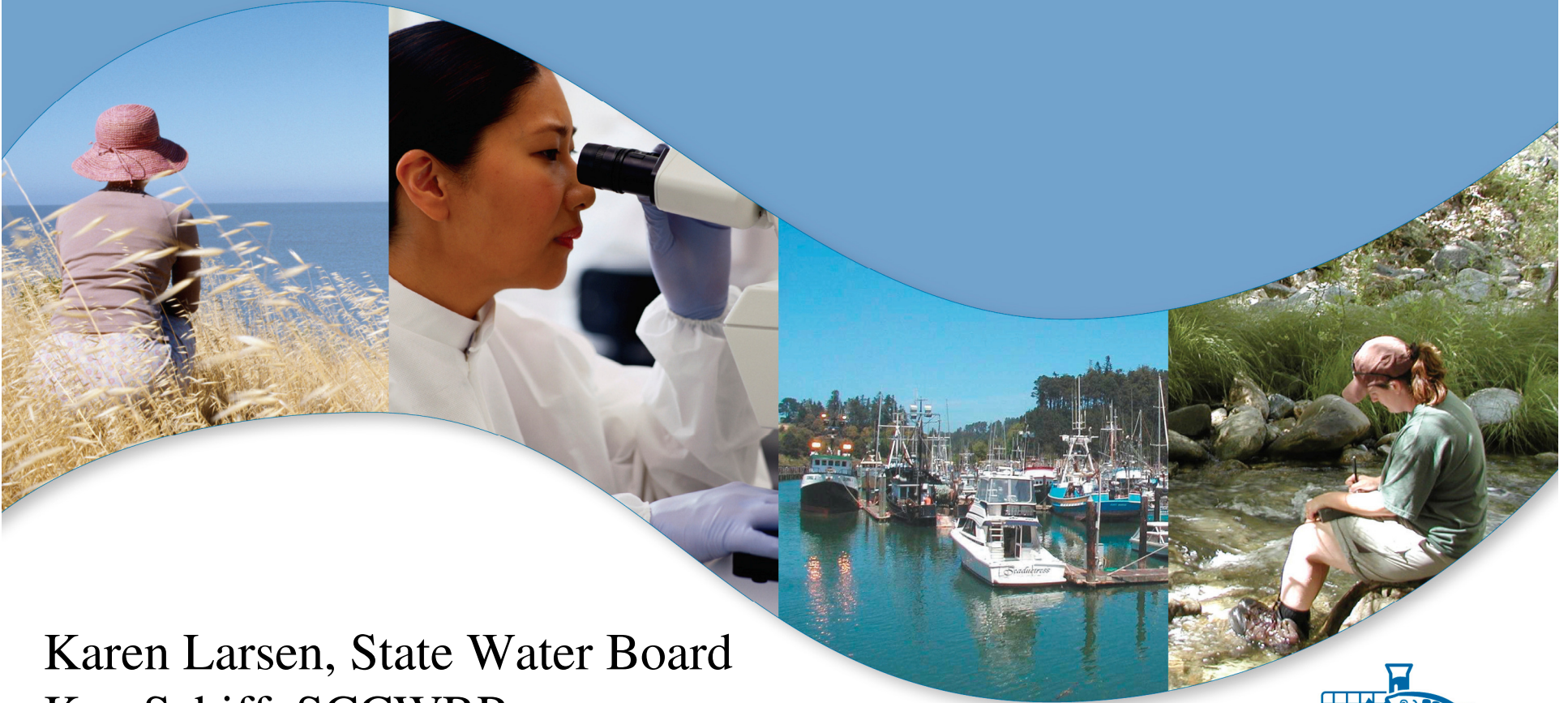
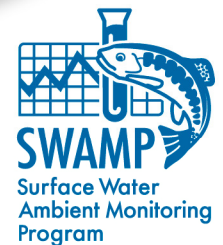


# Biological Objectives for California's Perennial Streams: *Results from Pilot Study, Assessment Framework & Regulatory Outcomes*



Karen Larsen, State Water Board  
Ken Schiff, SCCWRP  
September 2011



## Why Do A Pilot Study?

- The Science Advisory Committee asked us at our first meeting
  - Don't take on the whole state at once
- Work through the process from beginning to end
  - Identify where the toughest parts were
- It has helped us focus our technical efforts
  - Identify interactions with non-technical issues



## Goal For Today

- Our first attempt, we know its imperfect
  - This isn't the final story, so don't get uptight!
- The idea is to spur discussion
- Use this exercise to improve the next evolution of the technical tools
  - Let us know the shortcomings



# Road Map For Today

- The four alternatives
- Pilot study watershed selection
- The technical issues
  - Options for Alternatives 2 and 3
  - Options for Alternative 4
- Issues to address for the next iteration
- Implementation and regulatory outcomes



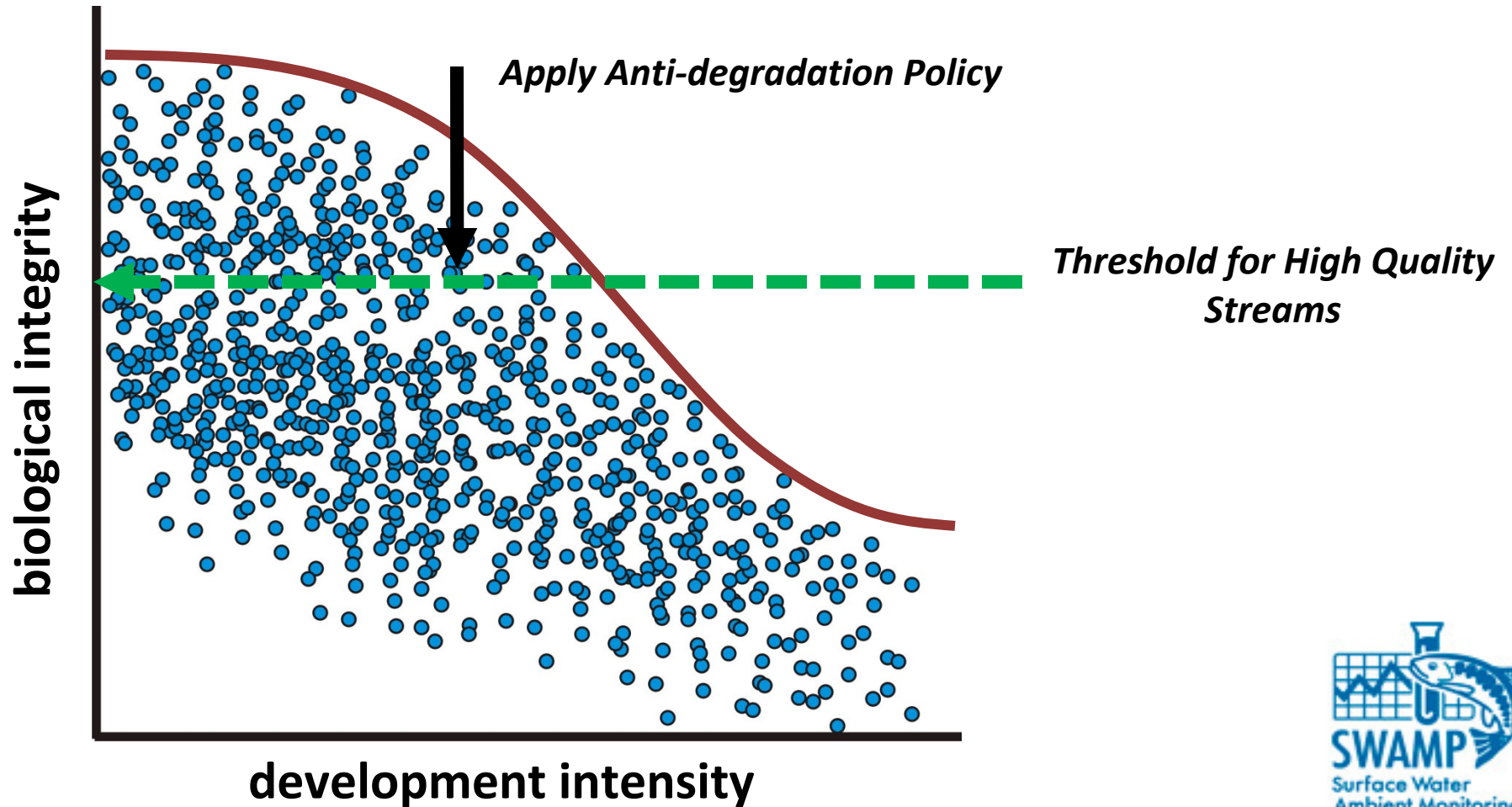
## The Four Alternatives

- No action alternative
- Reference sites must stay reference sites
- Alt 2 + make all non-reference sites into reference sites
- Alt 2 + make all non-reference sites into best attainable



# CEQA Scoping – Alternative 2

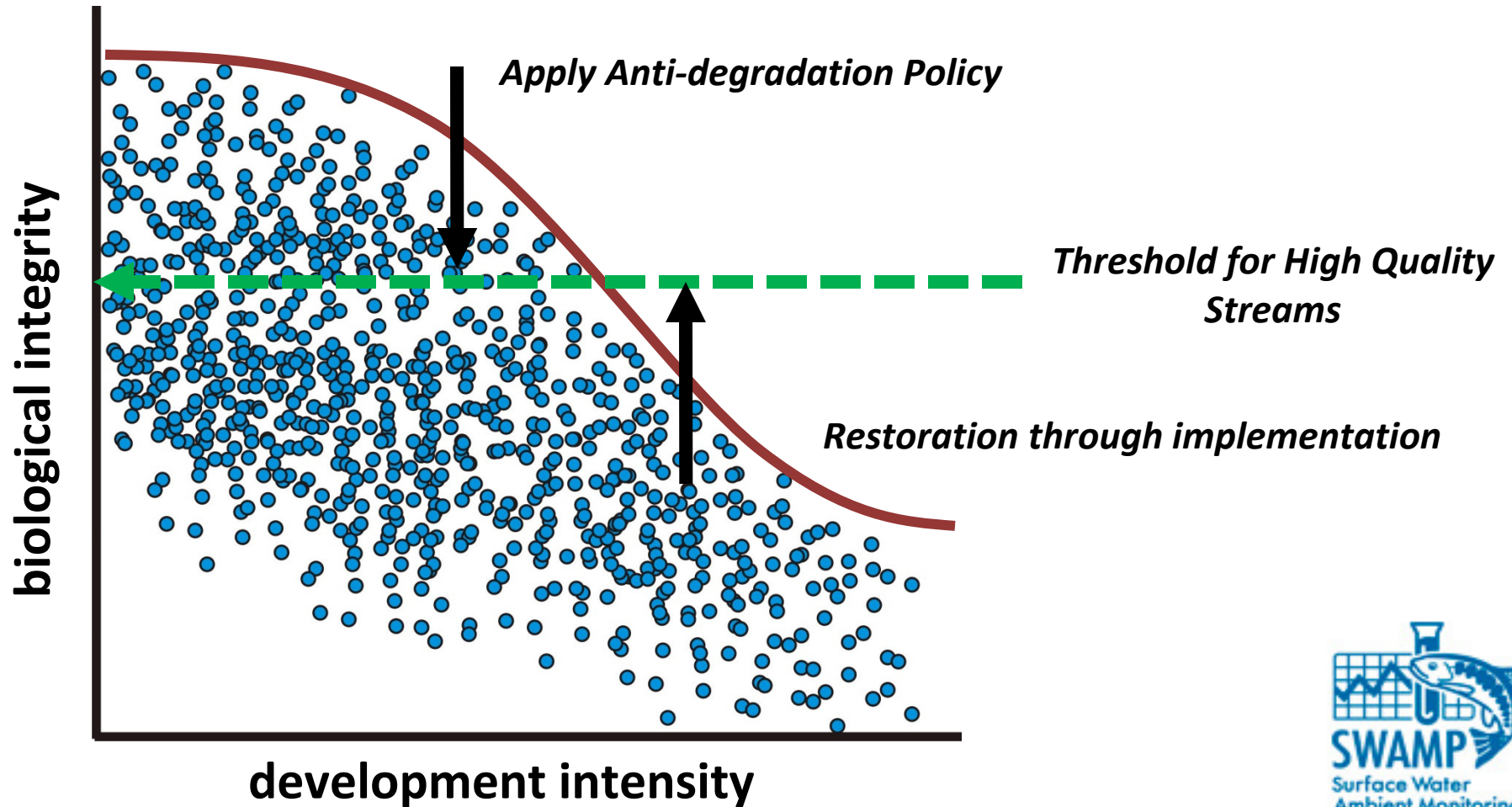
## Establish thresholds for protecting high-quality streams





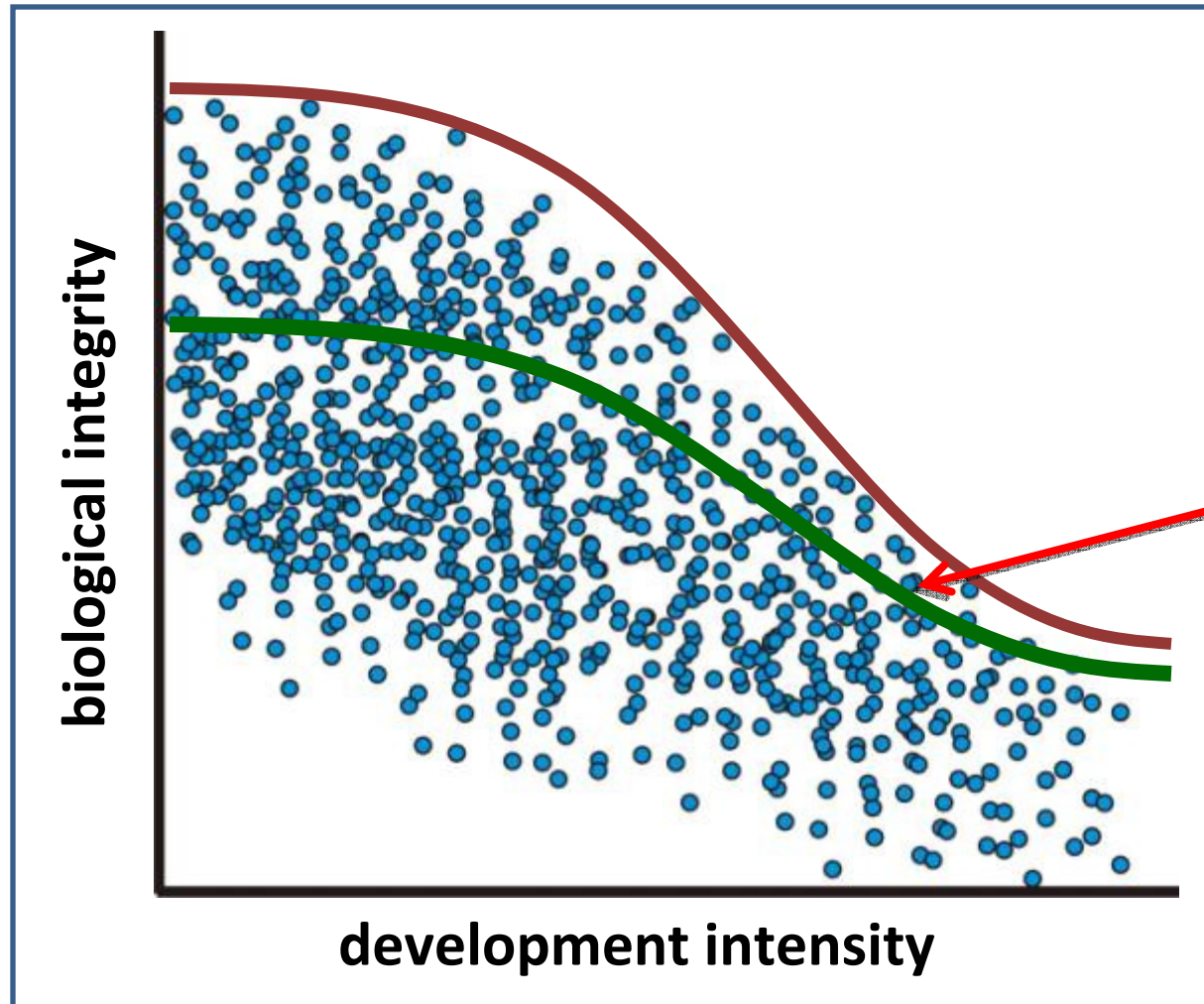
# Policy Alternative 3

## Establish thresholds for protecting high-quality streams



# Policy Alternative 4

Establish thresholds based on “best attainable”

