

Environmental Windows as a Resource Protection Management Practice



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Topics for Discussion

- 1. How do environmental windows affect project planning and work schedules?**
- 2. Do environmental windows provide optimal conservation benefits?**
- 3. In what cases would monitoring provide more benefit than environmental windows?**

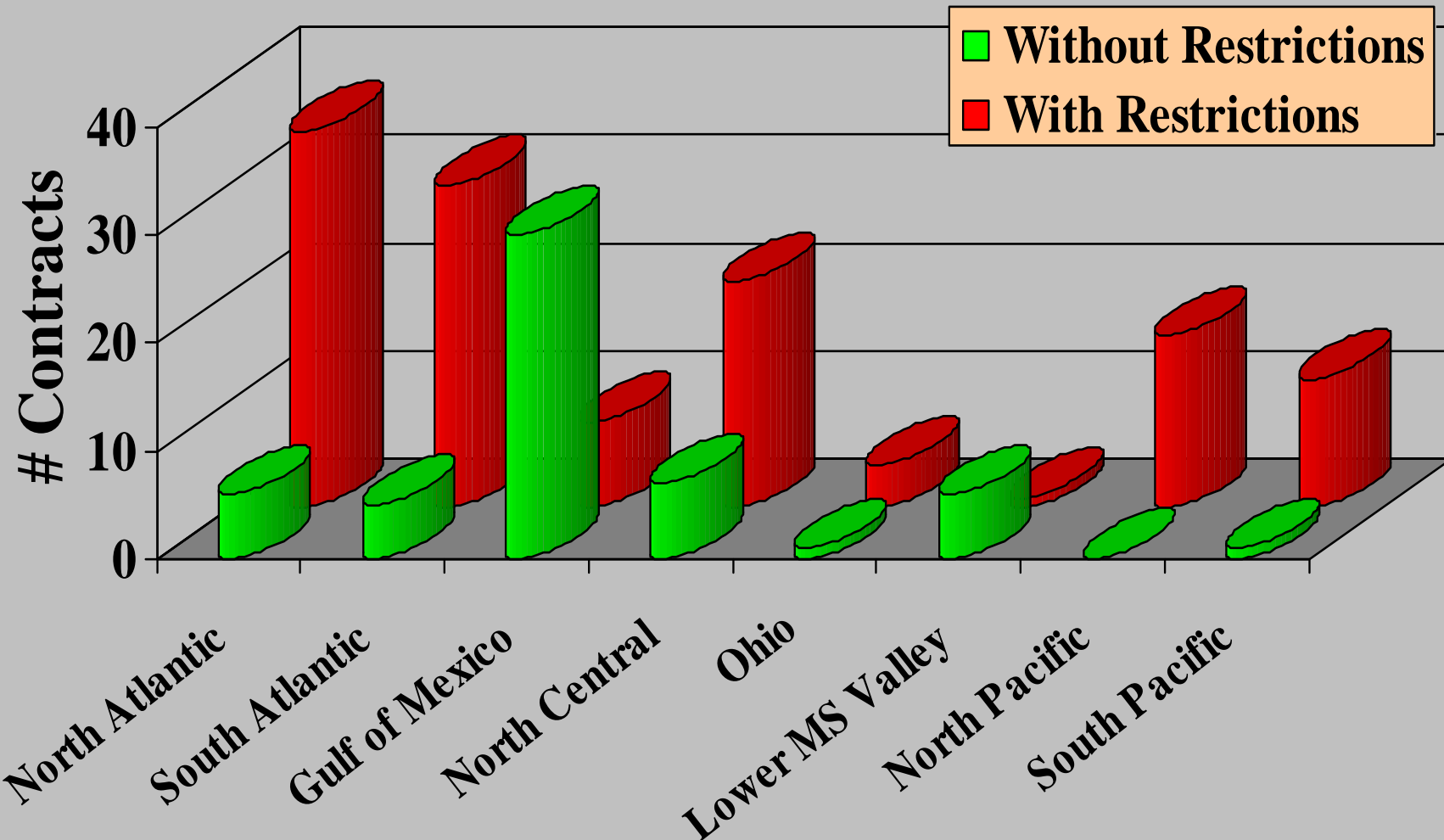
Environmental Window - a period during which dredging may occur

