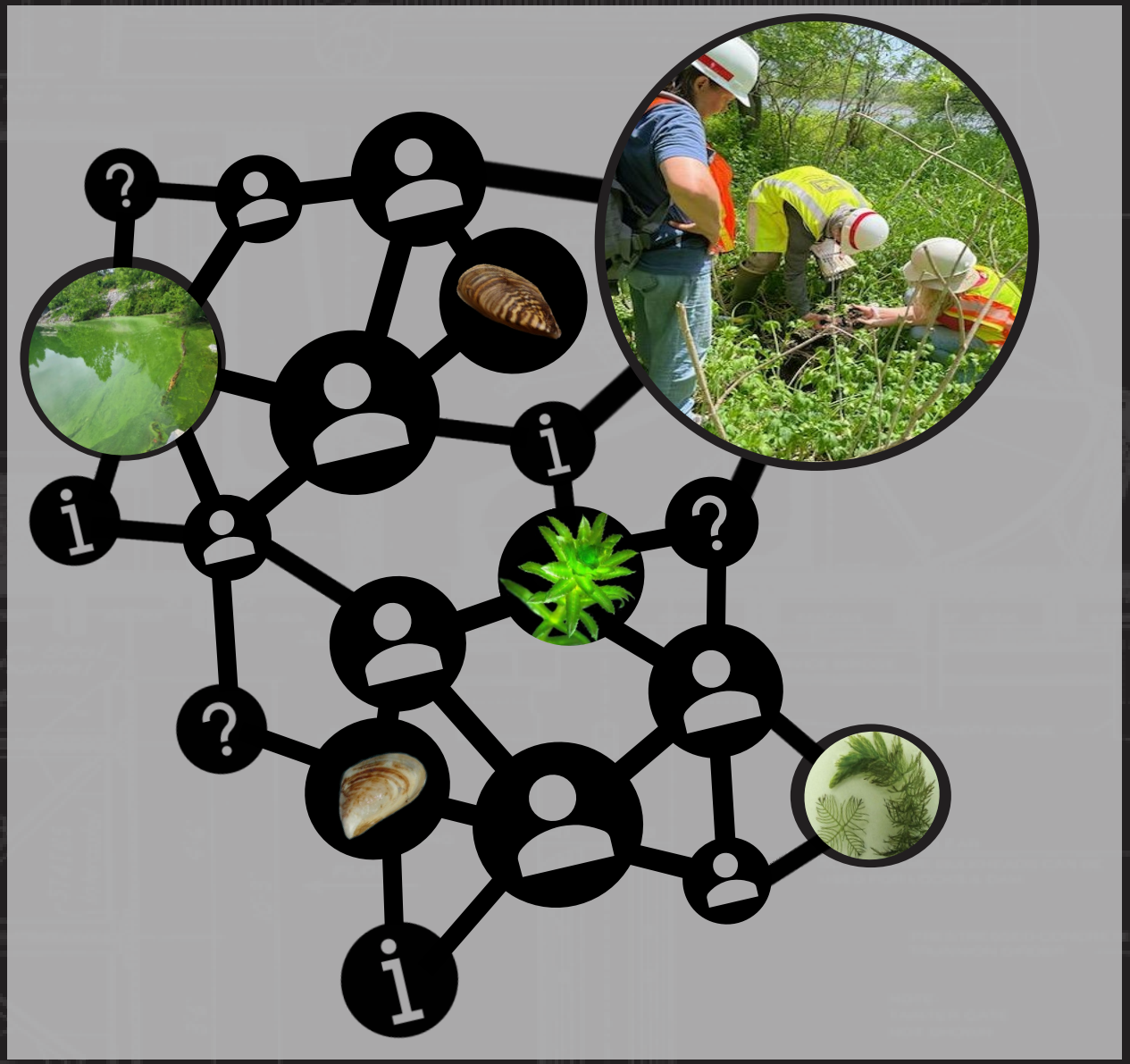
U.S. ARMY CORPS OF ENGINEERS
INVASIVE SPECIES STRATEGIC PLAN & MANAGEMENT

March 2025



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US Army Corps of Engineers®

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USACE AND INVASIVE SPECIES MANAGEMENT: HISTORY

USACE – 1st Federal Agency To Treat Invasive Species

1880's – 1890's

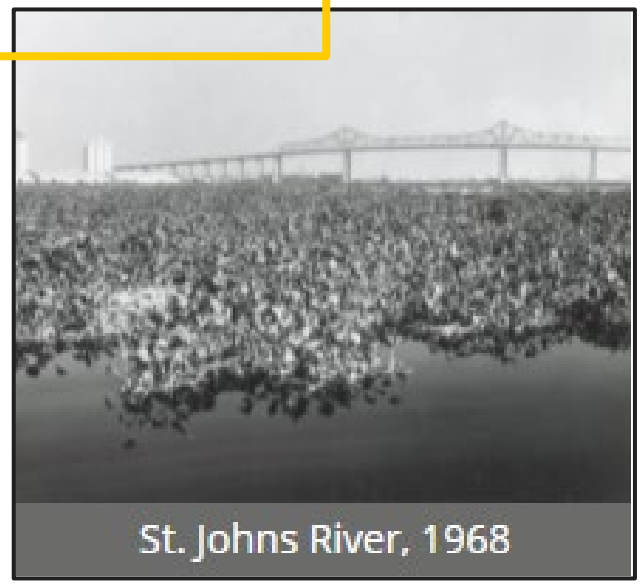
Water hyacinth populations expanded, causing major problems impeding commercial river traffic and operations

1899

Removal of Aquatic Growths (RAG) Project included in the Rivers and Harbors Act of 1899

1931

First surveys of plant populations in Florida by USACE personnel



St. Johns River, 1968

1938

Plant control operations began on Lake Okeechobee

1965

Public Law 89-298 authorized ➔ Creating Aquatic Plant Control Program

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USACE AND INVASIVE SPECIES MANAGEMENT: EXAMPLES OF IMPACTS TO MISSION AREAS

3

Invasive Species	Impacted Sectors	Estimated Economic Impacts	Estimated Management Expenditures
Zebra, Quagga Mussels 	Hydro-electric Power Recreation Water Supply Infrastructure Environmental Stewardship	$1 billion per year (includes both estimated economic impacts and management expenditures in the Great Lakes and Pacific Northwest only)	Included as part of economic impacts
Invasive Carp 	Environmental Stewardship, Recreation	$102 million over 10 years (Great Lakes commercial fishery); $2.4 billion over ten years (Great Lakes recreational fishery)	$58 million in 2017 (Ohio and Upper Mississippi River Basins)
Water Hyacinth 	Hydro-electric Power Water supply Recreation Environmental Stewardship Flood Risk Management	*Not available*	*Not available*
Feral Swine 	Flood Risk Management Infrastructure Recreation Environmental Stewardship	$190 million in 2014 (crop production losses across ten states); $40 million in 2017 (livestock damages across 13 states)	*Not available*
Phragmites 	Navigation Recreation Flood Risk Management Environmental Stewardship Mitigation	$2.9 million per year (Maryland Chesapeake Bay commercial fishing, sportfishing, hunting, and wildlife viewing)	*Not available*
Alligator weed 	Recreation Flood Risk Management Water Supply Environmental Stewardship	*Not available*	$18 million from 2015-2019 (Department of Interior managed lands)
Emerald Ash Borer 	Environmental Stewardship	$130 million per year (timber losses, nationwide); $830 million per year (residential property value losses, nationwide), especially in Midwestern states	$10.7 billion over 10 years (nationwide)

USACE AND INVASIVE SPECIES MANAGEMENT: COST ESTIMATES

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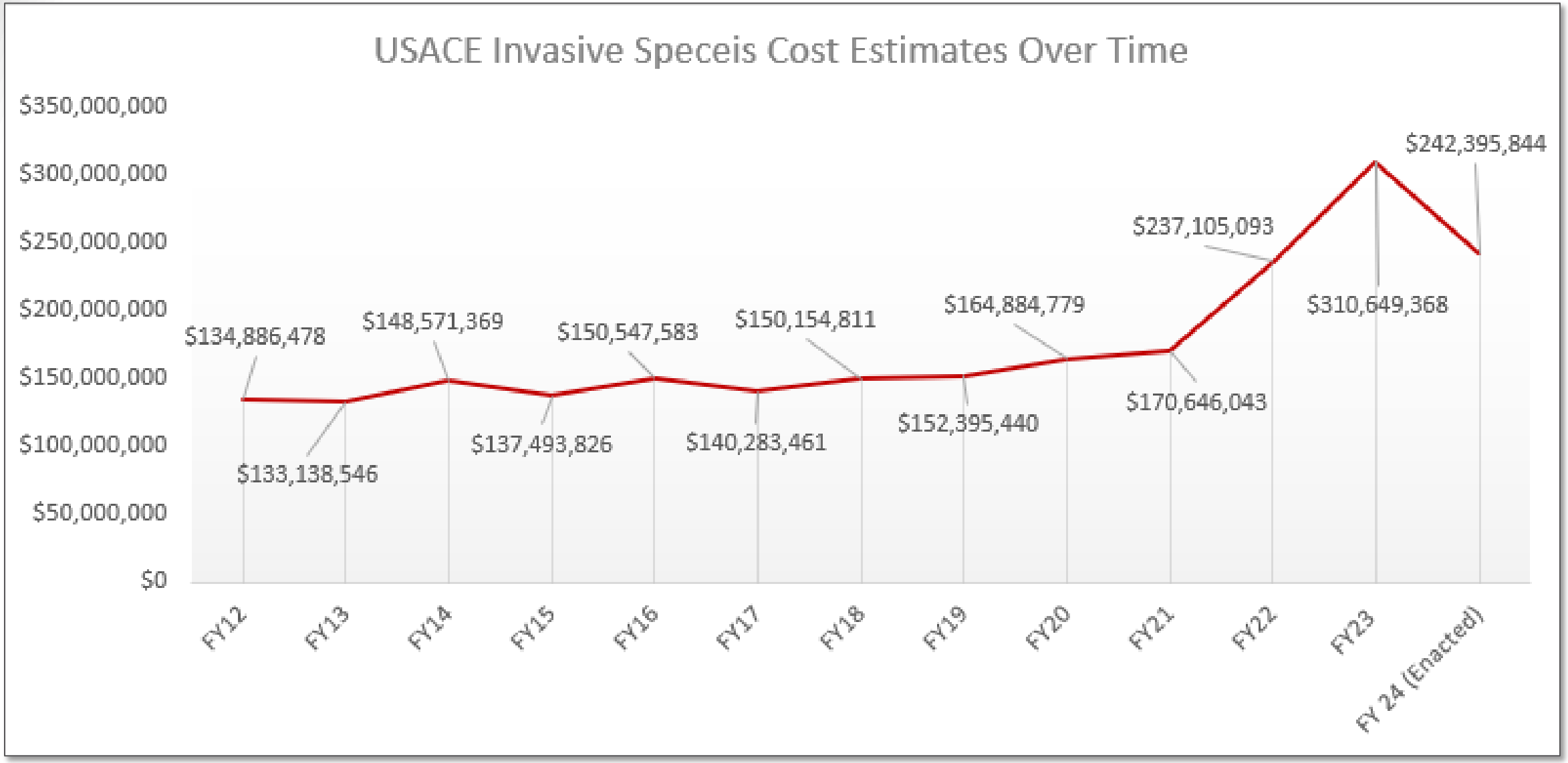

