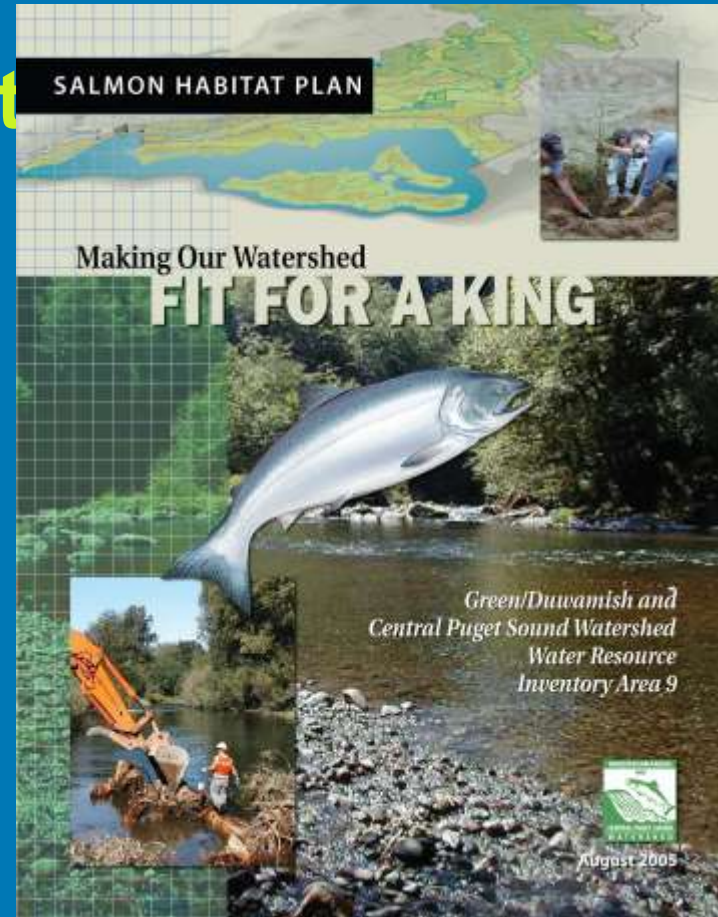


WRIA 9 Habitat Plan Update: Habitat Goals & Adaptive Management Decision Framework

WRIA 9 Watershed Ecosystem Forum
Meeting
August 10, 2017



Abby Hook, Hook Environmental
Interim Salmon Habitat Plan Manager
Green/Duwamish and Central Puget Sound Watershed (WRIA 9)



WRIA 9 Salmon Habitat Plan Update



- New science and information
- Address gaps and barriers to implementation
- Update project list
- Update policies
- Update programs



WRIA 9 Salmon Habitat Plan Update



Presentation Objectives

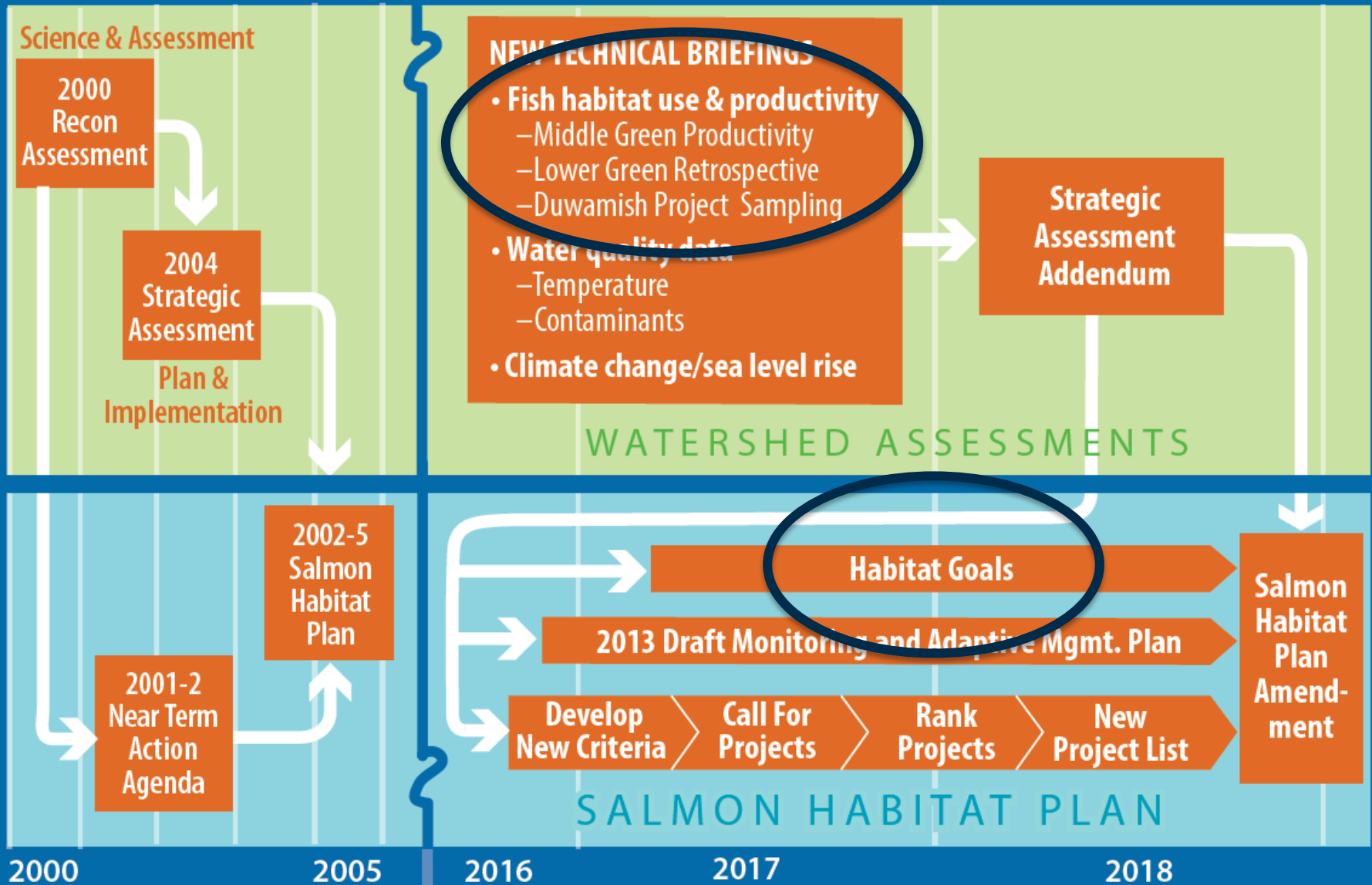
- **Present information**
 - Goals document (reviewed by Implementation Technical Committee - ITC)
 - Proposed Adaptive Management Decision Framework

No approval will be requested today. The WRIA 9 team will work with WEF members and staff now through November to review material.



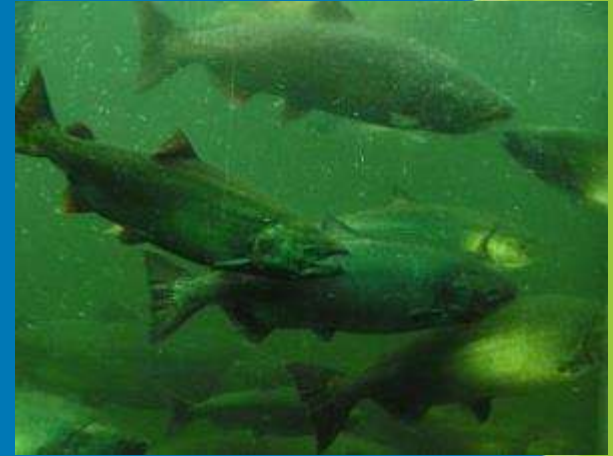
TIMELINE FOR WRIA 9 SALMON HABITAT PLAN

Key Products and Milestones



Goals Document

- **What is it?**
 - Necessary Future Conditions from 2005 Plan
 - Updated 2028 Targets
 - Current condition (if available)
 - Information derived from existing sources
- **What isn't it?**
 - Change in Necessary Future Conditions
 - Change in monitoring priorities



