GREAT LAKES DREDGING TEAM ANNUAL MEETING

New Strategies, New Opportunities

Cleveland, Ohio

May 20-21, 2010

FINAL

DAY 1

- **Welcome and Introductions**

Dave Knight, Great Lakes Commission: Presented brief background and history of the Dredging Team concept, including creation of the National Dredging Team and Regional Dredging Teams. Mentioned that the Great Lakes Dredging Team (GLDT) is more state-centric than others, and that the current co-chairs' vision is to generate significant discussion between federal government and states regarding dredging issues. The GLDT will hopefully provide the opportunity to move beyond unilateral action toward more committee-level dialogue. This is not so much about big tent meetings as in the past, but rather committee meetings with state and federal partners) to deal with tough issues, including regulatory issues.

- **States' Opportunities in Great Lakes Dredging Policy**

Gene Clark, University of Wisconsin Sea Grant (State Co-Chair, GLDT): Challenged the states to take an active role on GLDT. Clark encouraged dredging team activities by committee. He noted that the GLDT was established in 1996 to facilitate the resolution of dredging issues. After 2004, something happened that slowed activity on publication production as well as meetings. Clark observed that concern emerged among the states that the GLDT was becoming a rubber stamp for the U.S. Army Corps of Engineers (USACE). Co-chairs are trying to reinvigorate GLDT despite time and travel constraints. Committee structure established as a mechanism to re-energize the GLDT. The USACE is dredging 3 to 5 million cubic yards annually to remove shoaling. Dredged material confined disposal facilities (CDFs) are 80 percent full. New CDFs are much less of a viable option at this time. There has been a paradigm shift: federal government wants to foster relationships with the states to form partnerships to help get things done on dredging. Clark has asked each of the states to join at least one of the committees. He asked that they exchange information and promote collaboration, not to take differences personally but rather work through a common understanding. For example, if a particular State stance on an issue is more than just science-based, they should communicate that to the group to help others understand where they stand and why. Overall, the goal is to facilitate good natural resource protection balanced with commercial and recreation navigation. This can best be accomplished through open communications between GLDT partners.

Great Lakes Dredged Material Management Strategy (DMMS)

Tom Hempfling, USACE, Great Lakes and Ohio River Division:

- Long-term solutions for sustainable navigation: focus on harbors with constraints on dredging of those harbors.
- Chart (pictured in DMMS document, pages 8-9) shows where dredging is occurring in harbors and how dredged material is placed.
    - Nearshore
    - Upland unconfined
    - Open-water placement
    - CDF
- Open-lake placement occurs only in OH, NY, IN
- Federal Standard: Alternatives determined by Section 404 testing and evaluation requirements
- Federal Standard determines general method of dredged material placement
- Base plan recognizes site-specific considerations
- Regulations also provide that if the states impose conditions that result in exceeding the costs of base plan, those costs need to be covered by states.
- Acceptability of open-lake placements: Permissible in six states and two other Great Lakes states if used for beneficial use (such as habitat creation or restoration).
    - MI: Executive order not to place contaminated sediments in open water
    - OH: Objects to the placement of dredged material in the shallow Western Basin of Lake Erie
    - Brooke Furio (USEPA, Brownsfield Program Analyst): Question on dredging costs (all federal): Can we tell states the financial impacts of not doing open-water placement (e.g., new CDF match is 35%), once CDF is filled, the state must cover additional costs or navigation could be curtailed
    - Cost reference 3.3 million cubic yards per year of dredging ($12 per cubic yard) -----> $40 million
    - There is usually a cost differential between federal base plan and state alternative plan that does not involve open-water placement
    - Toledo Harbor; 1 million cubic yards are dredged; if this material is upland disposed, that translates to an increase in cost, which would be a non-federal responsibility if the material meets the Federal Standard for open-water placement.
    - Need for cost comparison of dredging alternatives

Scott Pickard, USACE, Buffalo District (Federal Co-Chair, GLDT):