USACE AND INVASIVE SPECIES MANAGEMENT: COST ESTIMATES

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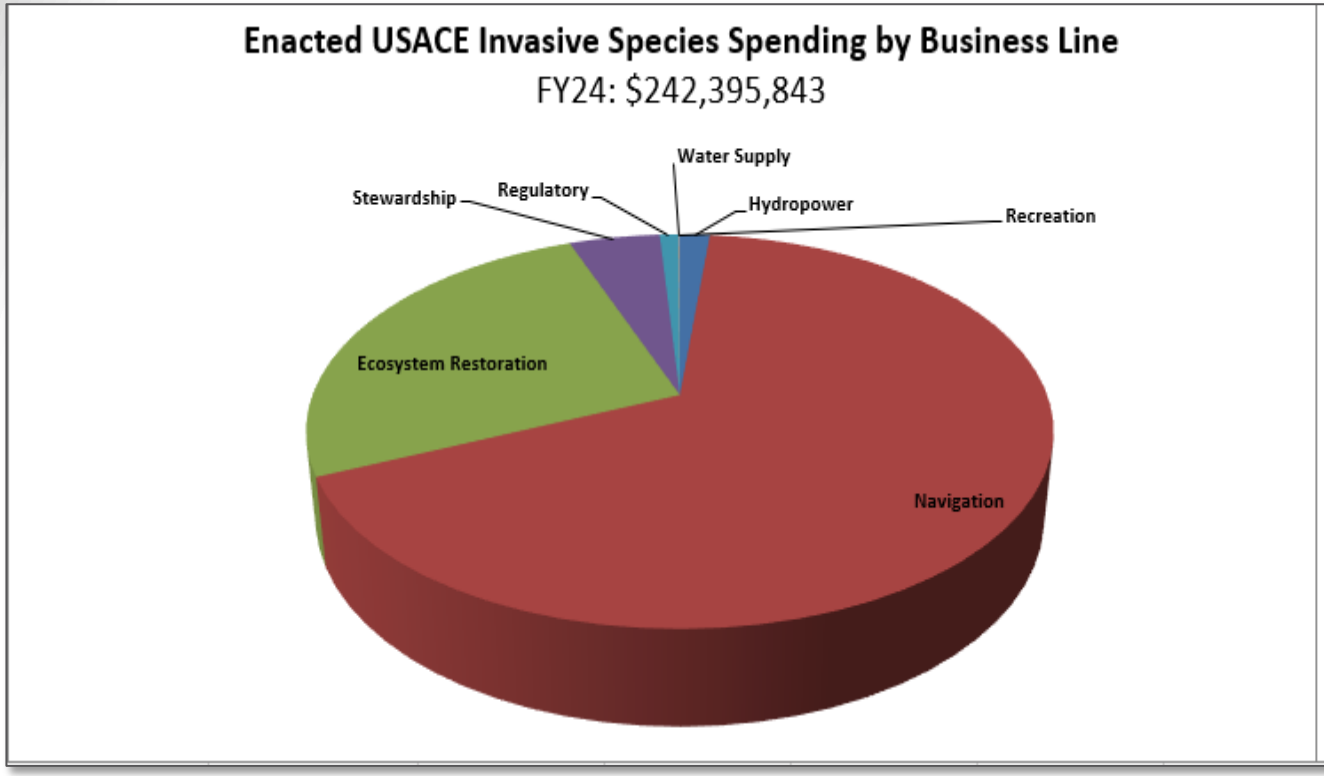
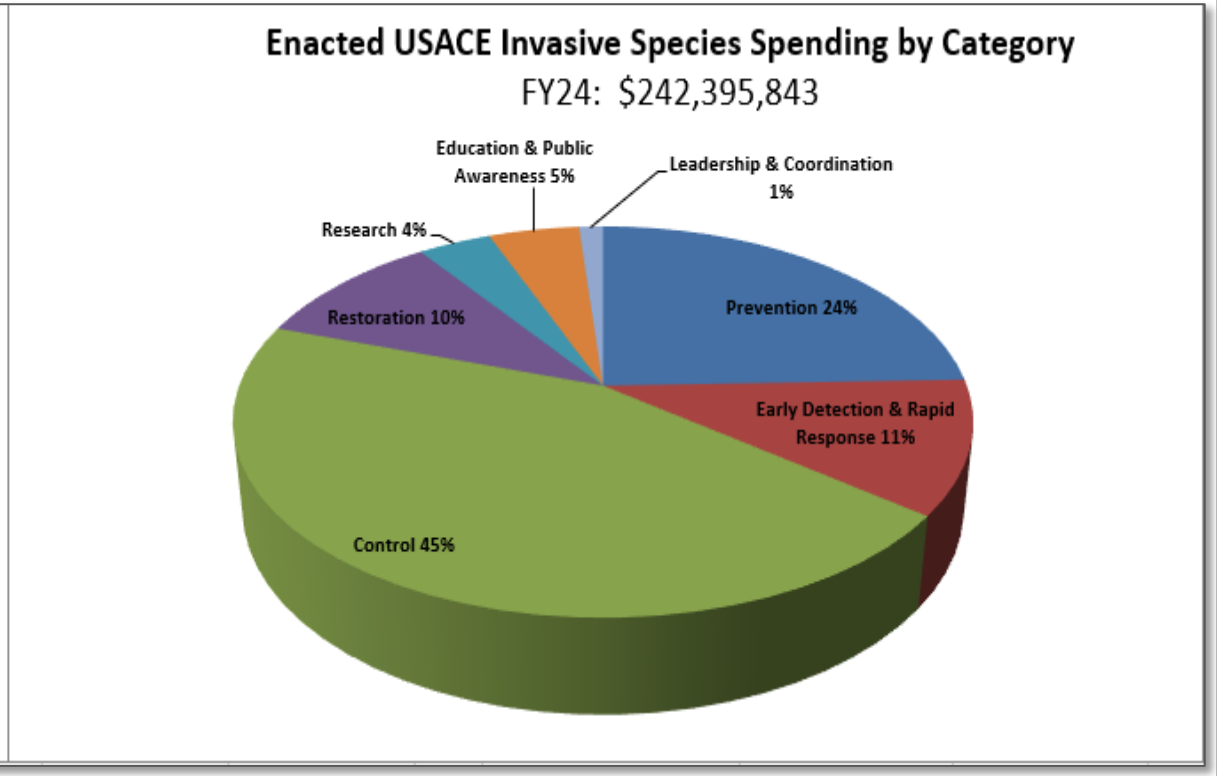


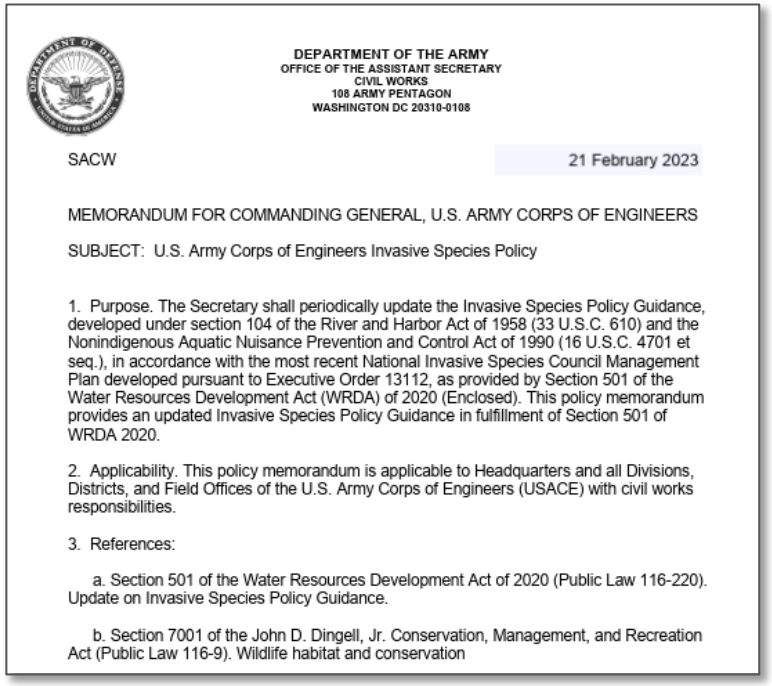


REFERENCED TODAY

U.S. ARMY

USACE Invasive Species Policy

- **Date:** February 2023 *(updated per Section 501 of WRDA)*
- **NRM Gateway:** https://corpslakes.erdc.dren.mil/employees/cecwon/pdfs/23Feb21-WRDA20-Section501InvasiveSpecies.pdf



DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT SECRETARY
CIVIL WORKS
108 ARMY PENTAGON
WASHINGTON DC 20310-0108

SACW 21 February 2023

MEMORANDUM FOR COMMANDING GENERAL, U.S. ARMY CORPS OF ENGINEERS

SUBJECT: U.S. Army Corps of Engineers Invasive Species Policy

1. Purpose. The Secretary shall periodically update the Invasive Species Policy Guidance, developed under section 104 of the River and Harbor Act of 1958 (33 U.S.C. 610) and the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (16 U.S.C. 4701 et seq.), in accordance with the most recent National Invasive Species Council Management Plan developed pursuant to Executive Order 13112, as provided by Section 501 of the Water Resources Development Act (WRDA) of 2020 (Enclosed). This policy memorandum provides an updated Invasive Species Policy Guidance in fulfillment of Section 501 of WRDA 2020.

