Athos I Oil Spill

February 13, 2009

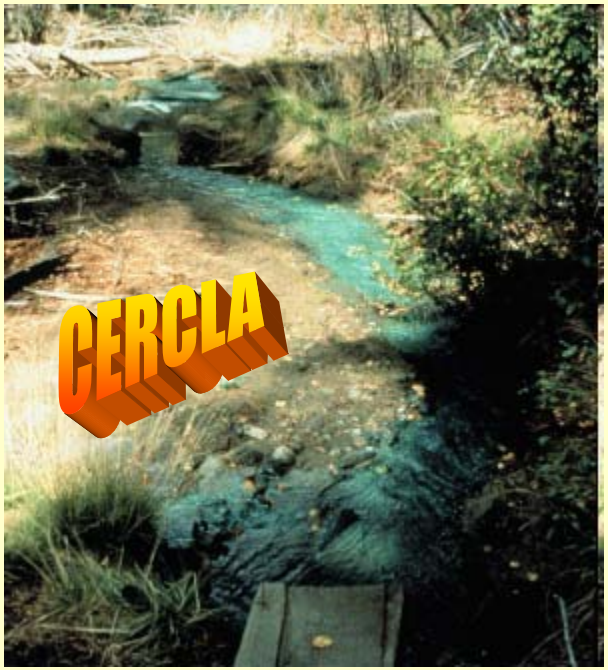
Presentation by the *Athos* Trustees

Topics

- Natural Resource Damage Assessment
- Spill Background
- Habitat Equivalency Analysis
- Injury
- Scaling
- Selection of Preferred Restoration Projects
- Next Steps

Natural Resource Damage Assessment (NRDA)

Things happen…



Process

- Release of hazardous substance
- Response: Cleanup or remedial action
- Restoration: to baseline and for interim lost resources or services/use (e.g., improvements to habitat, species, environmental quality, access, etc.)

Restoration must have a NEXUS to injury

Roles

U.S. Coast Guard or EPA – Cleanup

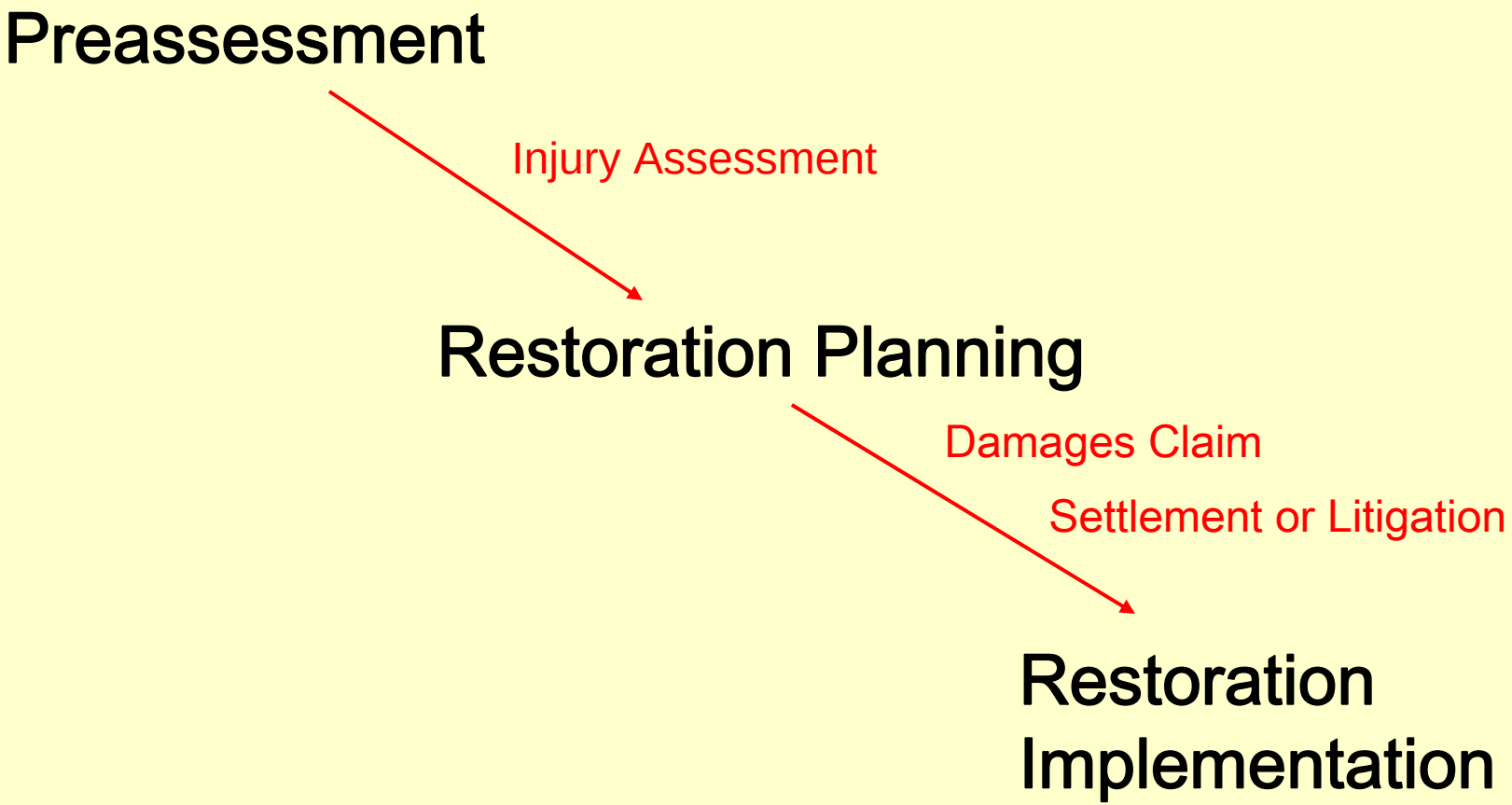
Reduce or eliminate present and future threats to human health and/or the environment from release of a hazardous substance