- NY, PA, IL, IN: have policies that are consistent with the Federal Standard
- MN and WI: state laws prohibit open-water placement of dredged material
- MI: Executive Directive prohibits open-water disposal of "contaminated sediments," which is not inconsistent with USACE regulations
- Questions: What is considered beneficial use?
- Larry Kieck (Wisconsin DOT): Open-water placement is done on a case-by-case basis. Currently, Wisconsin has established a "bulkhead line, " this prevents deposited material

within that zone from being called open water placement; Cat Islands placement is now considered upland placement even thought it will clearly be placed in Green Bay.
- OH: Objects to the placement of Toledo Harbor dredged material in the Western Basin of Lake Erie

Tom Hempfling:
- Referenced those harbors depicted in the DMMS with a red circle: Considered high risk in terms of dredging capacity: Toledo and Cleveland Harbors
- Cost-sharing of Dredged Material Management Plans (DMMP) for alternatives that clearly exceed the Federal Standard, Dredged Material Disposal Facilities, regional sediment management (RSM) studies and Section 204 Projects
- DMMP are 100 percent federal funded
- Extending CDF life through O&M fill management:
    - Dike reshaping and raising
    - Excavation, transportation and placement of material from CDF: Corps can excavate and place upland; local sponsor must make real estate available
    - GL Dredged Material Management Strategy (DMMS)
    - Extend CDF life through fill management
    - Create CDF capacity through beneficial use and reuse
    - Reduce amount of materials entering federally maintained navigation channels (regional sediment management)
    - Engage state agencies in solutions
    - Foster partnerships with USEPA to leverage funding for projects supporting environmental goals and navigations benefits
    - Constructing new CDF should be considered last option
    - Great Lakes Restoration Initiative (GLRI): Dredge contaminated sediments and place the dredged material in CDFs with GLRI funding
        - Buffalo Harbor

Comments on Great Lakes DMMS: Positions of GLDT state members on open-lake placement of dredged material

ILLINOIS
Jim Casey, Illinois DNR: Long-term strategy: Permits primarily allow for dredged materials to be placed back into lake or onshore as dredged material which is usually sand. New requirement is to get material tested before it can be put back into lake. For most part, the dredged material is sand and we try to get back into the lake. A big project is underway at the naval site and dredged material will be placed upland since it is contaminated.

Dave Knight asked about Waukegan situation: USEPA runs as Superfund site and material dredged from the inner harbor is disposed in CDF. Specifically inquired about status of dredging activity and linkage between Great Lakes Legacy Act (GLLA) dredging, remediation, navigation dredging. Response is that Corps only does navigation dredging in Federal navigation channels.

Tim Kroll, USACE, Chicago District: Inner/Outer harbor and approach channel

- Interested in partnering with USEPA to find a dredge material placement method; area does not have large dredging need; Congressional earmark for approach channel
- Outer harbor material: Need upland site to dispose of these dredged sediments
- Superfund Site: USEPA and USACE should work together in determining placement of contaminated sediments

MINNESOTA

Patty Fowler, Minnesota DNR: Not prepared to comment on DMMS

Dave Knight: Asked about open-water placement and habitat restoration. Fowler's response: Impacts evaluated on a case-by-case basis; indicated interest in how other states are evaluating impacts. Fowler also commented on the need for better definition of terms: 1) open-water placement (inclusive of shallow water placement?) and 2) the water quality standards that would apply to placement of dredged material in open-water.

ACTION ITEM: Dave Knight will look at policy and consistency between states in their policy regarding open-water placement

WISCONSIN

Larry Kieck, Wisconsin DOT: Dredge material placement: Port of Milwaukee, we are piling up sediments on top of existing CDF. The construction of the Cat Island Chain utilizes clean dredged material; noted that this approach is promoted in the DMMS.

Gene Clark: WI DNR issues permits for dredging of commercial ports and unconfined disposal of dredged material in open-water (rarely occurs but is conducted on a case by case basis), looking at particle size and contaminant levels. In case of Cat Island, permission for open-water placement has been granted from the state and given to local government. Clean, sand sized channel sediments can be dredged and placed in Cat Island (3.2 million cubic yards approved for Cat Island). Solid waste material guidelines must be following where exemptions are given for recycling of solid wastes, State is encouraging reuse of dredged materials for the following purposes.

