

United States Army Corps of Engineers Ecosystem Restoration Model Library

11-January-2011

USACE Ecosystem Restoration Planning Model Library

A centralized source of information about models used by practitioners of ecosystem restoration

Champion

- Rennie Sherman (HQUSACE)

Deployment Team

- Jodi Staebell (CEMVD)
- Valerie Ringold (CENWD)
- Virginia Dickerson (CEERD)
- Shawn Komlos (CEIWR)

Ecosystem Restoration Model Library

Search by Title By Restoration Type [Submit a Model](#)

Lake Agassiz Ecoregion Index of Biotic Integrity

Developer: U.S. Environmental Protection Agency
 Point of Contact: [Elliott Stefank](#)
 Phone Number: 651-290-5260

Model Details:
Certified: • Approved for single use. *The planning model has been approved for use on one or more Corps projects. Its documentation have been effectively resolved to the satisfaction of the PCX for one or more specific projects due to pending issues concerning the model and its documentation (see PCX and/or model review history) for*
Geographic Range: Red River of the North Watershed
Restoration Type: Large River, Large Watershed/Major Restoration, Stream
Applicable Species: Stream fisheries of the Red River of the North Watershed
Limitations: The model has a narrow geographic applicability. Other limitations apparent upon review of model documents

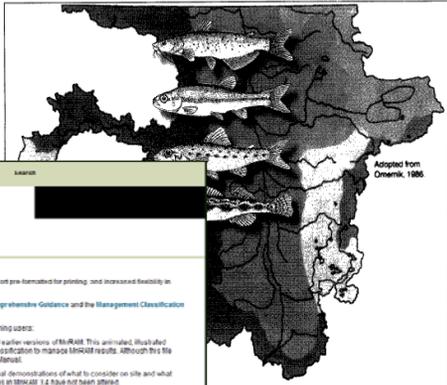
How to Obtain: Documentation (EPA 905-R-96-005) is available at the website referenced below:

Documentation: Documentation available online at: <http://nepis.epa.gov/Exec/Query.nsf/ZyActionL&Client=EPA&Index=1995-1999&Docs=&Query=905R96005&Time=05%22305R96005%22&QFieldYear=&QFieldMonth=&QFieldDay=&UseQField=pubnumber&IntQField=SC95thru99%5C%20000006%5C2000BSZ2.txt&User=ANONYMOUS&Password=anonymous&&Function=Document=10&FuzzyDegree=0&ImageQuality=75&75%20150%2016425&Display=7C&DfSeekPage=&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&Maxmu>

Website: [None](#)

United States Environmental Protection Agency Region 5 77 West Jackson Boulevard Chicago, Illinois 60604 EPA 905/R-96-005 NTS September 1998 C.2

EPA Development of Index of Biotic Integrity Expectations for The Lake Agassiz Plain Ecoregion



Adapted from Ormick, 1986

Minnesota Board of Water & Soil Resources A 10 1 1998 Contact Search

Home	Assessments	Grants	Resource Management and Planning
			VizSinks

Wetland Functional Assessment / MnRAM

MnRAM 3.4

- MnRAM 3.4 (Word) (posted 1/16/03) (Microsoft Access File) This upgrade offers a separate vegetative community species tracking, a new descriptive report pre-formatted for printing, and increased flexibility in management classification.
- Professional user support to analyze: please contact Trisha.DeVine@state.mn.us. We welcome your comments. Reading the [Comprehensive Guidance](#) and the [Management Classification System](#) document are recommended.
- Although DWR is not offering field training, the Visual Quick Start and Visual User Manual are online training resources available to help new or returning users:
 - Visual Quick Start 3.4 (PowerPoint) This contains new information about the 3.4 upgrade that may be helpful even to people who have used earlier versions of MnRAM. This animated, illustrated PowerPoint slideshow reviews development files, software use, program, update, data, and using Management Classification to manage MnRAM results. Although this file includes a summary of questions, detailed explanation of the purpose and approach to each question is contained in the other file, Visual User Manual.
 - Visual User Manual (PowerPoint) This PowerPoint slideshow considers each question with pictures and diagrams. It shows examples with visual demonstrations of what to consider on site and what information each question is meant to evaluate. The information in this file has not changed significantly from earlier versions, because questions in MnRAM 3.4 that had not been asked.
 - Visual User Manual (PowerPoint) This PowerPoint slideshow considers each question with pictures and diagrams. It shows examples with visual demonstrations of what to consider on site and what information each question is meant to evaluate. The information in this file has not changed significantly from earlier versions, because questions in MnRAM 3.4 that had not been asked.
- Comprehensive Guidance (3.4 PDF) Updated 11/10/03
- MnRAM 1st Text (2.1 PDF) This is a pre-friendly version that may be useful in the field when a update is not available or for reference to the guidance for each question.
- Management Classification Guidelines (PowerPoint) This file shows how to use MnRAM data to sort/wetlands into categories of higher or lower protection. Management Classification User Guide (PDF) This is the original guidance document that describes management classification. The file also includes Management Classification A (PDF) and Management Classification B (PDF) accompany the main document.

Earlier Versions and Extras

- Score Sheet (Excel) (June 11, 2008) The first two worksheets of this file are formatted for printing for use in recording data in the field. Although it can be used to enter data and preview results (formula calculations) file not changed. DWR recommends use of the 2008 version.
- Training Material (PowerPoint) Visual User Manual for MnRAM 3.1 This animated, illustrated PowerPoint slideshow may help new users. It reviews downloading files, setting up the program, and running through the questions in the field.

For best results, please SAVE all Visual Guides to your computer and view them as slide shows.

<http://www.bwsr.state.mn.us/wetlands/mnram/>



Background – Planning Model Quality Assurance

Circa 2003 – Corps of Engineers Planning Models Improvement Program (PMIP) was established with a main mission to carry out “a process to review, improve and validate analytical tools and models for U.S. Army Corps of Engineers (USACE) Civil Works business programs”

Circa 2005 – Engineer Circular 1105-2-407 was promulgated to establish the process and the requirements for certification of planning models for all USACE elements, Major Subordinate Commands (MSCs), and district commands having Civil Works responsibility, and establishing the policy that use of certified models for all planning activities is mandatory (applicable to all planning models currently in use, models under development and new models).

Circa 2007 – Protocols for Certification of Planning Models were developed by the PMIP to “provide information on the certification process and on the criteria to be used to ensure high quality models for use by Corps planners.”