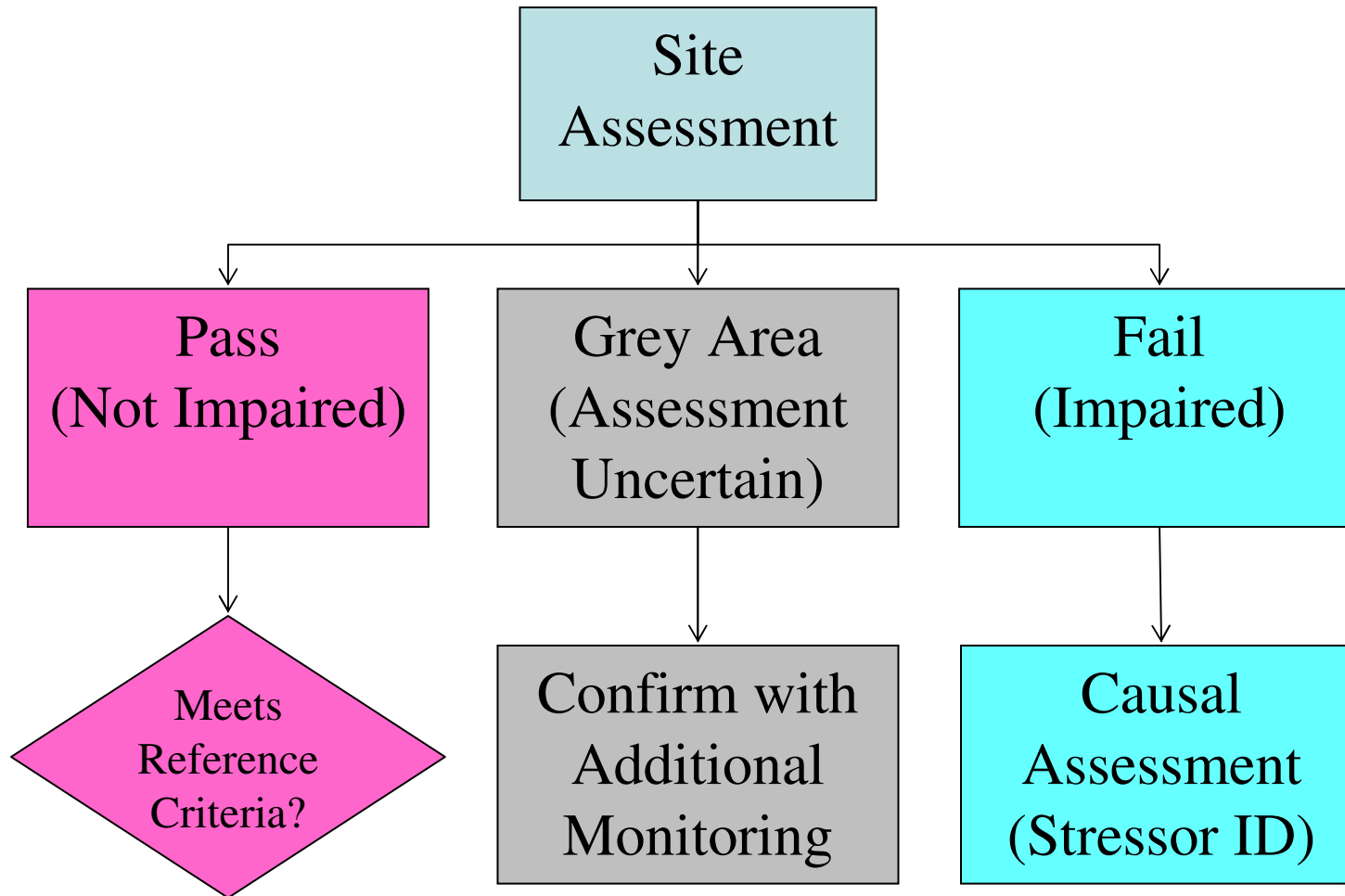


*Continuous  
Threshold =  
upper quantile*



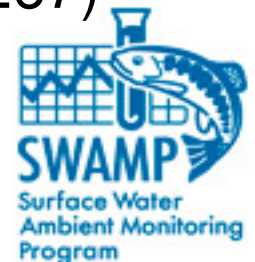


# Site Assessment Framework – Technical Steps

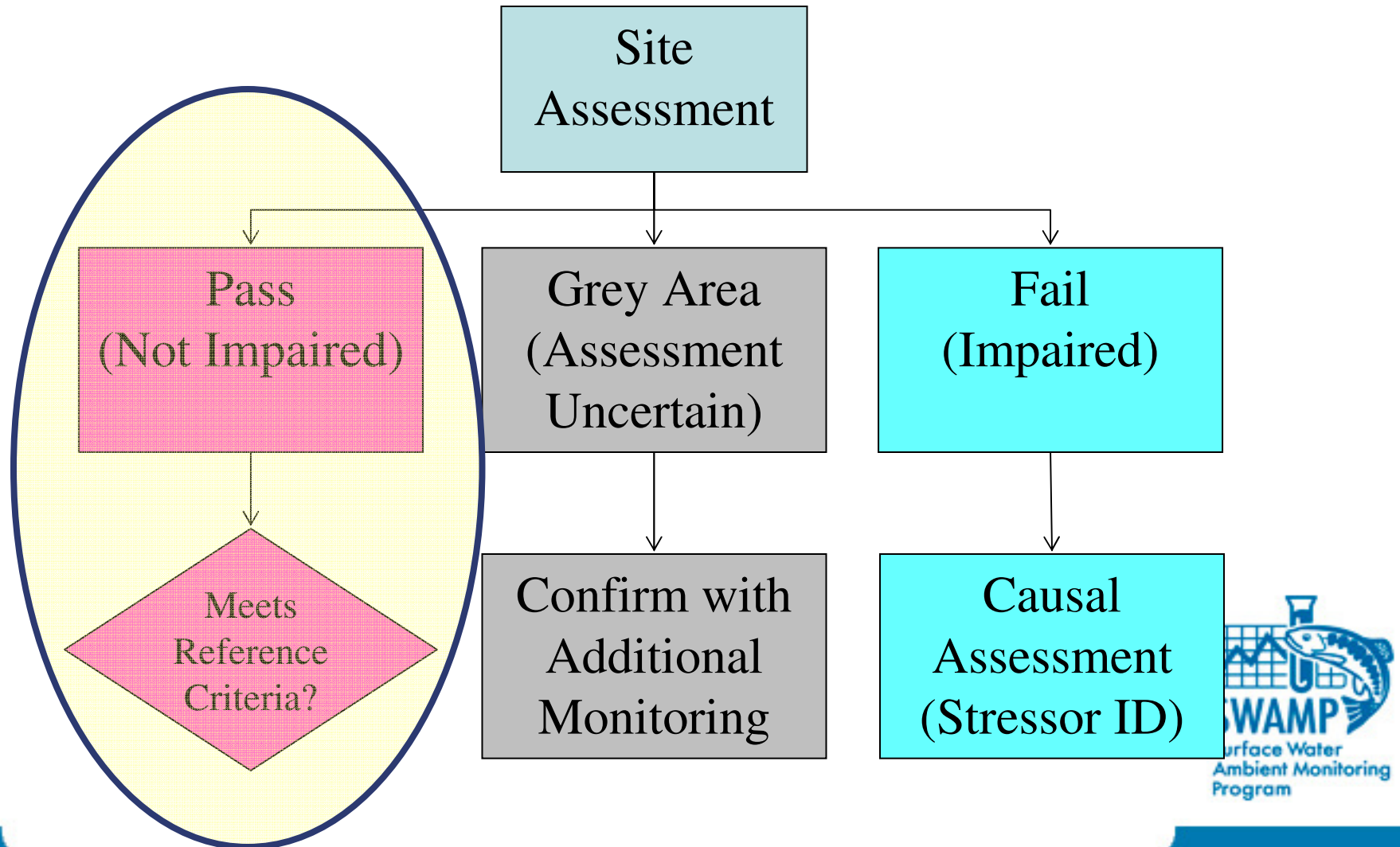


# Site Assessment

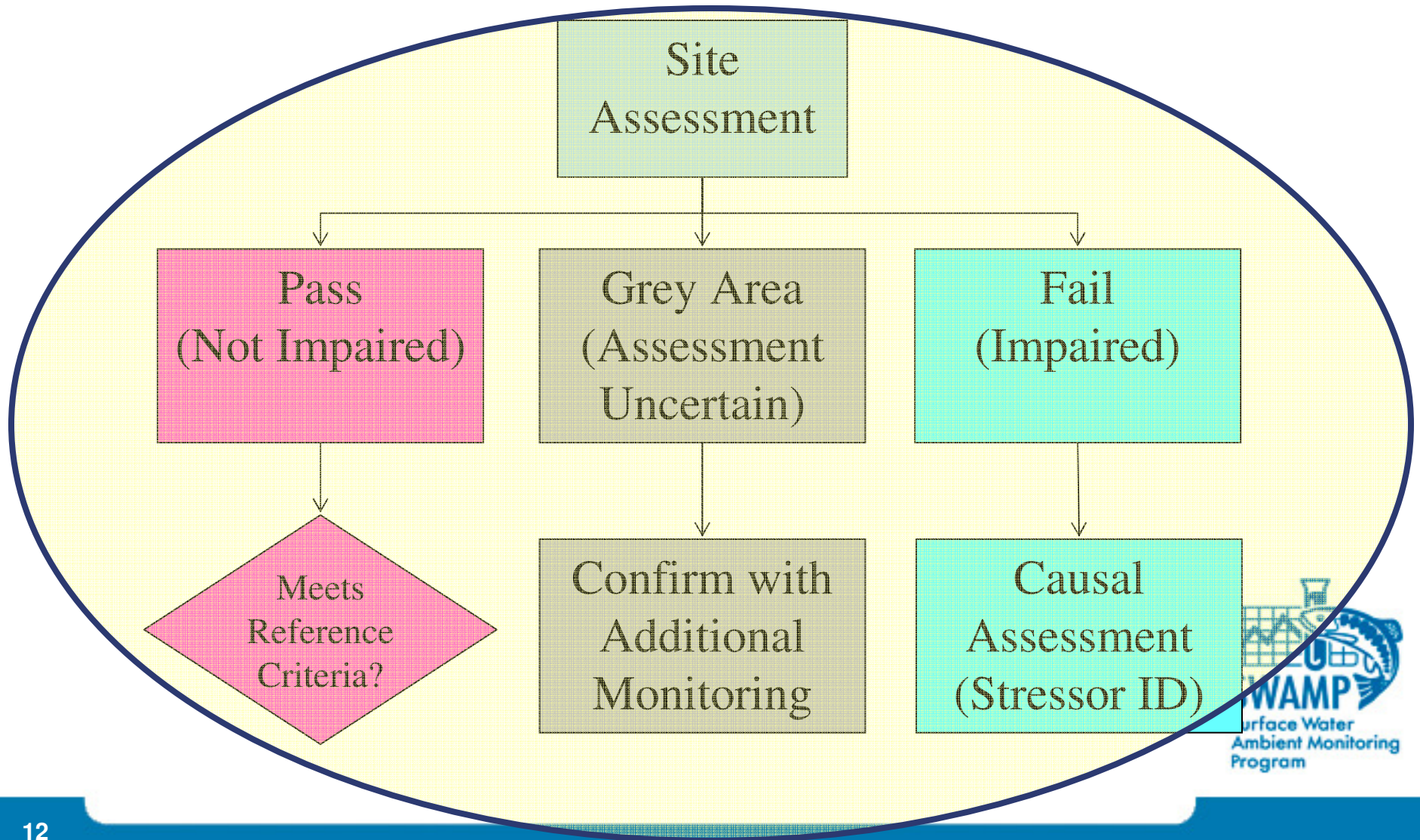
- State Water Board - Perennial Streams Assessment
- Regional Water Boards
- Regulatory Program Required Monitoring
  - Stormwater Dischargers
  - Wastewater Dischargers
  - Monitoring Under Conditional Waivers of Waste Discharge Requirements
  - Regional Monitoring Programs
  - Investigative Orders (Water Code §13225 & 13267)
- Non-governmental Organization Monitoring
- US Forest Service Monitoring