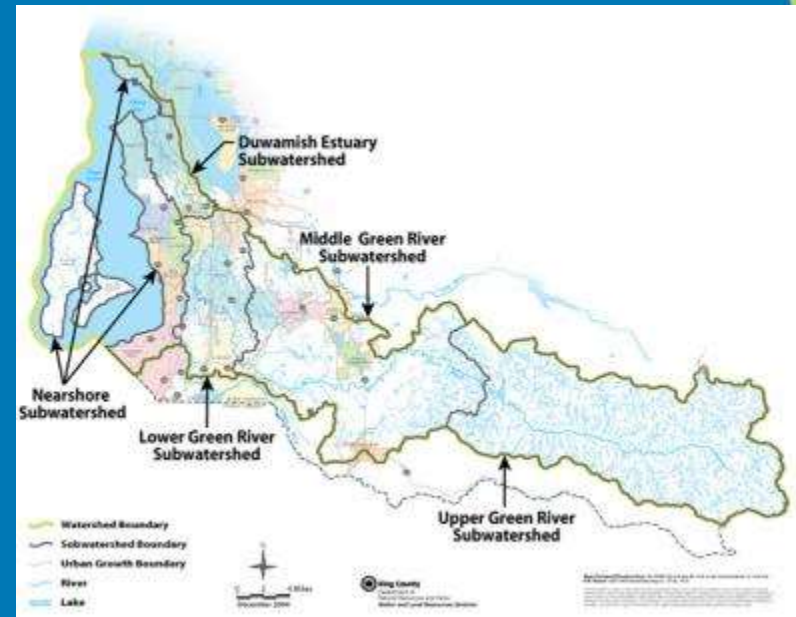
How is ITC developing 2028 Targets?

- **Reflection on the first 10 years of implementation**
 - Were the first 10-year targets realistic and achieved?
- **Scoping future potential work**
 - What opportunities are available in the next 10 years?
 - Are there targets that have already been set (e.g., Technical Recommendations for Aquatic Habitat, approved May 8, 2014)



Goals Document Preview

- **Arranged by subwatershed**
 - Necessary Future Conditions (if explicit in 2005 Plan)
 - Proposed 2028 Target
 - Current Condition



Indicator	Necessary Future Conditions	2028 Target	Current Condition	Source
Marine riparian vegetation	Marine riparian zone is functioning, and effective buffer widths are established to provide all riparian functions ¹ .	25 acres and/or 7,200 feet of bank revegetated; target mouths of creeks and areas without bluffs or shade on mainland ²	24% of shoreline is dense trees; 16% patchy trees; 60% is cleared/other ³	1. 2005 Plan 2. Re-Green the Green (2016) 3. WRIA 9 Status and Trends Monitoring report (2012)

How will Goals Document be Used?

- **Reviewing progress for Adaptive Management recommendations**
 - Where were the barriers to implementation and why?
 - Where has excellent progress been made?
- **Adjusting programs, policies and projects to meet 2028 Targets**

Goals Document Review Aug - Nov

- **If 2015 target was not met, why?**
- **How can your organization contribute to 2028 target?**
- **What policies and programs would affect the 2028 target?**

WRIA 9 staff available for support during the review

**Questions?
Discussion.**



Why Adaptive Management?

Conserving water

- Use water efficiently
- Reduce water consumption
- Protect water quality

Use natural yard care

- Native plants and trees
- Reduce lawn area
- Use mulch

Habitat Plan for the Green/Duwamish and Central Puget Sound

Making Our Water FIT FOR FISH

Historic Rivers

Our Watershed: Problems and solutions

Timeline

- 1792: First settlement in the area
- 1850: Logging begins
- 1889: Statehood
- 1900: Urban growth
- 1950: Industrial development
- 1980: Environmental awareness
- 1990: Water resource inventory
- 2000: Habitat plan development
- 2010: Adaptive management implementation

GOAL: IMPROVE HABITAT PRODUCTIVITY AND INCREASE SALMONID POPULATION

Water Resource Inventory Area 9

- Subwatershed boundary
- City boundary
- Urban growth area line
- Salmon hatchery
- Levee

Marine Nearshore Subwatershed

Timeline of Key Events:

- 1976: First salmon hatchery
- 1980: First salmon hatchery
- 1985: First salmon hatchery
- 1990: First salmon hatchery
- 1995: First salmon hatchery
- 2000: First salmon hatchery
- 2005: First salmon hatchery
- 2010: First salmon hatchery
- 2015: First salmon hatchery
- 2020: First salmon hatchery

New Fish Passage Tower

Howard Hanson Dam was not designed for safe downstream passage by young salmon. A new fish passage tower will gather young salmon and pass them safely around Howard Hanson Dam. The tower can pass fish regardless of fluctuating water levels in the reservoir.

Site of proposed tower

Green R. DAM Reservoir

Maintain healthier more sustainable forestry. Protect streams through buffer zones.

Decommission unneeded forest roads.

Rural

and repair

H.H. Dam

Water diversion

Gravel can't flow past dam

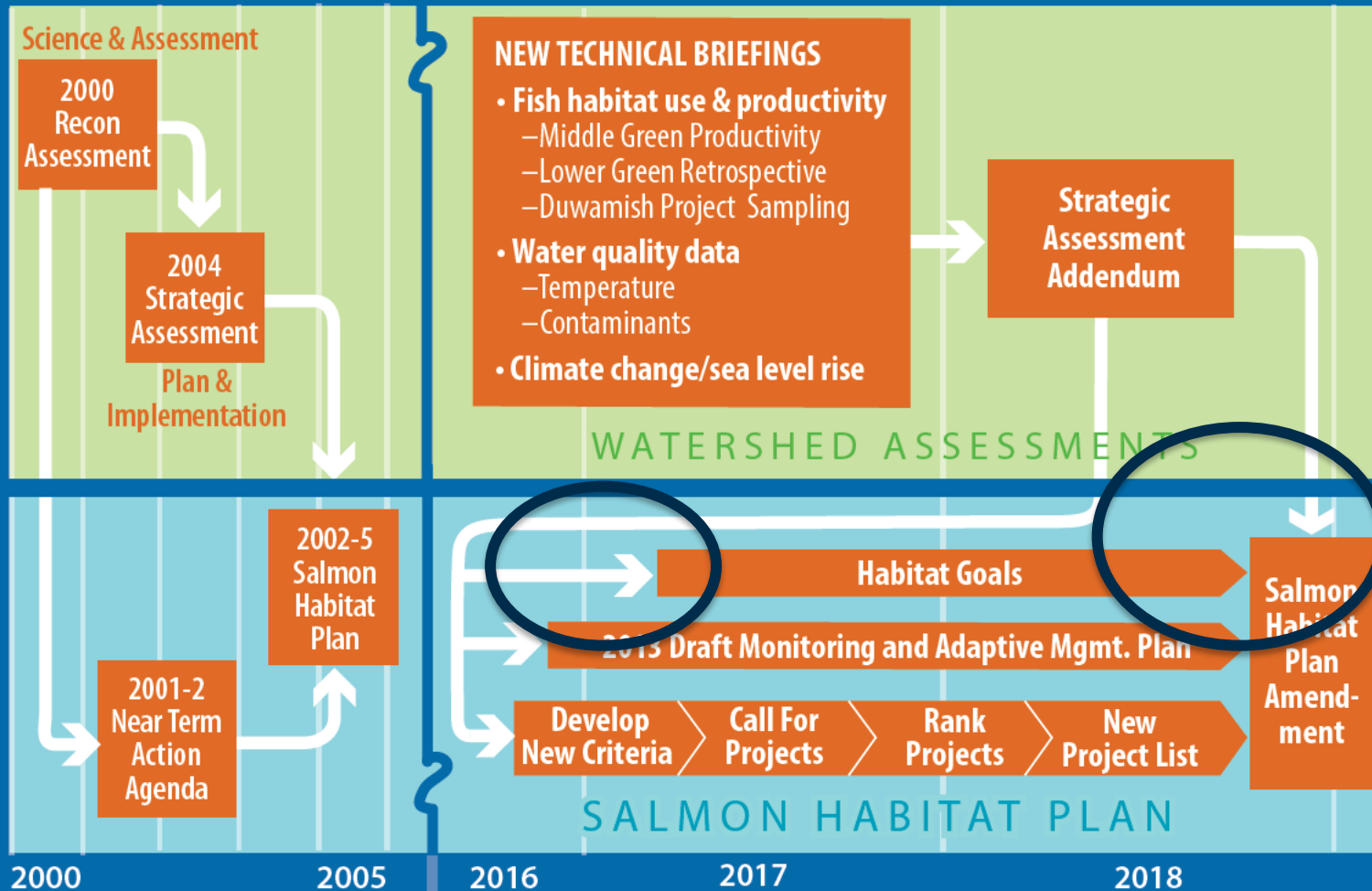
GREEN / DUWAMISH AND CENTRAL PUGET SOUND WATERSHED