Circa 2010 – DRAFT Engineer Circular 1105-2-412 circulated in preparation for updating of Engineer Circular 1105-2-407 with intent of underscoring continued support and need for planning model quality assurance reviews.

Present – Engineer Circular 1105-2-407 remains in effect.

Background – Developing the Model Library

Circa 2003 – Concept of a centralized repository of planning models that could be used during planning of USACE activities.

Circa 2005 to 2007 – Modeling challenges facing planners of ecosystem restoration activities are evaluated. Expectations for management of quality during development and application of planning models are developed, described, and deployed.

Circa 2008 – Workshop held to develop purpose, scope, and framework for an Ecosystem Restoration Gateway

2009 – Ecosystem Restoration Gateway goes live

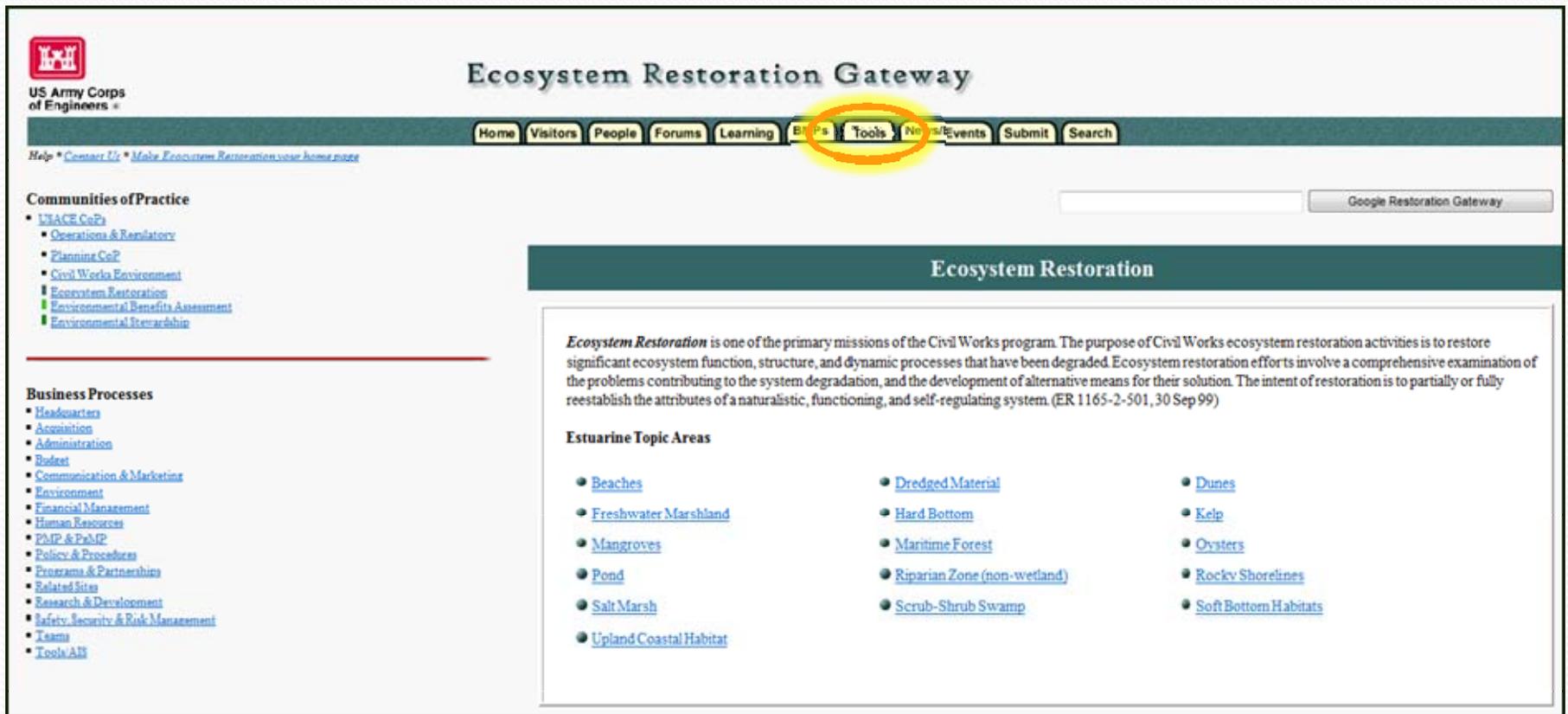
2010 – Ecosystem Restoration Model Library goes live



“The Ecosystem Restoration Planning Center of Expertise Model Library is intended to serve planners and practitioners of ecosystem restoration by consolidating and providing access to information about ecosystem restoration planning models and software”

The Library – How do I get to it?

The library is most easily accessed via the United States Army Corps of Engineers Ecosystem Restoration Gateway – via the [Tools] tab along the top of the screen.