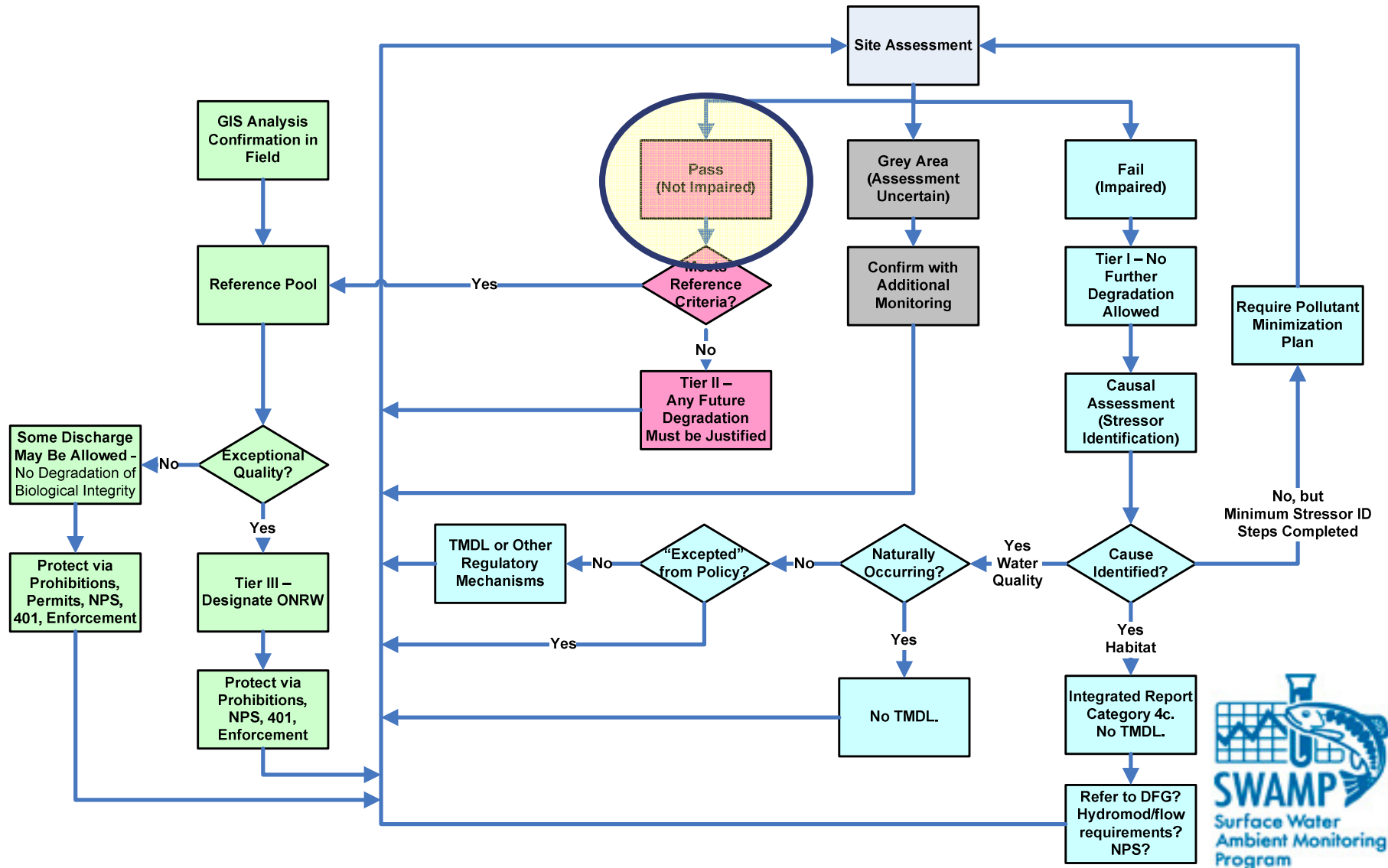
# Alternative 2



# Alternative 3 or 4

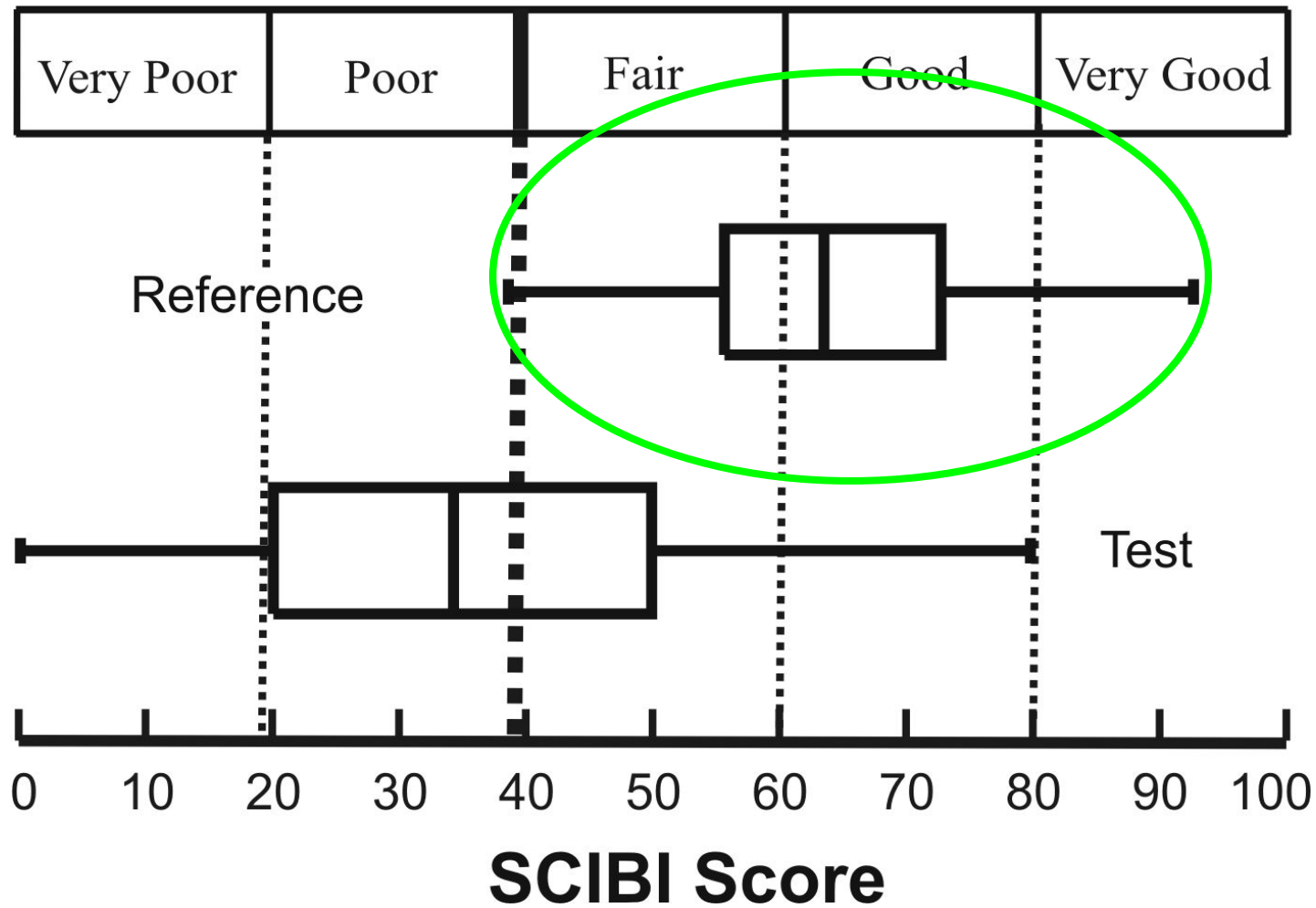


# Assessment and Regulatory Outcomes Framework





# Pass – Not Impaired



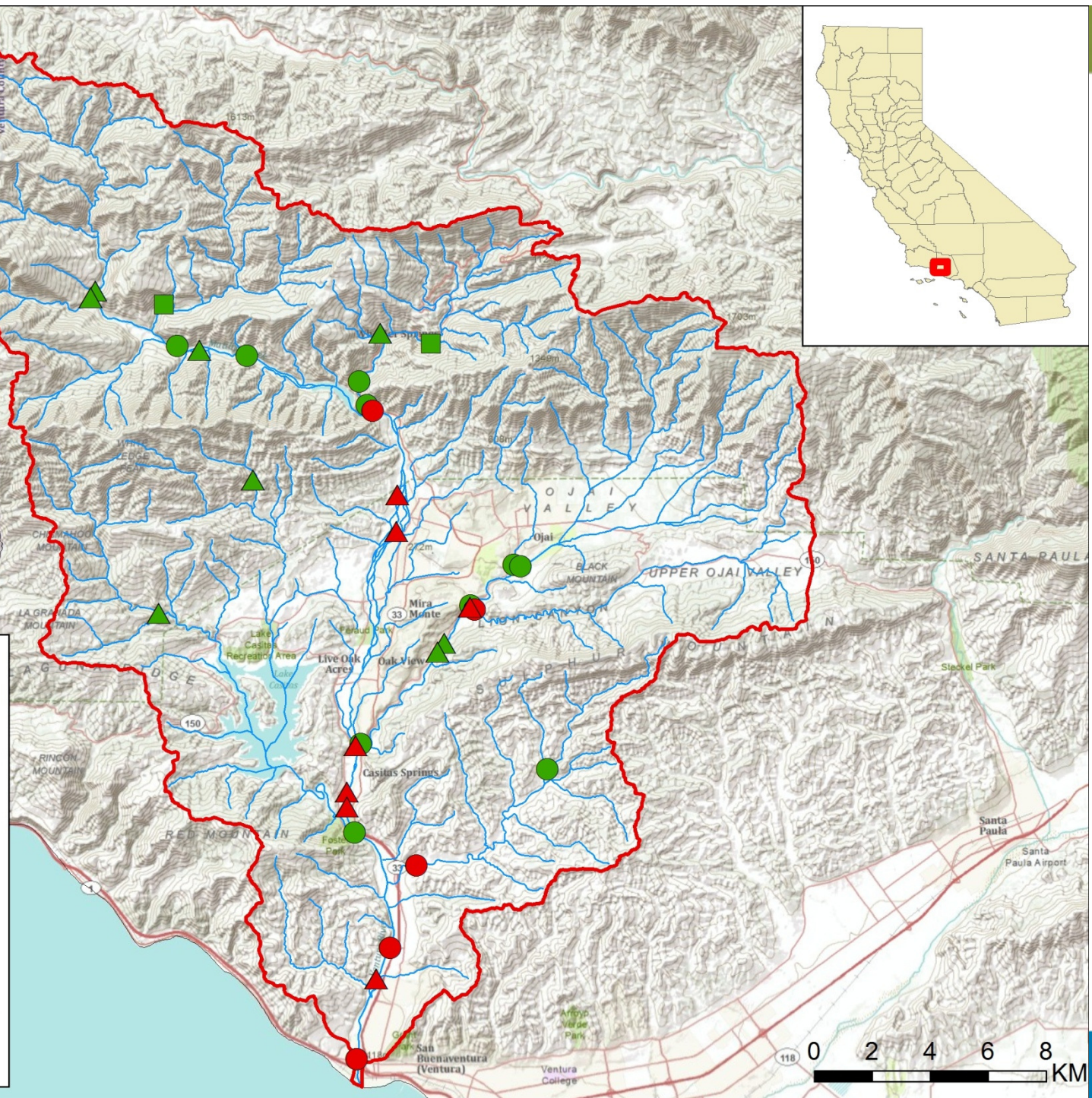


# Map 1



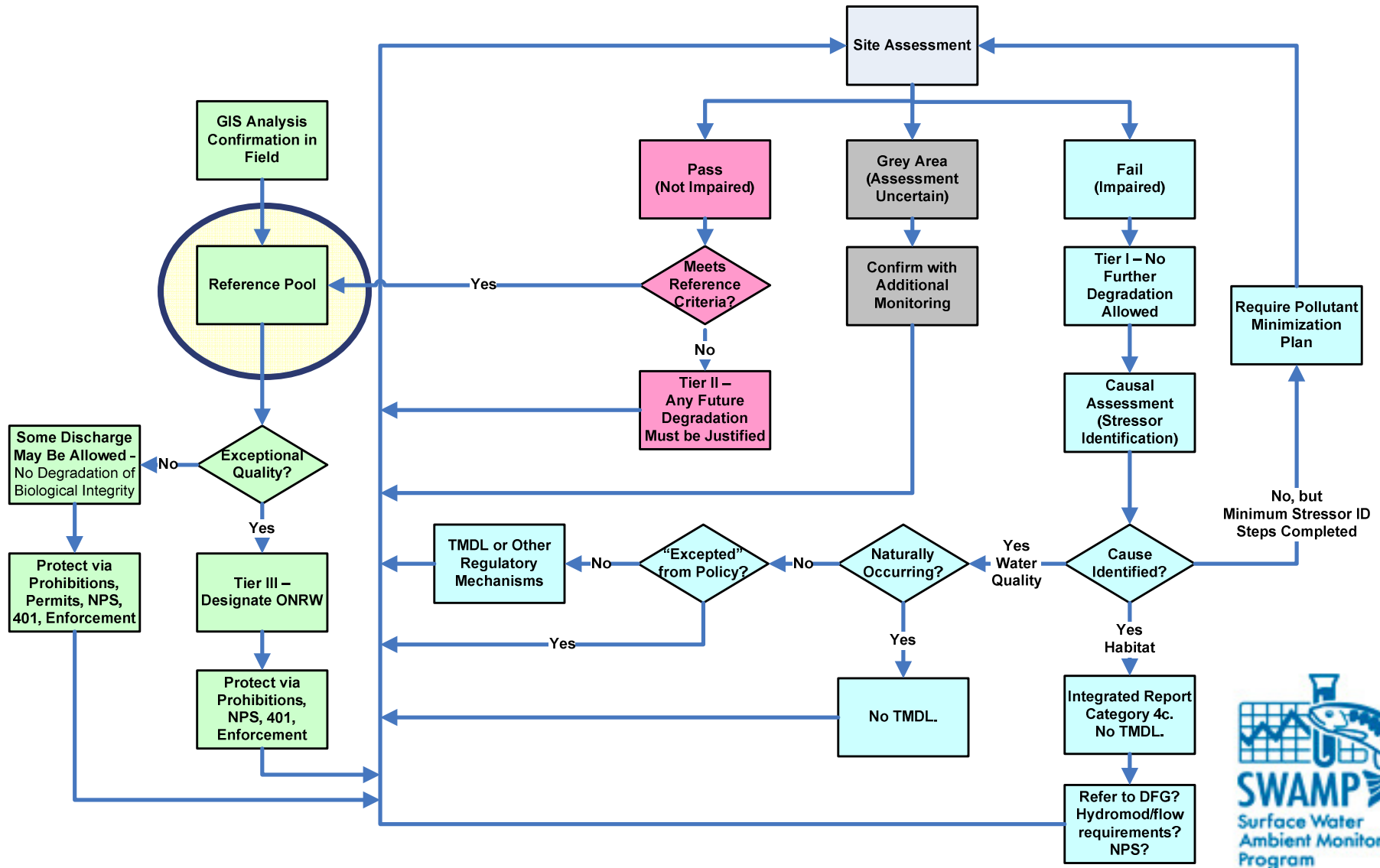
## Design-Result

- Compliance-Pass
- Compliance-Uncertain
- Compliance-Not Pass
- ▲ Probability-Pass
- ▲ Probability-Uncertain
- ▲ Probability-Not Pass
- Targeted-Pass
- Streams
- ▭ Ventura River watershed
- ▭ County Line