APRIL 2007

Adaptive Management Decision

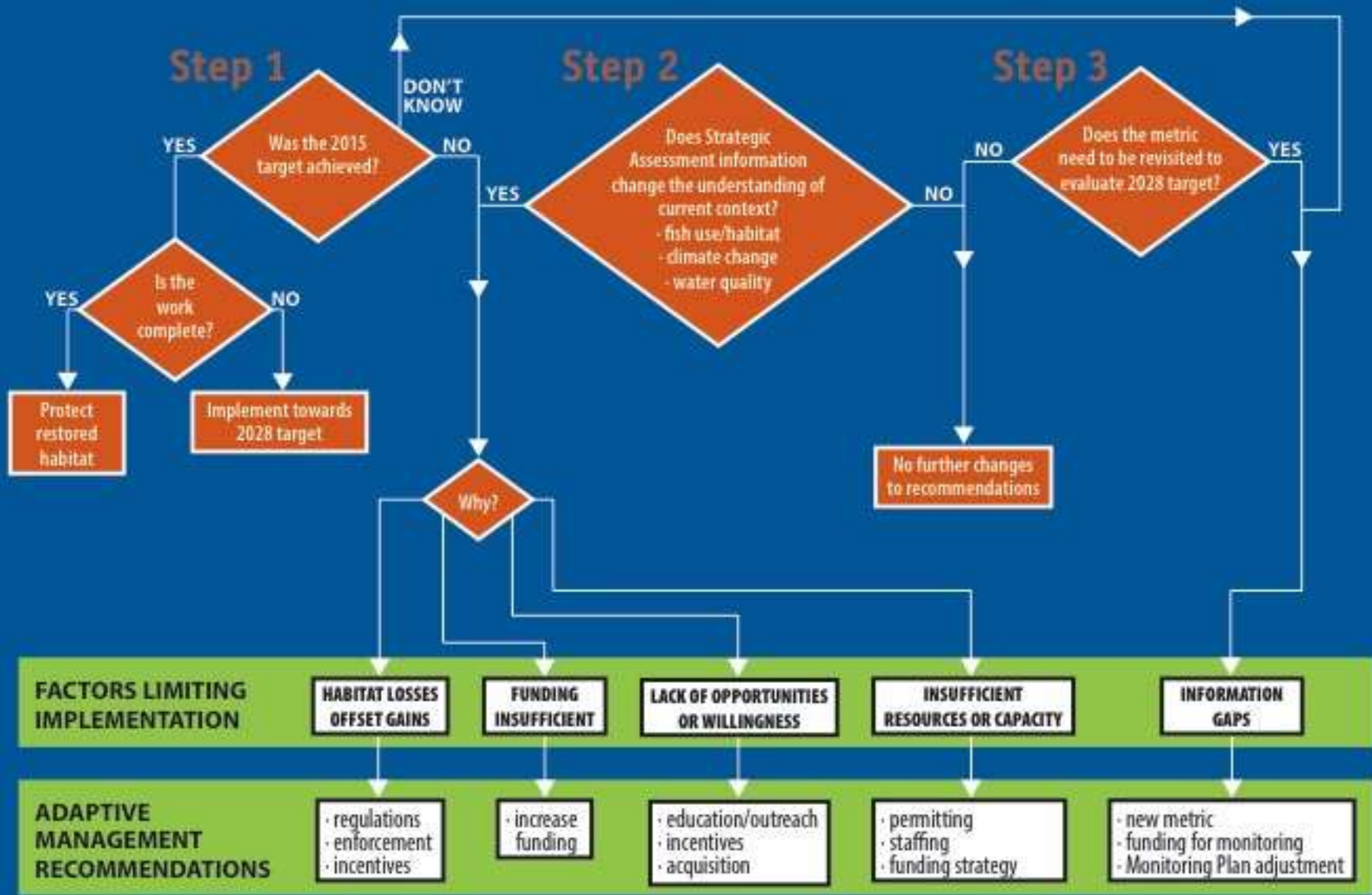
TIMELINE FOR WRIA 9 SALMON HABITAT PLAN

Key Products and Milestones



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WRIA 9 Adaptive Management Decision Framework

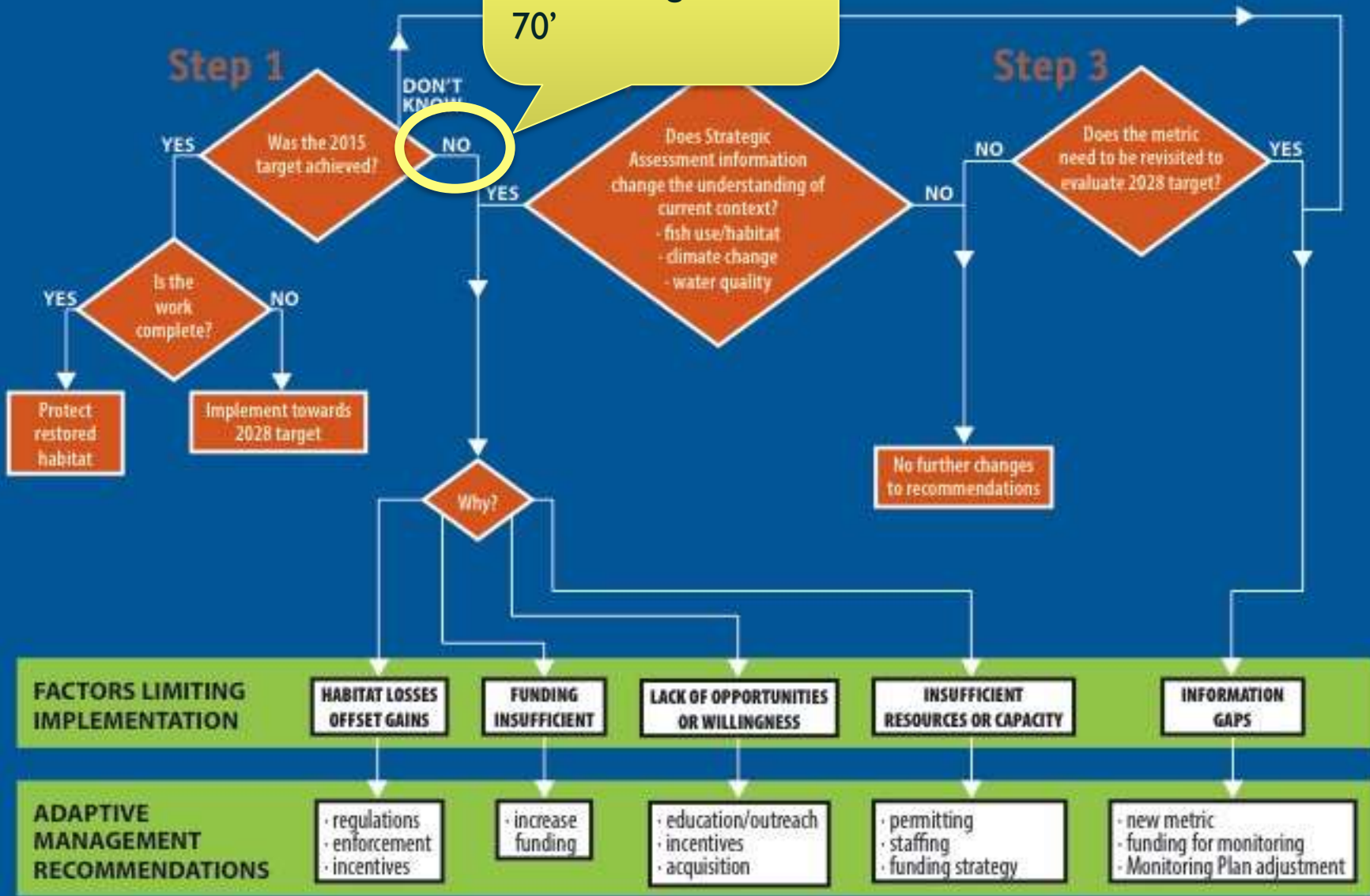


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Shoreline Arm (Nearshore) Decision Framework