Seasonal Restriction - a period during which dredging is not allowed

Chronology of Windows

- **First appeared after passage of NEPA in 1969**
- **By 1980 > 80% of all Federal navigation projects complied with at least one window**
- **By 1996 > 90% of Federal projects were restricted, a majority by *multiple windows***
- **The %age of restricted projects continues to rise in response to an expanding emphasis on environmental mandates such as *the ESA and EFH***

Frequency of Windows by Region (1996)



LAKE MICHIGAN WINDOWS

PROJECT	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
ARCADIA	1											31
CHARLEVOIX				31		1			31			1
FRANKFORT				31		15		15				1
GREILICKVILLE				31		1			15			1
GRAND HAVEN (INNER)					15						1	
GRAND HAVEN (OUTER)					15						1	
GRAYS REEF PASSAGE				31			15			31		1
HOLLAND (INNER)					15						1	
HOLLAND (OUTER)					15						1	
LITTLE BAY DE NOC				31		1			15			1
LELAND					31							1
LUDINGTON				31		15		15				1
MANISTEE						1		15				1
MANISTIQUE						15		31				1
MENOMINEE				31		15		31				1
MUSKEGON				31		1		15				15
NEW BUFFALO		28			15	30				1		
PENTWATER				31		1			31			1
PETOSKEY				31		1			15			1
PORTAGE LAKE				31		1			31			1
SAUGATUCK				31			1		31			1
SOUTH HAVEN		28					1		31			1
ST JAMES					15			1				
ST JOSEPH (INNER)		28			1	30						1
ST JOSEPH (OUTER)		28			1	30						1
WHITE LAKE				31		1			15			1

LAKE MICHIGAN WINDOWS

PROJECT	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
ARCADIA												31
CHARLEVOIX			31			1			31			
FRANKFORT			31		15			15				
GREILICKVILLE			31			1			15			
GRAND HAVEN (INNER)					15						1	
GRAND HAVEN (OUTER)					15						1	
GRAYS REEF PASSAGE			31				15			31		
HOLLAND (INNER)					15						1	
HOLLAND (OUTER)					15						1	
LITTLE BAY DE NOC			31			1			15			
LELAND					31							
LUDINGTON			31		15			15				
MANISTEE						1		15				
MANISTIQUE						15		31				
MENOMINEE			31			15		31				
MUSKEGON			31		1			15				15
NEW BUFFALO	8				15	30				1		
PENTWATER			31		1	15						
PETOSKEY			31			1			31			
PORTAGE LAKE			31			1			15			
SAUGATUCK			31				1		31		1	
SOUTH HAVEN	8						1		31		1	
ST JAMES					15			1				
ST JOSEPH (INNER)	8					1	30					
ST JOSEPH (OUTER)	8					1	30					
WHITE LAKE			31			1			15			

Environmental Windows in Chesapeake Bay

ENVIRONMENTAL FACTOR	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	
DREDGING WINDOW				█									
CRITICAL LIFE STAGE													
ALEWIFE										█	█	█	
AMERICAN SHAD, HICKORY SHAD									█	█	█	█	
ATLANTIC MENHADEN	█	█	█	█						█	█	█	
BAY ANCHOVY	█	█	█								█	█	
BLUEBACK HERRING										█	█	█	
CATFISH											█	█	
SPOT	█	█	█	█	█	█				█	█	█	
STRIPED BASS										█	█	█	
WHITE PERCH										█	█	█	
WINTER FLOUNDER									█	█			
YELLOW PERCH									█	█	█		
BLUE CRAB	█	█	█	█								█	
EASTERN OYSTER	█	█	█	█								█	
SOFT-SHELL CLAM											█	█	
WOOD DUCK										█	█	█	
AMERICAN BLACK DUCK										█	█	█	
RECREATIONAL FISHERY													
STRIPED BASS SEASON	█		█	█	█						█	█	
CRAB SEASON	█	█	█	█	█							█	