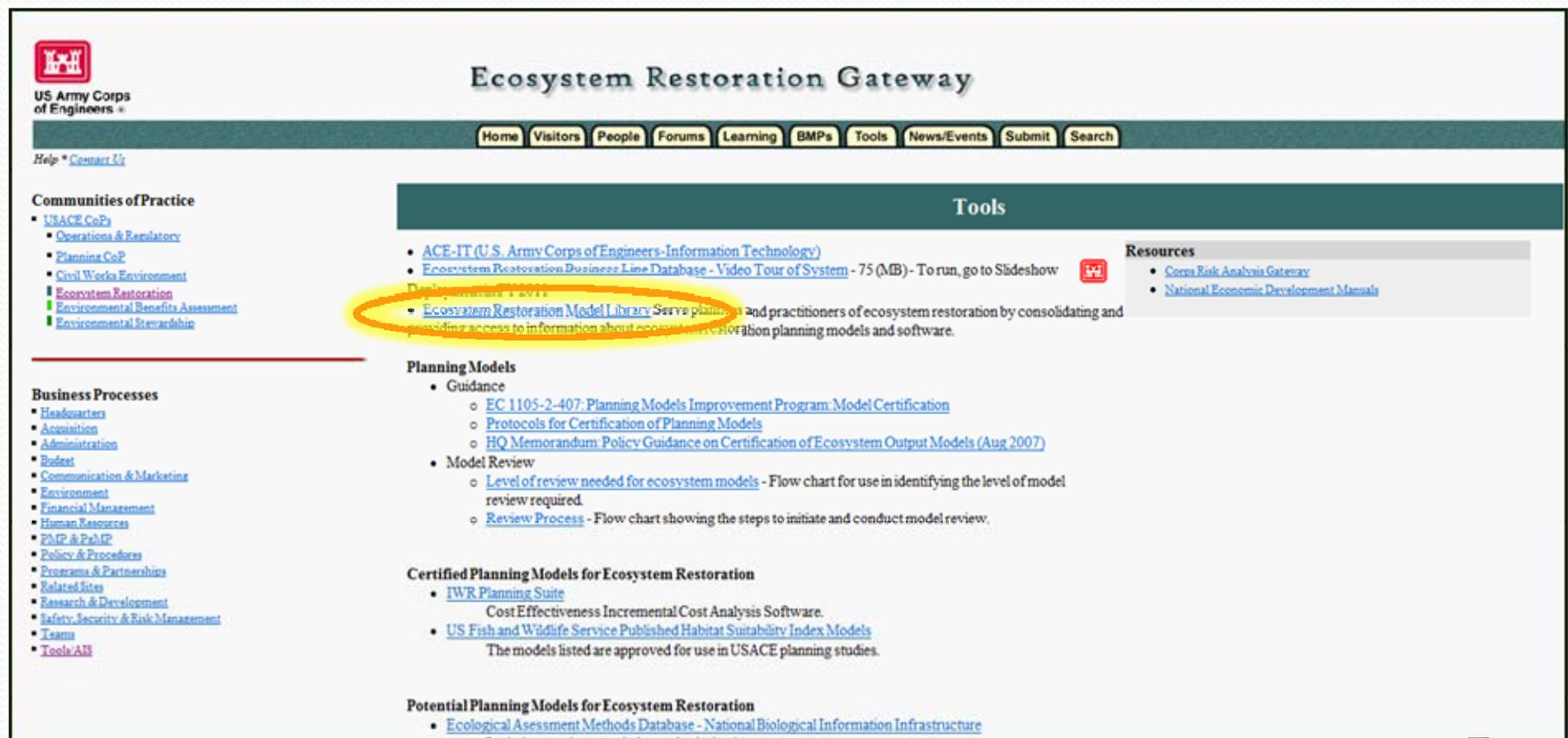
The screenshot shows the Ecosystem Restoration Gateway website. The navigation menu at the top includes: Home, Visitors, People, Forums, Learning, **Tools**, News/Events, Submit, and Search. The 'Tools' tab is highlighted with a yellow circle. Below the navigation menu, there is a search bar and a 'Google Restoration Gateway' button. The main content area is titled 'Ecosystem Restoration' and contains a paragraph about the mission of the Civil Works program. Below this, there is a section for 'Estuarine Topic Areas' with a grid of links: Beaches, Dredged Material, Dunes, Freshwater Marshland, Hard Bottom, Kelp, Mangroves, Maritime Forest, Oysters, Pond, Riparian Zone (non-wetland), Rocky Shorelines, Salt Marsh, Scrub-Shrub Swamp, and Soft Bottom Habitats, and Upland Coastal Habitat.

<http://cw-environment.usace.army.mil/restoration.cfm>



The Library – Navigating the Gateway

Once you've accessed the [Tools] tab, look for the "Ecosystem Restoration Model Library" link.



The screenshot shows the "Ecosystem Restoration Gateway" website. The top navigation bar includes links for Home, Visitors, People, Forums, Learning, BMPs, Tools, News/Events, Submit, and Search. The "Tools" tab is selected. The main content area lists several tools, with the "Ecosystem Restoration Model Library" link highlighted in a yellow circle. The link text is: "Ecosystem Restoration Model Library Serves planners and practitioners of ecosystem restoration by consolidating and providing access to information about ecosystem restoration planning models and software." Other sections visible include "Communities of Practice", "Business Processes", "Planning Models", "Certified Planning Models for Ecosystem Restoration", and "Potential Planning Models for Ecosystem Restoration".

<http://cw-environment.usace.army.mil/tools.cfm?CoP=Restore>

The Library – Welcome to your destination

Once at the library, you have several options that range from passively reviewing information that has already been entered, to submitting model-related information of your own.



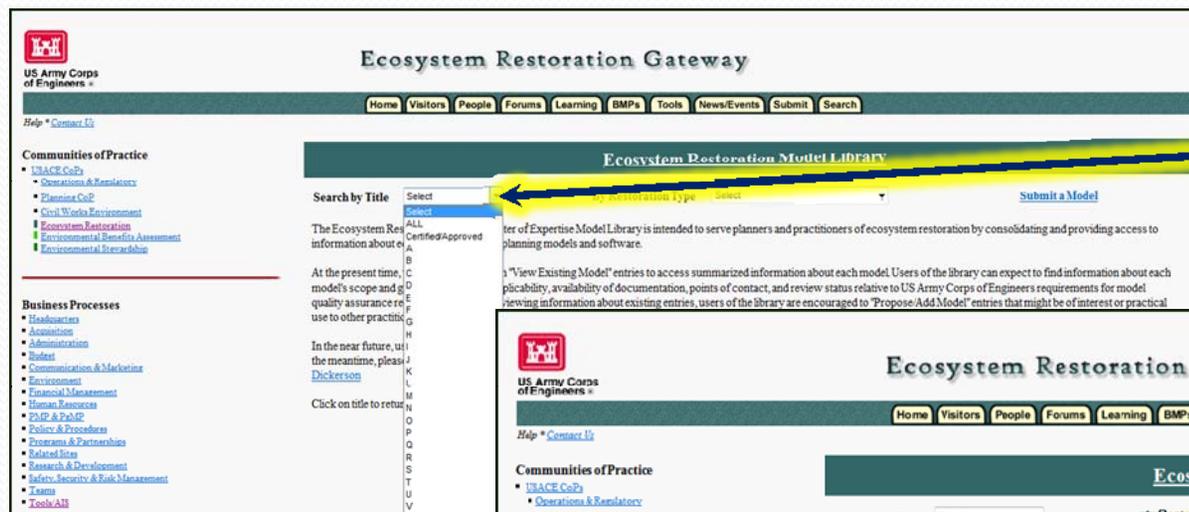
The screenshot shows the Ecosystem Restoration Gateway website. The header includes the US Army Corps of Engineers logo and the title "Ecosystem Restoration Gateway". A navigation bar contains links for Home, Visitors, People, Forums, Learning, BMPs, Tools, News/Events, Submit, and Search. Below the navigation bar, there is a "Communities of Practice" section with a list of links: USACE CoPs, Operations & Regulatory, Planning CoP, Civil Works Environment, Ecosystem Restoration, Environmental Benefits Assessment, and Environmental Stewardship. A "Business Processes" section follows with a list of links: Headquarters, Acquisition, Administration, Budget, Communication & Marketing, Environment, Financial Management, Human Resources, PMP & P&FP, Policy & Procedures, Programs & Partnerships, Related Sites, Research & Development, Safety, Security & Risk Management, Teams, and Tools/AIS. The main content area is titled "Ecosystem Restoration Model Library" and features search filters for "Search by Title" and "By Restoration Type", both with "Select" dropdown menus. A "Submit a Model" link is also present. The text below the filters describes the library's purpose and provides instructions for users, including a link to "Ginny Dickerson" for feedback.