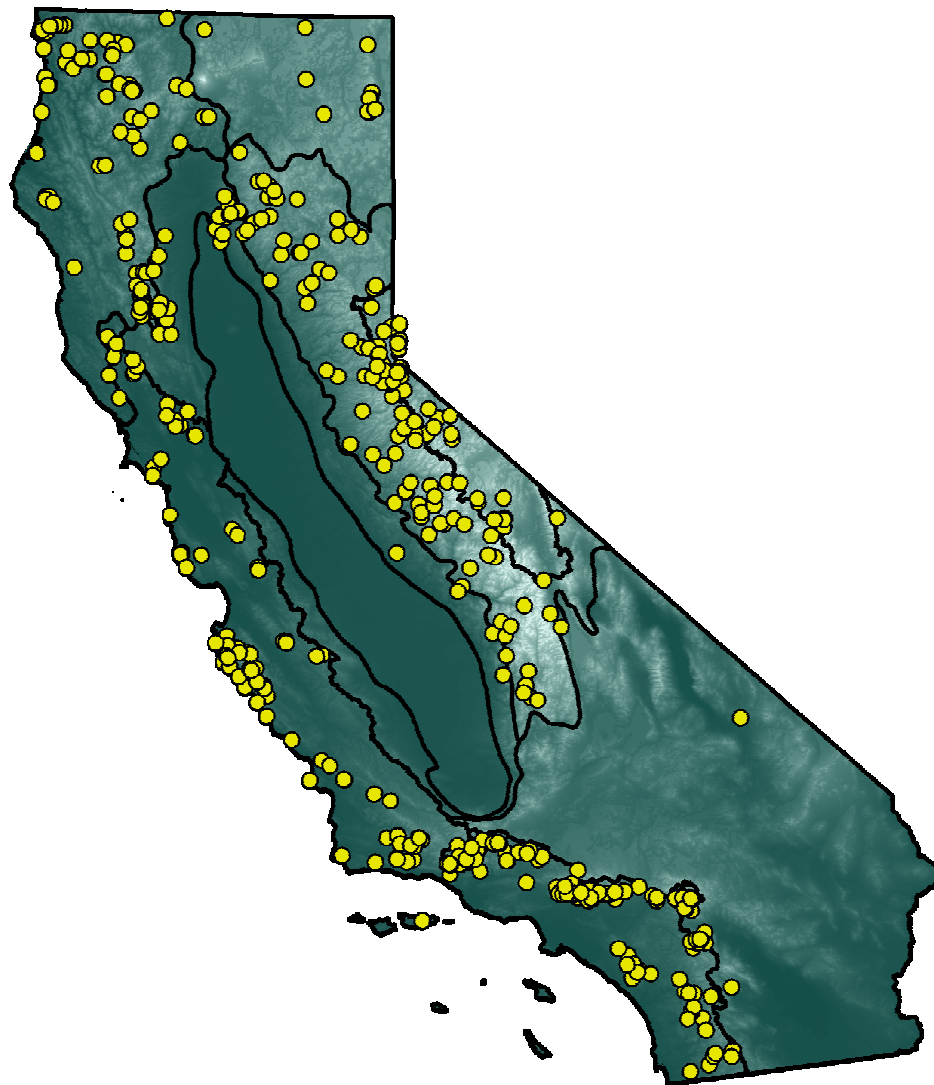




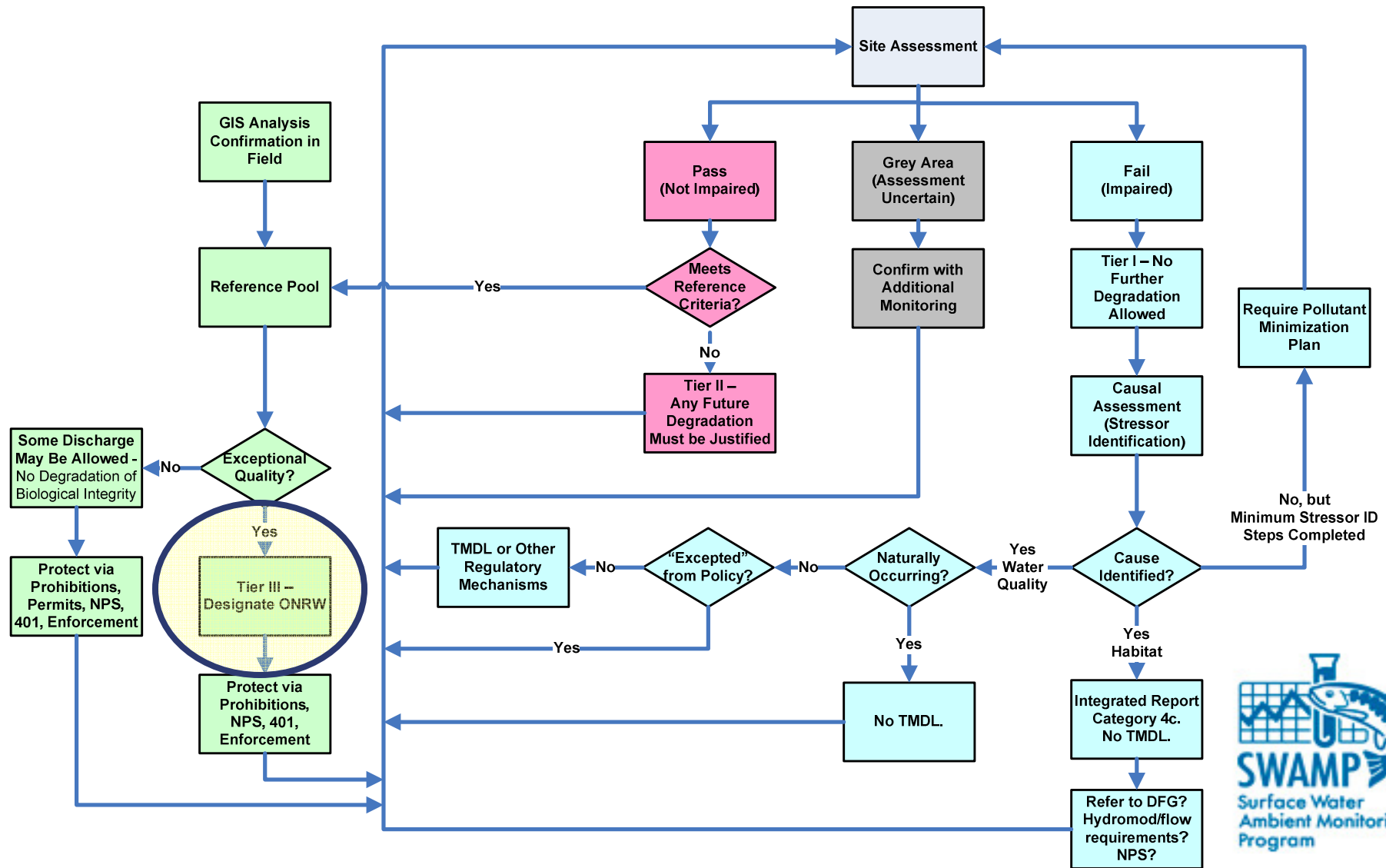
# Assessment and Regulatory Outcomes Framework



## Reference Pool



# Assessment and Regulatory Outcomes Framework



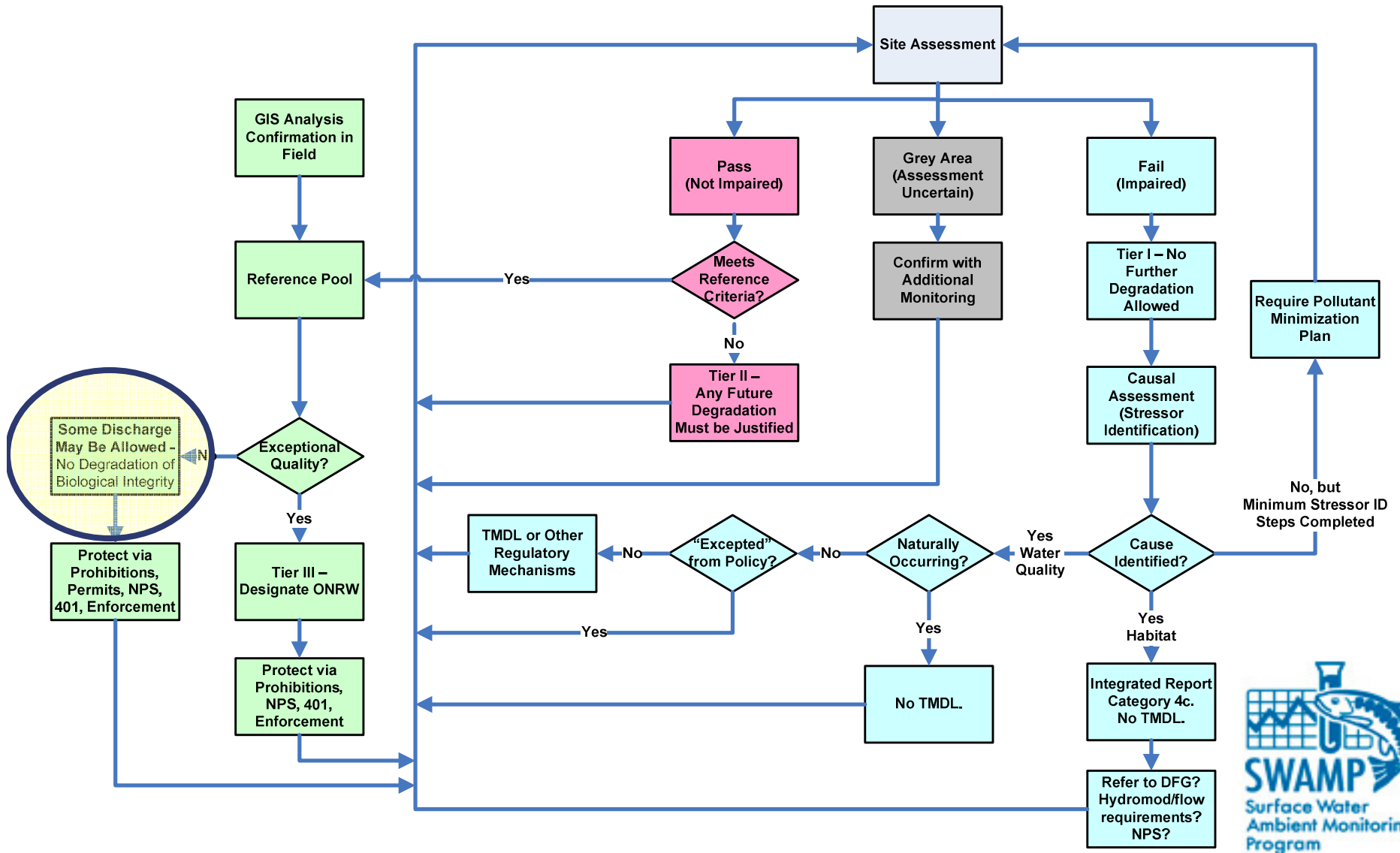


## Tier III

- Designate “Outstanding National Resource Water” (ONRW)
- Could be based on “platinum” thresholds – no human influence
- Protect via:
  - Prohibition of Discharge
  - Non-point Source
  - 401 Water Quality Certification
  - Enforcement



# Assessment and Regulatory Outcomes Framework

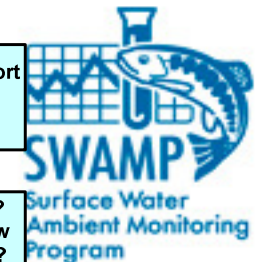
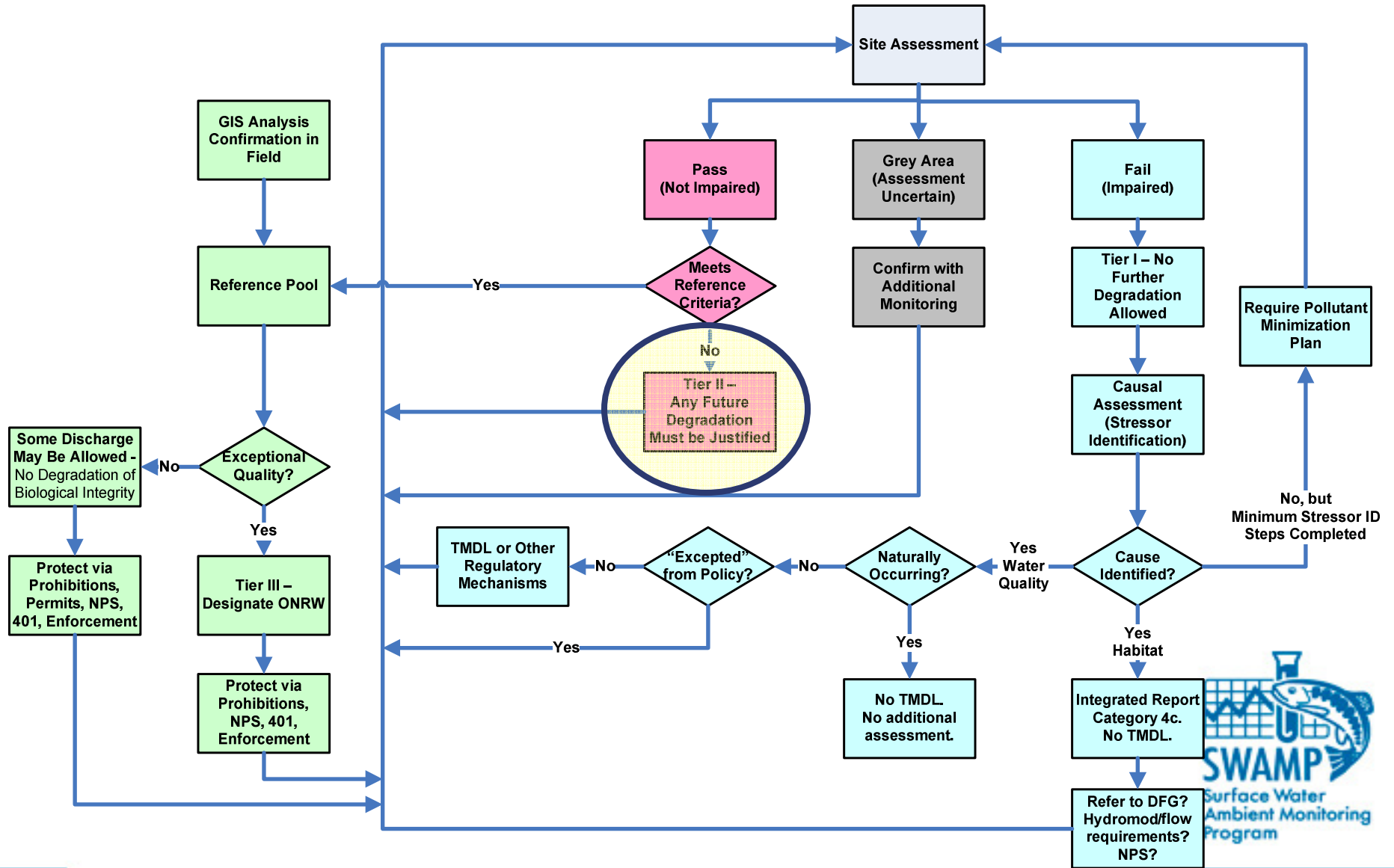