2. Applicability. This policy memorandum is applicable to Headquarters and all Divisions, Districts, and Field Offices of the U.S. Army Corps of Engineers (USACE) with civil works responsibilities.

3. References:

a. Section 501 of the Water Resources Development Act of 2020 (Public Law 116-220). Update on Invasive Species Policy Guidance.

b. Section 7001 of the John D. Dingell, Jr. Conservation, Management, and Recreation Act (Public Law 116-9). Wildlife habitat and conservation

Invasive Species Leadership Team PgMP

- **Date:** April 2023
- **NRM Gateway:** https://corpslakes.erdc.dren.mil/employees/islt/pdfs/ISLT-PgMP-2023.pdf

PROGRAM MANAGEMENT PLAN
FOR THE
INVASIVE SPECIES LEADERSHIP TEAM
AND THE
INVASIVE SPECIES MANAGEMENT
COMMUNITY OF PRACTICE

US Army Corps of Engineers

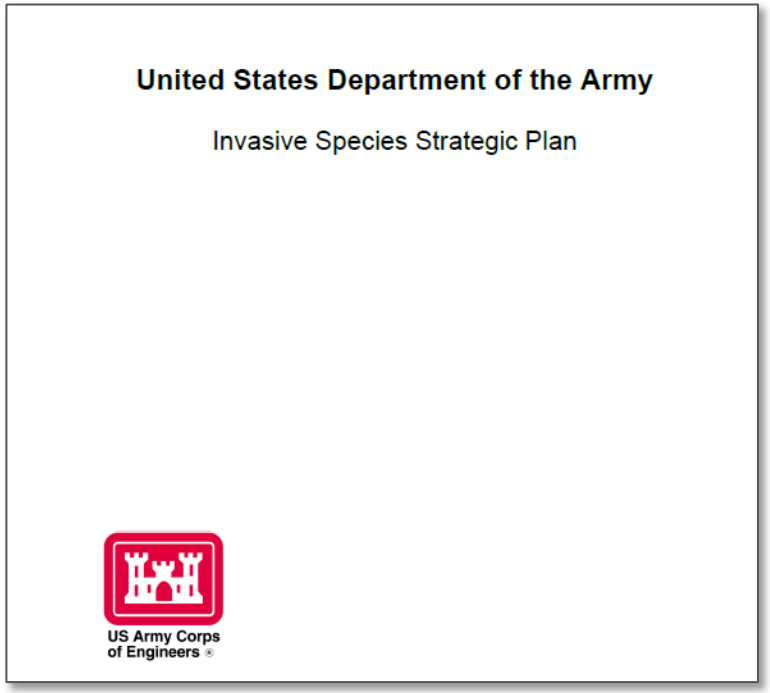
Invasive Species Leadership Team

PREPARE • PREVENT • PROTECT

http://www.usace.army.mil/Missions/Environmental/InvasiveSpeciesManagement.aspx

Invasive Species Strategic Plan

- **Date:** December 2024
- **NRM Gateway:** https://corpslakes.erdc.dren.mil/employees/invasive/pdfs/TAB%20D_USACE%20Invasive%20Species%20Strategic%20Plan.pdf



United States Department of the Army

Invasive Species Strategic Plan

US Army Corps of Engineers

INVASIVE SPECIES LEADERSHIP TEAM (ISLT)

What is the Invasive Species Leadership Team (ISLT)

The ISLT was established by USACE Civil Works and Contingency Operations Memorandum in July 2005 to provide oversight of the USACE Invasive Species Program.

Who makes up ISLT?

25-member team comprised of:

- Representatives from each Major Subordinate Command's (MSC) Operations and Planning Communities, generally an individual from the Division Office and another individual from a District Office within the MSC
- HQUSACE proponents
- Representative liaisons from Engineer Research and Development Center (ERDC), Armed Forces Pest Management Board, and USACE Interagency Working Group on Harmful Algal Blooms and Hypoxia Research and Control Amendments

ISLT RESPONSIBILITIES

ISLT Responsibilities per the
Program Management Plan for The Invasive Species Leadership Team
and the Invasive Species Management Community of Practice

- Providing recommendations to HQ staff on fulfilling agency duties under the Dingell Act of 2019, EOs 13112, *Invasive Species*, and 13751, *Safeguarding the Nation from the Impacts of Invasive Species*, and the USACE Invasive Species Policy Memorandum revised February 2023.
- Providing strategic direction to USACE research programs that address invasive species including the Aquatic Plant Control Research Program and the Aquatic Nuisance Species Research Program.
- Representing USACE on regional invasive species councils.
- Coordinating and collaborating on regional invasive species councils, across Federal agencies, and with non-Federal sponsors.
- Developing and implementing cost effective strategies to address invasive species problems that affects USACE water resource management and environmental stewardship missions.
- Coordinating team initiatives with the Environmental and other relevant USACE CoPs.
- Coordinating annual cost information for USACE to be provided to the National Invasive Species Council (NISC) via ERDC.

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ISLT MEMBERS

Major Subordinate Command	Name	E-Mail
Great Lakes & Ohio River Division	Christopher DeSmit	Chris.J.Desmit@usace.army.mil
	Timothy Noon	Timothy.W.Noon@usace.army.mil
Mississippi Valley Division	Michael Saucier	Michael.H.Saucier@usace.army.mil
	Mark Cornish	Mark.A.Cornish@usace.army.mil
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	Brianna Treichler	Brianna.L.Treichler@usace.army.mil
Northwestern Division	Kyle Ruona	Kyle.R.Ruona@usace.army.mil
	Andrew Huddleston	Andrew.J.Huddleston@usace.army.mil
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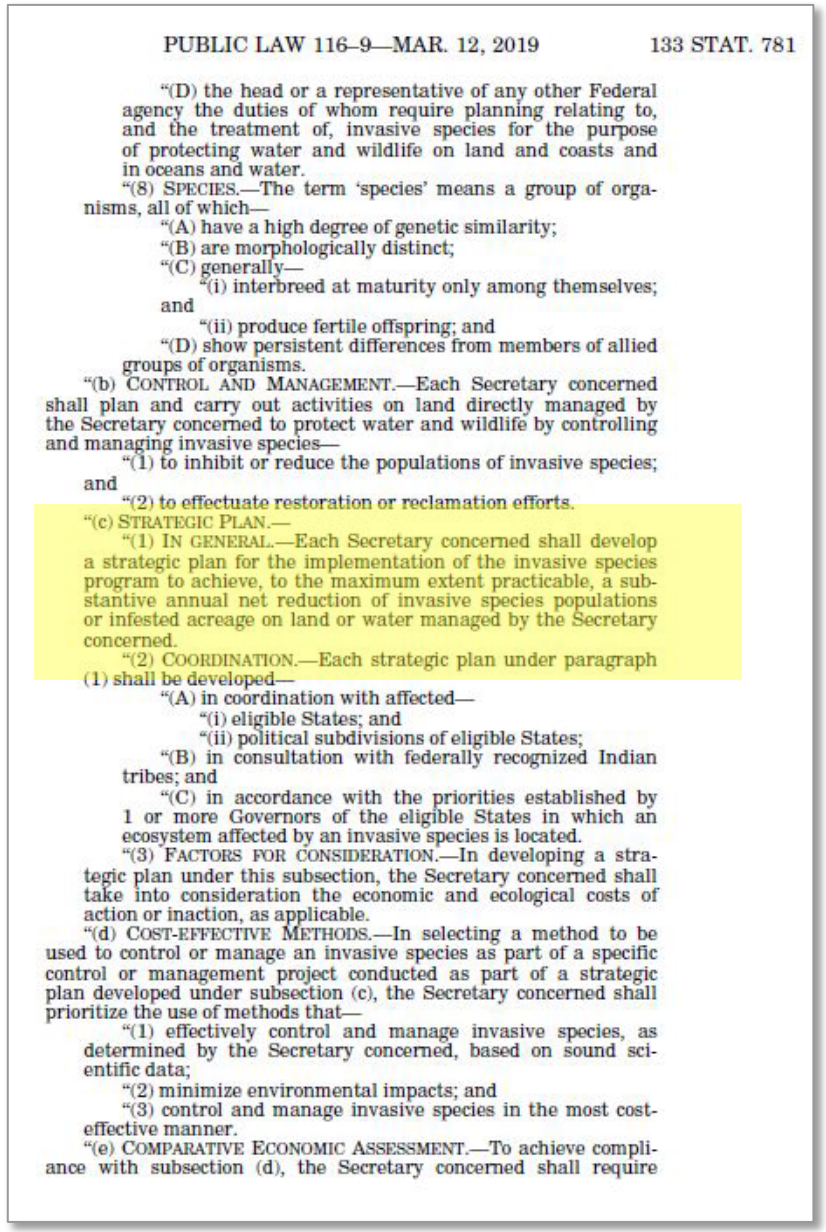
	Nicole Bonine	Nicole.Bonine@usace.army.mil
South Pacific Division	Cynthia Fowler	Cynthia.J.Fowler@usace.army.mil
	Dana Price	dana.m.price@usace.army.mil
Southwestern Division	Cherrie-Lee Philip	Cherrie-Lee.P.Phillip@usace.army.mil
	Brandon Mobley	Brandon.W.Mobley@usace.army.mil

Headquarters	
Michael Richards *Natural Resource Program Manager*	Michael.G.Richards@usace.army.mil
Joe Wilson *Senior Environmental Advisor, Navigation*	Joseph.R.Wilson@usace.army.mil
Cathleen Forget *Environment CoP Integrator*	Cathleen.A.Forget@usace.army.mil
Engineering Research & Development Center (ERDC)	
Jeremy Crossland *Program Manager, APC*	Jeremy.M.Crossland@usace.army.mil
Jonas Grundman *National APC Technical Lead/WID Program*	Jonas.Grundman@usace.army.mil
Mike Greer *Program Manager, APCR & ANSR Programs*	Michael.J.Greer@usace.army.mil
Jennifer Seiter-Moser *Techinical Director, Environmental Engineering & Services – Environmental Lab*	Jennifer.M.Seiter-Moser@usace.army.mil
Tara Whitsel *HQ Detail – ENS Business Line & Program Manger*	Tara.J.Whitsel@usace.army.mil
DoD Liaisons	
Doug Burkett *Armed Forces Pest Management Board*	douglas.a.burkett.civ@mail.mil
William Miller *Army*	William.B.Miller54.civ@mail.mil

USACE INVASIVE SPECIES STRATEGIC PLAN

- No prior Strategic Plan specific only to invasive species.