<http://cw-environment.usace.army.mil/model-library.cfm?CoP=Restore&Option=Start>

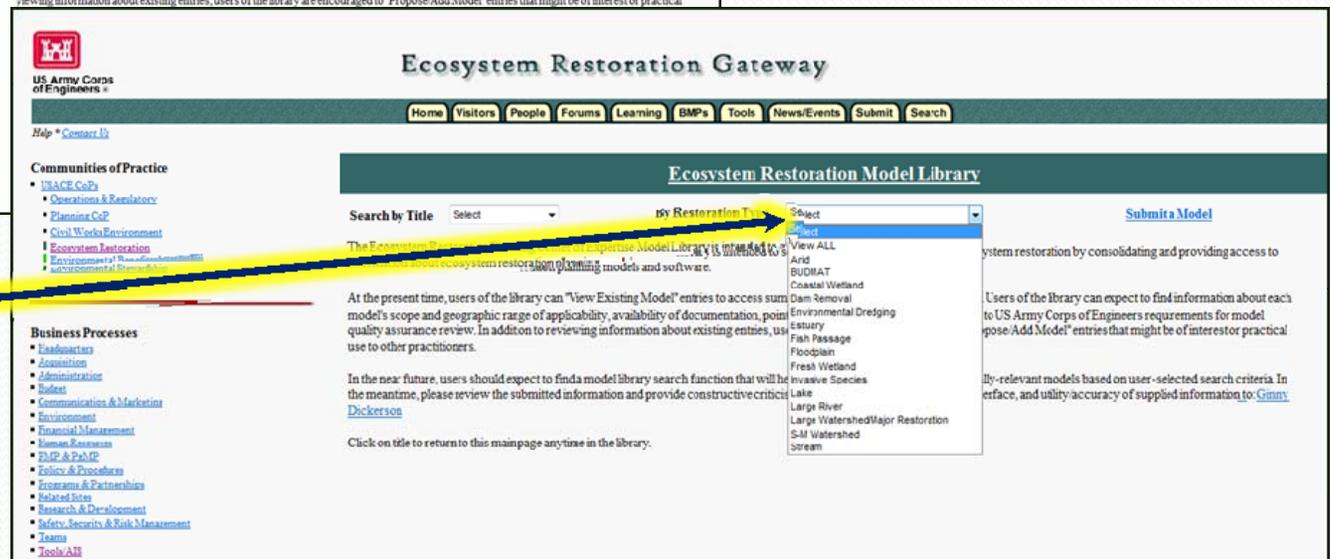


The Library – Searching for an entry

Library entries can be searched by name, or by the type of situation in which they might be applied.



Search by name



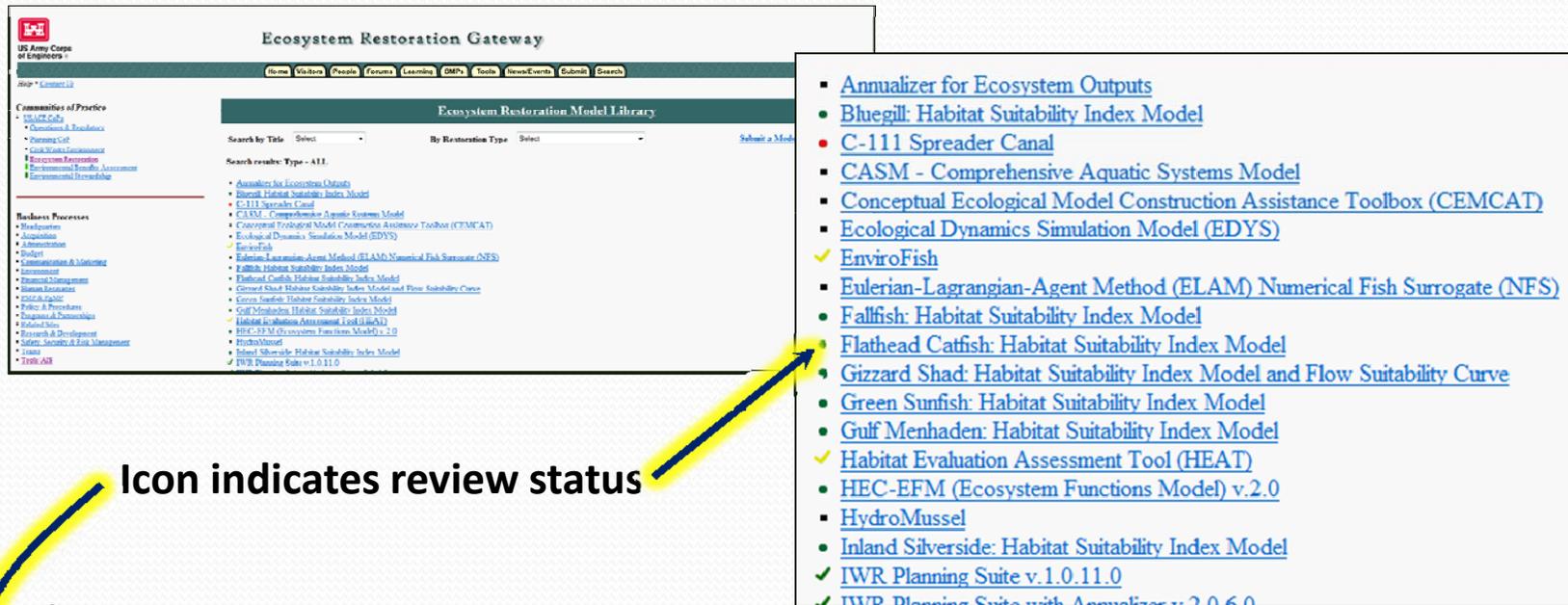
Search by situation

Examples:

- Fish passage
- Lakes
- Large Rivers
- Wetlands
- Estuaries
- more...

The Library – Immediate information

Having used the “Search by Title” option to list all models... you will see the names of each model in the library listed in alphabetical order, accompanied by an icon that indicates its review status.