Trustees – Restoration

Act on behalf of the public when injury to, destruction of, loss of, or threat to natural resources resulting from release of hazardous substances or oil

Trustees must use NRD recoveries to restore, rehabilitate, replace, or acquire the equivalent of injured natural resources & services

NRD Process Under the Oil Pollution Act



Spill Background

Athos I (*Athos*) Spill

- Occurred 26 November 2004
- *Athos* hit large submerged anchor on way to dock at a refinery in Paulsboro, NJ
- Spilled more than 263,000 gallons of crude oil

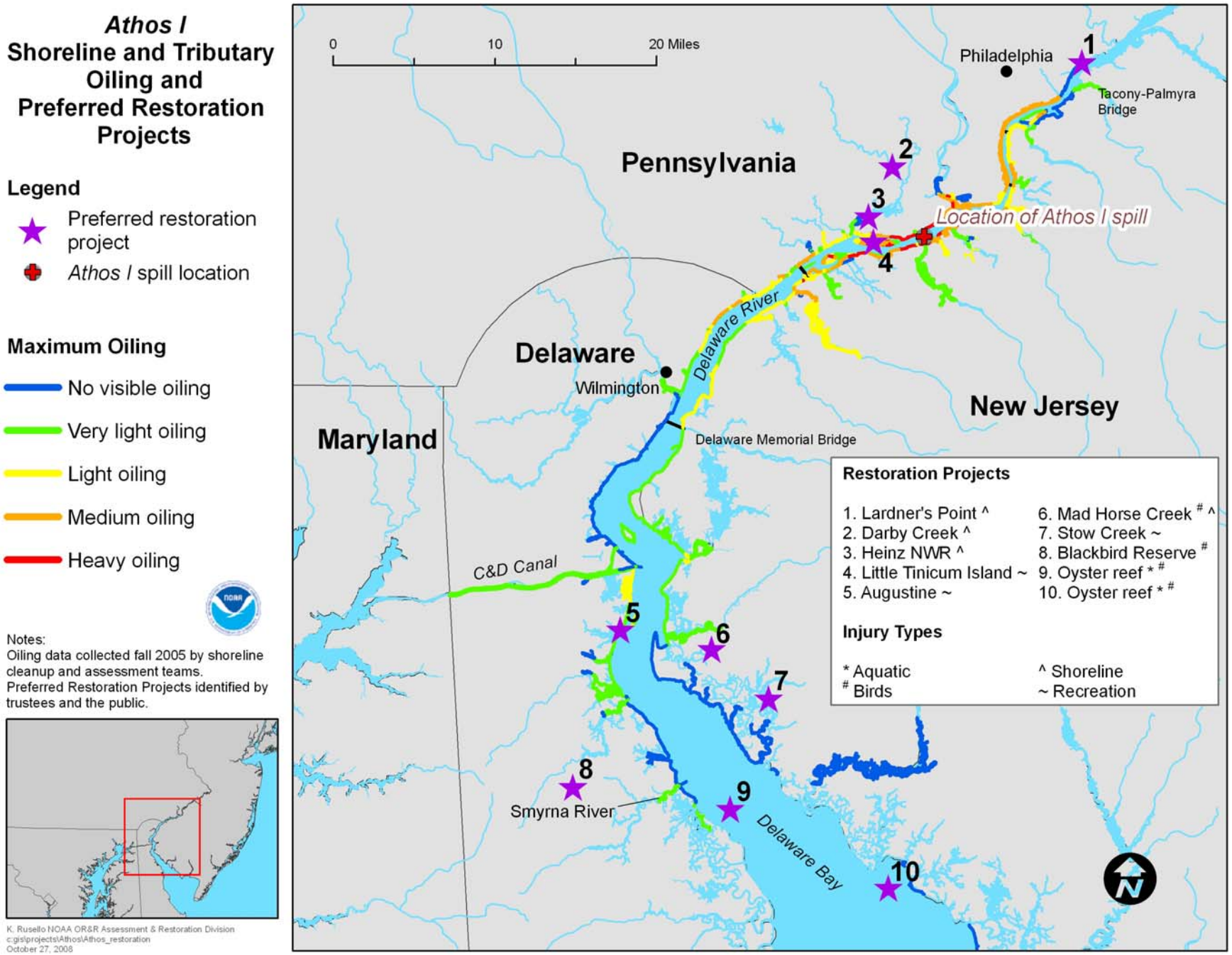
Athos Trustees

- Delaware
- New Jersey
- Pennsylvania
- U.S. Fish and Wildlife Service
- National Oceanic and Atmospheric Administration