- John D. Dingell, Jr. Conservation, Management, and Recreation Act (Public Law 116-9-Mar 12, 2019)
  - (7) Secretary Concerned. – The term “Secretary concerned” means-(A) the Secretary of the Army, with respect to Federal land administered by the Corps of Engineers;
  - (c) Strategic Plan. –
    - (1) In General. – Each Secretary concerned shall develop a strategic plan for the implementation of the invasive species program to achieve, to the maximum extent practicable, a substantive annual net reduction of invasive species populations or infested acreage on land or water managed by the Secretary concerned.



PUBLIC LAW 116–9—MAR. 12, 2019 133 STAT. 781

“(D) the head or a representative of any other Federal agency the duties of whom require planning relating to, and the treatment of, invasive species for the purpose of protecting water and wildlife on land and coasts and in oceans and water.

“(8) SPECIES.—The term ‘species’ means a group of organisms, all of which—

“(A) have a high degree of genetic similarity;

“(B) are morphologically distinct;

“(C) generally—

“(i) interbreed at maturity only among themselves; and

“(ii) produce fertile offspring; and

“(D) show persistent differences from members of allied groups of organisms.

“(b) CONTROL AND MANAGEMENT.—Each Secretary concerned shall plan and carry out activities on land directly managed by the Secretary concerned to protect water and wildlife by controlling and managing invasive species—

“(1) to inhibit or reduce the populations of invasive species; and

“(2) to effectuate restoration or reclamation efforts.

“(c) STRATEGIC PLAN.—

“(1) IN GENERAL.—Each Secretary concerned shall develop a strategic plan for the implementation of the invasive species program to achieve, to the maximum extent practicable, a substantive annual net reduction of invasive species populations or infested acreage on land or water managed by the Secretary concerned.

“(2) COORDINATION.—Each strategic plan under paragraph (1) shall be developed—

“(A) in coordination with affected—

“(i) eligible States; and

“(ii) political subdivisions of eligible States;

“(B) in consultation with federally recognized Indian tribes; and

“(C) in accordance with the priorities established by 1 or more Governors of the eligible States in which an ecosystem affected by an invasive species is located.

“(3) FACTORS FOR CONSIDERATION.—In developing a strategic plan under this subsection, the Secretary concerned shall take into consideration the economic and ecological costs of action or inaction, as applicable.

“(d) COST-EFFECTIVE METHODS.—In selecting a method to be used to control or manage an invasive species as part of a specific control or management project conducted as part of a strategic plan developed under subsection (c), the Secretary concerned shall prioritize the use of methods that—

“(1) effectively control and manage invasive species, as determined by the Secretary concerned, based on sound scientific data;

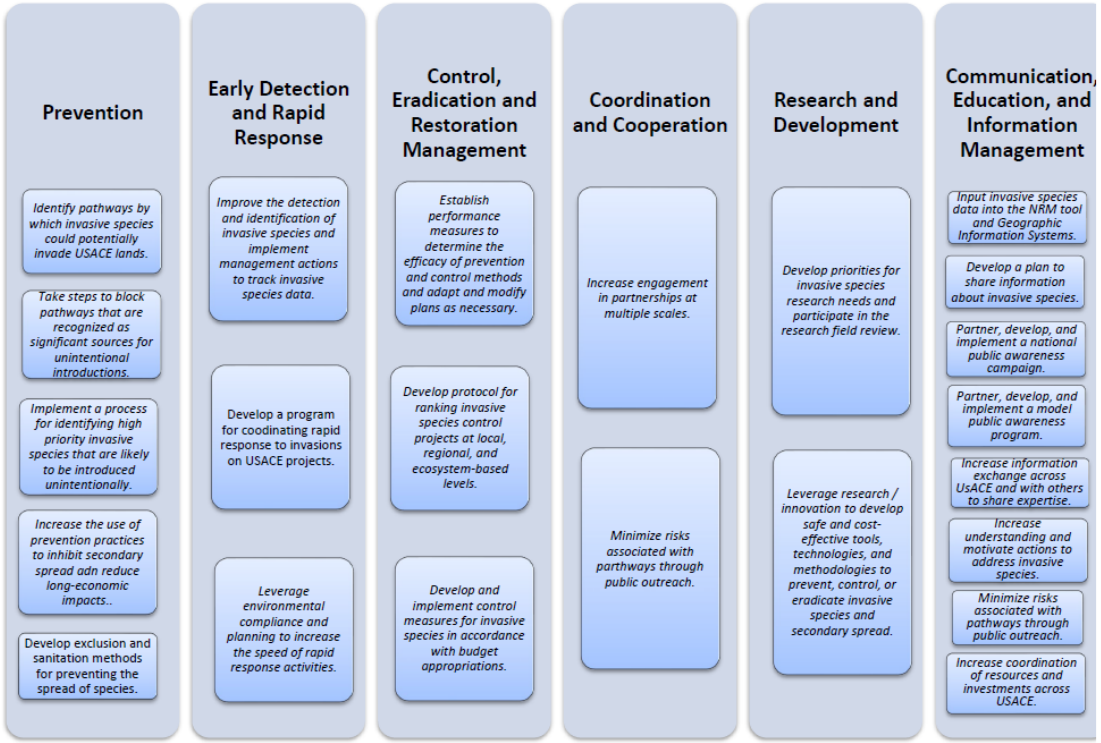
“(2) minimize environmental impacts; and

“(3) control and manage invasive species in the most cost-effective manner.

“(e) COMPARATIVE ECONOMIC ASSESSMENT.—To achieve compliance with subsection (d), the Secretary concerned shall require

USACE INVASIVE SPECIES STRATEGIC PLAN

- Provides an overarching framework for the broad spectrum of activities that are performed by USACE.
- Plan includes goals, objectives, strategies, and metrics.
- Strategies reflect both work that is ongoing and opportunities to focus on emerging priorities
- 6 Goals:
  1. Prevention
  2. Early Detection and Rapid Response
  3. Control, Eradication and Restoration Management
  4. Coordination and Cooperation
  5. Research and Development
  6. Communication, Education, and Information Management



GOALS AND OBJECTIVES

Goal 1: Prevention

- Keeping invasive species out of an area avoids their adverse impacts as well as the costs to manage them.
- Once invasions occur, greater commitments of money, time, and other resources are required to reduce the harm caused.
- For some invasive species, there are no, or very few, tools available for their control once their populations are established.
- Therefore, prevention is the most cost-effective and, in some cases, the only available approach.

Objective 1: Identify pathways by which invasive species could potentially invade USACE and military lands as requested.

Objective 2: Take steps to block pathways that are recognized as significant sources for the unintentional introduction of invasive species.

Objective 3: Implement a process for identifying high priority invasive species that are likely to be introduced unintentionally.

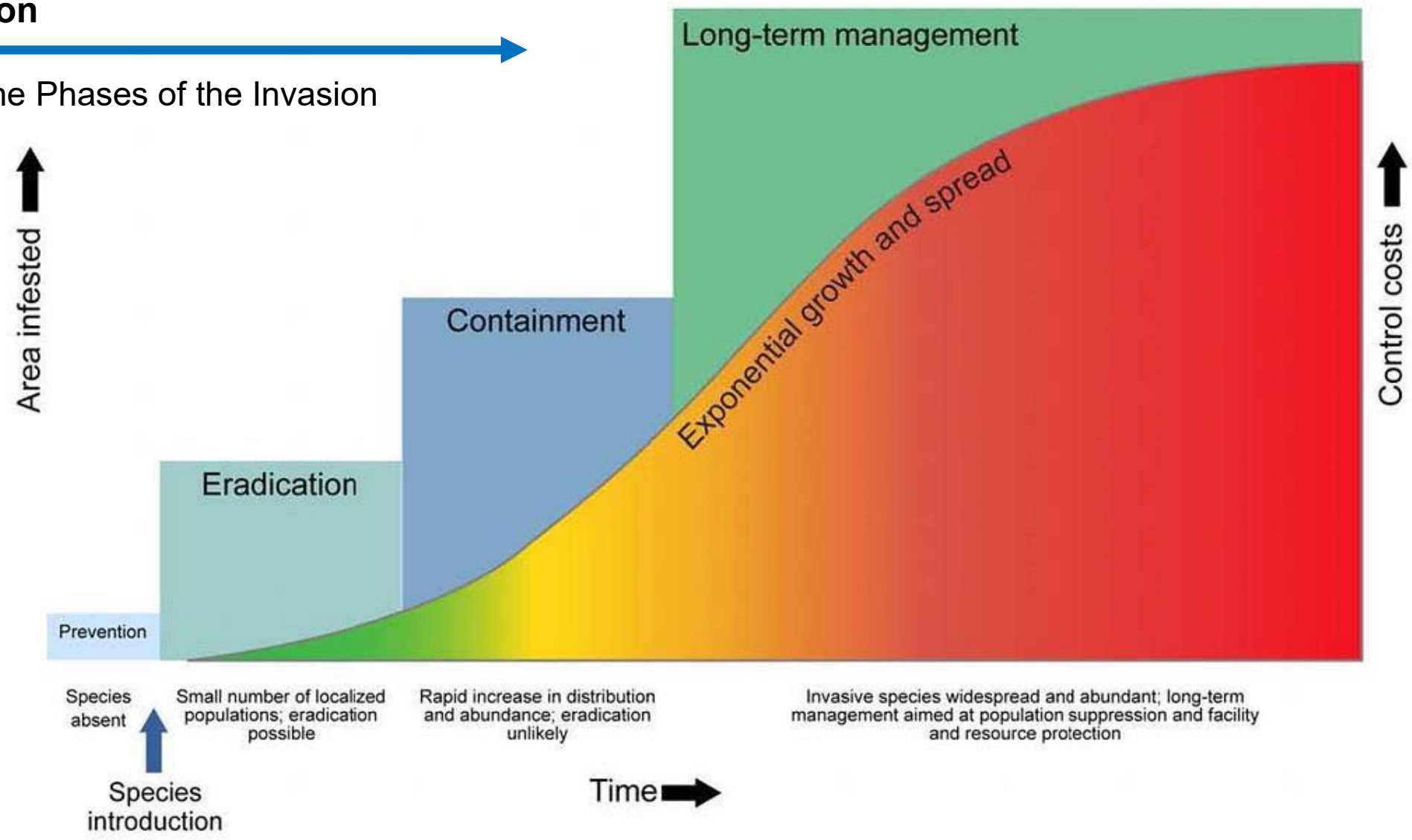
Objective 4: Increase the use of prevention practices to inhibit the secondary spread.