AUTHORITIES

Federal Consistency Requirements

Fish & Wildlife
Coordination Act

Clean Water
Act



Biological
Opinions

Endangered
Species Act

Essential Fish Habitat

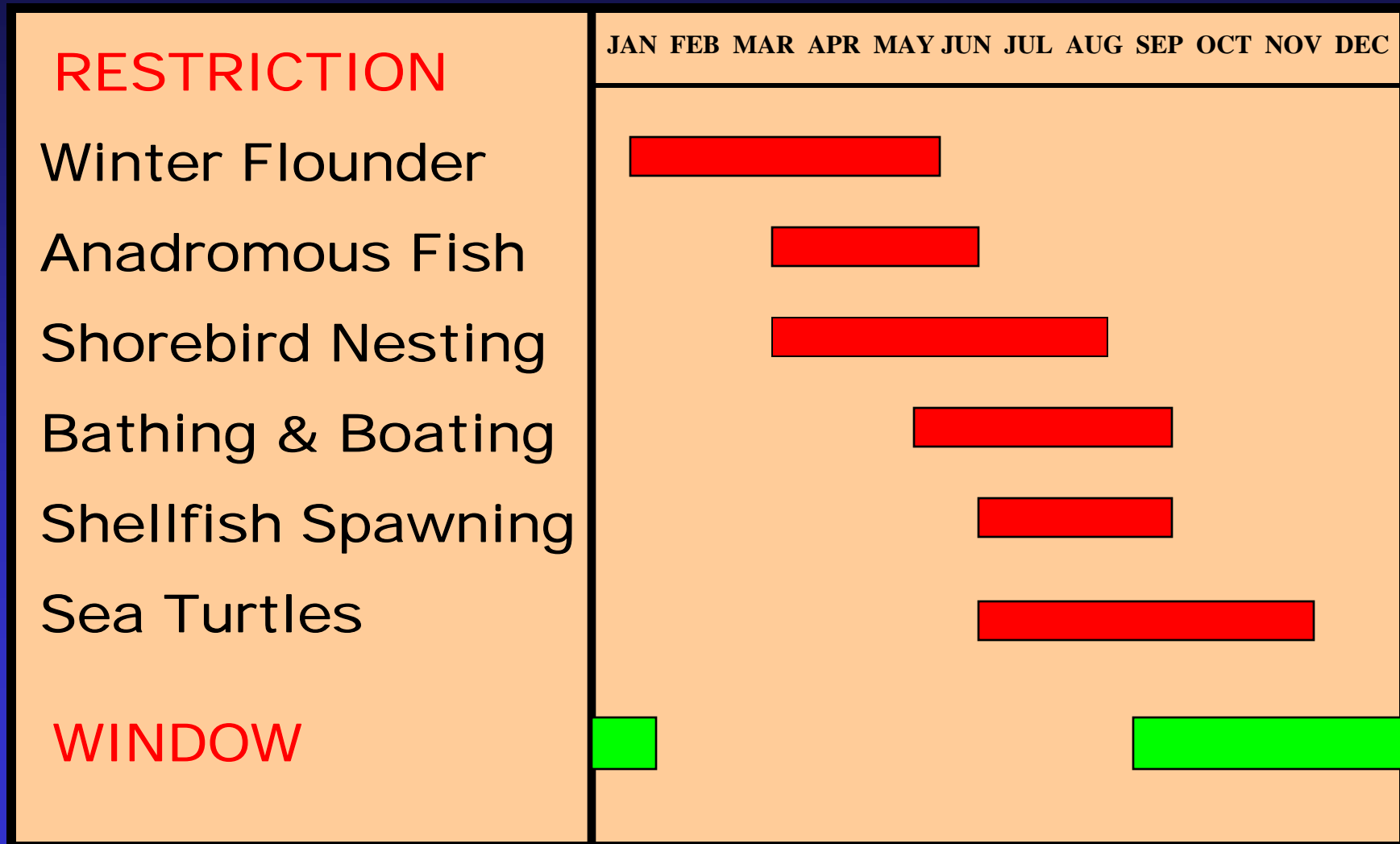
Section 401 Water Quality Certification

Issues That Lead to Windows

- **Contaminated Sediments**
- **Sediment re-suspension effects**
 - **Turbidity**
 - **Total Suspended Solids**
- **Hydraulic entrainment**
- **Sedimentation effects**
- **Noise**
- **T&E species protection**

CUMULATIVE WINDOWS

EXAMPLE: HYANNIS HARBOR, MA PROJECT FILE



The Problem from a Dredging Project Manager's Perspective

- **Windows have a “cumulative effect”**

Few
Windows



Many
Windows



Consequences of Environmental Windows

- **Protracted project schedules and delays**
- **Rising costs per cubic yard of sediment dredged**
- **Contentious coordination pitting the need to dredge against the *Precautionary Principle***

- **The Precautionary Principle**

- *When an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause-and-effect relationships are not fully established scientifically.*