WRIA 9 Adaptive

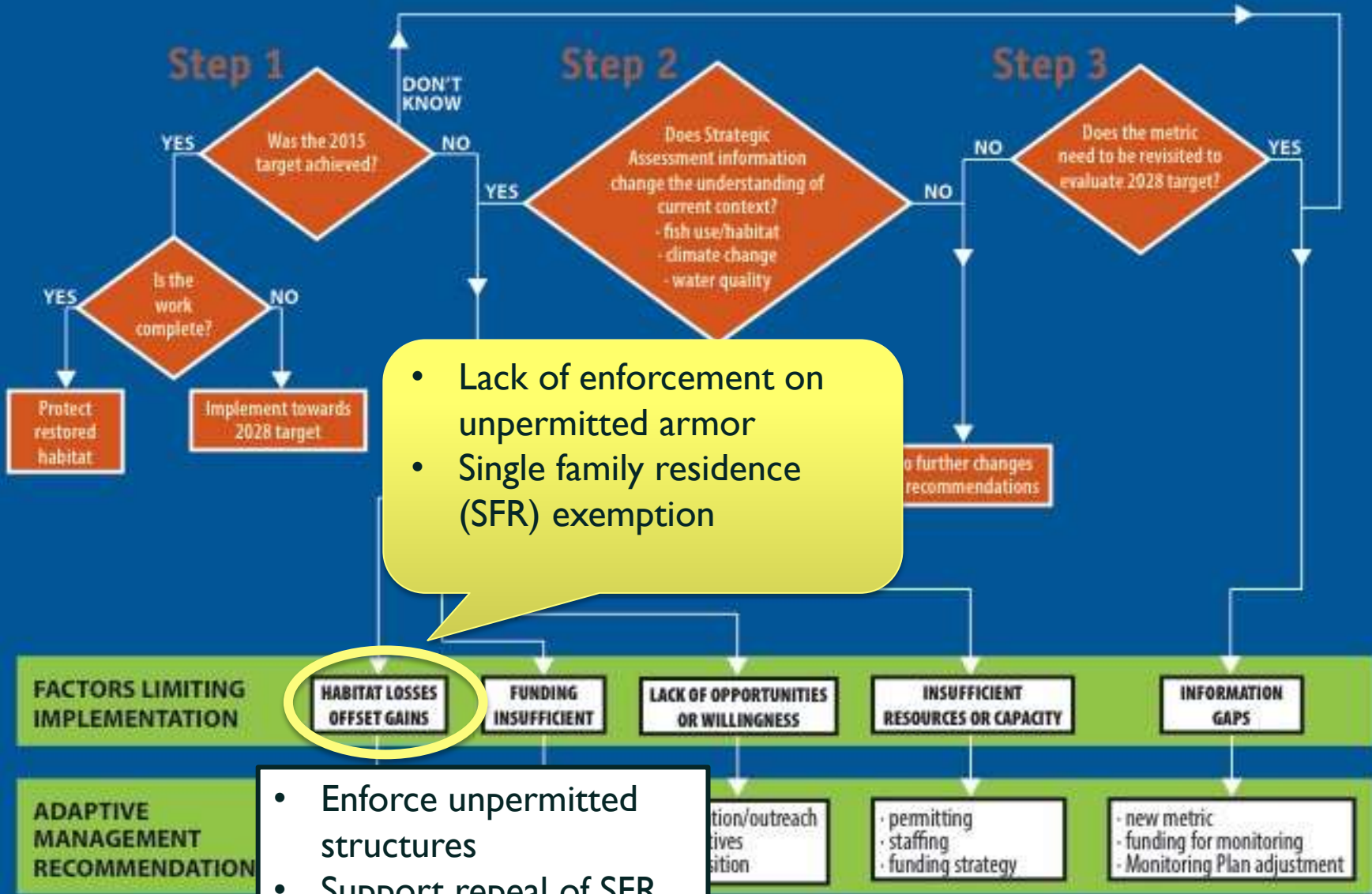
Even with 1500' removed, there was a net gain of 70'



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Shoreline Armoring Example (Nearshore)

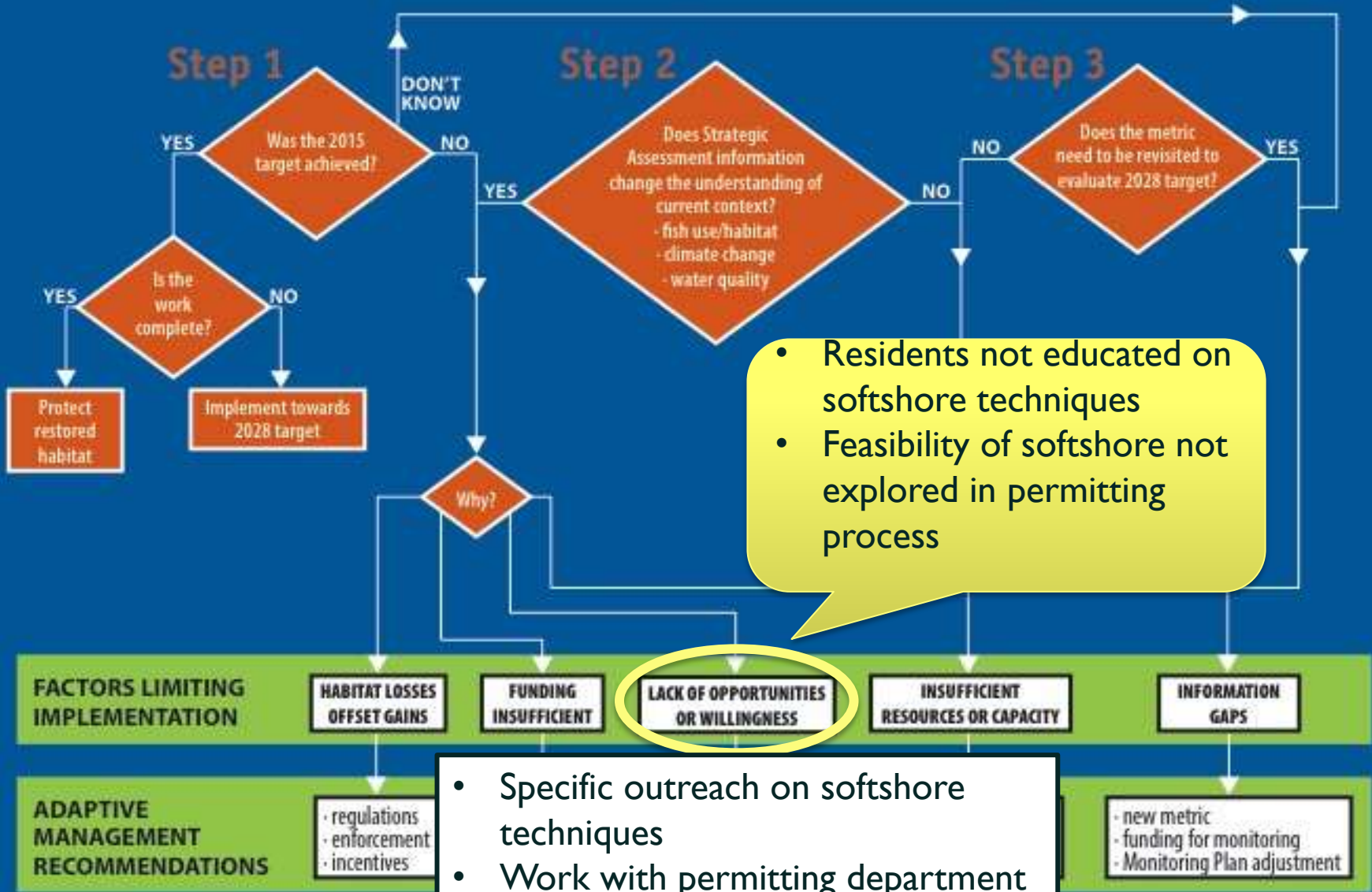
WRIA 9 Adaptive Management Decision Framework



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Shoreline Armoring Example (Nearshore)

WRIA 9 Adaptive Management Decision Framework



Softshore

Soft shore protection projects preserve natural coastal shoreline dynamics that are immobilized along an armored shore by traditional hard armor.