Objective 5: Develop exclusion and sanitation methods for preventing spread of invasive species in all USACE projects and programs.

GOALS AND OBJECTIVES

Goal 1: Prevention

- Supported by the Phases of the Invasion Curve



GOALS AND OBJECTIVES

Goal 2: Early Detection and Rapid Response

- National coordination and communication among federal and non-federal entities increases the overall effectiveness of these efforts for invasive species management.

Objective 1: Take steps to improve detection and identification of introduced invasive species and implement management actions to track invasive species data.

Objective 2: Develop a program for coordinating rapid response to incipient invasion on USACE projects.

Objective 3: Leverage environmental compliance and pre-planning to increase the speed of rapid response activities while ensuring adequate coverage though NEPA and other environmental laws and regulations.

GOALS AND OBJECTIVES

Goal 3: Control, Eradication and Restoration Management

- Efforts to contain and reduce the spread and populations of established invasive species to minimize their harmful impacts should be planned using decisive actions and goals that employs an IPM program and best management practices.

- Restoring native species and habitat conditions and rehabilitating high value ecosystems and key ecological processes that have been impacted by invasive species to meet desired future conditions should be foremost.

Objective 1: Establish performance measures to determine the efficacy of prevention and control methods and adapt and modify plans as necessary.

Objective 2: Develop and issue a protocol for ranking priority of invasive species control projects at local, regional, and ecosystem-based levels.

Objective 3: Develop and implement control measures for invasive species in accordance with budget appropriations.

GOALS AND OBJECTIVES

Goal 4: Coordination and Cooperation

- Work strategically to use all USACE scientific, management, and partnership resources in unison to manage invasive species.
- Enhance the coordination and effectiveness of federal programs to better leverage resources and fully engage state, Tribal, territorial, and local governments as well as international and private sector partners.
- Use the best available science to guide management decisions, policy development, and provide authoritative information to the public.

Objective 1: Increase engagement in partnerships at multiple scales and "do our share" to 1) advance mutual priorities, promote efficacy, and leverage cost efficiencies and 2) promote trust and respect between entities.

Objective 2: Minimize risks associated with pathways through public outreach. Provide education, communication, and interpretive programs to the public to gain their trust and assistance in the prevention, detection, identification, and control of invasive species.

GOALS AND OBJECTIVES

Goal 5: Research and Development

- Conduct appropriate research and development activities to ensure management programs are effective and science based.
- Outcomes of these assessments inform both regulatory and nonregulatory approaches.

Objective 1: Develop priorities for invasive species research needs and participate in the research field review.

Objective 2: Leverage research and innovation to develop safe and cost-effective tools, technologies, and methodologies to prevent, control or eradicate invasive species and secondary spread; restore native species and ecosystems; and adapt to environmental changing conditions.

GOALS AND OBJECTIVES

Goal 6: Communication, Education, and Information Management

- Provide education, through clear and transparent communication, and interpretive programs to the public, our partners and collaborators to gain their trust, assistance and support in the detection, identification, prevention and control of invasive species.
- Obtain buy-in on the development of invasive species plans as well as promoting partnerships and collaboration in their implementation.

Objective 1: Input invasive species data into the Natural Resources Management (NRM) tool and Geographic Information Systems, to the extent practical, and promote their use within the Environmental Community of Practice (ECoP).

Objective 2: Develop a communication plan to share information about invasive species infestations on USACE projects.

Objective 3: Partner, develop, and implement a national public awareness campaign.

Objective 4: Partner, develop, and implement a model public awareness program on USACE projects that incorporates national, regional, state, Tribal, and local level invasive species public education activities.

Objective 5: Increase information exchange across USACE and with others to share expertise on invasive species science and management and promote efficiency and cost-savings.

Objective 6: Increase understanding about invasive species and motivate actions to address them.

Objective 7: Minimize risks associated with pathways through public outreach. Provide education, communication, and interpretive programs to the public to gain their trust and assistance in the prevention, detection, identification, and control of invasive species.

Objective 8: Increase coordination of resources and investments across USACE and with others to support mutual priorities.

GOALS AND OBJECTIVES

Goal 4: Coordination and Cooperation
Goal 6: Communication, Education, and Information Management

Where to Borrow & Learn More:
https://corpslakes.erdc.dren.mil/employees/invasive/trunk.cfm

- Traveling Trunk – shipped to you for use!

USACE INVASIVE SPECIES STRATEGIC PLAN

- **Connection to PgMP:**
  - Strategic Plan incorporates the ISLT's PgMP by reference. The goals and objectives of the Plan are adapted largely from the PgMP and its content is summarized within the Plan
  - PgMP has be updated to have unison with the Strategic Plan.
- **Communication with stakeholders:**
  - USACE regularly gathers input on its invasive species management activities via engagement with other Federal agencies, State and local governments, Tribal governments, and other stakeholders.
  - USACE routinely works with stakeholders to gather input on a variety of mission activities which often include aspects of invasive species management, prevention, and/or control.
  - USACE has numerous invasive species management plans and other planning documents at multiple geographic and organizational levels, often developed with input from stakeholders.
  - Through the ISLT and its national and interdisciplinary makeup, the agency incorporates this input into its national strategies, plans, policy, goals, and objectives.
- **Metrics:**
  - The USACE will track implementation of the Plan through current reporting metrics and selectively add new metrics in coordination with its partners and stakeholders (Appendix A).

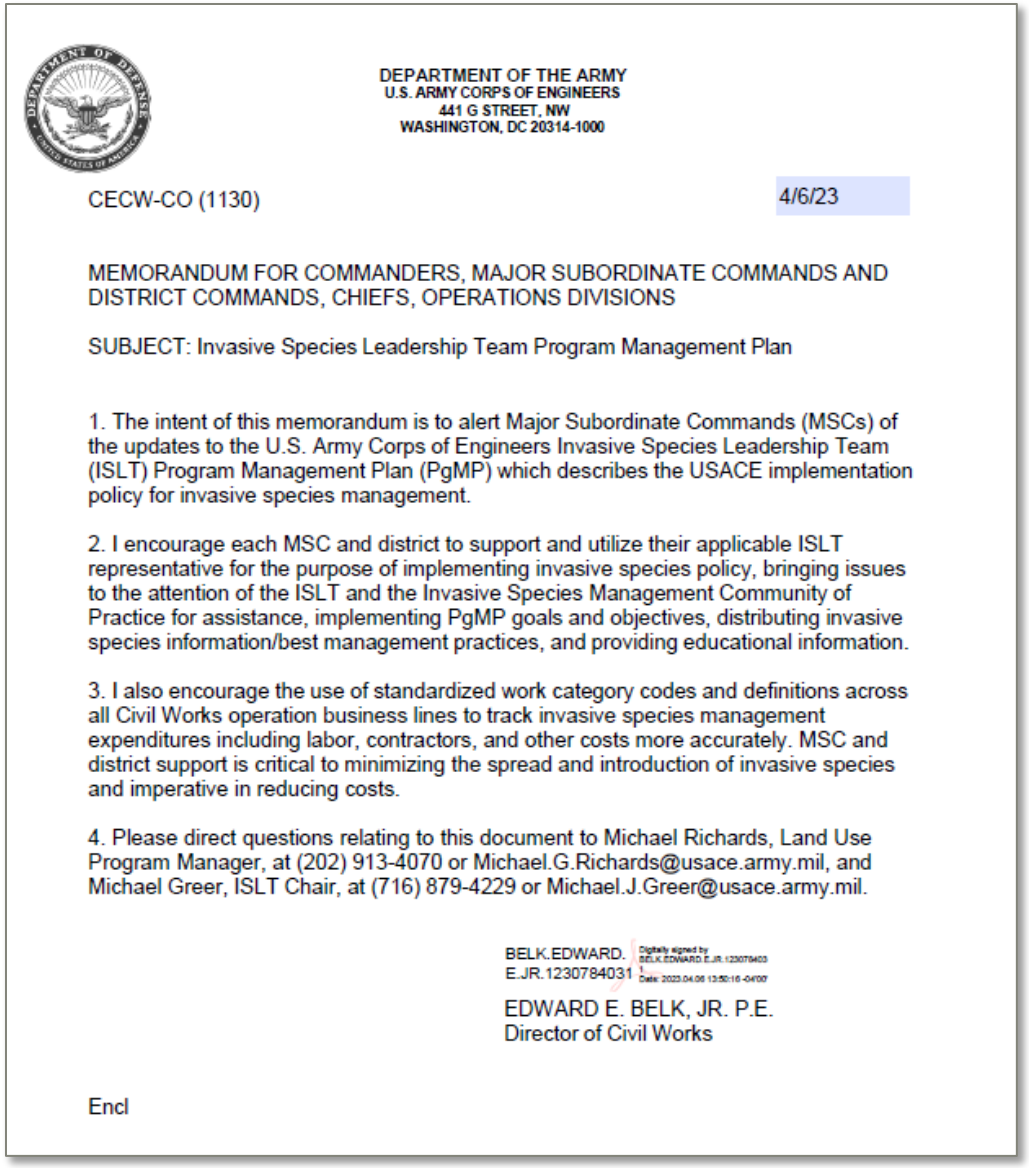
ISLT PGMP

- Purpose of the ISLT Program Management Plan (PgMP) is to establish a work plan for years 2023-2027.

- Defines the direction that the ISLT and Invasive Species Management Community of Practice will provide for related research programs, on regional invasive species councils, and assisting USACE Headquarters (HQUSACE) in program management and implementation of the USACE Invasive Species Policy.

- PgMP is needed to ensure that funds are used efficiently to meet the requirements of the National Invasive Species Management Plan) (National Invasive Species Council 2016, 2020) and the Aquatic Nuisance Species Task Force Strategic Plan (ANSTF-SP).