Data Collection

- Shoreline surveys (aerial and ground)
  - 29 November 2004 through 13 February 2005
- Resource surveys
  - Birds and wildlife (aerial and ground)
  - Horseshoe crabs and whelks
- Ephemeral data collection (PAHs)
  - Water (surface and bottom)
  - Sediment (intertidal and subtidal); toxicity
  - Fish and shellfish tissue
- Surveys of recreational use

Athos I Shoreline and Tributary Oiling and Preferred Restoration Projects



Notes:
Oiling data collected fall 2005 by shoreline cleanup and assessment teams.
Preferred Restoration Projects identified by trustees and the public.

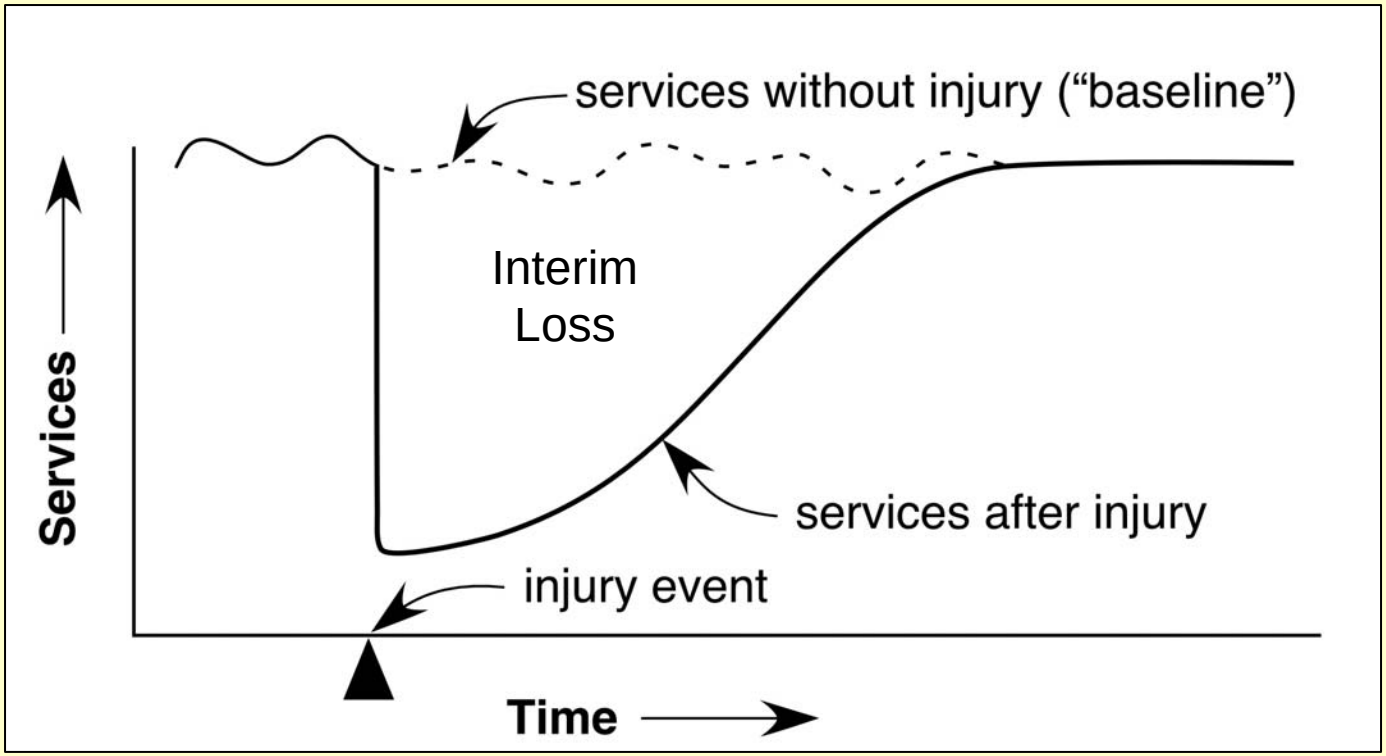
K. Rusello NOAA OR&R Assessment & Restoration Division
c:gis\projects\Athos\Athos_restoration
October 27, 2008

Habitat Equivalency Analysis (HEA)

HEA

- Used to scale services lost from injury to services gained from restoration
- Holistic ecosystem-based approach based on observable metrics
- Highly successful in achieving restoration settlements
- Upheld in litigation
- Systematic framework to develop consensus and foster compromise

Habitat Service Flows



Compensatory Restoration

Making the public and the environment whole…

Objective:

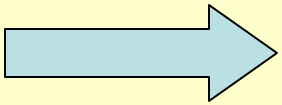
- Compensate the public for the loss of resources and their services from the time of injury until injured resources are fully restored to baseline

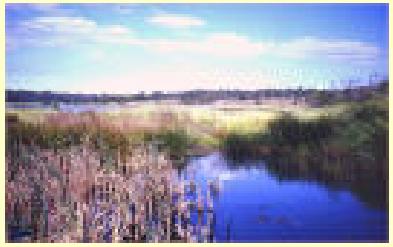
Service-to-Service

- **Definition**:

Service losses due to injury (discounted; in Unit X)	=	Service gains from compensatory restoration project (discounted; in Unit X)

- **Conditions for Use**: When injured and restored resources and services are the same type, quality, and of comparable value
  - Example: Fish biomass lost due to the incident is scaled to the fish biomass gained from the restoration project
  - Example: Acres of injured marsh are scaled to acres of marsh created (using "Discounted Service Acre Years" or DSAYs)



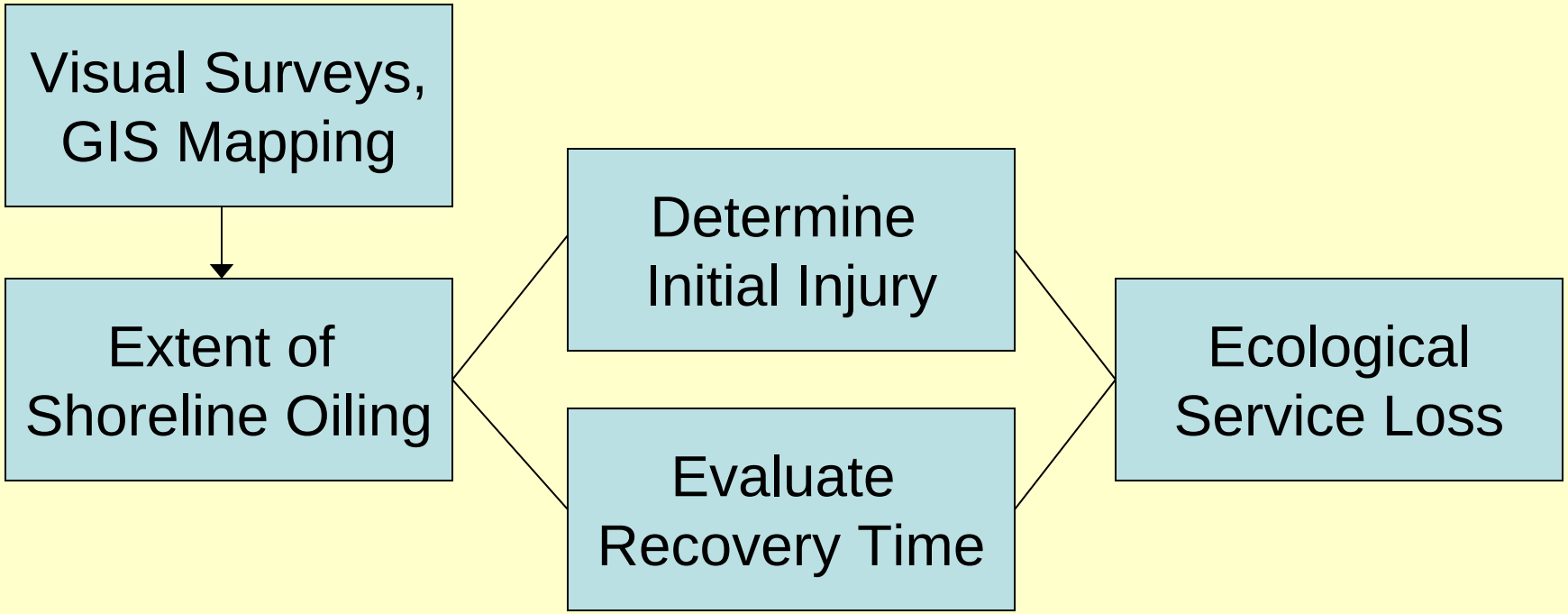


Ecological and Recreational Injury

Determination of Injuries

- Early response data, follow-up targeted data collection
- Compiled into injury reports
- Peer-reviewed, received comments from Responsible Party (RP)
- Details of assessments and comments are available on the website
- Four injury categories

Shoreline Injury Assessment



- Categories: Seawalls, Sand/Mud, Marsh, Tidal Flats, Coarse, Tributaries
- Four Oiling Levels: very light to heavy
- Recovery Time: Up to 5 years