## New Anti-degradation Category (Tier II ½?)

- Some discharge may be allowed
- No degradation of biological integrity allowed
- Protected through:
  - Conditional prohibition of discharge
  - Non-point Source
  - 401 Water Quality Certification
  - Enforcement
  - Prescribed language for comments on CEQA documents



# Assessment and Regulatory Outcomes Framework



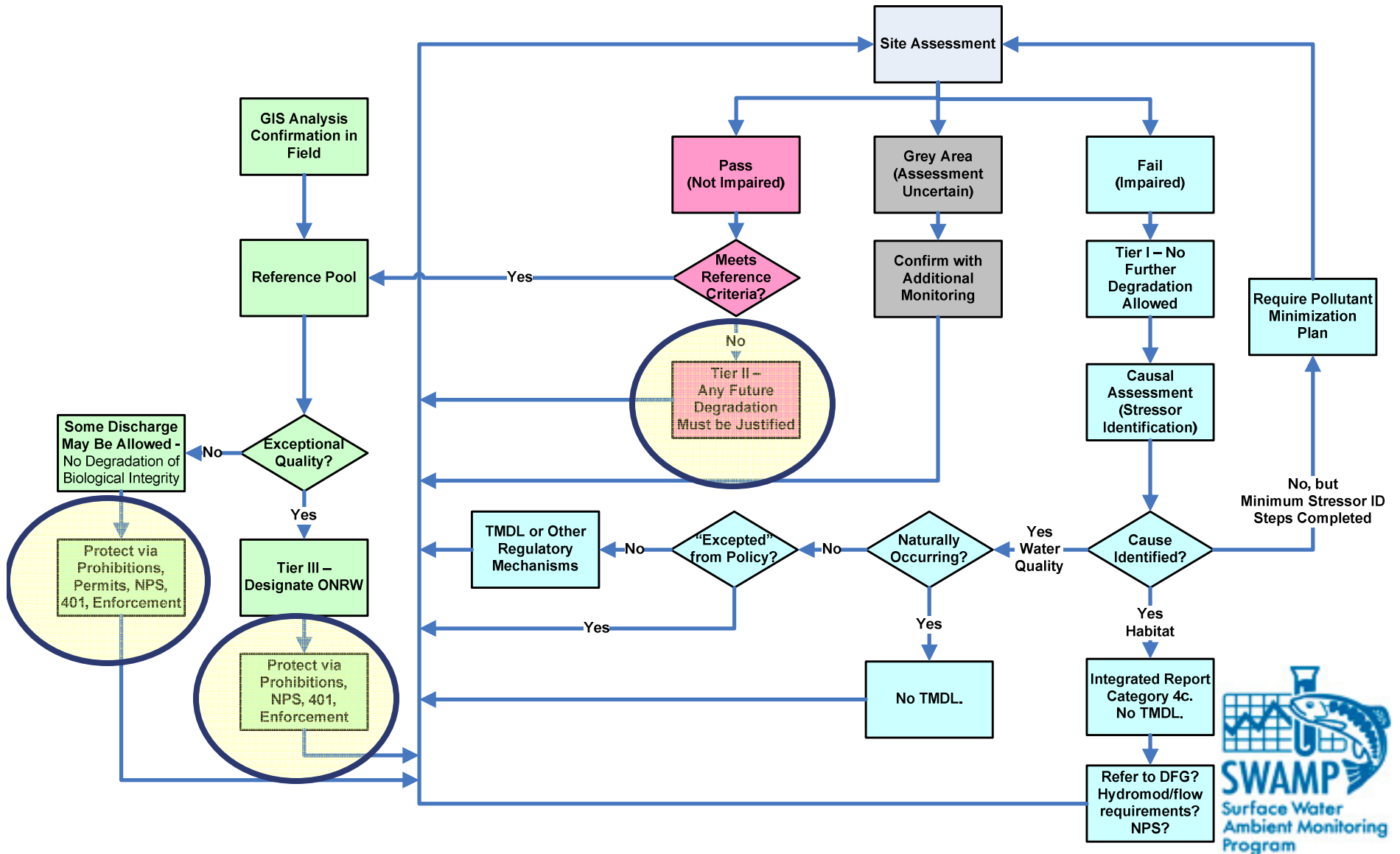
## Tier II

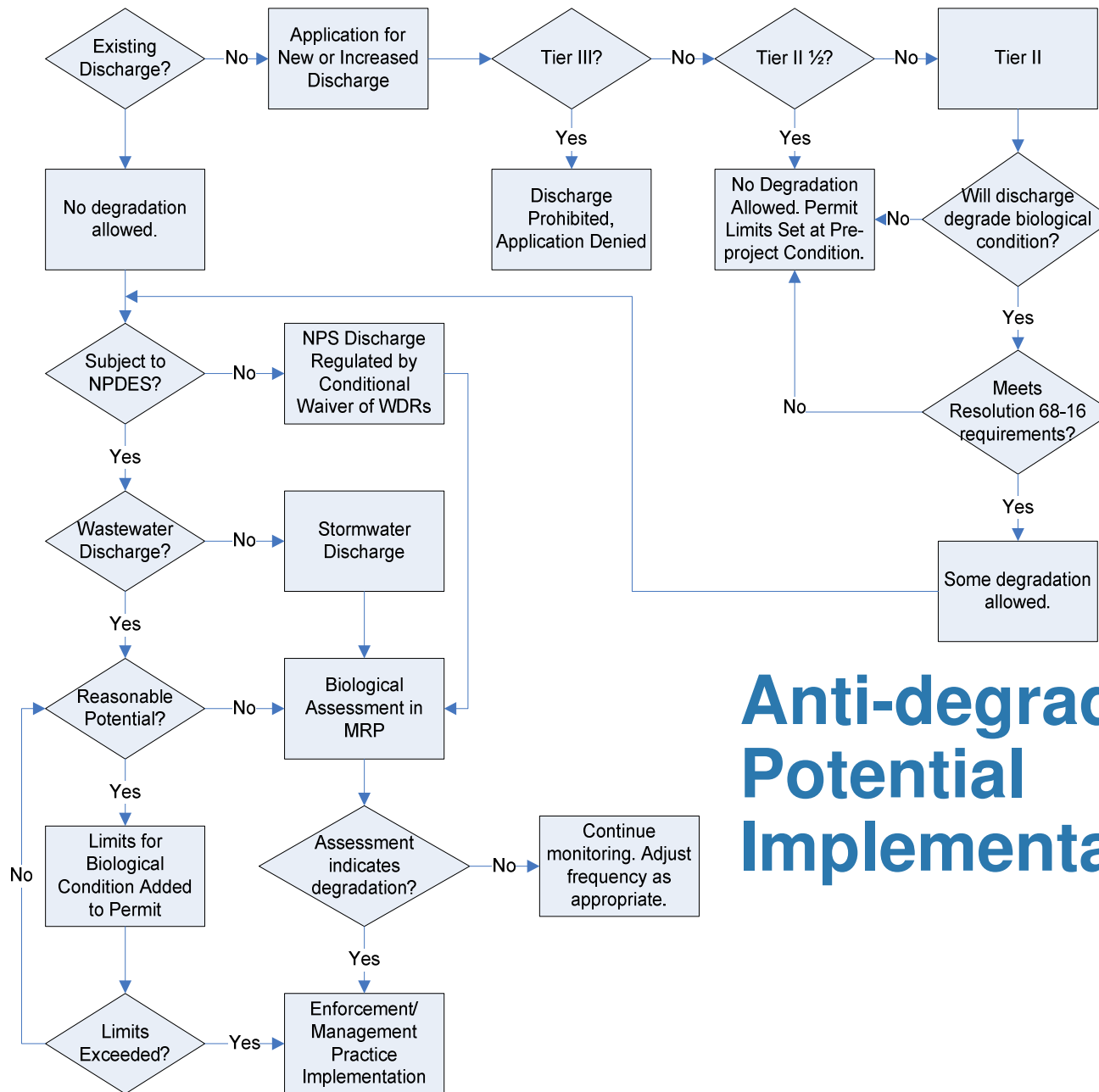
- Sites with “Good” biological condition that do not meet reference criteria.
- Sites would not be allowed to degrade below the threshold for impairment.
- Conditions on discharges to these sites (from Resolution 68-16):
  - Provide best practicable treatment and control to avoid pollution.
  - Maintain the highest quality consistent with the maximum benefit to the state.
  - Does not unreasonably affect present and anticipated beneficial uses.