The screenshot shows the 'Ecosystem Restoration Gateway' website. The main content area is titled 'Ecosystem Restoration Model Library'. It features search filters for 'Search by Title' and 'By Restoration Type'. Below the filters, a list of models is displayed, each preceded by a small icon representing its review status. A callout box on the right side of the image lists these models, with a yellow arrow pointing to the 'Flathead Catfish: Habitat Suitability Index Model' entry, which is marked with a green checkmark icon.

- Annualizer for Ecosystem Outputs
- Bluegill: Habitat Suitability Index Model
- C-111 Spreader Canal
- CASM - Comprehensive Aquatic Systems Model
- Conceptual Ecological Model Construction Assistance Toolbox (CEMCAT)
- Ecological Dynamics Simulation Model (EDYS)
- EnviroFish
- Eulerian-Lagrangian-Agent Method (ELAM) Numerical Fish Surrogate (NFS)
- Fallfish: Habitat Suitability Index Model
- Flathead Catfish: Habitat Suitability Index Model
- Gizzard Shad: Habitat Suitability Index Model and Flow Suitability Curve
- Green Sunfish: Habitat Suitability Index Model
- Gulf Menhaden: Habitat Suitability Index Model
- Habitat Evaluation Assessment Tool (HEAT)
- HEC-EFM (Ecosystem Functions Model) v.2.0
- HydroMussel
- Inland Silverside: Habitat Suitability Index Model
- IWR Planning Suite v.1.0.11.0
- IWR Planning Suite with Annualizer v.2.0.6.0

Icon indicates review status

Definitions:

- ✓ **Certified** - The planning model was developed by the USACE, and has been reviewed and approved for regional or nationwide application in accordance with documented geographic range, nation-wide application in accordance with documented best practices and its designed limitations. All issues concerning the model and its documentation have been resolved to the satisfaction of the PCX (see PCX and/or model review history for details).
- ✓ **In Review**
 - **Approved for use** - The planning model is presently approved for regional or nationwide use in accordance with documented geographic range, best practices and its designed limitations (see PCX and/or model review history for details). The PCX is comfortable with application of the planning model and/or the model has been reviewed and issues concerning the model and its documentation have been resolved to the satisfaction of the PCX.
 - **Approved for single use** - The planning model has been approved for use on one or more Corps projects. The model has been reviewed and while identified issues with the model and its documentation have been effectively resolved to the satisfaction of the PCX for one or more specific project applications, it has not been approved for regional or nation-wide application due to pending issues concerning the model and its documentation (see PCX and/or model review history for details).

The Library – A typical entry

A typical entry will provide information: that summarizes the model's intended uses and limitations; about the developer and points of contact; and information about available documentation.

The screenshot displays the 'Ecosystem Restoration Gateway' website. The main navigation bar includes links for Home, Visitors, People, Forums, Learning, BMPs, Tools, News/Events, Submit, and Search. The page is titled 'Ecosystem Restoration Model Library' and features search filters for 'Search by Title' and 'By Restoration Type'. A search result is displayed for 'Minnesota Routine Assessment Method Integrity Version 3.3'.

Minnesota Routine Assessment Method Integrity Version 3.3

Developer: Minnesota Board of Water and Soil Resources
Point of Contact: Elliott Stefanik
Phone Number: 651-290-5260

Model Details:
Certified:

- Approved for single use - The planning model has been approved for use on one or more Corps projects. The model has been reviewed and while identified issues with the model and its documentation have been effectively resolved to the satisfaction of the PCX for one or more specific project applications; it has not been approved for regional or nation-wide application due to pending issues concerning the model and its documentation (see PCX and/or model review history for details).

Geographic Range: Minnesota, USA

Restoration Type: Fresh Wetland

Applicable Species: Wetland-related species and resources

Limitations: MnRAM provides an organized, consistent procedure to document observations and conclusions about wetland processes. It is a systematic way of documenting best professional judgment. MnRAM would be considered a Tier 2 assessment methodology, a rapid assessment method. MnRAM is intended for routine planning and inventory applications as well as for project-specific evaluations. Using it requires experience and training in wetland science, since professional judgment is incorporated in several questions. Although a primary focus in this version of MnRAM on the functional aspect of wetlands, some strictly value-related aspects are included, such as "Aesthetics" and "Commercial Uses." Other limitations and best-uses may become apparent upon review of model documentation.

How to Obtain: Obtain from website: http://www.bwsr.state.mn.us/wetlands/mnram/MnRAM3_3_beta.mdb

Documentation: [Comprehensive guidance](#)
[Visual Quick Start](#)
[MnRAM Text](#)
 See website for other documentation and training material

Website: <http://www.bwsr.state.mn.us/wetlands/mnram/index.html>

[Submit a Project that has used this Model](#)

Sample Entry: Minnesota Routine Assessment Method

The Library – The information

In addition to basic information about the model and its development, the entry might contain information that helps users know if it might be readily applicable on a civil works restoration project.

Ecosystem Restoration Model Library

Search by Title By Restoration Type [Submit a Model](#)

Minnesota Routine Assessment Method Integrity Version 3.3

Developer	Minnesota Board of Water and Soil Resources
Point of Contact	Elliott Stefanik
Phone Number	651-290-5260
Model Details:	
Certified	<ul style="list-style-type: none">Approved for single use - <i>The planning model has been approved for use on one or more Corps projects. The model has been reviewed and while identified issues with the model and its documentation have been effectively resolved to the satisfaction of the PCX for one or more specific project applications, it has not been approved for regional or nation-wide application due to pending issues concerning the model and its documentation (see PCX and/or model review history for details).</i>
Geographic Range	Minnesota, USA
Restoration Type	Fresh Wetland
Applicable Species	Wetland-related species and resources
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How to Obtain	Obtain from website: http://www.bwsr.state.mn.us/wetlands/mnram/MnRAM3_3beta.mdb
Documentation	Comprehensive guidance Visual Quick Start MnRAM Test See website for other documentation and training materials
Website	http://www.bwsr.state.mn.us/wetlands/mnram/index.html

[Submit a Project that has used this Model](#)

Basic Information:

Developer
Point of contact and phone number
USACE approval/certification status
Geographic range
Compatible restoration situations/type
Species coverage
Limitations
Sources of detailed model information