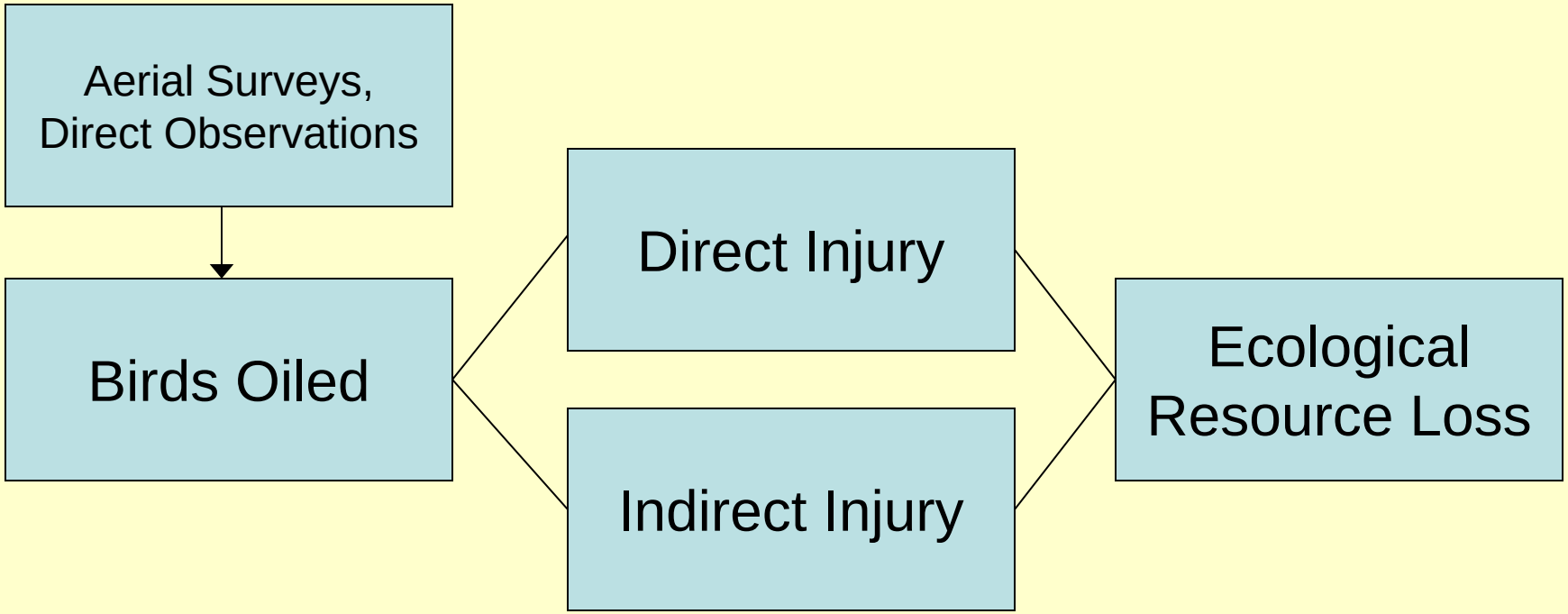
Shoreline Oiling (Acres)

Habitat Class	V. Light	Light	Moderate	Heavy
Seawalls	9	18	30	3
Sand/Mud	7	10	10	8
Tidal Flats	733	306	205	135
Coarse	16	66	37	18
Marsh	52	41	17	7
Mainstem Total	**817**	**441**	**300**	**171**
Tributaries	**583**	**1,216**	**100**	**0**

Shoreline Injury (DSAYs)

Habitat Class	Acres	DSAYs
Seawalls	59	30
Sand/Mud substrates	36	35
Tidal Flats	1,381	1,083
Coarse Substrates	137	127
Marsh	117	60
Mainstem Total	**1,730**	**1,335**
Tributary Total	**1,899**	**524**

Bird Injury Assessment



- Guilds: Geese, Ducks, Gulls + 5 others
- Directly observed mortality + modeled mortality
- Population and mortality modeling by Guild