- Goals align with Strategic Plan.



DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
441 G STREET, NW
WASHINGTON, DC 20314-1000

CECW-CO (1130) 4/6/23

MEMORANDUM FOR COMMANDERS, MAJOR SUBORDINATE COMMANDS AND DISTRICT COMMANDS, CHIEFS, OPERATIONS DIVISIONS

SUBJECT: Invasive Species Leadership Team Program Management Plan

1. The intent of this memorandum is to alert Major Subordinate Commands (MSCs) of the updates to the U.S. Army Corps of Engineers Invasive Species Leadership Team (ISLT) Program Management Plan (PgMP) which describes the USACE implementation policy for invasive species management.

2. I encourage each MSC and district to support and utilize their applicable ISLT representative for the purpose of implementing invasive species policy, bringing issues to the attention of the ISLT and the Invasive Species Management Community of Practice for assistance, implementing PgMP goals and objectives, distributing invasive species information/best management practices, and providing educational information.

3. I also encourage the use of standardized work category codes and definitions across all Civil Works operation business lines to track invasive species management expenditures including labor, contractors, and other costs more accurately. MSC and district support is critical to minimizing the spread and introduction of invasive species and imperative in reducing costs.

4. Please direct questions relating to this document to Michael Richards, Land Use Program Manager, at (202) 913-4070 or Michael.G.Richards@usace.army.mil, and Michael Greer, ISLT Chair, at (716) 879-4229 or Michael.J.Greer@usace.army.mil.

BELK.EDWARD.E.JR.1230784031

EDWARD E. BELK, JR. P.E.
Director of Civil Works

Encl

USACE INVASIVE SPECIES EFFORTS

U.S. ARMY

US Army Corps of Engineers®

INVASIVE SPECIES EFFORTS, PROGRAMS, AND SUPPORT

- Noxious Weed Cooperative Agreement Delegation
- Aquatic Plant Control Research Program
- Aquatic Nuisance Species Research Program
- Water Operations Technical Support Program
- Statements of Need
- Watercraft Inspection & Decontamination Program
- Share Accomplishments

INVASIVE SPECIES EFFORTS

Noxious Weed Cooperative Agreement Delegation

- Portland District has agreements in place.
- https://corpslakes.erdc.dren.mil/employees/coopagree/types.cfm

- **The cooperative agreement will:**
  - Prioritize and target undesirable plant species to be controlled within a specific geographic region.
  - Describe the integrated management system to be used to control or contain targeted species.
  - Define the duties of the Federal agency and the State agency.
  - Establish a timeframe for initiation and completion of tasks.

- **Integrated management systems can include:**
  - Education
  - Preventative measures
  - Physical or mechanical methods
  - Cultural methods
  - Land management such as livestock/wildlife grazing
  - Biological agents
  - Herbicide methods

BACKGROUND: 7 U.S.C. § 2814, Federal Noxious Weed Act of 1974

- Directs all Federal agencies to:
  - Manage undesirable invasive plants to protect natural resources.
  - Designate a person to develop/coordinate an undesirable plant management program and implement cooperative agreements.
  - Establish and adequately fund an undesirable plants program.
  - Establish integrated management systems to control or contain targeted undesirable plant species through cooperative agreements.
- **Authorizes cooperative agreements with State agencies (or their political subdivisions) responsible for the administration or implementation of undesirable plants laws of a State.**

**Undesirable plants are species that are classified as undesirable, noxious, harmful, exotic, injurious, or poisonous, pursuant to State or Federal law.*

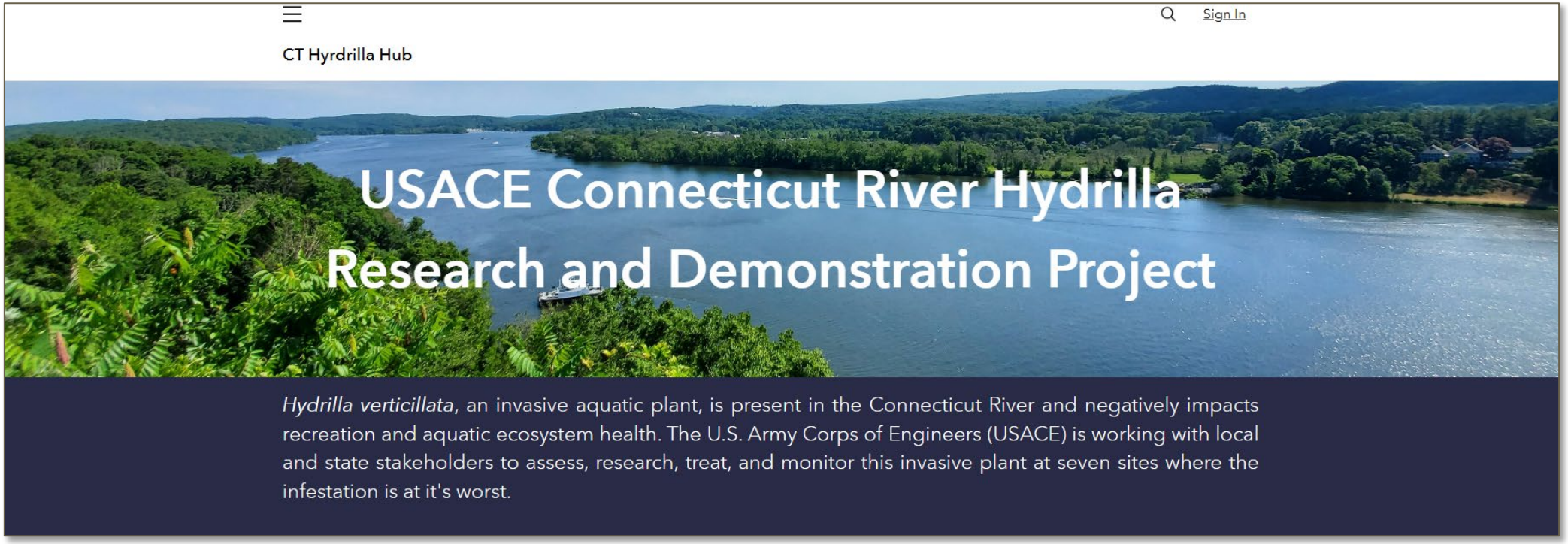
ERDC: AQUATIC PLANT CONTROL RESEARCH PROGRAM

- ERDC Environmental Lab is USACE's lead laboratory for aquatic plant research.
- Researches information on the biology and ecology of problem aquatic plants.
- Focus on the development of ecologically based, integrated pest management strategies for aquatic invasive species.
- Developing innovative technologies to prevent the initial introduction and spread of aquatic invasive species, and to replace problem aquatic plants with native species, providing much-improved aquatic habitat for fish and wildlife
- https://apcrp.el.erdc.dren.mil/

APC/ANSRP PROGRAM UPDATES

Congress appropriated $20.5M in FY24 final appropriations for APC and specified:

- Activities related to Flowering Rush and Hydrilla ($1M)
- Inspection Stations, EDRR, and Monitoring ($9M)
- Aquatic Plant Control Research ($5M)
- Research and EDRR for Connecticut River Hydrilla ($5M)
- Invasive Carp Prevention ($150,000)



https://ct-hyrdrilla-hub-usacenae.hub.arcgis.com/

ERDC: AQUATIC NUISANCE SPECIES RESEARCH PROGRAM

- Established to address all invasive aquatic animals and harmful algae species.
- Primary R&D (Research & Development) program to address aquatic invasive species that impact navigable waters, infrastructure and associated water resource projects.
- Provides innovative technologies regarding risk assessment, prevention strategies, species history/ecological data, and cost-effective, environmentally sound management options.
- Program activities do not require a nonfederal cost share.
- https://www.erdc.usace.army.mil/Missions/Civil-Works/Aquatic-Nuisance-Species-Research-Program/

LEWISVILLE AQUATIC ECOSYSTEM RESEARCH FACILITY (LAERF)

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- Supports ERDC Environmental Lab by offering intermediate-scale research environment.

- Focus areas include invasion and restoration biology/ecology.

- LAERF Facilities:
  - Earthen ponds
  - Mesocosm systems
  - Greenhouses for tank studies; on-site analytical lab
  - Large-scale biocontrol rearing facilities
  - Native plant culturing facilities

- Available to support research for Corps districts and other organizations when projects are compatible and complementary to authorized research programs.

- https://www.erdc.usace.army.mil/Media/Fact-Sheets/Fact-Sheet-Article-View/Article/476784/lewisville-aquatic-ecosystem-research-facility-laerf/

WATER OPERATIONS TECHNICAL SUPPORT (WOTS)

- An O&M funded Technical Assistance Program initiated in 1985 and is assigned to the U.S. Army Corps of Engineer Research and Development Center (ERDC).
- Prepared by Corps of Engineers Field Offices.
- Program annually conducts specialty workshops, training personnel on the latest environmental and water management techniques.

Procedure

- The assistance request should name the project, state the nature of the problem, and describe the type of assistance required.
- The request should identify a point of contact, telephone number, and e-mail address.
- If a technical person at the ERDC has been contacted and has knowledge of the problem, a request for that individual may be expressed in the request.
- Upon receipt, each request will be directed to the proper ERDC technical staff member for response.
- Direct technical assistance under the WOTS Program is provided at no cost to the user and is limited to 5 man-days, including travel.

LINK: https://wots.el.erdc.dren.mil/

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STATEMENT OF NEED (SON)

- SoNs bridge between the experiences of the field practitioners, the strategic vision of Headquarters and the Communities of Practice, and the research programs that provide support to the field.

- Categories:
  - Tactical, Operational, and Strategic
  - Navigation, Flood Risk Management, and Aquatic Ecosystem Restoration
  - Statements of Need undergo an extensive review process

Who can submit a SoN?

- SoNs are submitted by District and MSC practitioners having first-hand knowledge of the specific problem.
- An online submission form has been developed to aid in preparation of SONs.

When to submit a SoN?

- SONs can be submitted at any time, but must be submitted by December 1st of each calendar year in order to be considered for funding in the subsequent FY;
- SONs received after December 1st will be retained, and reviewed and ranked in the next FY, for possible funding in the following funding cycle.

Where can I learn more?