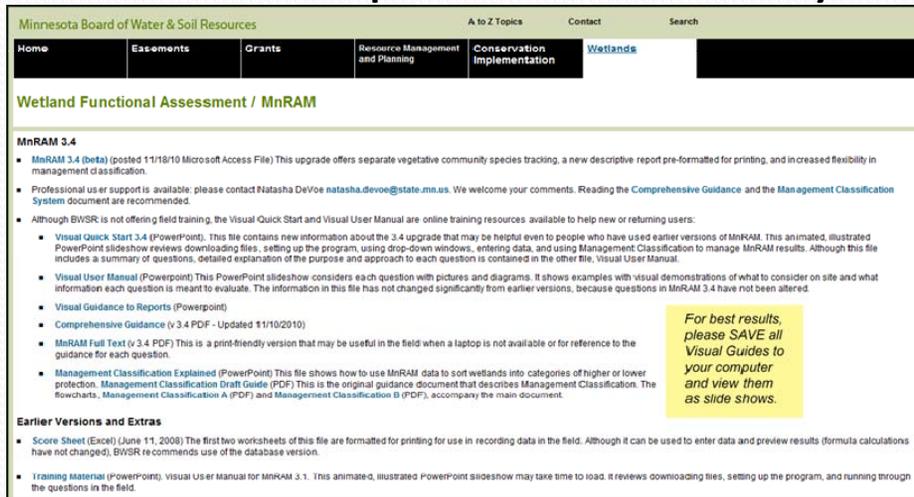
Things to look for:

Notes about: what the model or technique is characterizing; data requirements; synergism with other planning and engineering models; prior uses, applications, and evaluations.



The Library – Links to other information

Website with development and version history



Minnesota Board of Water & Soil Resources

A to Z Topics | Contact | Search

Home | Assessments | Grants | Resource Management and Planning | Conservation Implementation | Wetlands

Wetland Functional Assessment / MnRAM

MnRAM 3.4

- MnRAM 3.4 (beta) (posted 11/18/10 Microsoft Access File) This upgrade offers separate vegetative community species tracking, a new descriptive report pre-formatted for printing, and increased flexibility in management classification.
- Professional user support is available: please contact Natasha DeVoe natasha.devoe@state.mn.us. We welcome your comments. Reading the [Comprehensive Guidance](#) and the [Management Classification System](#) document are recommended.
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 - Visual Guidance to Reports (Powerpoint)
 - Comprehensive Guidance (v 3.4 PDF - Updated 11/10/2010)
 - MnRAM Full Text (v 3.4 PDF) This is a print-friendly version that may be useful in the field when a laptop is not available or for reference to the guidance for each question.
 - Management Classification Explained (PowerPoint) This file shows how to use MnRAM data to sort wetlands into categories of higher or lower protection. [Management Classification Draft Guide \(PDF\)](#) This is the original guidance document that describes Management Classification. The flowcharts, [Management Classification A \(PDF\)](#) and [Management Classification B \(PDF\)](#), accompany the main document.

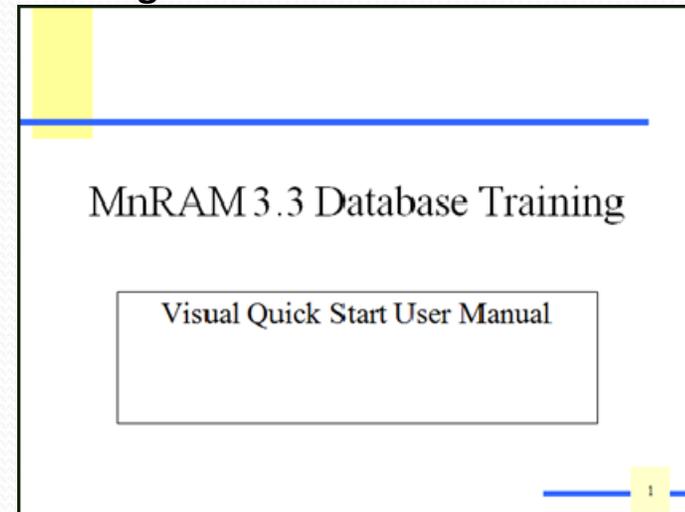
Earlier Versions and Extras

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- Training Material (PowerPoint). Visual User Manual for MnRAM 3.1. This animated, illustrated PowerPoint slideshow may take time to load. It reviews downloading files, setting up the program, and running through the questions in the field.

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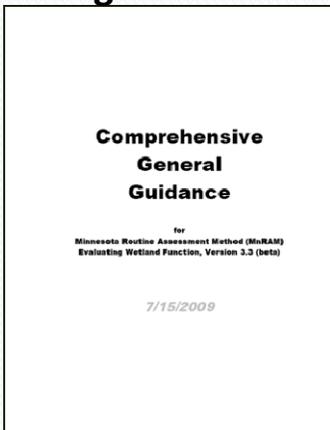
Training material



MnRAM 3.3 Database Training

Visual Quick Start User Manual

User guidance

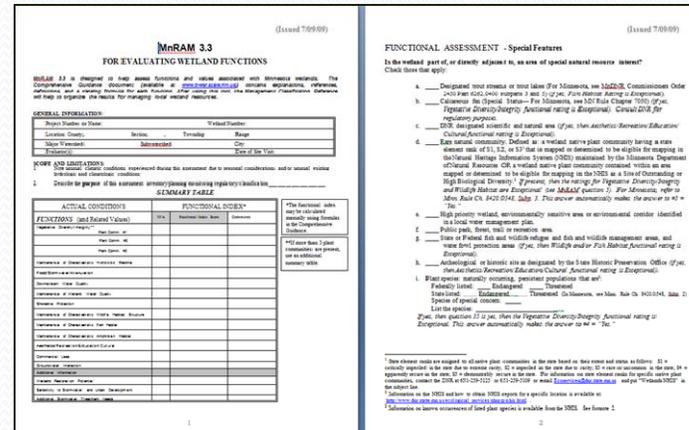


Comprehensive General Guidance

for Minnesota Routine Assessment Method (MnRAM) Evaluating Wetland Function, Version 3.3 (beta)

7/15/2009

Standard forms



MnRAM 3.3 FOR EVALUATING WETLAND FUNCTIONS (Issued 7/09/09)