Direct and Indirect Injury

Direct Injury

- Aerial/Direct Observations
- Population model
- Oiling mortality rates

Est. 3,308 birds killed

Indirect Injury

- Lost offspring of birds killed in spill

Est. 6,453 birds lost

Indirect Injury

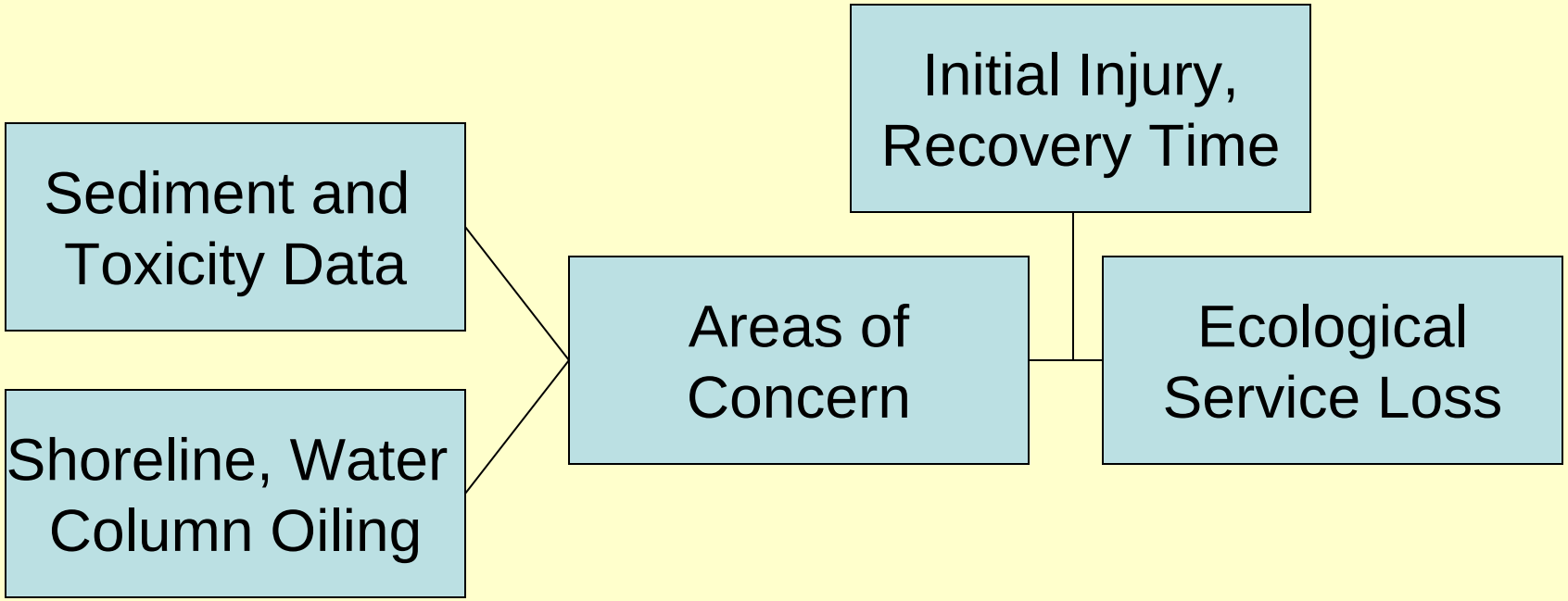
- Lost offspring from oiled birds that survived the spill

Est. 2,108 birds lost

Bird Injury Summary

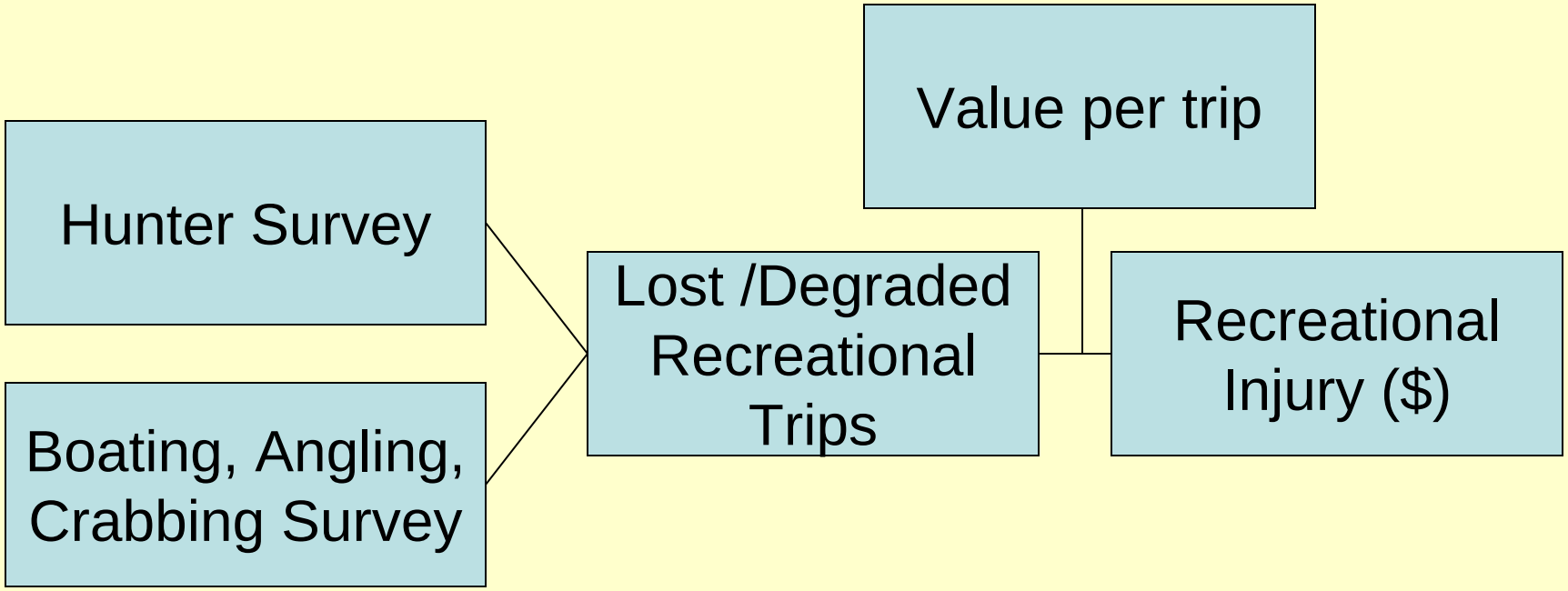
Guild	Direct Injury (Dead Adults)	Indirect Injury		TOTAL
		Reproduction Lost due to Mortality	Reproductive Failure due to Non-fatal Oiling	
Dabbling ducks	605	1,187	577	2,369
Diving ducks	82	163	24	269
Diving birds	64	92	2	158
Gulls	1,072	1,543	331	2,946
Shorebirds	55	79	0	134
Wading birds	10	14	3	27
Swans/geese	1,416	3,369	1,171	5,956
Kingfishers	4	6	0	10
Total	**3,308**	**6,453**	**2,108**	**11,869**