# Alternative 2

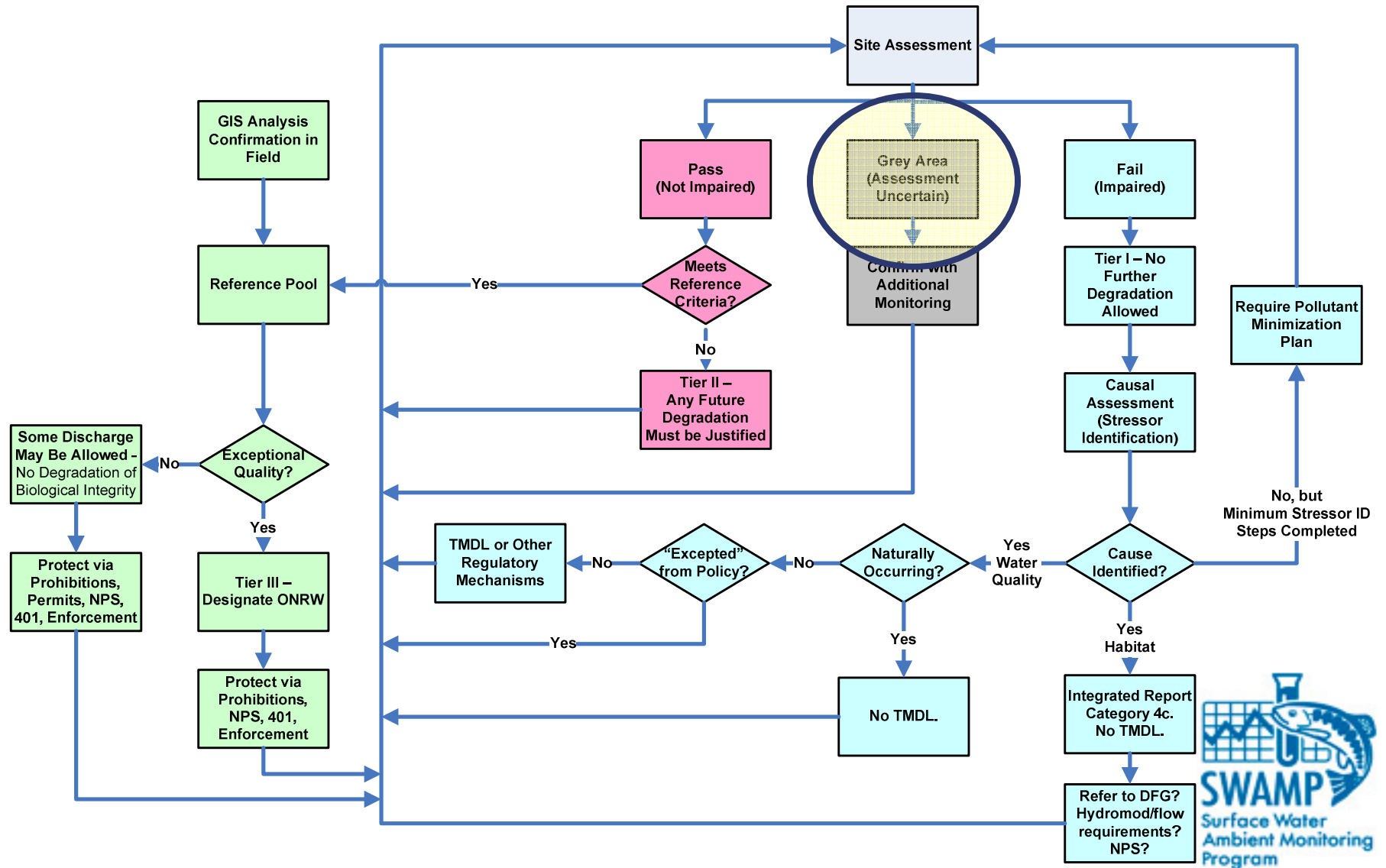




# Anti-degradation Potential Implementation



# Assessment and Regulatory Outcomes Framework

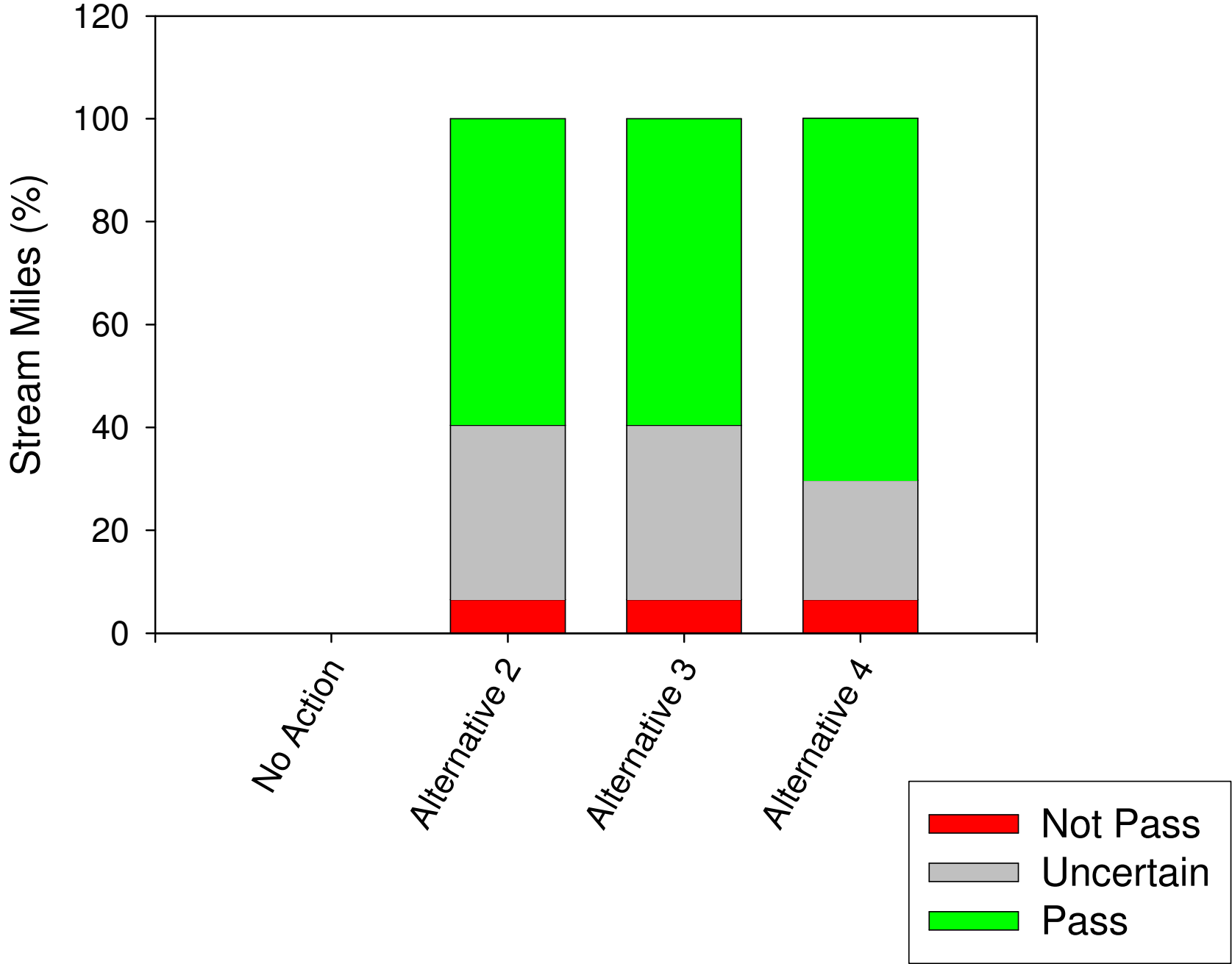


## Grey Area – Uncertain Assessment

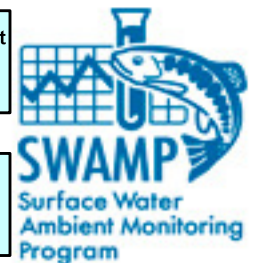
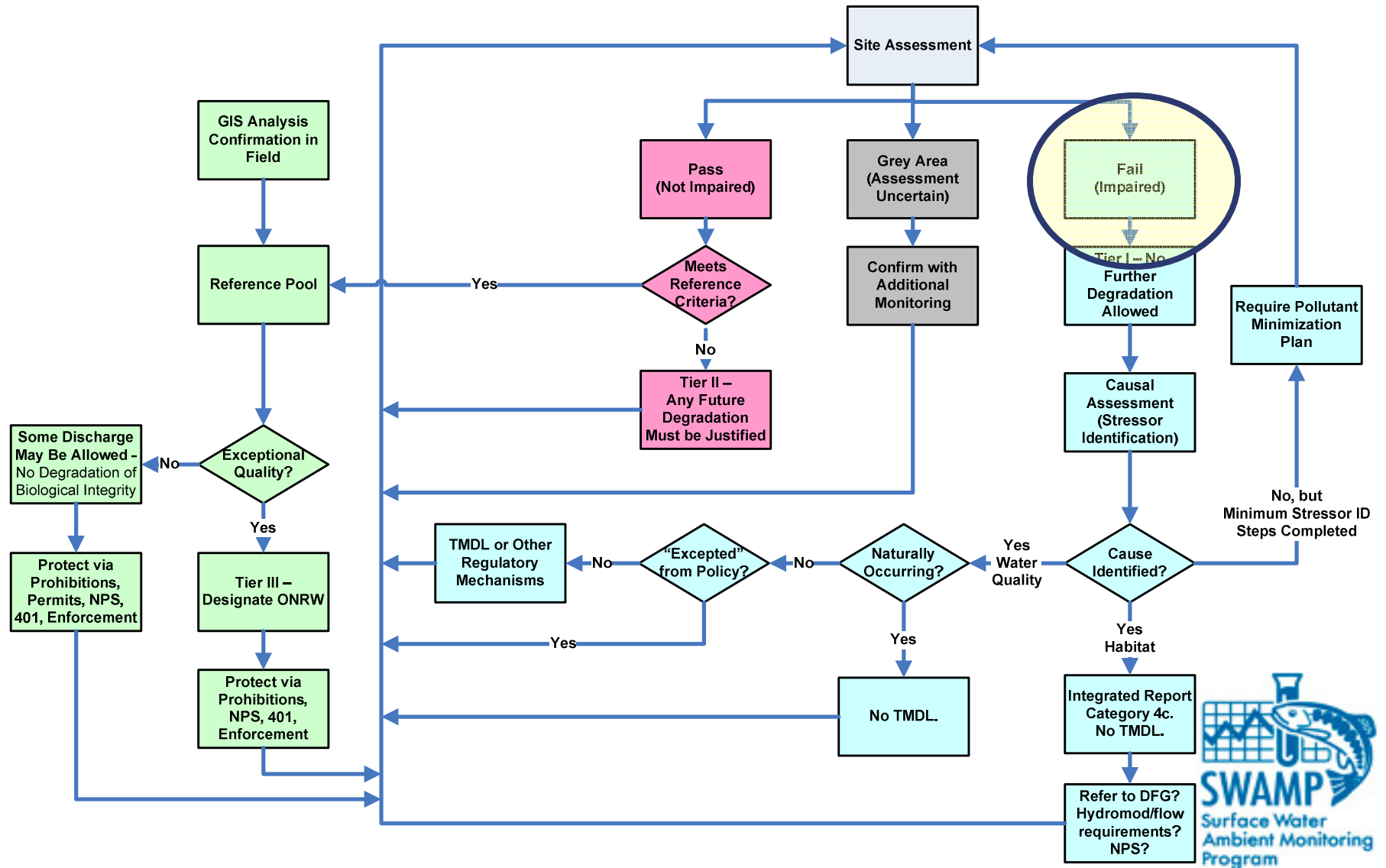
- Assessment uncertain when condition scores are within some buffer range around the “fail” threshold
- Additional monitoring at some defined frequency would be required to confirm the assessment.
- Takes into account variability in the assessment method.
- Ensures additional monitoring is conducted to reduce uncertainty in the assessment.



# Probability Sites - Extent of Impaired Stream Miles



# Assessment and Regulatory Outcomes Framework



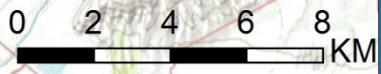
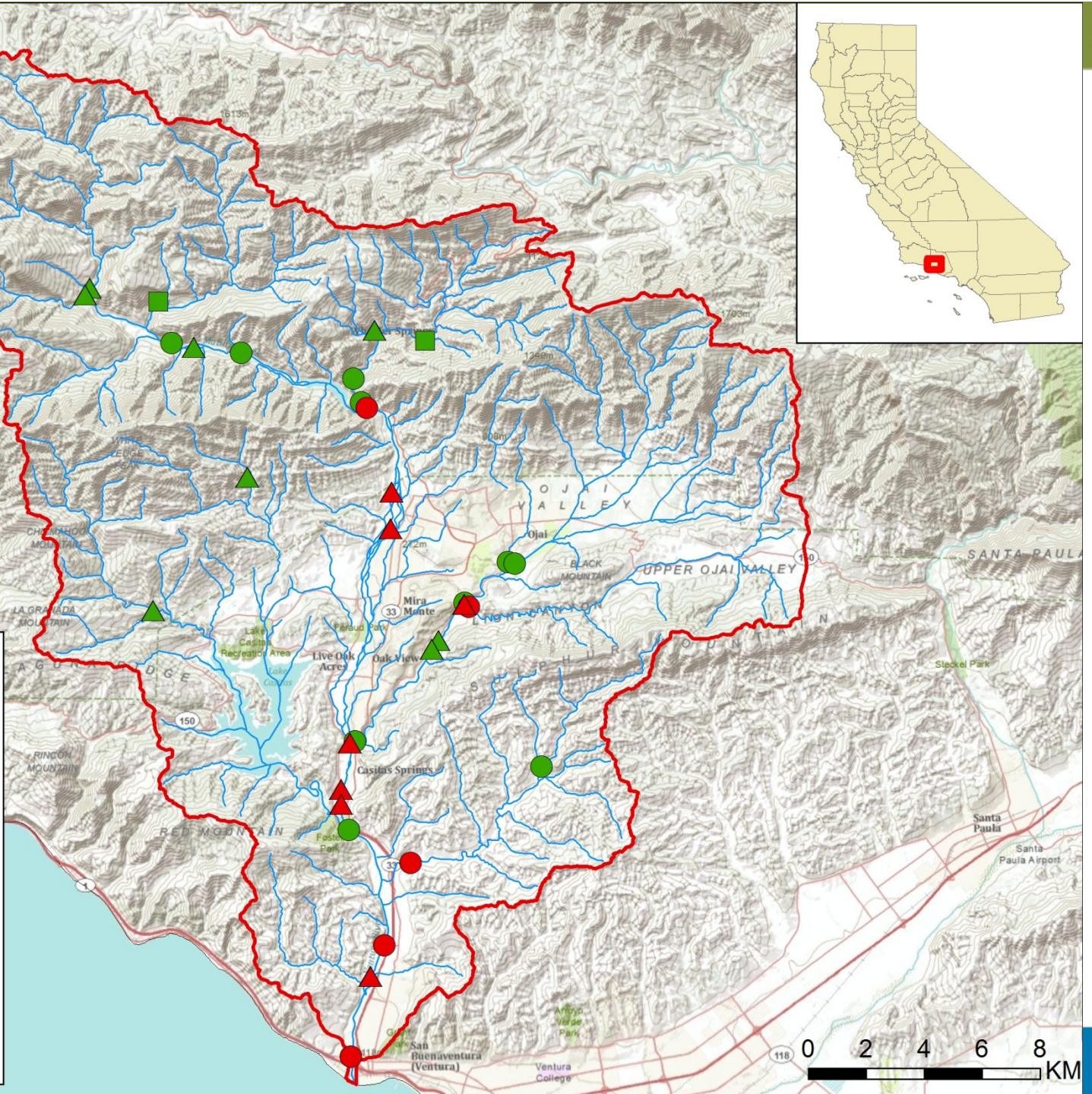