- Landfill cover material
- Beach nourishment
- Soil amendment

Fox River/Green Bay

Michael O'Bryan, USACE, Detroit District: Dredging material contaminated with total PCB concentrations of 1 to 2 ppm in Superfund sites.

Marie Strum, USACE, Detroit District: Communication with USEPA key, especially regarding testing based on turbidity standards. There are often restrictions regarding turbidity (e.g., AOC). Communication with agency and states necessary.

Dave Knight: GLRI opportunity to build partnership between USEPA (Superfund), USACE and States. Another GLRI opportunity could involve Indiana Harbor: Not Superfund site but is close in levels of contamination as well as potential for habitat restoration.

PENNSYLVANIA

Lori Boughton, PA DEP: Worked on Presque Isle Bay AOC from 2005-07, noting that contaminated sediments were placed in the CDF. In line with DMMS priorities and with habitat restoration; a portion of the Erie Harbor CDF has been capped and developed into a campground.

OHIO

John Watkins, OH DNR: Noted that the document does not mention RSM under Water Resources Development Act (WRDA). He believes that RSM will help address erosion in eastern Lake Erie harbors as well as in Toledo, coupled with beneficial use. In OH, recreational boating is big and harbors are shallow, impacts of lower than average water levels will be experienced. Need for coordination so programs can better meet match for federal dollars. Commented that contaminated sediments were going to be around for a while longer and state may not be able to support beneficial reuse of such dredged material; will need to continue using CDFs for disposal.

John Schmidt, OH EPA: No comment.

Roger Knight, OH DNR: Supports principal of beneficial use and does not support open-water placement. Disappointed that there is not more of an emphasis on strategy for beneficial use.

Mary Knapp, USFWS: Commented on the DMMS: she liked the strategies upfront and forward looking. Graphics were excellent. Noted that OH and state policies were viewed as constraints for dredging in the strategy. She indicated that the states should be presented as the entities responsible for protection of natural resources which deserved more attention. She also noted that the costs of not dredging should be presented, namely the hidden costs of open-lake placements in terms of impact to environment.

Steve Holland, OH DNR: Need to market sediments for better use. Issue of non-federal funding is an issue that needs to be addressed.

Scott Pickard: Noted that the DMMS is a living document (e.g., open for modification as appropriate).

Tom Hempfling: Receptive to input of comments, encouraged states to provide further input. Debate on open-water placement needs to be continued. Next version of document: open-water placement, scientific evidence for ecological impacts. Two sides to the equation: if dredging is more expensive, will change economic viability of dredging.

John Watkins: Need for better understanding of how USACE funding mechanism works; suggested that this topic should be covered in the DMMS.

- **GLDT Committee Panel Discussions**

1) Beneficial Use Of Dredged Material Committee: Gene Clark, Chair

- Committee membership list
- Draft Mission Statement

- Short- and long-terms goals, and products

Determining Suitability of Material for Beneficial Use: Richard Price, U.S. Army Engineer Research and Development Center (USAERDC)

Beneficial use of Dredged Material: Testing and Evaluation

- Contaminated sediments must be dealt with; USACE is not the regulatory authority on beneficial use of dredged material.
- How we can deal with recycling dredge material?
  - Agricultural Product Uses
  - Aquaculture
  - Crop production
  - Construction materials
  - Landscaping products
  - Top soil
  - Commercializing sediments as top soil
  - Environmental Enhancement
  - Wildlife habitat

- Traffic jam of information and priorities need to be sorted out with some direction. Issues to address:
  - Perceptions without scientific basis
  - Lack of clear regulatory guidance
  - Uncertainty on how to define "clean"
  - Fear of product liability: Do not want to risk business

- USEPA and USACE Guidance on the beneficial use of dredged material
  - Testing guidance for environmental suitability
  - Regional guidance provided in Great Lakes Dredged Material Testing and Evaluation Manual
  - Beneficial Use Testing Manual (BUTM): Provides consistency on national scale
  - Physical suitability for habitat restoration
  - Environmental suitability
  - Testing for productivity in material
  - State criteria for beneficial use of dredged material varies

Opportunities for upland placement and other beneficial use: What are barriers? What is missing?