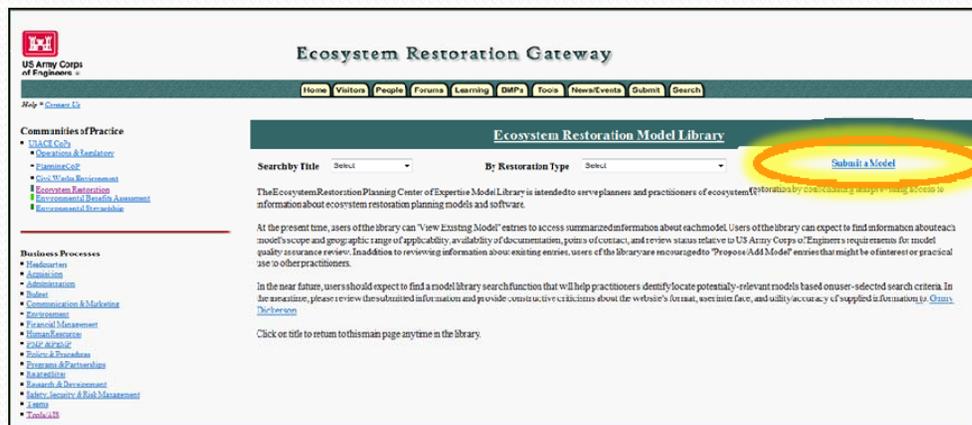
FUNCTIONAL ASSESSMENT - Special Features (Issued 7/09/09)

More to come:

- Supporting literature
- Documentation of prior applications
- Review reports and summaries
- Best practices and lessons learned
- Post-audits and evaluations
- ... Pending resources and contributions

Submitting Models – How to...

Users are encouraged to review entries and proposed unlisted models/techniques for consideration



From any of the library pages:

Select "Submit a Model"

Information you'll want to have on hand:

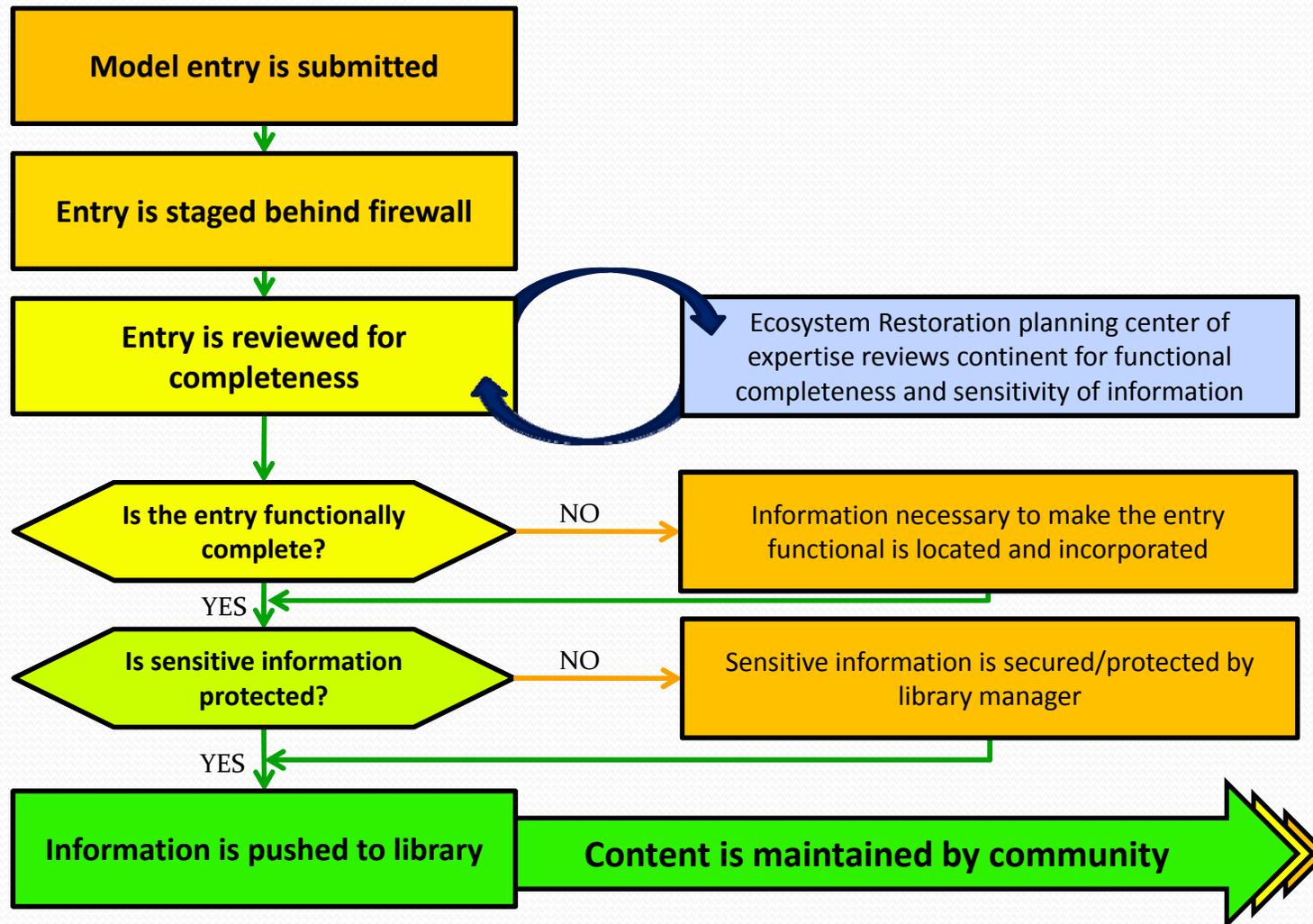
- Name and version (or release date) of model
- Name of the developer
- Point of contact
 - Name
 - Telephone Number
 - Email address
- Description of the model's:
 - Geographic range/limits
 - Applicable restoration situation/type
 - Species coverage
- Instructions on how to obtain the model
- The model's main website
- Identified limitations/challenges
- Available documentation
 - User guidance/instructions
 - Associated literature
- USACE review status

The screenshot shows the 'Submit a Model' form. It includes fields for Submitter Name (WebinarTest), E-mail (WebinarTest@webinartest.org), and a 'Next' button. The form is divided into sections: Basic Information (Model Name, Developer, Point of Contact, Email Address, Phone Number), Details (Geographic Range, Restoration Type, Applicable Species, How to Obtain, Website, Limitations, Documentation), and a 'Certified' checkbox. A 'Submit Entry' button is at the bottom.



Submitting Models – What to expect

Once a model is submitted for consideration, your entry will be reviewed as illustrated below:



Submitting a USACE Application of a Model

At the entry's information page, select "Submit a Project that has used this Model"

The screenshot shows the 'Ecosystem Restoration Gateway' website. The main content area displays details for the 'Minnesota Routine Assessment Method Integrity Version 3.3' model. At the bottom of the page, a link labeled 'Submit a Project that has used this Model' is circled in yellow.