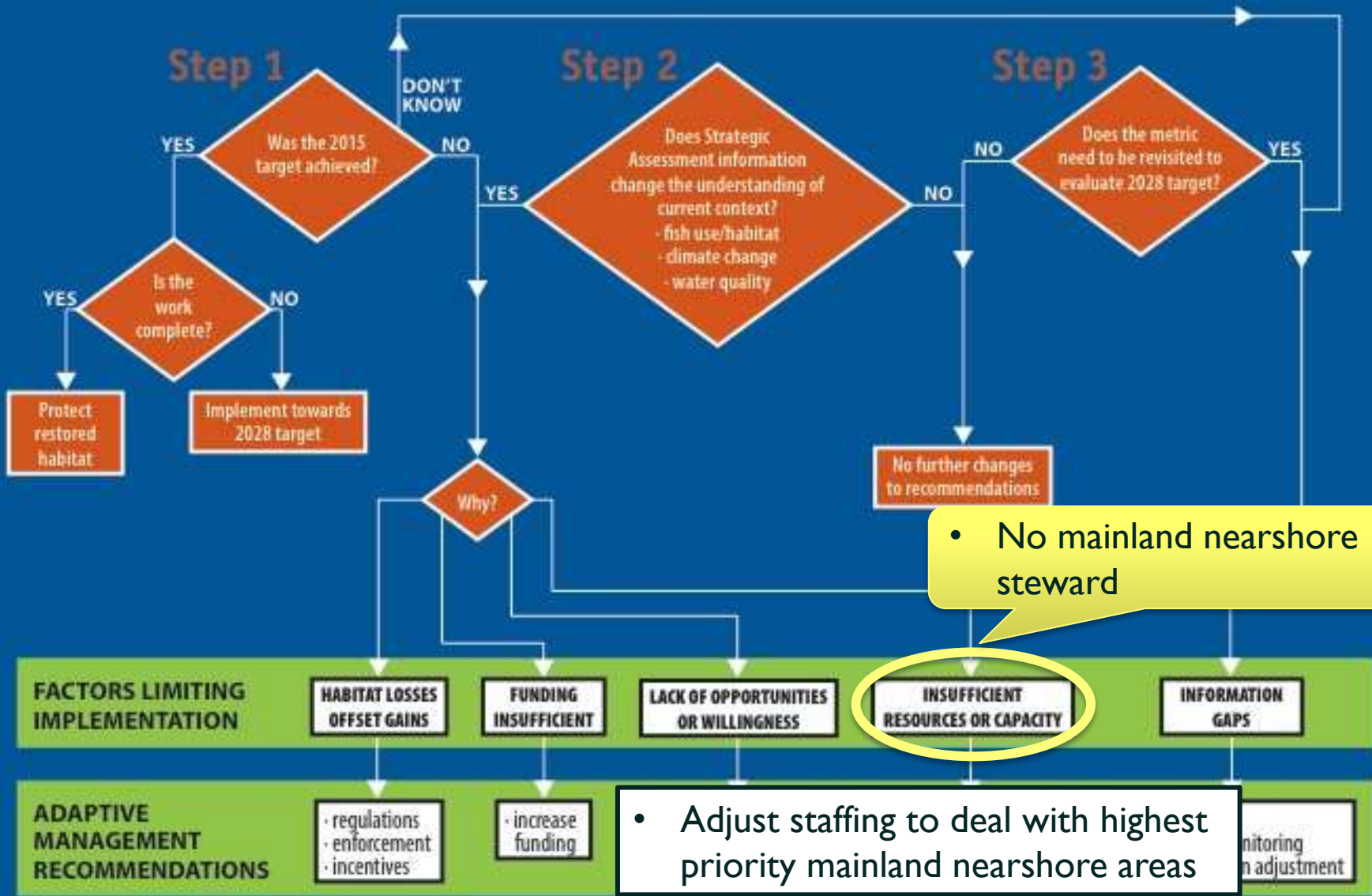
Marine Shoreline Design Guidelines (WDFW, 2014)



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Shoreline Armoring Example (Nearshore)

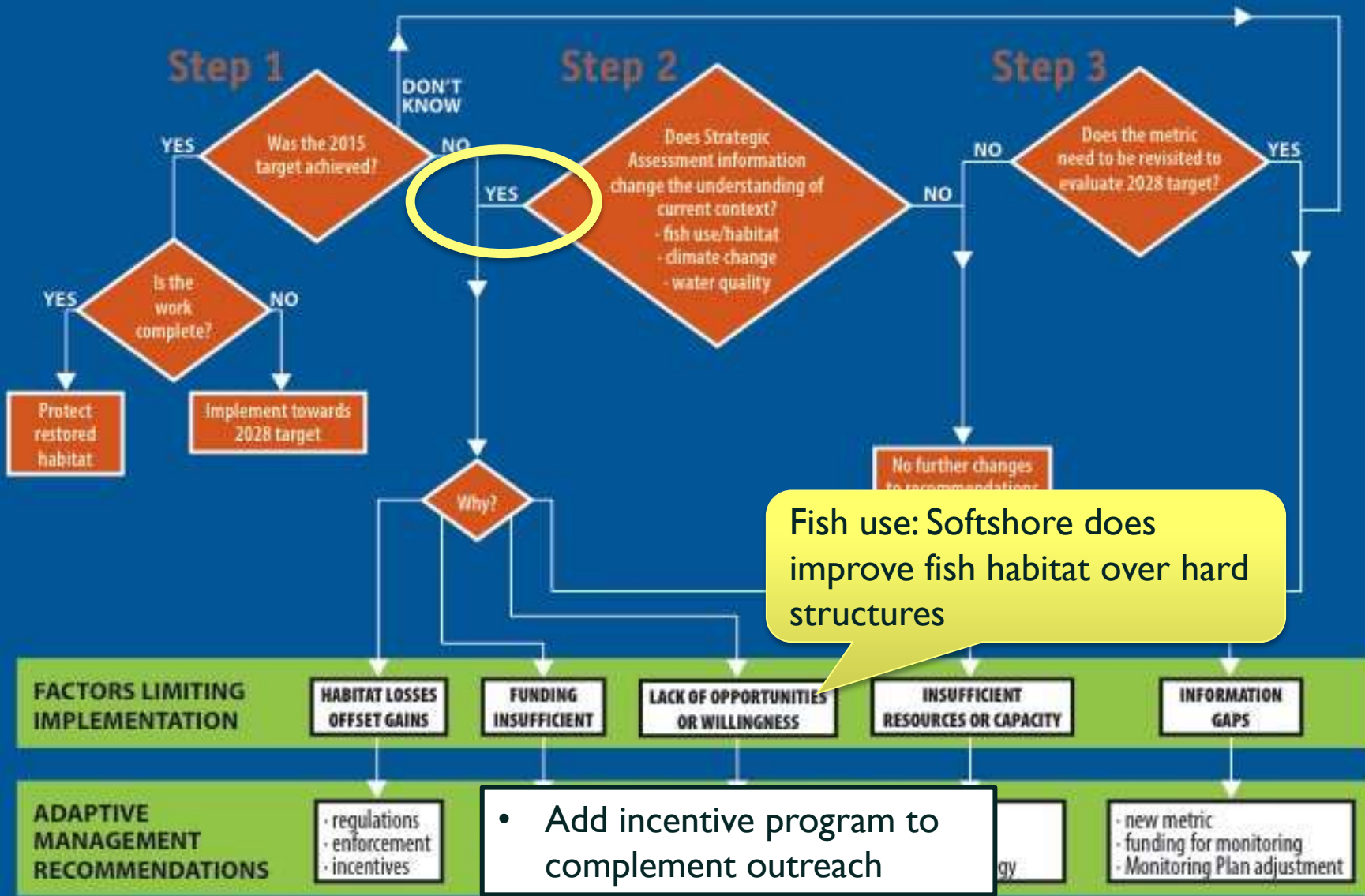
WRIA 9 Adaptive Management Decision Framework