Bonnie Elder, USEPA, Region 5: What do we want to try to accomplish moving into the future?

- Will the committee serve as the mechanism to network to provide opportunities for beneficial use?
- What are the challenges related to beneficial use and what can be done to overcome those?
- Gene Clark: Can committee work on advocacy efforts that might help smooth the path for beneficial use? For example, environmental issues?

- Dave Bowman, USACE, Buffalo District: Mentioned MN DOT decided not to use dredged material for road construction; need to educate more people on the potential for beneficial use.
- Evaluating suitability of dredged material for specific purposes has been completed, need to spread the word on beneficial use of dredged material
- ***ACTION ITEM: Committee will identify opportunities, facilitate implementation and communicate success stories***

Short-term goals for Beneficial Use Committee

- Committee to attain critical mass for membership
- Identify barriers to beneficial use
- Review GLDT beneficial web pages and update
- Review historical GLDT documents: such as beneficial use and determine if updates or rewrites are needed
- Plan ahead for longer-term opportunities

Discussion

Skip Jacobson, Cleveland-Cuyahoga County Port Authority: We should look at harbors where beneficial use is critical. To promote beneficial use we should update user manual, write proposals for projects to demonstrate how to implement beneficial use

Dave Knight: Look at inventory of harbors at high risk; focus efforts in these locations each of which has unique challenges. The Beneficial Use Committee can help identify individual challenges

Dave Romano, USACE, Buffalo District: We need more of a situational awareness of how to get a project done in each harbor.

Dave Knight: Cost-share challenges must be taken into account. Asked if availability of GLRI funding changed cost-sharing opportunities?

Ajut Vaidya, USEPA, Region 5: Discussed connection between GLLA and GLRI. Beneficial use application for CDF material: take more contaminated material and put into CDF and move less contaminated material from CDF and for beneficial use. Incorporation of beneficial use into USACE work: USEPA would be very open to doing a project on beneficial use on one of lakes as part of GLLA (e.g., Cleveland or Milwaukee Harbors)

2) CDF Management Committee: Tom Hempfling, Chair

Objectives:

- Maintain integrity of CDFs such that they effectively contain pollutants associated with the dredged material
- Increase efficiencies
- Reduce impacts relating to invasive species in CDFs, e.g., purple loosestrife

- **Research:**
- Testing and evaluation for environmental effects of disposal in terms of moving material from a CDF (anaerobic conditions) to outside the CDF (aerobic conditions)
- Testing quality of surface water run-off and leachate from CDFs
- Testing manuals developed to evaluate potential risks

- Look at a number chemical/biological test methods to evaluate CDF contaminant pathways

Solution: Identify a beneficial use for the dredged material; dewater, excavate and transport to beneficial use site, thereby restoring CDF capacity

- How can this Committee add value to USACE work; while regulation of beneficial use will help, who is going to cover the associated increased cost?
- **Dave Romano:** Cost-sharing is an important piece of the puzzle. It can take years before a sponsor will step up.
- Decision-making is complex in terms of risk and economics of dredging and the process is not transparent.
- Suggestion for decision guidance for a transparent path for uniform procedures for CDF management and related beneficial use of dredged material
- **Jim Casey, Illinois DNR:** Thinks that this process would be very helpful, such as certification of what is considered clean in dredging of Duluth Harbor; he hit road blocks in material beneficial use, not on a state/local but federal level. Need guidance on how to establish what is required on local level, and the Corps and EPA need to communicate what is required on a federal level.
  - Placing dredge material on a Superfund location is prohibited given the liability issue; it was noted that the Superfund scenario needs to be documented in the guidance
- **John Watkins**: Examine the differences among states in terms of how to manage dredged material for beneficial use
- **Jim Sharrow, Duluth Harbor Port Authority**: Excited about interest in Duluth area. He cited action being taken in Erie Pier CDF to transform CDF into a PRF (processing and re-use facility) of CDF material that is not contaminated.