# Map 1



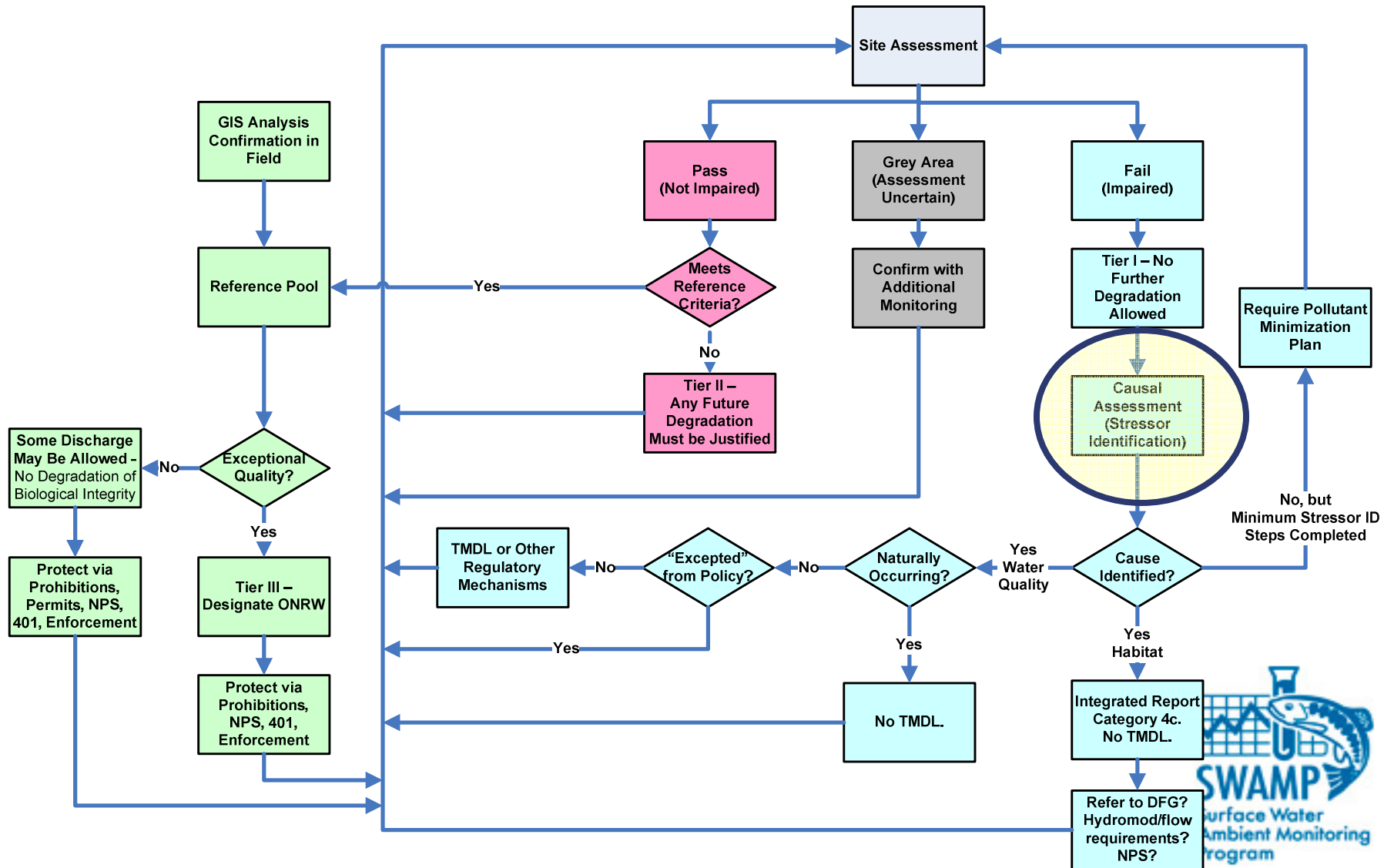
## Design-Result

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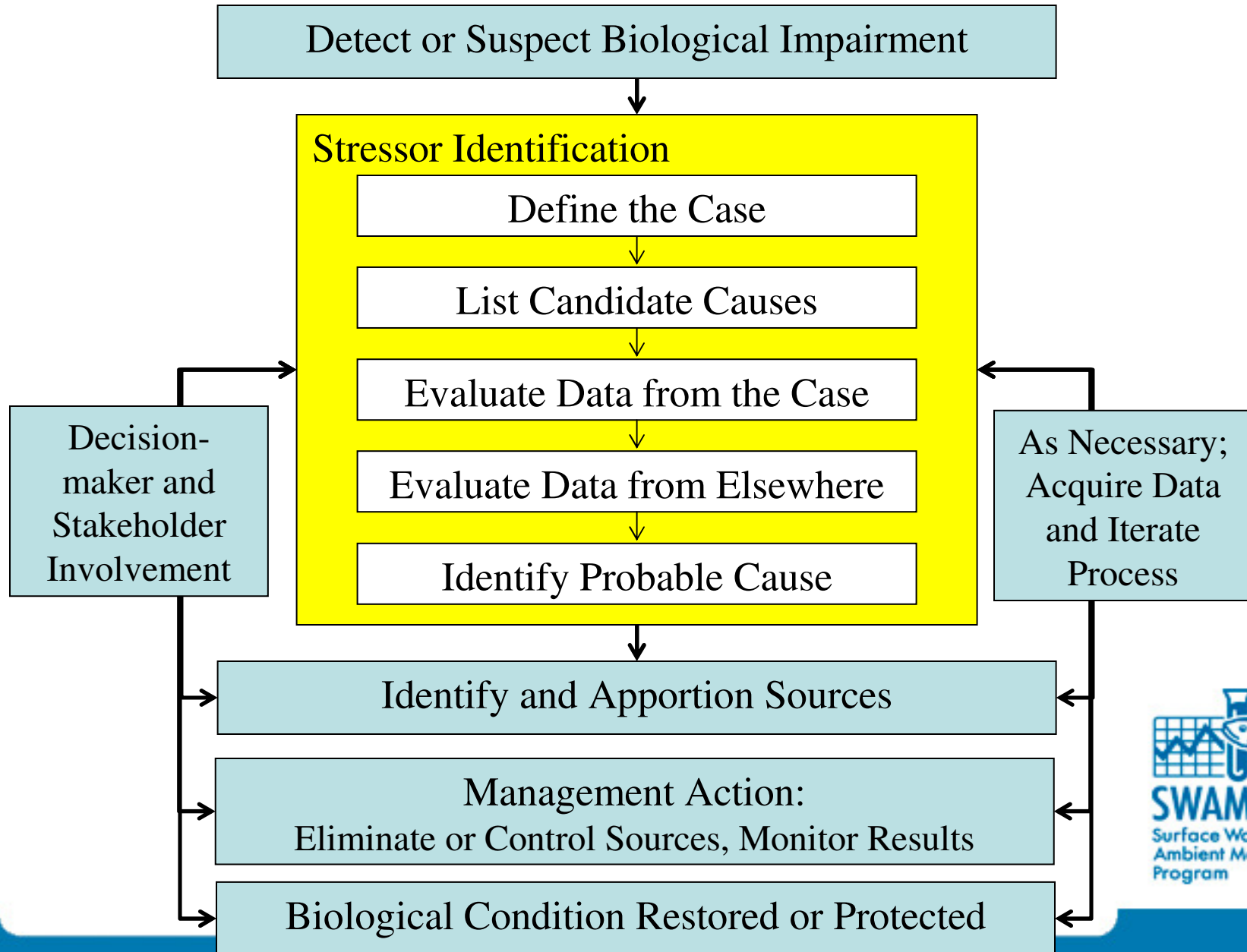




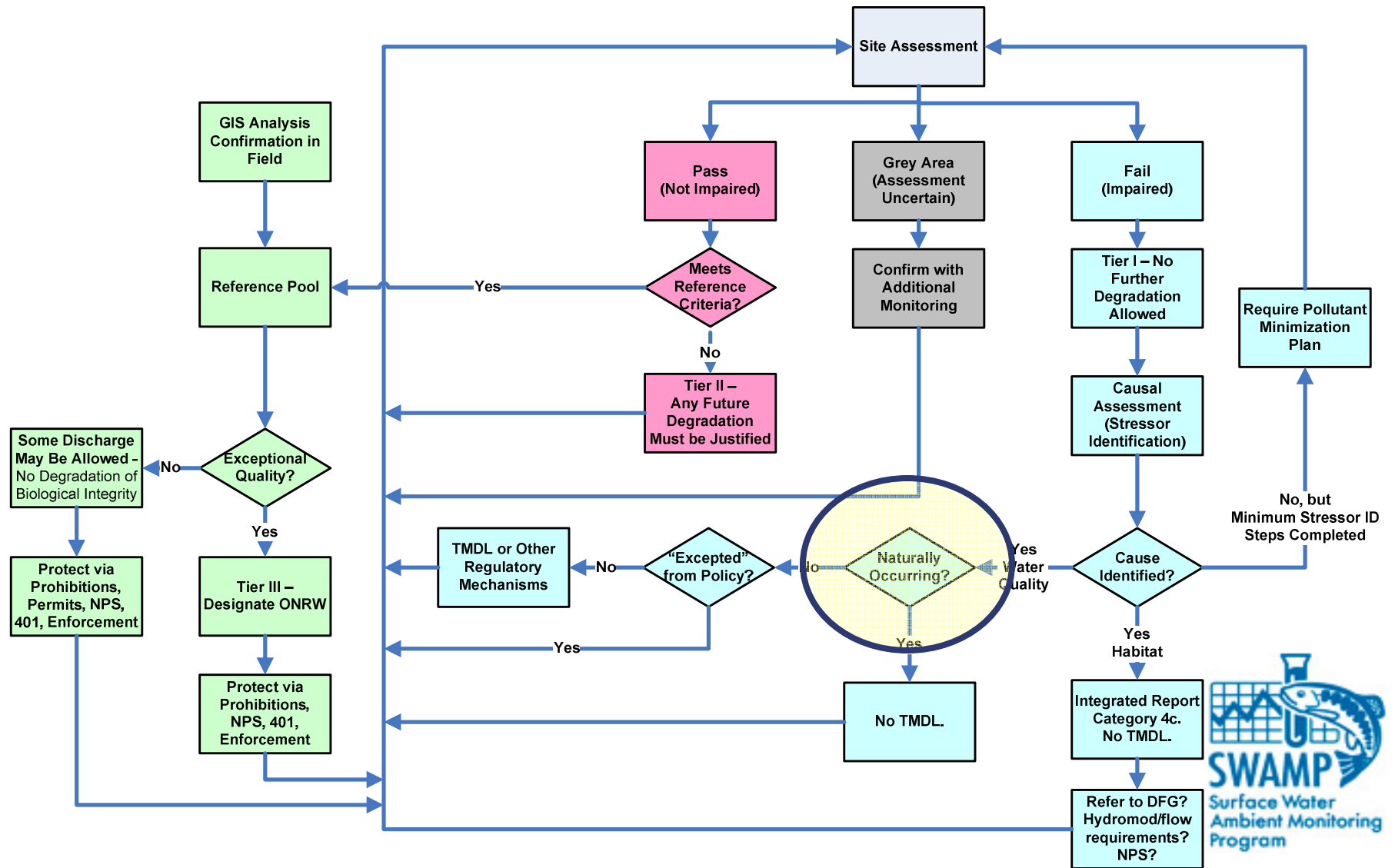
# Assessment and Regulatory Outcomes Framework



# Causal Assessment



# Assessment and Regulatory Outcomes Framework



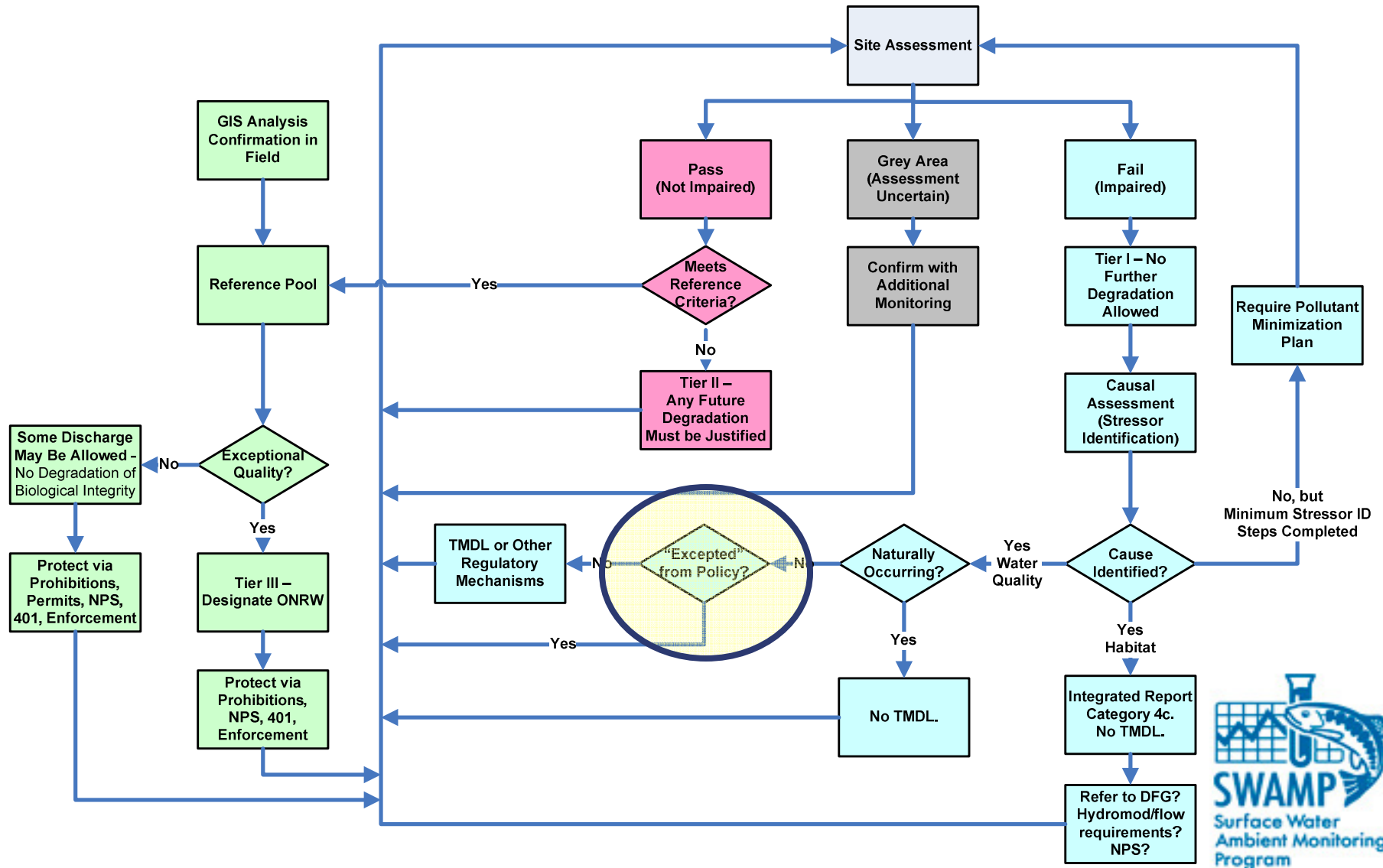
## Cause Identified – Naturally Occurring

- If cause is a naturally occurring constituent, then no TMDL and no further site assessment would be required.
- Examples:
  - Geothermal sources of high salinity
  - Wildfires resulting in erosion and sedimentation in the stream





# Assessment and Regulatory Outcomes Framework

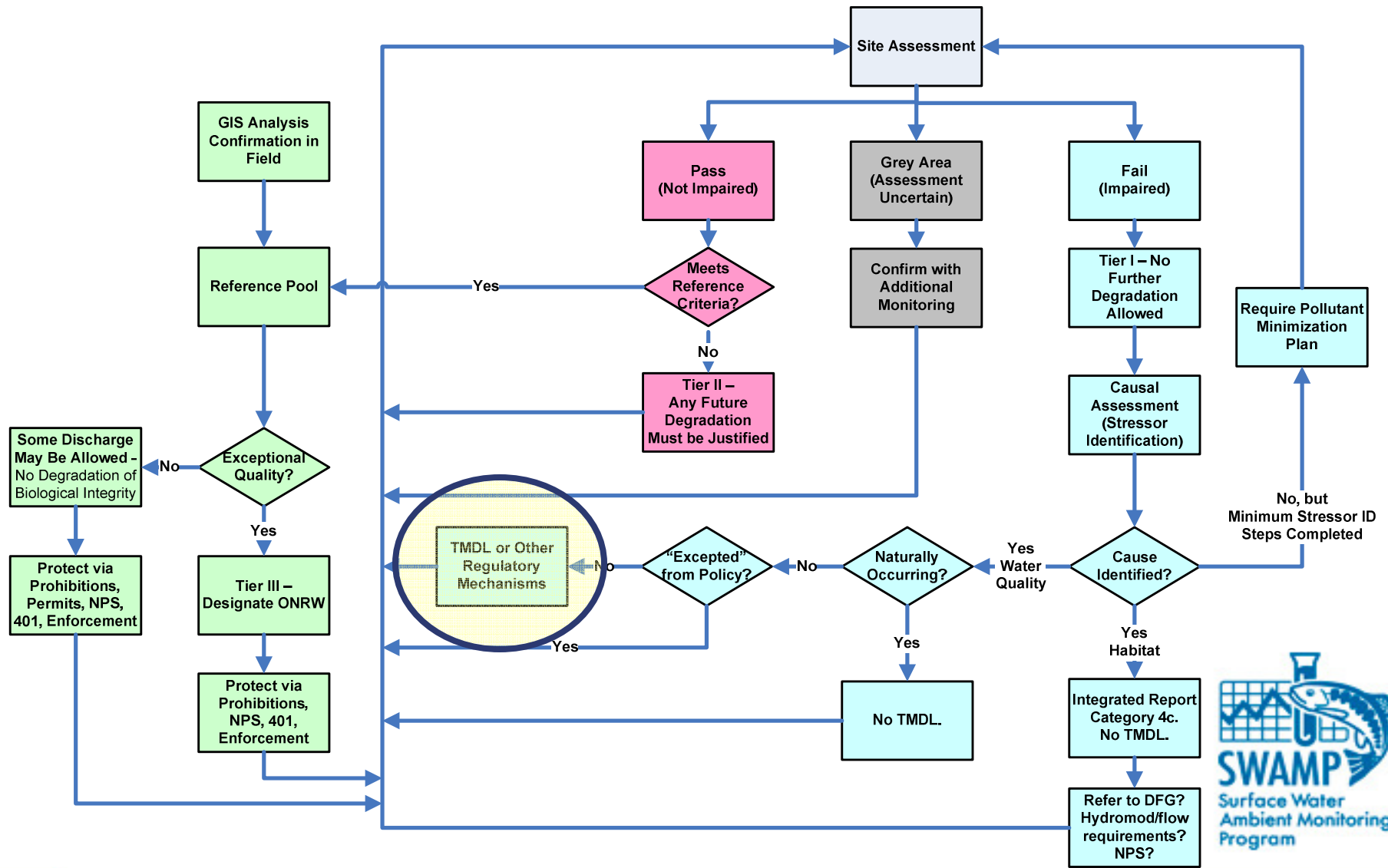


## Cause “Excepted” from Policy

- Some permitted events should be conditionally “excepted” from the policy.
- Example: intentional stream poisoning to remove invasive species.
- Permits would prescribe:
  - Frequency of site assessment following the event
  - Duration of “exception”
  - Other appropriate conditions