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Shoreline Armoring Example (Nearshore)

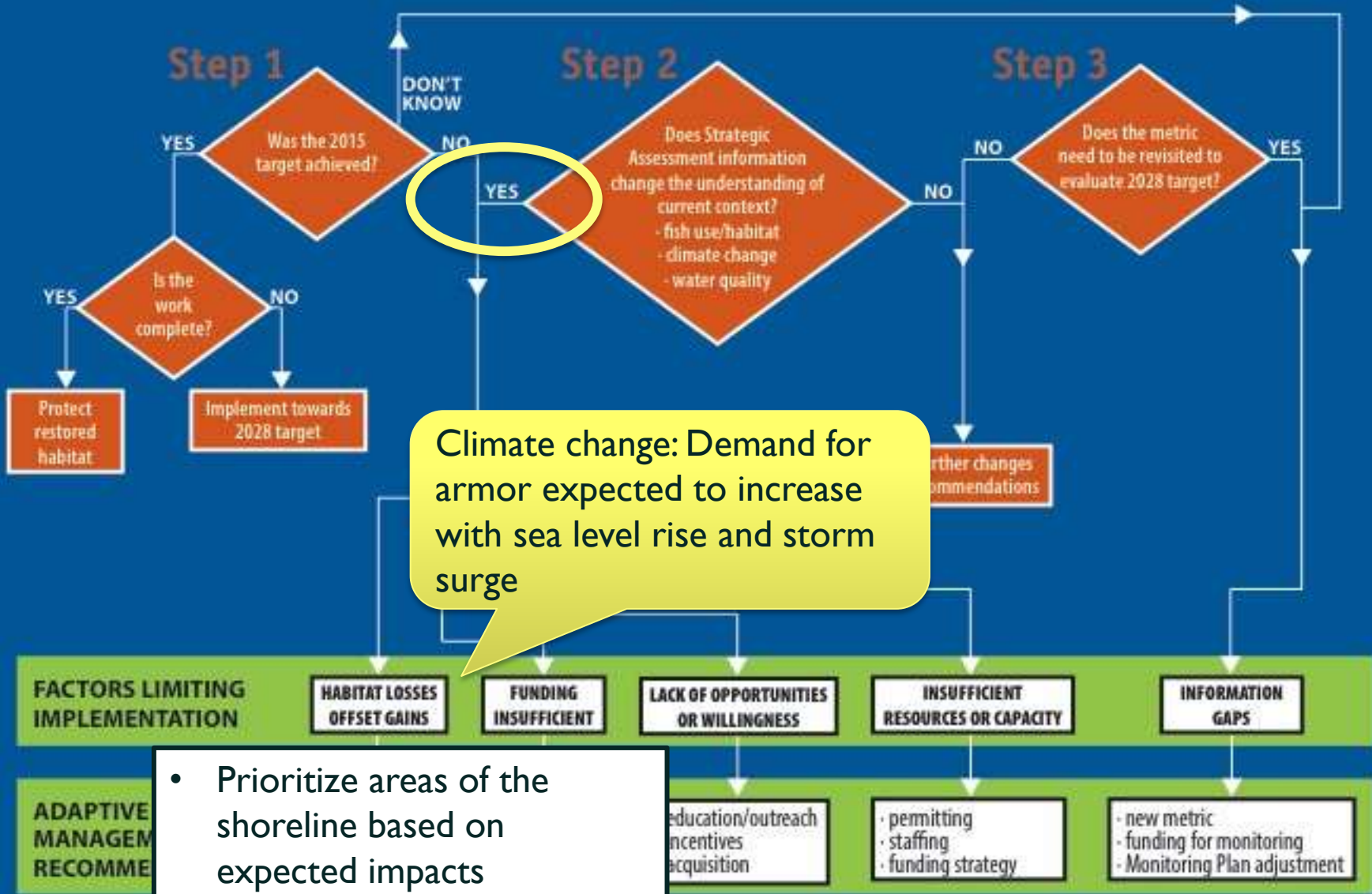
WRIA 9 Adaptive Management Decision Framework



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Shoreline Armoring Example (Nearshore)

WRIA 9 Adaptive Management Decision Framework

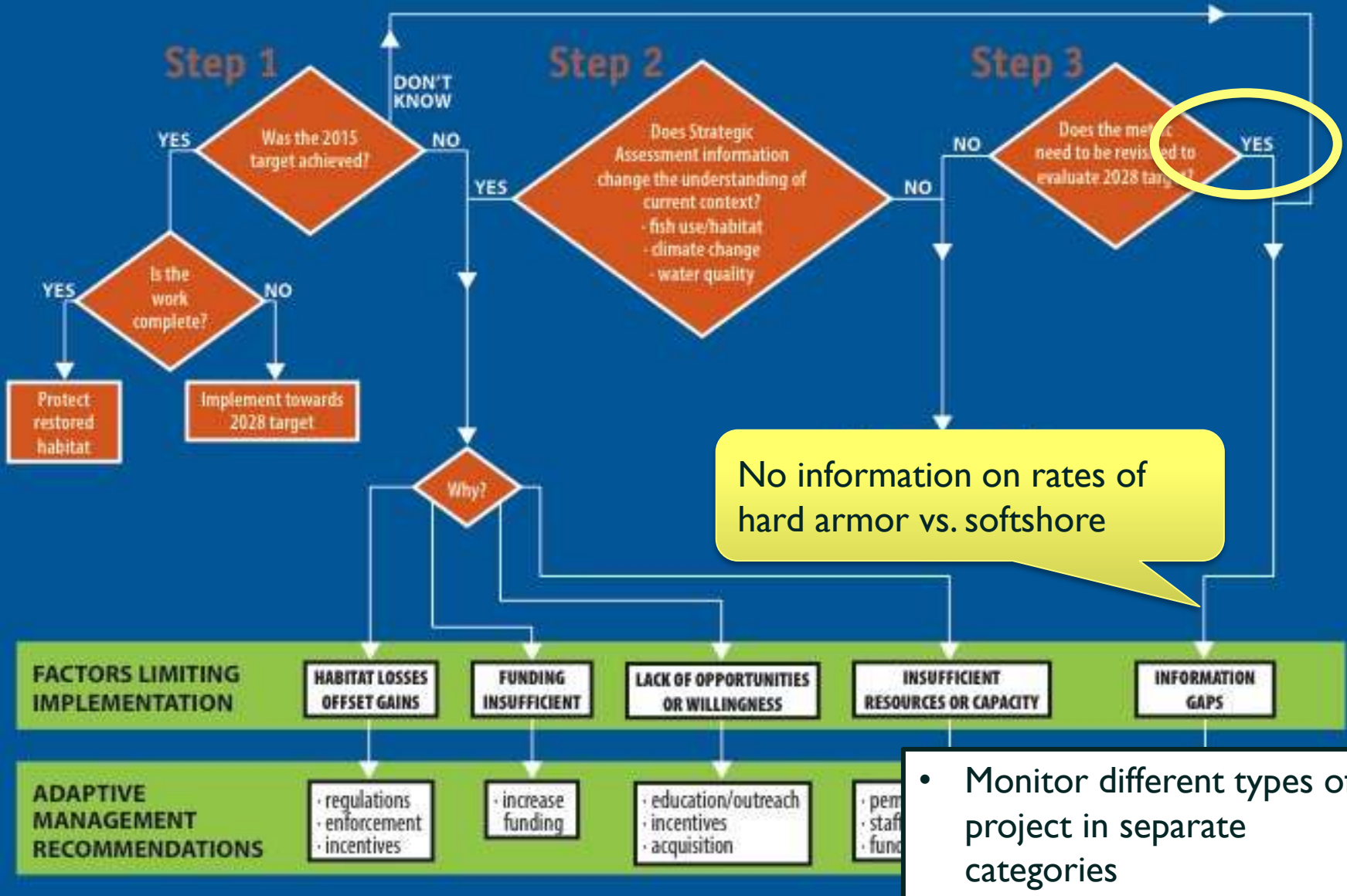


- Prioritize areas of the shoreline based on expected impacts
- Increase acquisition