Cleveland Harbor: CDF management

- Need for capacity: Under best of circumstances Cleveland Harbor will have a two year shortfall to meet dredging needs.
- Extending life of existing CDFs (fill management plans)
  - Berm raising delayed given interference with local airport
- Fill management plan challenges
  - Budget
  - Unstable sub-grade
  - Poor soil borrow quality, poorly graded sand
  - Designing for site conditions: semi compacted fill helped stabilize subgrade as compact
  - Contract Issues and Schedules
    - Measurement and payment
    - Dredging considerations
      - Sequencing: make sure berm is raised, look for best material first, where to pump garbage
    - Gaining efficiencies
  - Wildlife, management
  - Local airport issues
  - Reducing impact of nuisance species

Regarding an active beneficial use project, discussed plans to transfer dredge material to brownfield site in Cleveland Harbor (Arcelor Mittal steel mill), located in upper end of channel. Risk assessment for sediment placement conducted by Karen Keil, economic costs assessed, OH EPA is approving use of brownfield sites as locations for beneficial use (processing); top priority for governor's office

Dave Bowman: Fill Management in Erie Pier CDF at Duluth Superior Harbor

- Duluth Superior Harbor has 300,000 cubic yards
- Dredged materials
    - Mix of silts, organics and some sand
    - Sand can be used for beach nourishment, road fill
    - Clay used for new work projects
- Most of material (75%) goes to Erie Pier CDF which is filling up; material is washed to settling pond in the closed system; we're hoping to develop beneficial use for this material. Rail system is in place to transport material once beneficial use is determined; precipitation is handled by system being designed.
- Washing dredged sand material; when construction going on, use of cleaned sediments increases
- Erie Pier CDF has two settling ponds
- Looking to increase marketing of fine-grain dredged material as top soil
- Mineland reclamation:
    - There is potential for this beneficial use but it is expensive due to trucking; may need to subsidize transportation costs
    - Plant growth on mine tailings amended with fine-grain dredged material

DAY 2

Gene Clark, legislative update:

- Harbor Maintenance Trust Fund (HMTF): Consists of a 0.125 percent ad valorem tax on waterborne cargo to maintain ports, and currently has a surplus of $5 billion. MN Senators Franken and Klobuchar have introduced Senate Bill 3213 which requires spending what HMTF it takes in each year exclusively for its intended purpose: i.e., harbor maintenance dredging.
- **Dave Knight** mentioned that shallow-draft recreational harbors have backed HMTF reform, thinking that if the dredge funding "pie" gets bigger, they will likely be able to access more resources for maintaining their harbors.

- **GLDT Committee Panel Discussions (continued)**

3) Open-Lake Placement of Dredged Material Committee: Scott Pickard, Chair

- Introduced Committee members:
    - Randy Bournique (OH EPA)
    - Jim Casey (IL DNR)

- Jonathon Daniels (Oswego Port Authority)
- John Watkins (OH DNR, CZMP)
- Pam Horner (USACE Detroit District)
- Joe Kreitinger (USAERDC)

The Committee is seeking representation from MN, MI, IN, NY and WI.

General remarks on open-lake placement of dredged material:

- Perception of open-lake placement is that all "dredge spoils" are contaminated; most people are risk adverse on the practice largely due to this perception; there are still environmental questions to be answered.
- Need to base decisions on sound science; if data gaps exist we need to close gaps. Politics and misperceptions need to put aside to save precious resources of USACE obligation under Section 404(b)(1) of the Clean Water Act (CWA) Need to understand that science is a process and cannot answer all questions.
- Dredging cost responsibilities: If non-federal policies or preferences go beyond sound science, such costs are a non-federal responsibility.
- Dredged material evaluations pursuant to USEPA/USACE guidelines: Placement of dredged material in accordance with CWA Section 404(b)(1) Guidelines
  1) Cannot cause significant adverse affects on habitat and species
  2) Contaminant determination based on regional USEPA/USACE Great Lakes Dredged Material Testing and Evaluation Manual (1998)
     a. Tiered Evaluation: Contaminants of concern (COCs) are identified based on the potential for toxicity; this is accomplished via modeling, biological testing and risk assessment
     b. Tier 1: COCs - If dredge material significantly exceeds contaminant levels in the lake environs, it will not be put back into lake
     c. Tier 2: Modeling for COC toxicity; short-term, long-term fate of sediments
     d. Tier 3: Biological testing: Species such as mayfly nymph used to gauge acute toxicity (with survival and/or growth as biological measurement endpoints); also, bioaccumulation testing for organic COCs
     e. Tier 4: Risk Assessment
  3) Sediment elutriate data are evaluated in accordance with promulgated State Water Quality Standards
  4) State Coastal Management Program requires federal consistency concurrence
  5) Dredged material evaluation pursuant to USEPA/USACE guidelines:
     - Determinations: Does meet federal guidelines of unrestricted open-lake placement; **or** does not meet federal guidelines for unrestricted open-lake placement or open lake placement

  6) Federal Standard: The least costly alternative, consistent with sound engineering practices and selected through CWA Section 404 (b)(1) Guidelines; purpose is to set cost benchmark for 100% federal cost and "level the playing field" across states should they have differing preferences regarding management of the dredged material

  Federal Standard environmental requirement (33 CFR 337.2):
     - Compliance with Section 404(b)(1) Guidelines and federally approved state water quality standards

  - Achieve consistency to max degree practicable with approved State Coastal Management Program
- Other comments on dredge material evaluations:
  - When doing contaminant testing, doing lag-time and synergistic testing
  - Biological testing captures synergistic and lag time involving contaminants
  - Corps will run water column chemical testing
  - Acute toxicity tests used in first phase and then chronic testing: data precision is variable and is subject to other complicating factors (e.g., reproductive success)
  - Test for what is being released from sediments
  - **John Watkins:** Mentioned potential of dredge material to produce algal blooms that create other problems; does routine sediment testing cover the issue of potential linkage with algal blooms? Is there something in routine testing to address the entire system involving algal blooms?
  - **Scott Pickard:** Looking at phosphorous release relative to Toledo Harbor sediments.
  - **Dave Bowman:** Asked is there was a standardized test for oxygen demands associated with the open-lake placement of dredged material.

- **Mission Statement: Open-Lake Placement Committee**
  - Consistent with the goals of the GLDT, the Committee will evaluate the state of the science on the environmental impacts associated with open-lake placement of dredged material in the GL with the goal of addressing knowledge gaps and areas of scientific uncertainty

Discussion:

Roger Knight: Purpose should also cover strategies on how resolve disagreements between groups involved in decisions on open-water placement. Biological relevance and socially acceptability both need to be addressed in risk assessment, whether it is a perception or in reality. Will open-water placement impact fishing industry which will then cause economic impacts? This is part of OH DNR decision analysis.

Tom Hempfling: Public acceptability should first depend on science then on public perception.

Joe Kreitinger, USAERDC: Need to address misperceptions so focus is on communicating the science

Roger Knight: OH DNR must deal with issue, considering all alternatives, must convince that all alternatives have been considered, will not be legitimate in eyes of public if we're not considering all alternatives. As dumping has increased, more problems have emerged with synergistic problems; there is still a level of uncertainty, this is the world that the OH DNR lives in especially with regard to the sociological issues.

Richard Price: Must take the entire watershed into account.

Scott Pickard: How to resolve difficult issues/conflict?

Dave Knight: Charter does not explicitly address these issues.

Bonnie Elder: White paper on how we could work together on building teams?