Aquatic Injury Assessment



- Subtidal areas, primarily soft sediments
- Baseline: 1997 NOAA sediment and toxicity study
- Injury pathway: smothering, PAH toxicity
- PAHs below risk thresholds for food chain impacts
- 412 acres, minimal impact, 97 DSAYs

Recreational Injury Assessment



- Hunter Survey: Phone survey of licensed hunters
- B/A/C Survey: On-site surveys
- Determined “willingness-to-pay” values for lost trips

Recreational Injury

Measure of Loss	Recreational Fishing/Crabbing	Waterfowl Hunting	Pleasure Boating	Total
Affected trips	20,652	15,559	5,498	**41,709**
Lost value	$759,374	$448,434	$105,430	**$1,313,239**

Scaling

Scaling Overview

- Goal: Match injury with restoration(s)
- Process: Identify, evaluate potential sites or types of restoration

Shoreline Injury Scaling

- Primary injury: tidal flats
- Restoration goal: provide increased productivity and food web support
- Restoration possibilities: tidal flats, marsh
- Consider relative productivity of habitats in scaling
- Marsh: 35-40 acres of marsh creation provide compensation for interim loss

Tributary Injury Scaling

- Injury to mix of habitats
- Restoration goal: Create high-functioning tributary habitat
- Possibilities: Streambank/ in-stream improvements, floodplain, wetlands
- Scaling: Roughly 20 acres of significant improvements to tributary habitat

Bird Injury Scaling

- Primary loss: adults killed and future juveniles lost
- Restoration goal: replace bird biomass
- Possibilities: restoration that increases appropriate food supplies for guilds
- Scaling: calculate kg of birds lost, acres of habitat improvements necessary to produce bird biomass

Aquatic Injury Scaling

- Primary injury: sediment-dwelling organisms
- Restoration goal: enhanced benthic communities
- Possibilities: habitat creation, oyster reefs
- Scaling: calculate sediment-dwelling biomass, replace biomass through enhancement

Recreational Injury Scaling

- Scaling *per se* not required
- Injury calculated on $ basis
- Identify projects that enhance recreational opportunities using available money

Scaling Results

Resource Category		Injury	Preferred Compensatory Restoration Alternative	
Aq.	subtidal benthic habitat	412 acres	4.5 acres	Oyster Reef enhancement
Bird and Wildlife	gulls	2,946 birds	73.5 acres	
	diving ducks, diving birds, wading birds, kingfishers	464 birds		
	dabbling ducks and shorebirds	2,503 birds	25.4 acres	Marsh Restoration
	swans and geese	5,956 birds	35 acres	Wet Meadows Creation
			100 acres	Grassland Creation
			41.8 acres	Pond and Pasture Creation
Shoreline	seawalls, sand/mud substrate, marsh, coarse substrate	1,729 acres	38.1 acres	Marsh Restoration
			0.9 acre	Shoreline and Marsh Restoration
	tributaries	1,899 acres	56 acres	Marsh and Tidal Creek Restoration
			2.6 miles	Dam Removal and Riparian Restoration
Recreation	Trips affected (lost and diminished value)	41,709 trips	$460,045	Boat Ramp Improvements
			$808,152	Boat Ramp/Breakwater Improvements
			$45,042	Trail and Habitat Improvements

Selection of Preferred Restoration Projects

Selection of Preferred Restoration Projects

- Searched within watershed

- Public request for project proposals via letter to NGOs, and local and state stakeholders

Tier I Screening

Criteria for Tier 1:

1. Does project have potential to result in a quantifiable increase in one or more injured resources?
2. Is there sufficient information to allow evaluation with OPA and NEPA criteria and enable implementation within 12 months of the Final Plan?