- Visit the Civil Works R&D Statements of Need page on the Gateway to learn more.
- The SONs pages required a CAC enable device.
- https://gateway.erdc.dren.mil/son/index.cfm?Cop=Env&Option=Start

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SON EXAMPLES: UNDERWATER ROV TO DETECT SUBMERGED AQUATIC INVASIVE PLANTS

PROBLEM:

- USACE Statement of Need (SoN) 1777: “Underwater ROV to Detect Submerged Aquatic Invasive Plants.”

GOAL:

- Development of an AI/ML-based image analysis program to automatically detect Hydrilla verticillata in real time to significantly improve upon existing tools for detection and identification of invasive macrophytes.

BENEFITS TO USACE:

- Results suggest that real-time underwater identification of *H. verticillata* with ERDC’s model is achievable at high accuracy, with further enhancement possible through integration with multiple commercially available underwater ROV platforms and continued training in environments with various combinations of invasive and native SAV assemblages.

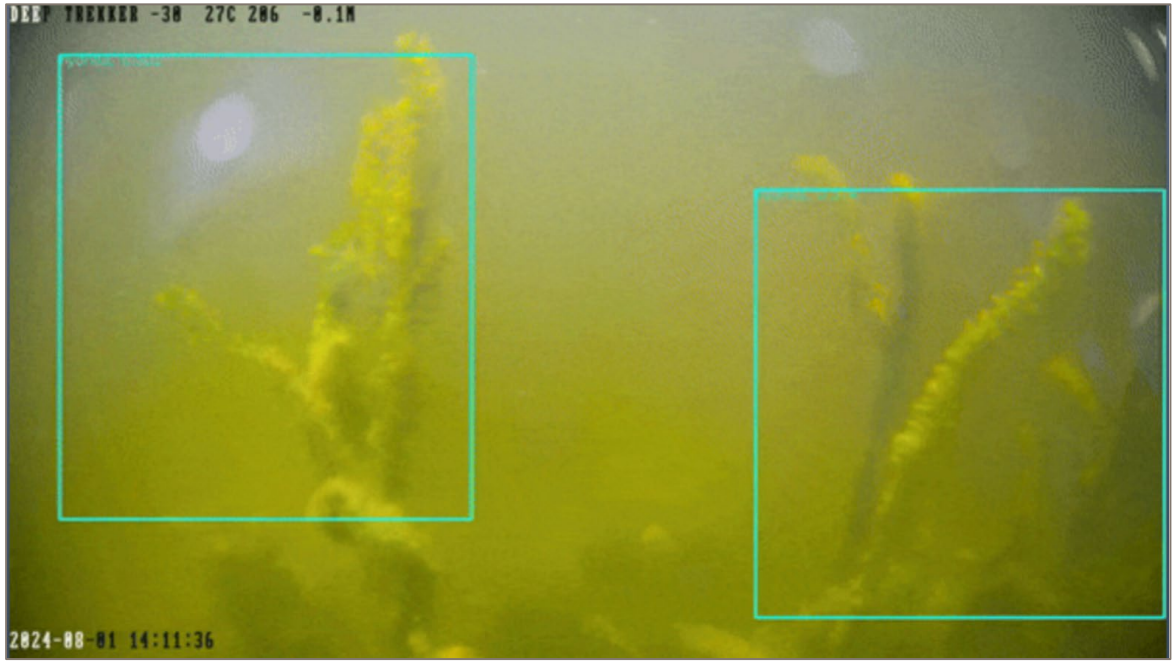

Figure 2. *Hydrilla verticillata* object detection model run on Deep Trekker ROV video in a turbid environment.

https://onlinelibrary.wiley.com/doi/10.1002/aqc.70054

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SON EXAMPLES: FLOWERING RUSH CONTROL IN HYDRODYNAMIC SYSTEMS

PROBLEM:

- Flowering rush spreading in the Pacific Northwest

GOAL:

- Develop effective, rapid-response treatment options to control and limit the spread of flowering rush in a run of the river reservoir system.

OBJECTIVES:

1. Field studies
2. Growth chamber/greenhouse studies

BENEFITS TO USACE:

1. Important new info on controlling flowering rush in hydrodynamic systems.
2. Development of innovative methods to reduce water exchange and increase herbicide CETs.
3. Operational guidance to CE Projects .

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SON EXAMPLE: FLOWERING RUSH

SON #1437 & 1471: CE Districts LRB & NWW in FY21

GOAL:

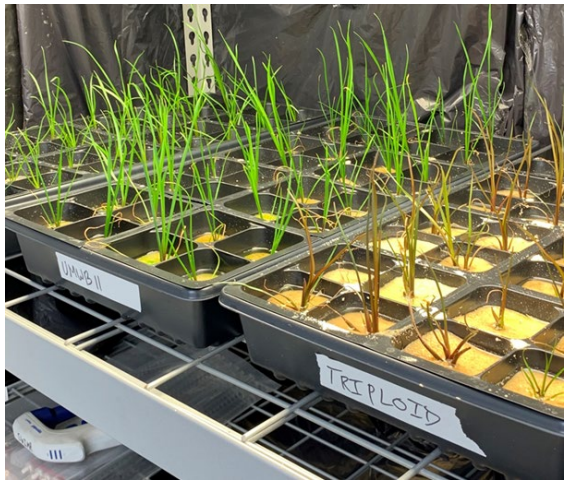
- Define factors leading to establishment and spread based on cytotype/genotype

OBJECTIVES:

1. Investigations into establishment and spread
2. Management evaluations
3. Fieldwork

BENEFITS TO USACE:

1. Information on genetic identity and influence on ecology.
2. Data to develop and implement effective management strategies.
3. Optimization of management tools based on through understanding of biology and ecology.
4. Insight on distribution patterns and identification of high-risk invasion sites.
5. Promotes sustainable ecosystem management.



WID PROGRAM HISTORY & IMPLEMENTATION

Legislation and Implementation Guidance Timeline

10Jun2014: WRDA 2014
- Amended RHA by adding authority for CRB WID within NWD's AOR (WA, OR, ID, MT)

18Mar2016: CECW-CO Implementation Guidance
- Defined Process & Policies for Letter Report and NEPA development to establish cost-share in State's authorized under WRDA 2014 amendments.

16Dec2016: WRDA 2016
- Added authority for Rapid Response
- Clarified use of State boundary rather than Basin for eligible activities.

06Mar2017: CECW-NWD Implementation Guidance
- Guidance related to using State boundary vs. Basin & adding Rapid Response activities.
- Directs NWD (NWW) to use prior guidance in developing related Letter Reports and NEPA

23Oct2018: WRDA 2018
- Added UMRB & UCRB, SPRB, and ARB* to authorized WID Basins.

12Apr2019: ASA/CW Implementation Guidance
- Clarifies that prior guidance shall be used to develop LR/NEPA for new basin authorities.

27Dec2020: WRDA 2020
- Added Russian River Basin & US-CA International Basins to authority.
- Modified inspection station location criteria.

23Dec2022: WRDA 2022
- No relevant amendments to RHA

Section (d) of the Rivers and Harbors Act of 1958, as amended (in relevant part)

(d) Watercraft inspection and decontamination stations

(1) In general

(A) Watercraft Inspection and Decontamination Stations

In carrying out this section, the Secretary shall establish (as applicable), operate, and maintain new or existing watercraft inspection and decontamination stations—

(i) To protect the Columbia River Basin;

(ii) To protect the Upper Missouri River Basin;

(iii) To protect the Upper Colorado River Basin and the South Platte and Arkansas River Basins;

(iv) To protect the Russian River Basin, California; and

(v) To protect basins and watersheds that adjoin an international border between the United States and Canada."

(A) Locations. – The Secretary shall place watercraft inspection and decontamination stations under subparagraph (A) at locations with the highest likelihood of preventing the spread of aquatic invasive species into and out of waters of the United States, as determined by the Secretary in consultation with the Governors and entities described in paragraph (3).

(B) Rapid response The Secretary shall assist States within the areas described in subparagraph (A) with rapid response to any aquatic invasive species, including quagga or zebra mussel, infestation.

(2) Cost share The non-Federal share of the cost of constructing, operating, and maintaining watercraft inspection and decontamination stations described in paragraph (1) (including personnel costs) shall be—

(A) 50 percent; and

(B) Provided by the State or local governmental entity in which such inspection station is located.

(e) Monitoring and contingency planning

In carrying out this section, the Secretary may—

(1) Carry out risk assessments of water resources facilities;

(2) Monitor for aquatic invasive species;

(3) Assist States in early detection of aquatic invasive species, including quagga and zebra mussels; and

(4) Monitor water quality, including sediment cores and fish tissue samples.

RIVERS AND HARBORS ACT - WRDA 2024 AMENDMENTS

- **Status**: Final – Signed Into Law, 4 January 2025

- **Section 1144** – Control of Aquatic Plant Growths and Invasive Species Amends section (g) of RHA by adding the Connecticut River Basin to a partnership program authorized under the RHA.
  - ***Not a new WID Basin Authorization***

- **Section 1361** – Modifies WID cost-share from 50:50 to 65:35
  - As written, may create two reimbursement rates
  - WID and RR Actions – 65:35
  - Monitoring and RR Planning/Prep – 50:50

- **Section 1303(j)** – Extends program authorization to 2029

- **Section 1139** – Ability to Pay
  - Provides for procedures to NFS to request lowered non-federal share of project costs.
  - Sets priority projects, of which the WID program is one.