# Assessment and Regulatory Outcomes Framework

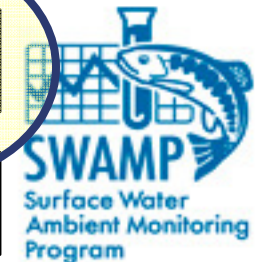
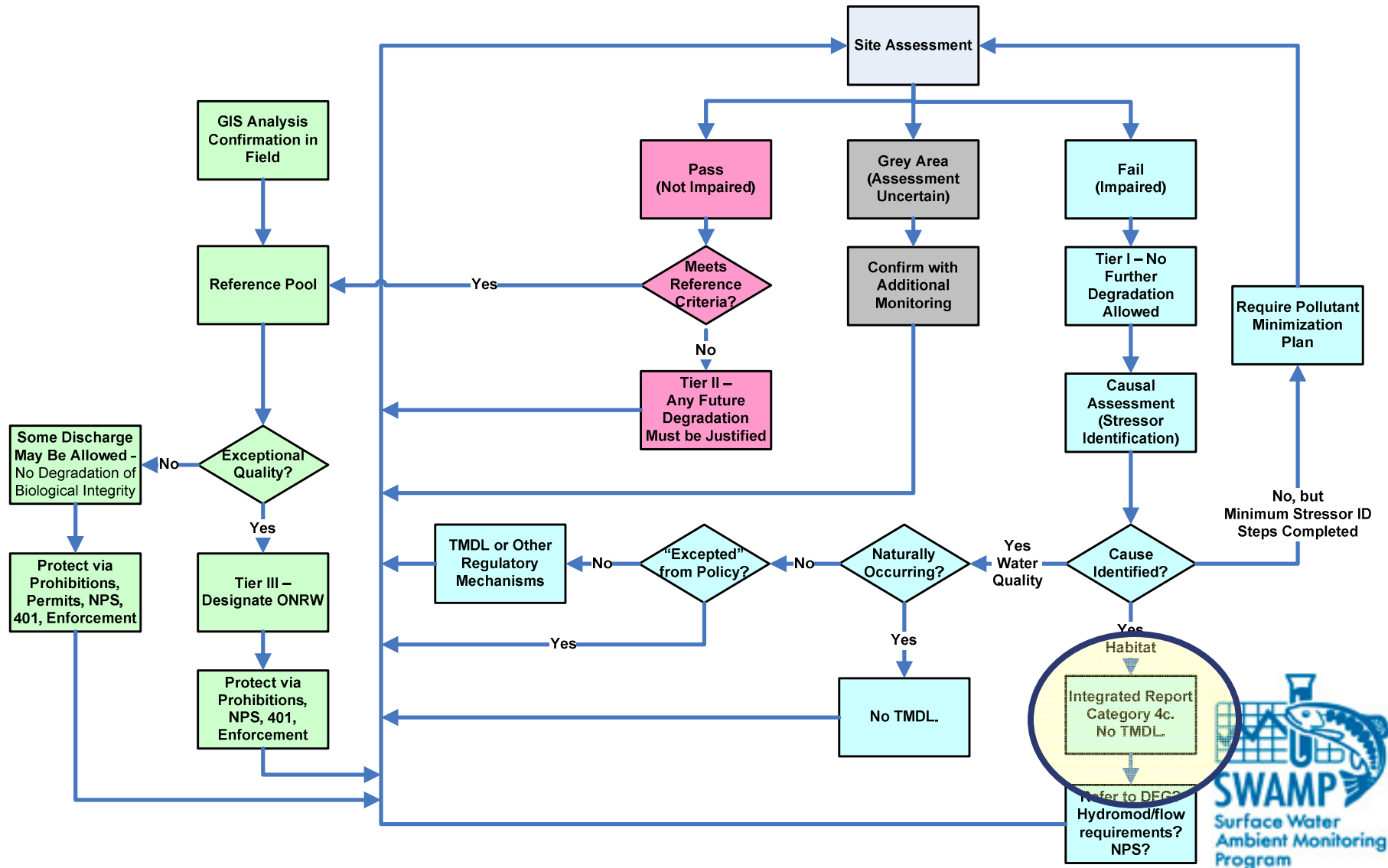


## TMDL or Other Regulatory Mechanisms

- If cause is neither naturally occurring nor “excepted”, then a TMDL or other regulatory mechanism would be needed to fix the problem.
- TMDL targets would be established for the constituent cause AND biological condition.
- Subsequent site assessment would be required to determine effectiveness of remediation actions.



# Assessment and Regulatory Outcomes Framework



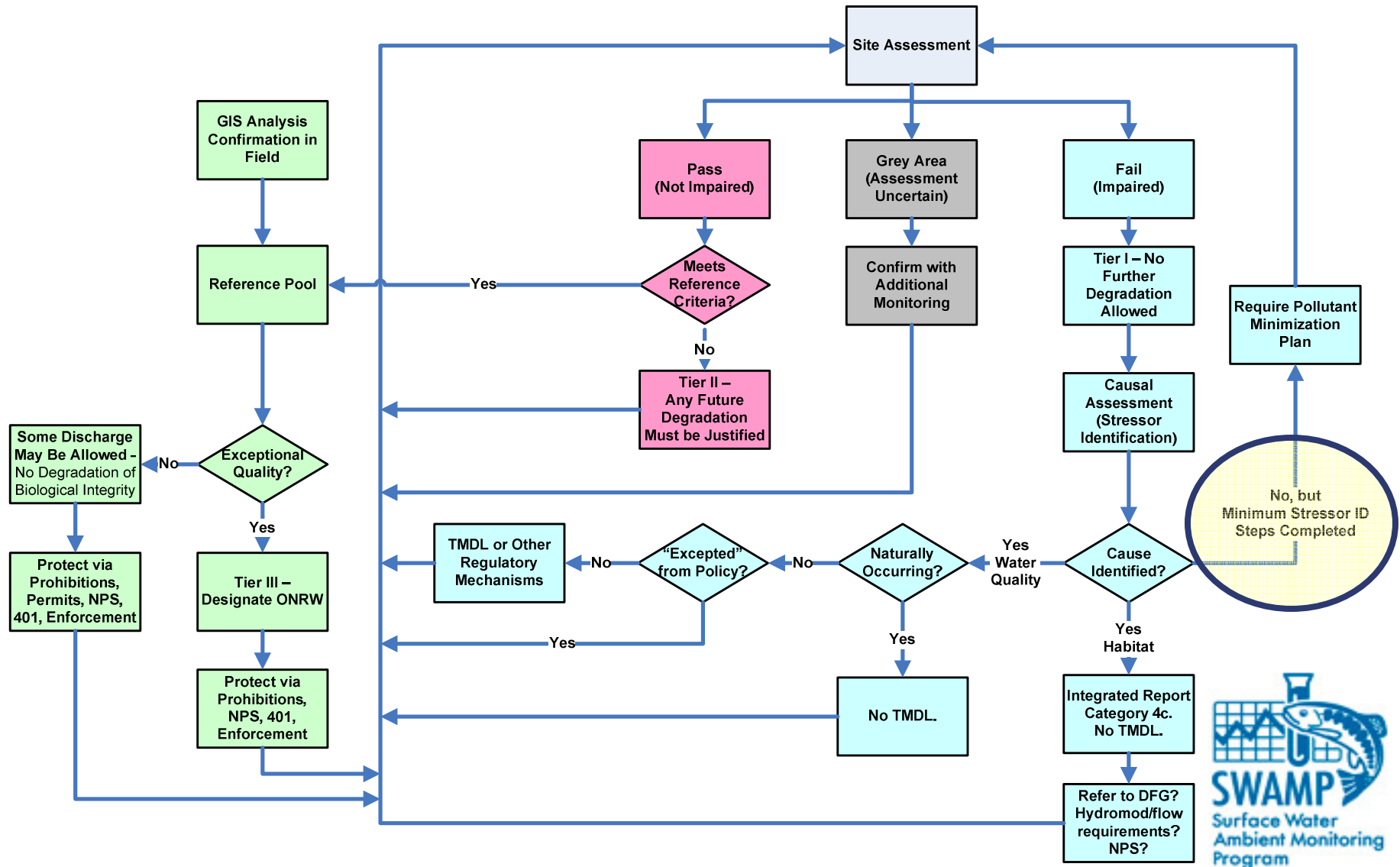


## Cause Identified - Habitat

- No chemical constituent cause for the impairment identified.
- Major factor influencing biological condition is habitat degradation.
- Designated category 4c - no TMDL required.
- Other regulatory mechanisms to improve stream condition:
  - Refer the case to the Department of Fish and Game
  - Hydromodification requirements in stormwater permits
  - Non-point source enforcement
  - Flow criteria under water rights authority
  - Refer to local government through comments on CEQA documents



# Assessment and Regulatory Outcomes Framework

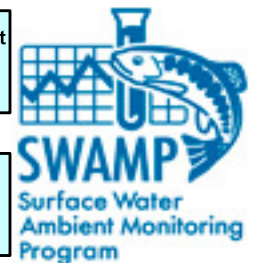
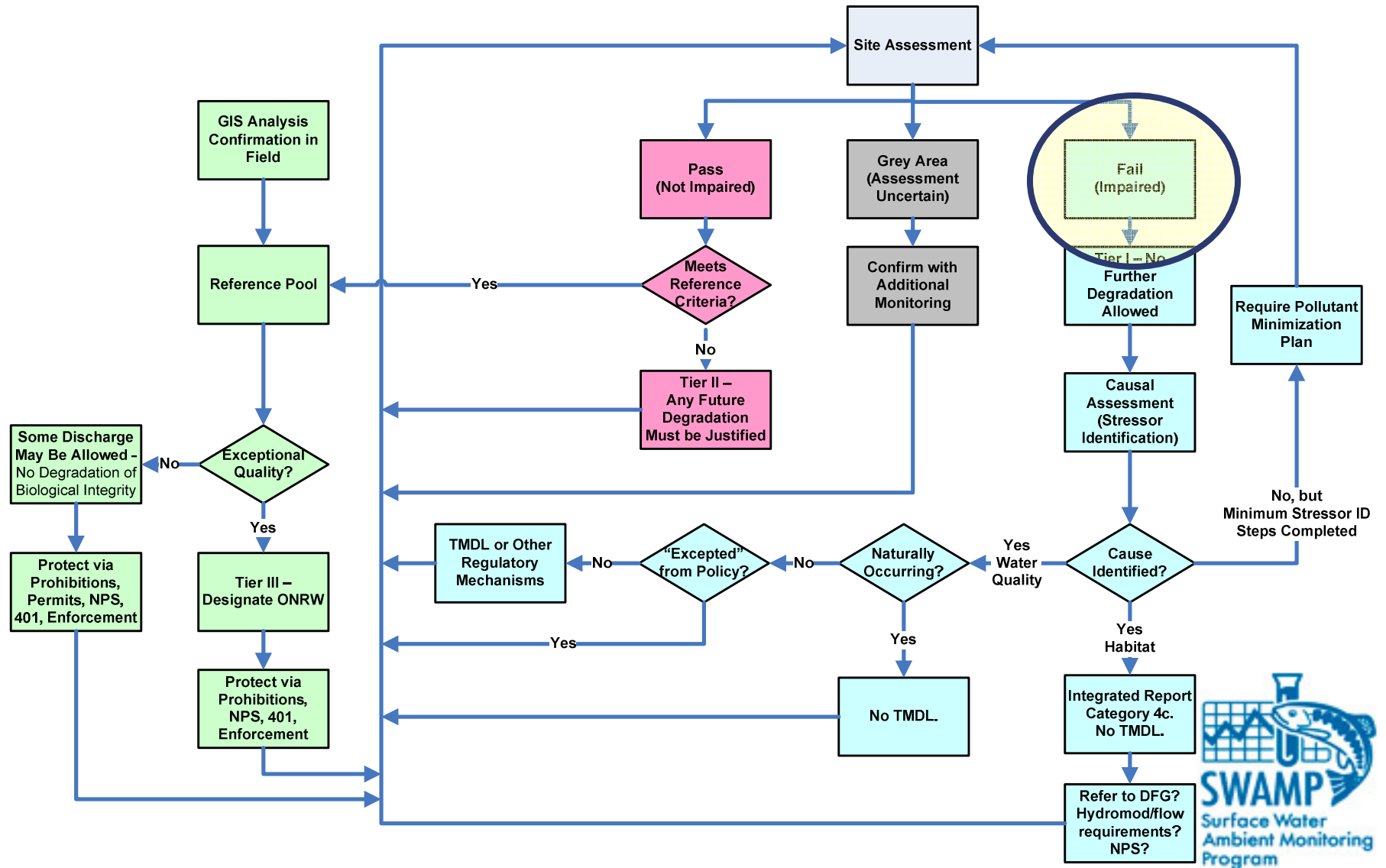


## Cause NOT Identified

- Not all causal assessments will be successful.
- Policy includes minimum steps required for causal assessment.
- If minimum requirements met, then the Water Board could require a pollutant minimization plan and prescribe additional site assessments.
- All applicable water quality objectives still need to be met.



# Alternative 3 & 4



Questions?