61 project proposals → **29**

Tier 2 Screening

Criteria for Tier 2:

1. OPA Regulations
2. Factors to Evaluate Proposed Restoration Projects Under the Oil Pollution Act, Delaware River / M/T *Athos I* Oil Spill

29 project proposals → **15**

OPA Regulations

- Cost to carry out alternative
- Extent alternative will return resources to baseline and/or compensate for interim loss
- Likelihood of success
- Extent alternative will prevent future injury
- Extent alternative benefits more than 1 resource and/or service
- Effect of alternative on public health and safety

Factors to Evaluate Proposed Restoration Alternatives

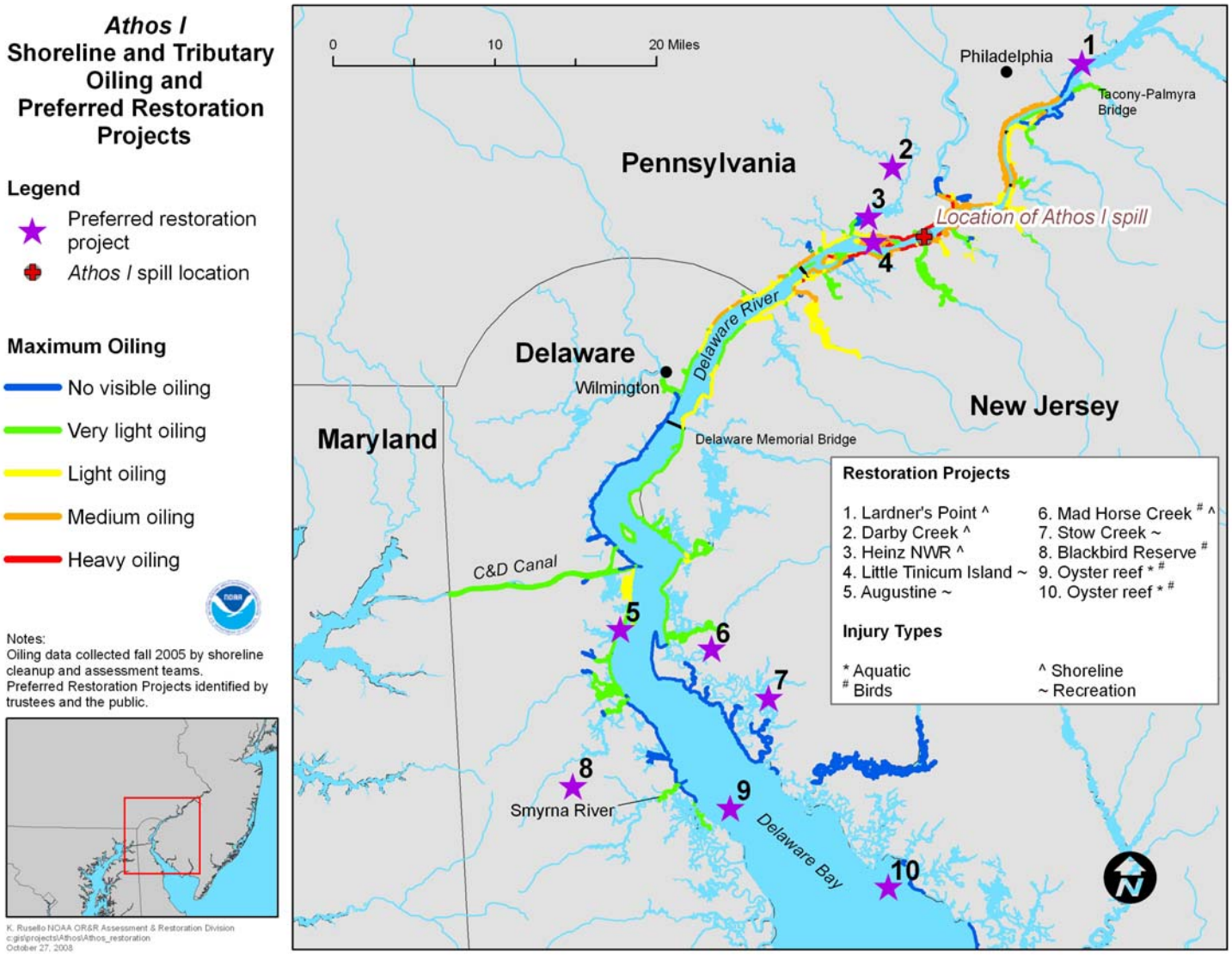
- Integration with existing programs
- Adjacent or nearby land uses
- Site ownership
- Logistics
- Consistency with local, regional, and national restoration goals
- Longevity of project
- Long term operation and maintenance

Reasonable Project Alternatives

Tier 2 Screening → 15

- 3 projects funded through other sources
- 9 preferred restoration alternatives in DARP/EA
- 3 non-preferred alternatives:
  - Pilot study on mussel restoration
  - Milford Neck – proposed restoration closer to spill
  - Shellfish restoration – insufficient information for scaling

Preferred Restoration Projects



Next Steps

Funding Restoration

OPA established OSLTF administered by USCG to pay clean up, assessment, and restoration costs when:

- No RP
- RP exceeds liability limits established under the statue, or
- RP refuses to pay (DOJ then gets involved with RP)

With *Athos*:

- RP exceeded their limit of liability under OPA due to response and assessment costs
- Final DARP and claim will be submitted to OSLTF

Next Steps

- Public comment period ends February 20
- Trustees will address written comments and finalize DARP
- Claim submitted to National Pollution Fund Center (NPFC)
- NPFC review – potential back and forth with Trustees
- Settlement funds received and managed by *Athos* Trustee Council
- Implementation of projects

Questions?