  - How to deal with regulatory inconsistencies between federal and state governments

Tom Hempfling: Try to work productively with flexible arrangements

Marie Strum: Important from navigation perspective, Great Lakes dredging costs per cubic yard are the highest in country. Headquarters is asking if Great Lakes dredging is doing the least cost alternatives with engagement of states.
Tom Crane (GLC): Would this group benefit from a more structured arrangement by the conduct of business and making decisions, member expectations and work through development of position papers; would work for committees and relationship to the GLDT
Gene Clark: Need to communicate existing information to the states

- Each committee needs to consider outreach for GLDT

- **Committee needs, goals, products, deliverables and resources**
  - Short-range goals: products and deliverables, resourcing
  - Long-range goals: Products and deliverables, resources

Joe Kreitinger: Risk communication is key

- Need to look at what affects decision-making with respect to social science; need for transparency in how decisions are made and criteria are used in the decision making process

4) Environmental Windows Committee - Filling knowledge gaps: Doug Clark, USAERDC

- Environmental window: A period during which dredging may occur
- Seasonal restriction: A period during which dredging is prohibited
- Start and end dates inserted into state water quality certifications
  History of relevant GLDT activities: Windows Advisory Team (WAT) proposed a regional approach and a way forward
- Objectives:
  a) Improve process for establishing windows
  b) Enhance scientific understanding of dredging process and interactions with species of concern: Balance cost-effective dredging with the protection of species. struggling to better understand science of dredging and affect on plethora of species of concern
  c) Challenging process
  d) Need for regional study team
  e) Prioritize technical issues
  f) Identify data gaps
  g) Pool resources
  h) Use adaptive management to refine tools
- Original WAT tasks
  - Prioritization of concerns: Which potential impacts were most problematic and linked to key dredging projects?
    - Life history stages (eggs, larva, juveniles, adults) and potential impacts of suspended sediments, turbidity, entrainment, etc.
    - Dredging effects on warm water fishes: impacts of suspended sediments

        - Dredging effects on cold water fishes: Migratory blockage of salmon and trout during either spring downstream migration, include hatchery releases
        - Toledo Harbor Bucket Dredging Study: Characterize the spatial extent, concentration, gradient structure, temporal dynamics of suspended sediment plumes during bucket dredging operations
    - Need expertise from both biological and dredging sides of the equation to design study to objectively measure impacts of dredging on species and their habitat
    - Risk Framework:
        - Exposure assessment
        - Risk characterization
        - Effects assessment: more difficult to determine detrimental effect, certain level of uncertainty in measuring impacts of turbidity
        - Problem formulations
        - Must use this data to feed into risk management: Engage stakeholders to assess all alternatives and find best approach
    - Goal: Effective, science-based management practices, including windows; evaluate the soundness of the precautionary approach relative to risk and identify appropriate management practices
        - As perceived risk increases, which best management practice would be best
        - Use closed bucket, slow hoist speed, deploy silt curtain, environmental window
        - Trend: Time constraints on dredging are getting tighter and tighter
    - Management practice evaluation
        - Preferred: Environmental window
        - Closed/open bucket: more simple to do
        - Slow hoist speed
        - Silt curtain: Difficult
        - Reasonable affordable/unreasonable/unaffordable
        - Effectiveness vs effort or cost
        - How effective are the management approaches: example: silt curtains?
        - Need for further studies on best management practices

WAT (former) Members:

- GLC
- NY,OH, PA,IN,MI,WI,MN
- Buffalo, Detroit and Chicago USACE Districts
- USAERDC
- USEPA

Environmental Windows Committee

- Chairperson: TBD
  Scott Pickard:

ACTION ITEM: A Committee Chair needs to be identified, preferably from a State regulatory agency

- Tom Graf, MI DNRE
- Roger Knight, OH DNR
- Patty Fowler, MN DNR
- Doug Clarke, USACE

Discussion:

Need for exposure information to inform how much sediment is ok?
Roger Knight: Data mining to look at species of interest as well as habitat, also socio-economics; effects assessments need social dimension
Joe Kreitinger: Social aspect is being integrated into risk assessment for risk management
Roger Knight: Criteria built into risk process to account for social buy-in
Doug Clarke: Need waivers to do experiments if critters are available, studies are long-term process
Michael O'Bryan: Environmental windows: Determined by spawning period and water temperatures; variability makes it difficult for contractors to actually do the dredging. To facilitate process, water temperatures should be defined in contracts; what triggers need for windows, determine parameters that need to be considered for contractors
John Watkins: Early coordination in fall/winter with dialogue with partners, what is physical setting and biological species scenarios that need to be considered. Would like the opportunity to discuss issues
Joe Kreitinger: Screening values based on assumptions driven by type of dredging, sensitivity values; use this information to determine other alternatives; need to re-evaluate assumptions and see if applicable to certain sites
Mike O'Bryan: Dredging windows are getting progressively shorter since restrictions are getting tighter
Joe Kreitinger: Sensitivity analysis is needed to evaluate which parameters are driving the windows using better tools to assess windows

Final Discussion: New Strategies, New Opportunities

Discussion Guidance:

- Possible Great Lakes Restoration Initiative (GLRI) to support dredging policy
- Collaborative opportunities between state and federal agencies
- Products and deliverables

Comments:

- Long-term commitment for collaboration between state and federal agencies (e.g., GLRI and Great Lakes Legacy Act (GLLA)

- GLRI can provide funding for projects where authority already exists
    - Example: Applied research investigating how the environment or a species affected by open lake-placement of dredged material

- Partnership approach is preferable to facilitate collaboration and buy-in of various stakeholders

- USEPA/GLNPO: Ajit Vaidya
    - GLRI Focus Areas (determined by OMB)
        - Toxic substances and AOCs
        - Invasive species
        - Nearshore health and nonpoint source
        - Habitat protection
        - Accountability
    - Which categories should be considered for research?
        - Toxics reduction into AOCs or assessment of ecological effects
        - Nearshore aquatic health, beach recreation, reducing soil erosion and sedimentation into tributaries
        - Goal is to reduce nonpoint source pollution to tributaries
            - Focus area: Habitat protection
            - Where does open-lake placement fit in?
                - This question must be addressed!

- Need to define what the study would look like, use these parameters to determine the focus area where the grant proposal should be developed
- GLC helped USACE to look at GLRI toward establishing a list of priorities and strategic approaches
- Strategic approach will be used to help the USACE through its existing authorities plus working with other state and federal agencies on how to deal with issues such as erosion and sedimentation, coupled with navigation and dredging
- Connection of navigational dredging and environmental dredging
    - Projects in progress
- Opportunity for GLRI: Function of GLDT is to address dredge material management and habitat restoration, protection and enhancement (e.g., Western Lake Erie, Toledo)
- What is the full definition of beneficial use? Habitat restoration, beneficial use to support infrastructure particularly in the nearshore zone?
- Where should we be focusing 10-20 years down the road - Beneficial use, environmental windows, USADE budgets, legislation? Use GLRI to create long-term vision on how to manage sediments and infrastructure needs. How do we integrate this into Great Lakes restoration including consideration of navigation.
- Proposal to GLRI should be a collaborative, including states, GLC and USACE.
- GLLA: Can we do restoration under GLLA which must be in conjunction with remediation projects; connection can be used under GLLA to coordinate efforts between navigational and environmental dredging.
- Conduct beneficial use study under GLLA
- Priority watersheds for nonpoint source line up with harbors identified by USACE as critical; look at nonpoint source pollution, sediment loading with dredging priorities under GLRI
- When looking at beneficial use of dredged material, look at relatively clean sediments for land-side terrestrial restoration

- GLLA must address remediation of contaminated (i.e., not clean and unsuitable for open-lake placement) sediments in water.
- Address sediment loading in upland areas, GLC is working with USDA, NRCS on sediment loading under GLRI funding; problem is communication and coordination mechanisms to convene everyone to make sure we are all adding value towards the same goals.
- Confluence: Apply for GLRI funds
    - Broaden scope of DMMS to pull together collaborative effort (states, USACE, EPA, GLC) for long-term planning
    - Decision makers need to be pulled into these discussion so they understand priorities
- GLC needs to bring these priorities to GLC executive board that will report to full Commission
- Opportunities that need participation of state members

Dave Knight: Thanks to all for attending.

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Cleveland, 2010

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