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Shoreline Armoring Example (Nearshore)

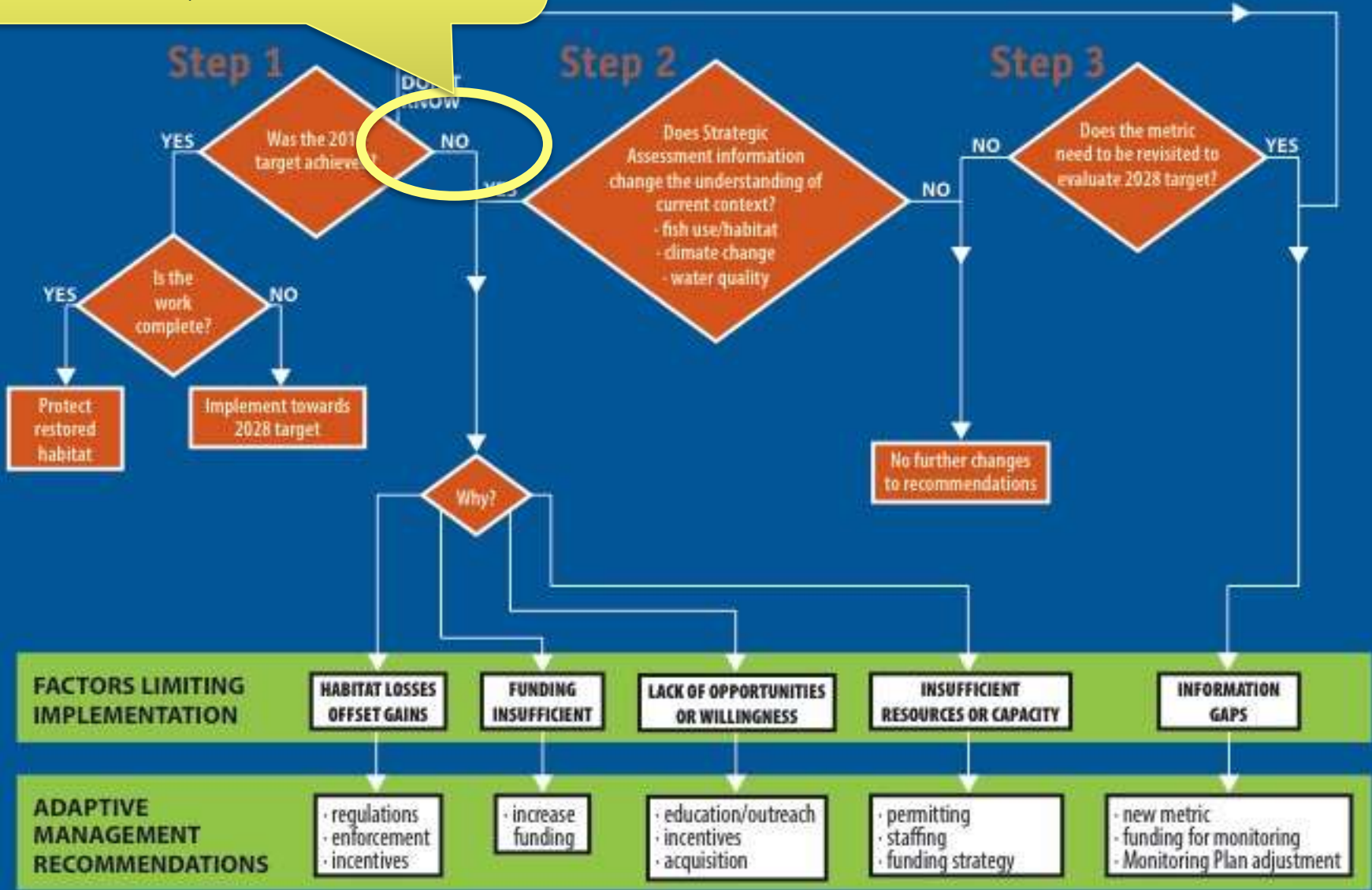
WRIA 9 Adaptive Management Decision Framework



0.6 miles (2.8%) of the left bank & 1.6 miles (7.7%) of the right bank has a 165ft wide buffer of mostly trees (with less than 15% shrubs)

Zone Example (Lower Green)

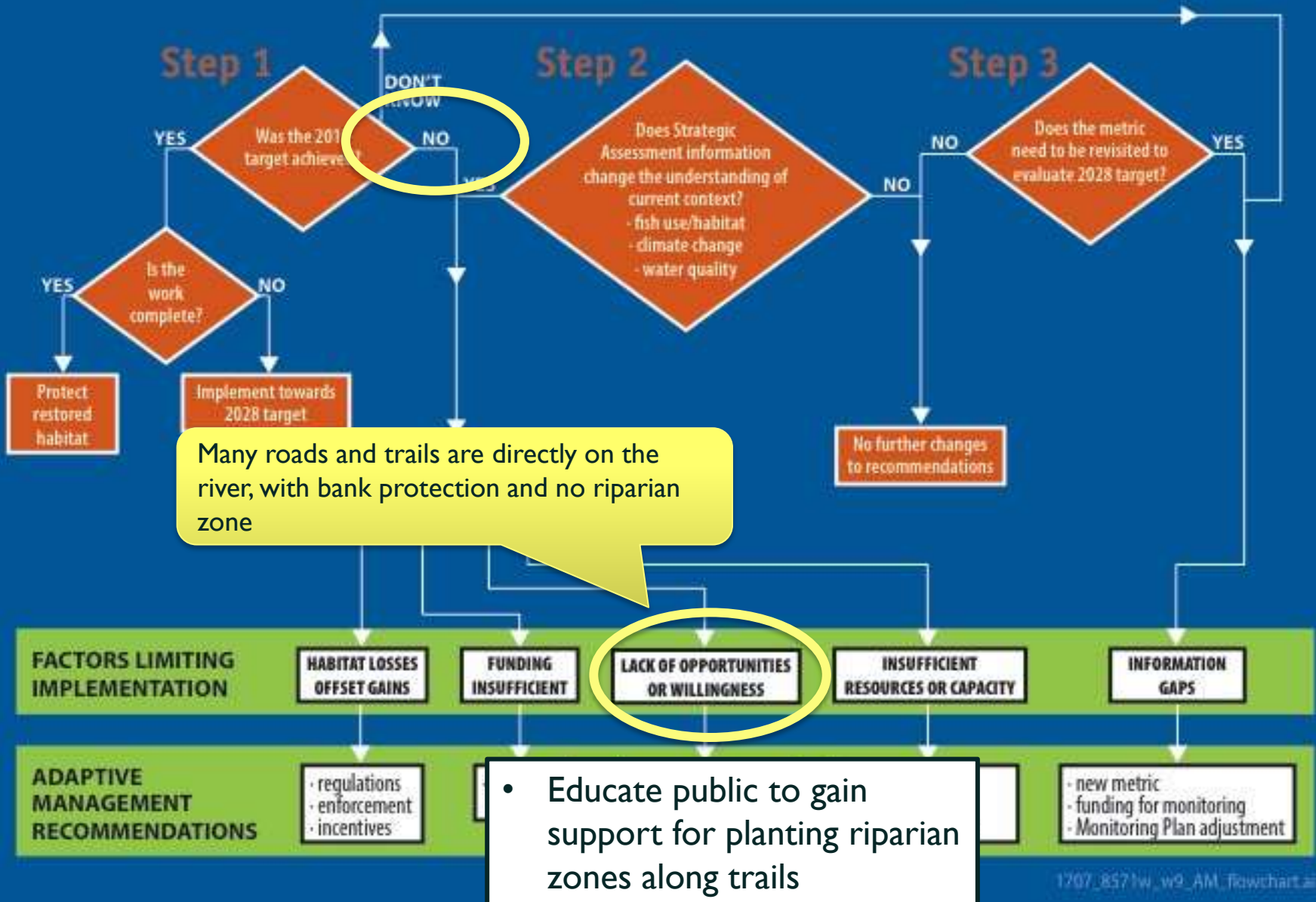
Management Decision Framework



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Riparian Zone Example (Lower Green)