(from the 1998 Wingspread Statement)

The Precautionary Principle in Practice

- The PP is intended to be a *risk-averse* and ideally an *adaptive* management practice
- Under the PP precautions are intended to be *preliminary* measures pending completion of risk assessment
- Precautions are *not an endpoint*, but a *starting point* in a search for alternatives
- “The litmus test for knowing when to apply the PP is the combination of *threat of harm and scientific uncertainty*” (Tickner, 1999)

**PROPORTIONALITY: THE APPLIED
PRECAUTION SHOULD BE
PROPORTIONAL TO THE DEGREE OF
RISK**

RISK

**ENVIRONMENTAL
WINDOW**

**DEPLOY SILT
CURTAIN**

**USE CLOSED
BUCKET**

**SLOW HOIST
SPEED**

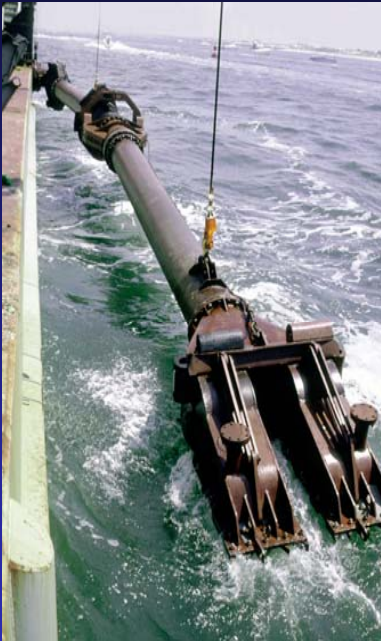
**NO
RESTRICTION**

PRECAUTION

CONCERNS RELATED TO TURBIDITY

An environmental window is an off switch, not a dimmer switch. By default it infers that no risk is acceptable.

Research obstacles: *Sea Turtle Entrainment Example*



- Major investment in research resulted in greatly reduced “take” by hydraulic dredges
- Reduced “take” did not lead to more flexible windows
- New dragarm and deflector designs would be extremely expensive to plan, evaluate, and implement
- Extensive interagency coordination and collaboration required to demonstrate that dredging outside of the existing windows can be done without additional “take”

**ONE CONSEQUENCE OF 35 YEARS
OF ENVIRONMENTAL WINDOWS:**

**Stagnation in the search for better,
safer ways to conduct dredging while
protecting environmental resources.**

**OBTAINING EXEMPTIONS FROM
EXISTING WINDOWS TO ASSESS
IMPACTS IS OFTEN A CHALLENGE**

Informed Decisions Demand an Integrated Approach

- ***Biology***

- Life history stage
- Habitat
- Seasonality
- Vulnerability

- ***Dredging***

- Type
- Performance
- Waterway
- Temporal/Spatial Scales

National Research Council

2001



**A Process for Setting, Managing, and
Monitoring Environmental Windows**

**Make
Commitments**

Step 1

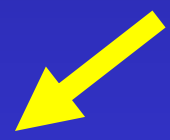
Step 2

**Convene
Stakeholders**



**Advisory
Teams**

Step 3



**Stakeholders
Set Window**

Step 4



Dredge

Step 5



Refine Window

Step 6



**Regional
Approach**



Pitfalls in the Present System

- **Burden of proof lies on the dredging community, but targets are fuzzy**
- **Often weak documentation**
- **Few resource agencies have staff dedicated to the dredging process**
- **Resource agencies have no funds for dredging **research** or **training****
- **Little incentive exists to change the status quo**

Recommendations



- **Consider all best management practices on an equal basis with windows (e.g., silt curtains, closed buckets, buffer zones, etc.)**
- **Accept windows as a potentially useful tool based on the merits of a given project and specific sources of risk**
- **Do not institutionalize windows, but invest in development of alternatives**

Recommendations

- **Seek science-based, adaptive approaches**
- **Obtain commitments to resolve major concerns**
- **Explore ecological risk-based methodologies to set windows**
- **Train regulators in the dredging process**
- **Increase awareness of conservation needs among dredgers**

In Conclusion:

- **Environmental windows are a non-adaptive management practice and represent an imperfect application of the precautionary principle**
- **Progress beyond a perfunctory acceptance of windows as the management practice of first resort requires commitment from all stakeholders**

**DREDGED SEDIMENT IS
JUST THAT**

- *SEDIMENT* -

NOT

SPOIL

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