Waiting on Implementation Guidance from Assistant Secretary of the Army for Civil Works

- Announcement: https://transportation.house.gov/news/documentsingle.aspx?DocumentID=407894

- WRDA 2024 Agreed Language: https://transportation.house.gov/uploadedfiles/house_amendment_to_s._4367_text.pdf

WHERE THE PROGRAM IS NOW

Columbia River Basin (i)
- Authorized WRDA 2014
- Active: WA, OR, ID, MT, WY, NV

Upper Missouri River Basin (ii)
- Authorized WRDA 2018
- Active: ND, SD
- Eligible: NE

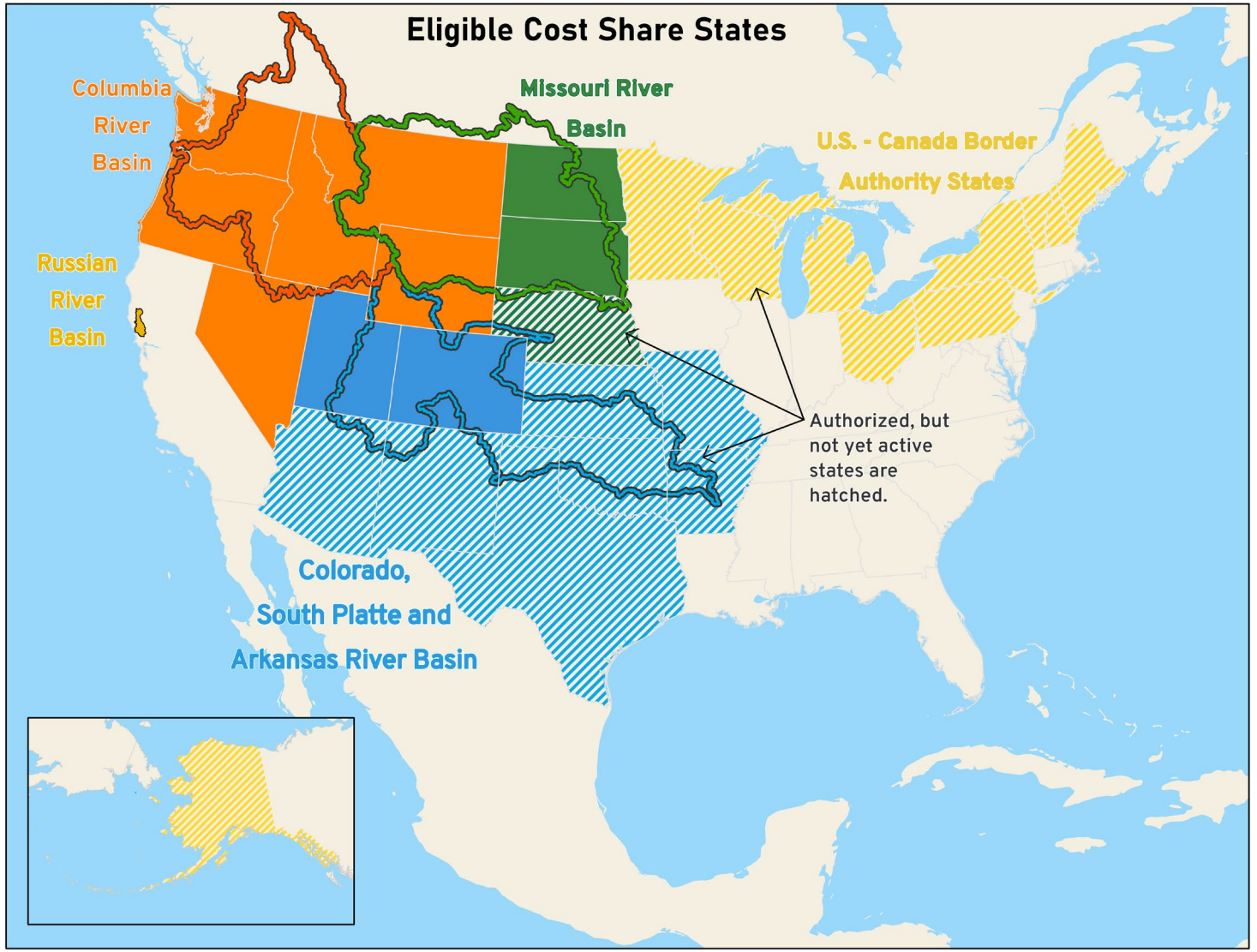
Upper Colorado River Basin (iii)*
- Authorized WRDA 2018
- Active: UT, CO
- Eligible: AZ, NM

South Platte River Basin (iii)*
- Authorized WRDA 2018

Arkansas River Basin (iii)*
- Authorized *WRDA 2018/2020***
- With USACE HQ for Finalization
- *Eligible: KS, OK, MO, AR

Russian River Basin (iv)
- Authorized WRDA 2020
- With USACE HQ for Finalization
- Eligible: Sonoma County, CA

United States – Canada International Border Basins (v)
- Authorized WRDA 2020
- LR/PEA project scoping / early drafting
- Eligible: MN, WI, MI, OH, PA, NY, VT, NH, ME



WHAT IS A WATERCRAFT INSPECTION STATION?

- Any location where watercraft are officially inspected for the presence of AIS to prevent their introduction into new waters.
  - Along major transportation routes or near high use boat launches
  - Could be a permanent, temporary, or roving station
  - Might include the ability to decontaminate watercraft or direct infected boats to an appropriate location for cleaning

- Typically run by state government agencies or local government entities
  - Have jurisdictional authority to enforce AIS regulations
  - May be supported by law enforcement
  - May be staffed by contractors or volunteers
  - Most are mandatory

WHAT IS DECONTAMINATION?

- Decontamination
  - Some stations have the ability to decontaminate watercraft on site.
  - Owners may be directed to a location where their watercraft will be cleaned.

- Dry
  - Requested or directed to keep the watercraft out of the water until it has dried.
  - Time id dependent on State or Local regulations.

- Held or Impounded
  - In some situations, a watercraft could potentially be led by a state or local government law enforcement entity until the watercraft is decontaminated and shown to be clear of AIS. This is rare.

MONITORING

- USACE may assist states with monitoring for AIS

- Early detection of aquatic invasive species
  - Water column samples for veligers of zebra/quagga mussels.
  - Substrate sampling adult zebra/quagga mussels.
  - DNA/RNA sampling.

- Water Quality – including sediment cores
  - Testing water quality to determine risk conditions of invasions.

RAPID RESPONSE PLANNING AND ACTION

- Within authorized basins, USACE may assist states with Rapid Response to any Aquatic Invasive Species

- Preparation and Planning
  - Reimburse for equipment purchases, training, response exercises and drills
  - Work with states on response planning efforts

- Rapid Response Actions
  - Reimburse for on the ground response actions to newly discovered AIS infestation.

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RECENT ERDC PUBLICATIONS

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A few recent ERDC publications that may interest you!

ERDC/EL SR-24-4—The Use of Rhodamine Water Tracer (RWT) Dye to Improve Submersed Herbicide Applications

- Authors: Kurt D. Getsinger, Christopher R. Mudge, Bradley T. Sartain, Benjamin P. Sperry, Damian J. Walter, and Michael W. Durham
- Link: http://dx.doi.org/10.21079/11681/ 48412

ERDC/EL TR-24-9—Impacts of Invasive Species on Populations of Federally Listed Species on US Army Corps of Engineers Project Lands

- Authors: Jacob F. Jung, Michael P. Guilfoyle, Richard A. Fischer, and Andrew Sharp
- Link: http://dx.doi.org/10.21079/11681/ 48594

ERDC/EL TR-24-11—Flowering Rush Control in Hydrodynamic Systems: Part 2: Field Demonstrations for Chemical Control of Flowering Rush

- Authors: Bradley T. Sartain, Damian J. Walter, and Kurt D. Getsinger
- Link: http://dx.doi.org/10.21079/11681/ 48732

SHARE ACCOMPLISHMENTS

- **Stewardships News** – Quarterly publication – typically includes at least 1 invasive species article/foucs
- Please consider contributing success stories and lessons learned.
- https://corpslakes.erdc.dren.mil/nrm.cfm

U.S. ARMY
US Army Corps of Engineers

Stewardship news

Volume 7, Issue 3: September 2024

YOUR Thoughts

We are looking for contributors and ideas. If you have a topic, success story, lesson learned, or helpful suggestion, let us know.

Send to: Tara.J.Whitsel@usace.army.mil

Stewardship News is an unofficial publication of the U.S. Army Corps of Engineers (USACE). This online publication is produced quarterly with the purpose of providing its readers information about the USACE Stewardship Program. Editorial views and opinions expressed are not necessarily those of the Department of the Army. Mention of specific vendors does not constitute endorsement by the Department of the Army or any element thereof.

Your Stewardship HQ Update: Migratory Bird Treaty Act BMPs

The USACE Migratory Bird Treaty Act (MBTA) Policy was signed by Mr. Edward E. Belk, Director of Civil Works, and is intended to educate and inform staff as well as to provide best management practices (BMPs) on commonly performed activities to help achieve compliance with MBTA.

This compliance will allow USACE to meet its responsibility to avoid or minimize negative impacts to migratory birds and their habitat while adhering to USACE policies, practices, and guidelines.

The USACE vision is to ensure that MBTA compliance is met at all Civil Works projects, programs, and activities on USACE lands and waters. The policy memorandum is applicable to all USACE missions and projects and will be applied to migratory bird issues in the execution of all Civil Works programs.

The policy memorandum can be found at https://corpslakes.erdc.dren.mil/employees/cecwon/pdfs/24Aug7-MigratoryBirdBMPImplementation.pdf

The BMPs can be found at https://corpslakes.erdc.dren.mil/employees/cecwon/pdfs/Migratory%20Bird%20Treaty%20Act%20BMP%202024.pdf

MIGRATORY BIRD TREATY ACT
Best Management Practices

Click here for policy!

Click here for BMPs!

Mark Your Calendar: Training Opportunities

ENS 101 (November 2024 & August 2025). In FY25, ENS 101 will be offered through the USACE Learning Center as a PROSPECT course. The first session will be held Nov. 4—7, 2024 at Lake Sonoma, CA. The second session will be held Aug. 18—21, 2025 at Kanopolis Lake, KS. Registration for this course is through your training coordinator. Please visit https://ulc.usace.army.mil/ for more information.

Aquatic Invasive Management Workshop (February 2025). An additional workshop is being planned for Feb. 10—14, 2025 located in Kissimmee, FL . For additional details or to register, please email Tara.J.Whitsel@usace.army.mil.

ENS 102 (February 2025). In FY25, the 4th pilot course of ENS 102 will be offered. The class will be held Feb 24—27, 2025 at Arkabutla Lake, MS. There is no cost. For additional details or to register, please email Tara.J.Whitsel@usace.army.mil. This course is scheduled to be available through PROSPECT in FY26.

Left: Aquatic Invasive Management Workshop held at Raystown Lake.

SUMMARY

- Knowledge sharing and understanding of the USACE Invasive Species Strategic Plan

- Invasive Species Leadership Team

- Traveling Trunk

- USACE Invasive Species Efforts

FURTHER DISCUSSION & QUESTIONS