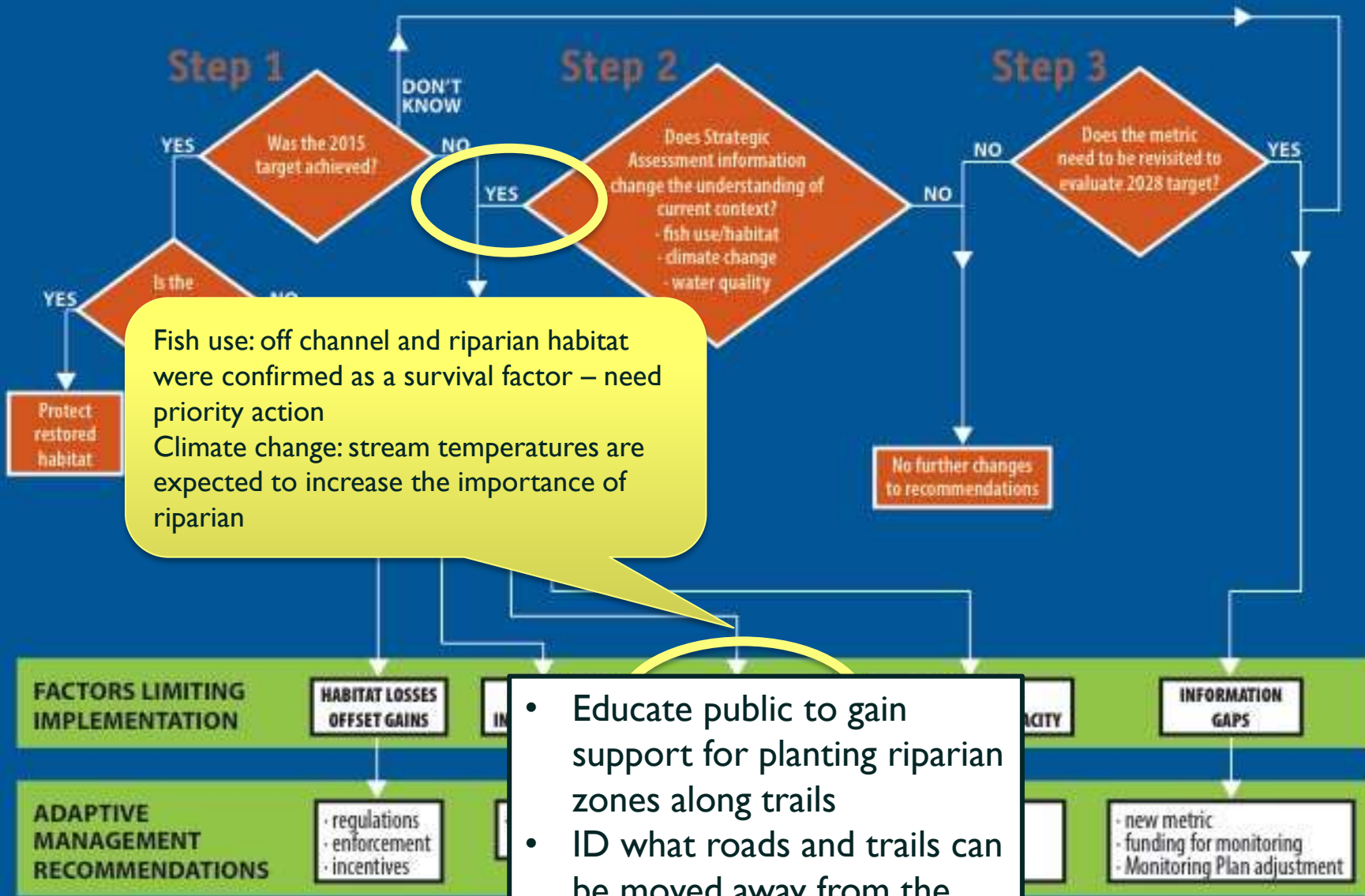
WRIA 9 Adaptive Management Decision Framework



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Riparian Zone Example (Lower Green)

WRIA 9 Adaptive Management Decision Framework



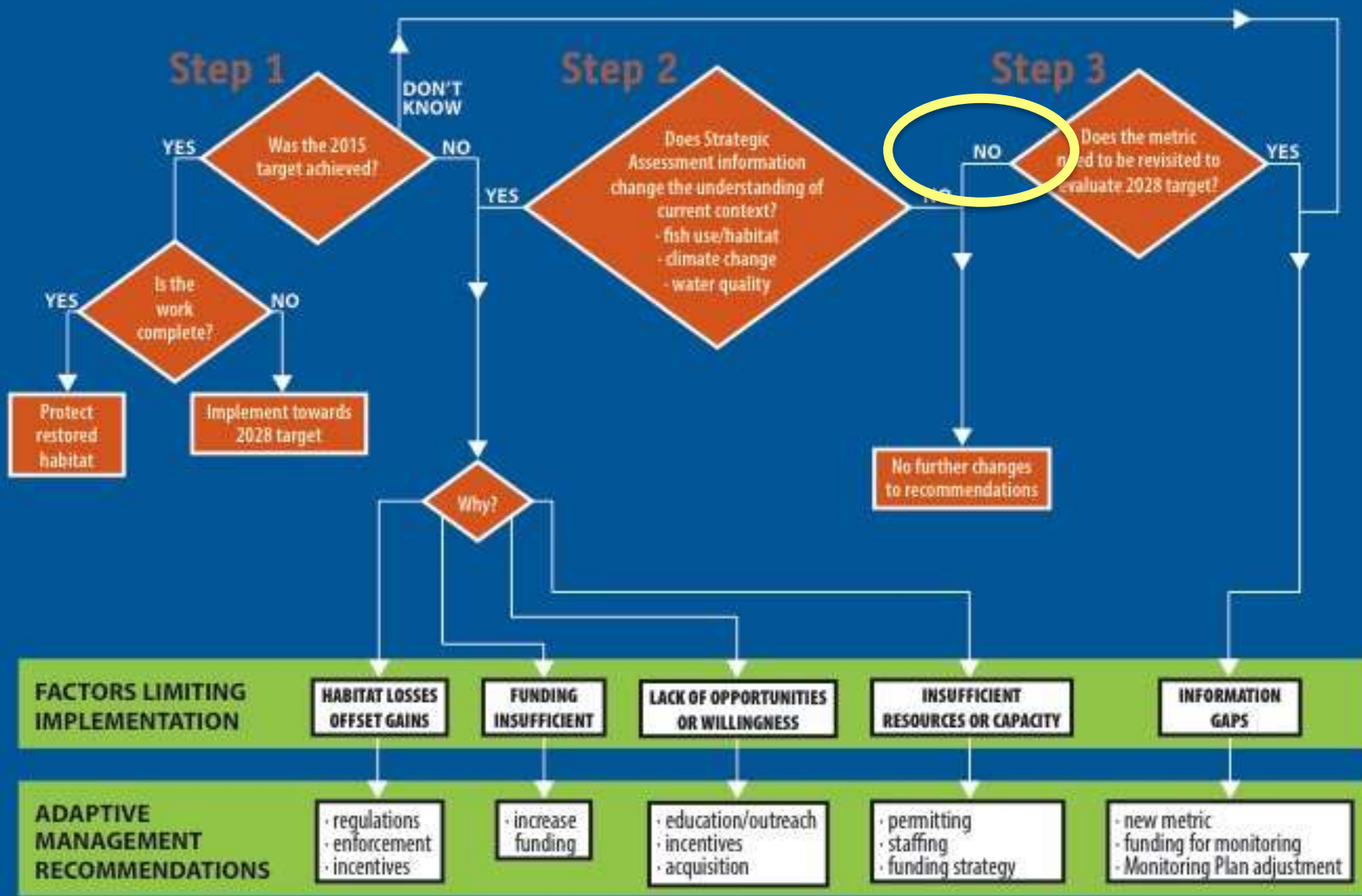
Fish use: off channel and riparian habitat were confirmed as a survival factor – need priority action
Climate change: stream temperatures are expected to increase the importance of riparian

- Educate public to gain support for planting riparian zones along trails
- ID what roads and trails can be moved away from the river

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Riparian Zone Example (Lower Green)

WRIA 9 Adaptive Management Decision Framework



Discussion and Next Steps



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