution: Project
Time Span for Reporting: Annual

Field Name	Field Description	Req	Max Wid	Type	Codes/ Conventions
ProjID	StreamNet project ID. Cross reference to MitProject table.	Yes	N/A	Int	Refer to MitProject table.
WLID	ID code unique to each work type by location, within a project. Cross reference to MitLocation table.	Yes	N/A	Tinyint	Refer to MitLocation table.
MonitoringID	Classification of general monitoring type.	Yes	N/A	Tinyint	1 = fish sampling 2 = other aquatic or terrestrial species 3 = macroinvertebrate sampling 4 = vegetation 5 = physical instream habitat 6 = water quality/quantity 9 = other 10 = none (indicates certainty none was conducted)
Method	Primary methods used for monitoring activity.	No	N/A	Text	
Control	Does monitoring include a control stream or watershed	Yes	N/A	Tinyint	0 = False 1 = True 99 = Unknown
DataAvail	Are monitoring data available for evaluating the effectiveness of the project? (Not necessarily currently in StreamNet database.)	Yes	N/A	Tinyint	0 = False 1 = True 99 = Unknown
MonitoringObj	Objectives of the monitoring effort	No	N/A	Text	
Comments	Additional information or comments.	No	N/A	Text	

F12. MitMonData Table

Many to one relationship with the MitMonType table via ProjID, WLID, and MonitoringID.

Smallest Spatial Resolution: Project
Largest Spatial Resolution: Project
Time Span for Reporting: Annual

Field Name	Field Description	Req	Max Wid	Type	Codes/ Conventions
ProjID	StreamNet project ID. Cross reference to MitProject table.	Yes	N/A	Int	Refer to MitProject table.
WLID	ID code unique to each work type by location, within a project. Cross reference to MitMonType table.	Yes	N/A	Tinyint	Refer to MitLocation table.
MonitoringID	Classification for general monitoring type	Yes	N/A	Int	Refer to the MitMonType table information.
DataTypeID	Code for more detailed data type collected.	Yes	N/A	Tinyint	1 = fish counts 2 = insect counts (macroinvertebrates) 3 = water temp 4 = air temp 5 = soils 6 = salinity 7 = instream habitat parameters (channel morphology, substrate, woody debris, etc.) 8 = upland vegetation 9 = riparian vegetation 10 = dissolved oxygen 11 = fecal coliform 12 = suspended sediment 13 = fish passage effectiveness 14 = road drainage/culvert effectiveness 15 = livestock exclusion effectiveness 16 = water pH 17 = water flow
Comments	Additional information or comments.	No	N/A	Text	

F13. MitContact Table

Many to one relationships with the MitParticipant and MitOwnership tables via ContactID.

Field Name	Field Description	Req	Max Wid	Type	Codes/ Conventions
ContactID	Code for participant's contact or project manager.	Yes	N/A	Smallint	Refer to the StreamNet MitContact table: ftp://ftp.streamnet.org/pub/streamnet/ ASCII_Data/MitContact.txt. Contact StreamNet to assign new codes as needed. Assigned ranges: WDFW = 1 to 2,999 CRITFC = 3,000 to 5,999 USFWS = 6,000 to 8,999 IDFG = 9,000 to 11,999 ODFW = 12,000 to 14,999 PSMFC = 15,000 to 17,999 CDFG = 18,000-20,999

Field Name	Field Description	Req	Max Wid	Type	Codes/ Conventions
					MFWP = 21,000-23,999
LastName	Family name of contact person.	Yes	20	Varchar	
FirstName	Given name of contact person.	Yes	20	Varchar	
Title	Job title of contact person.	No	80	Varchar	
Address1	Mailing address line 1 for contact.	No	255	Varchar	
Address2	Mailing address line 2 for contact.	No	255	Varchar	
City	The town where mail is received.	No	20	Varchar	
StateID	The StateID for the state. Cross reference to State table.	No	N/A	Smallint	Refer to TrendXState table information.
Zip	The zip code.	No	10	Varchar	
Phone	Phone number(s) of contact.	No	50	Varchar	(area code) prefix-number
Fax	Fax number(s) of contact.	No	50	Varchar	(area code) prefix-number
Email	E-mail address(es) of contact.	No	50	Varchar	
Comments	Additional information or comments.	No	N/A	Text	

F14. MitProjXGoal Table

Cross reference to create the many-to-many relationship between the MitLocation and MitGoal tables.

Field Name	Field Description	Req	Max Wid	Type	Codes/ Conventions
ProjID	StreamNet project ID.	Yes	N/A	Int	Refer to MitProject table.
WLID	ID code unique to each work type by location, within a project.	Yes	N/A	Tinyint	Refer to MitLocation table.
GoalID	StreamNet goal ID.	Yes	N/A	Tinyint	Refer to MitGoal table.

F15. MitGoal Table

One to many relationship with the MitProjXGoal table via the GoalID field.

Field Name	Field Description	Req	Max Wid	Type	Codes/ Conventions
GoalID	StreamNet goal ID.	Yes	N/A	Tinyint	
Goal	StreamNet goal.	Yes	60	Varchar	1 = increase stream structure and complexity 2 = improve stream interaction with floodplain 3 = improve stream flow 4 = increase gravel recruitment 5 = improve fish passage 6 = improve spawning habitat 7 = improve rearing habitat 8 = increase pools 9 = improve off-channel habitat

Field Name	Field Description	Req	Max Wid	Type	Codes/ Conventions
					10 = improve over-winter habitat
					11 = improve summer habitat
					12 = increase stream bank stabilization/ protection
					13 = improve cool water habitat
					14 = improve slow water habitat
					15 = improve refuge cover
					16 = other goal
					17 = increase LWD recruitment to stream
					18 = increase shading
					20 = increase nutrient (plant material) input to stream
					21 = decrease erosion/stream sedimentation
					22 = decrease run-off contaminant input to stream
					23 = decrease stream temperature
					24 = decrease livestock access to stream
					25 = increase riparian wildlife habitat
					27 = increase upslope stability
					29 = increase road/upslope drainage
					32 = decrease road access
					33 = decrease road density
					40 = increase native plant species composition
					41 = increase upland water storage capacity
					48 = improve flood control
					50 = improve water quality
					53 = improve wildlife habitat