The screenshot shows the 'Submit a Project for Minnesota Routine Assessment Method Integrity Version 3.3' form. The form includes fields for Name (Webinar Test), E-mail (Webinar Test@webpartest.org), and a 'Next' button.

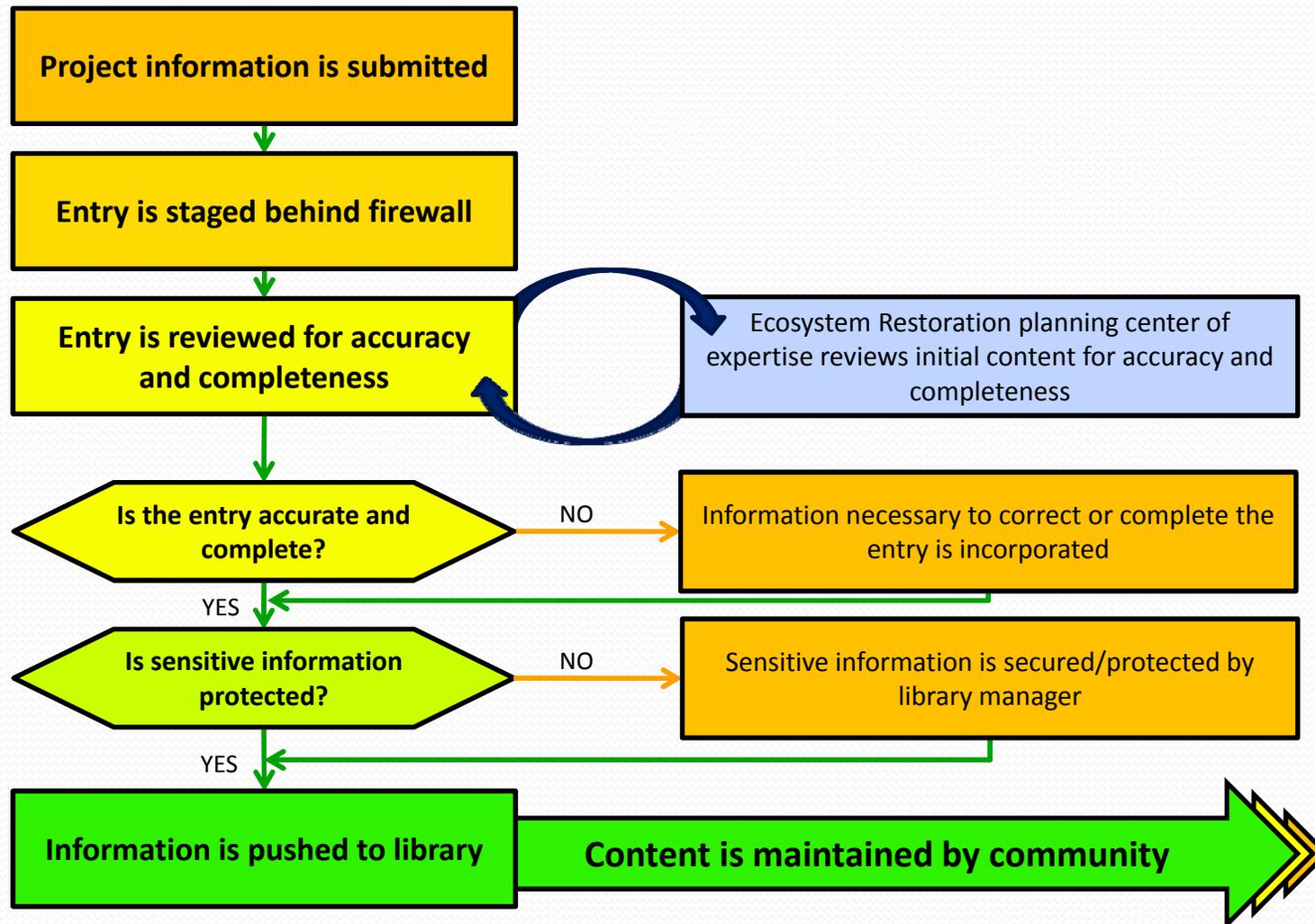
Information you'll want to have on hand:

- Project Name
- Civil Works Information System (CWIS) Code
- Name of project point of contact
- Email address for project point of contact
- Phone number for project point of contact

The screenshot shows the 'Submit a Project for Minnesota Routine Assessment Method Integrity Version 3.3' form. The form includes fields for Project Applications, Project Name, CWIS Code (if known), Project POC, Email Address, and Phone Number. A yellow arrow points to the 'Submit Entry' button.

Submitting an Application – What to expect

Once project-related information is submitted for consideration, your entry will be reviewed as illustrated below:





USACE Ecosystem Restoration Planning Model Library

The model library is intended to serve the ecosystem restoration community by summarizing and consolidating relevant information in a manner that is most meaningful to field practitioners and decision-makers.

Messages to take home...

The model library is yours (the community).

- Make it your own;
- Help the library managers understand what information is helpful and why; and
- Contribute to content by providing material relevant to the reasonable and reliable use of planning models.

The quality of information in the library is reliant on maintenance (with limited resources).

- Be a champion for one or more models;
- Update information you know to be out of date; and
- Update entries with real-world applications of models.

Use the model library to document model development, testing, and applications (real-time awareness)

- Put your model out there, to find testers, and to inform the field of its availability;
- Document and highlight reviews, developments, testing, and post-audits;
- Earn and build confidence in your models, planning decisions, and projects; and
- Enable and improve the informed/educated use of ecosystem restoration models

Improve the quality and reliability of Corps ecosystem restoration planning expertise, decisions, and program.

For more information or comment:

Jodi Staebell – CEMVD – P: (309) 794-5448
Jodi.K.Staebell@usace.army.mil

Valerie Ringold – CENWD – P: (503) 808-3984
Valerie.A.Ringold@usace.army.mil

Virginia (Ginny) Dickerson – CDERD – P: (601) 634-4261
Virginia.L.Dickerson@usace.army.mil

Shawn Komlos – CEIWR – P: (703) 428-6605
Shawn.B.Komlos@usace.army.mil

Thank you!

While visiting the Ecosystem Restoration Model Library at:
<http://cw-environment.usace.army.mil/model-library.cfm?CoP=Restore&Option=Start>

We encourage you to explore the content of the Ecosystem Restoration Gateway at:
<http://cw-environment.usace.army.mil/restoration.cfm>