Setting Reference Conditions for Wetlands

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CWA Use of Bioassessments

- WQS
- 305 (b)
- 303(d)
- 319
- 314
- NPDES
- 401 certification
- 301(h)
- 316

Use of Biological Assessments in Water Quality Standards (WQS)

- Designated Aquatic Life Uses
- Narrative and/or numeric biocriteria
- Anti-Degradation

Classification to Set Reference

- Biological Integrity should be comparable to that of the natural habitat of the region.
  - Separating into different types of wetlands.
  - Aggregating types within an ecoregion.

Process for Setting Reference

- Identify High Quality Areas
- Establish Selection Criteria
- Perform Field Validation

Evaluating the Quality of the Biological Indicator

- Sample should represent the site examined and the assemblage measured. (Documenting method precision or repeatability by quantifying variability from human and natural sources.)
  - Measurement Error
  - Temporal Variability
  - Spatial Variability
  - Establish Discriminatory Ability

State, Tribal and Federal Water Quality Assessments

- Sec. 305(b) state and tribal water quality assessment reports
- Sec. 303(d) listing of impaired waterbodies

Guidance Documents

- **Biennial sec. 305(b) reporting guidelines**
- **Consolidated assessment and listing methodology (CALM) *draft***
- **Use of biological assessment in the total maximum daily load(TMDL) process *draft***

Decision Tree for Determining Appropriate Approach to Establish Reference Conditions **4/19/01 DISCUSSION DRAFT**

Do your best existing conditions :

…. support the CWA integrity objective?

YES → Scenario 1 for establishing reference conditions: ***Biological Integrity/Natural***

NO

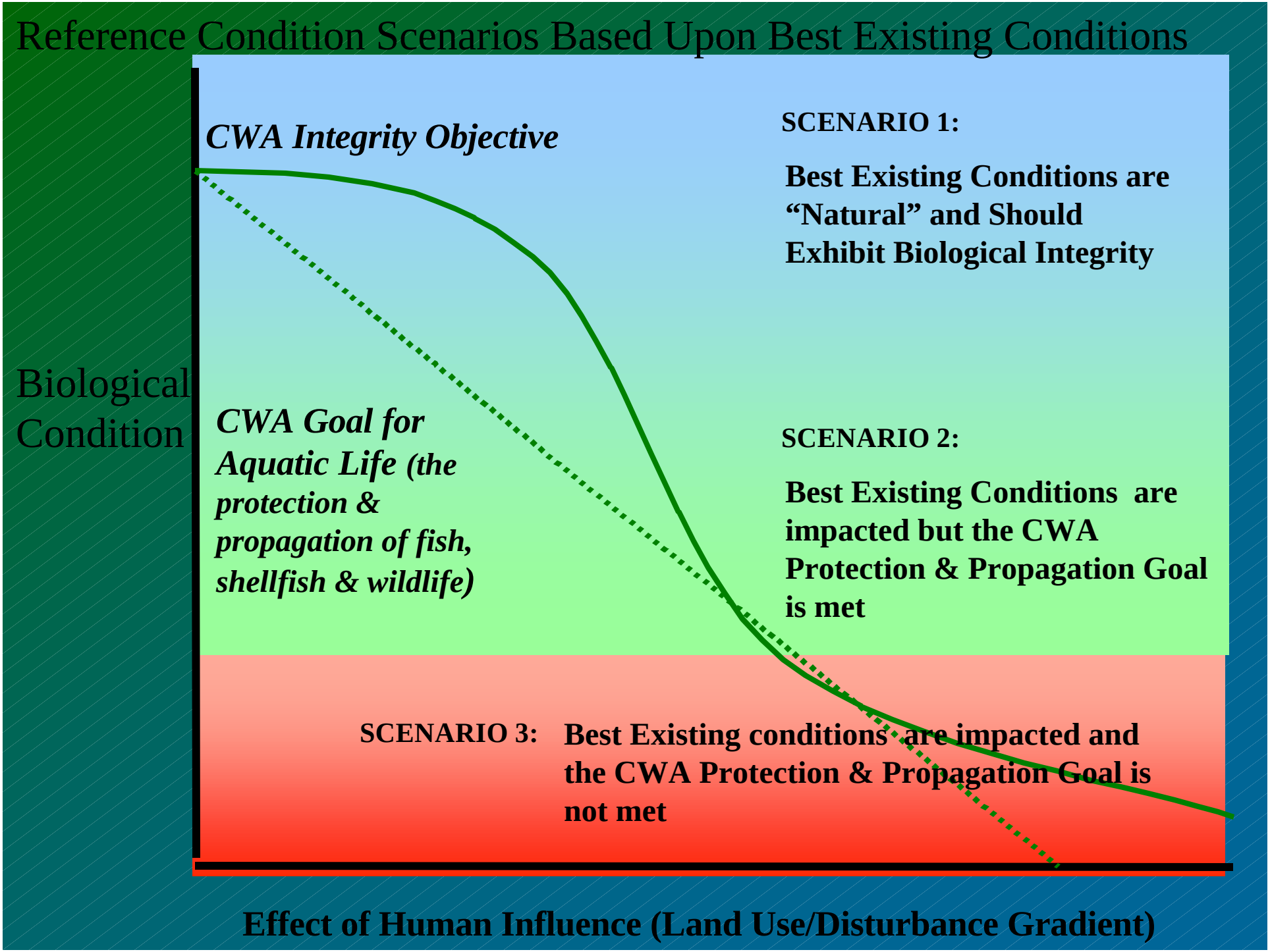
... support the CWA goal for aquatic life (the protection and propagation of fish, shellfish and wildlife)?

YES → Scenario 2 for establishing reference conditions: ***Least Disturbed***

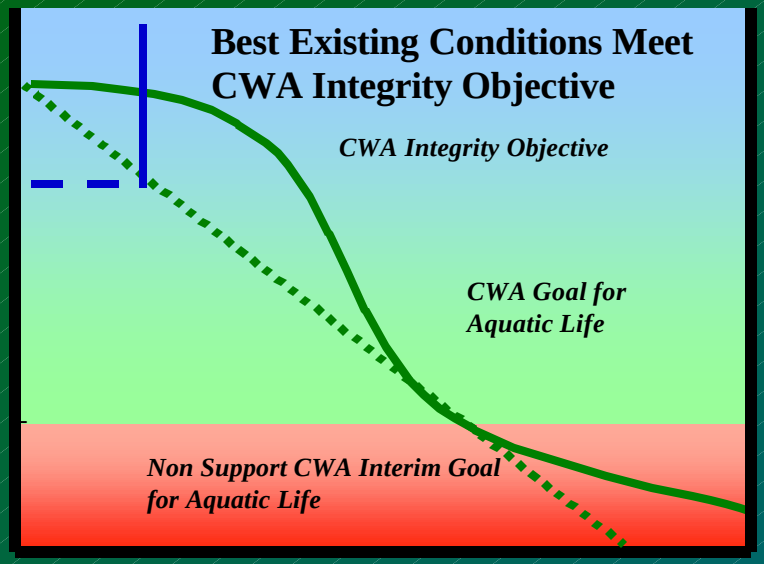
NO

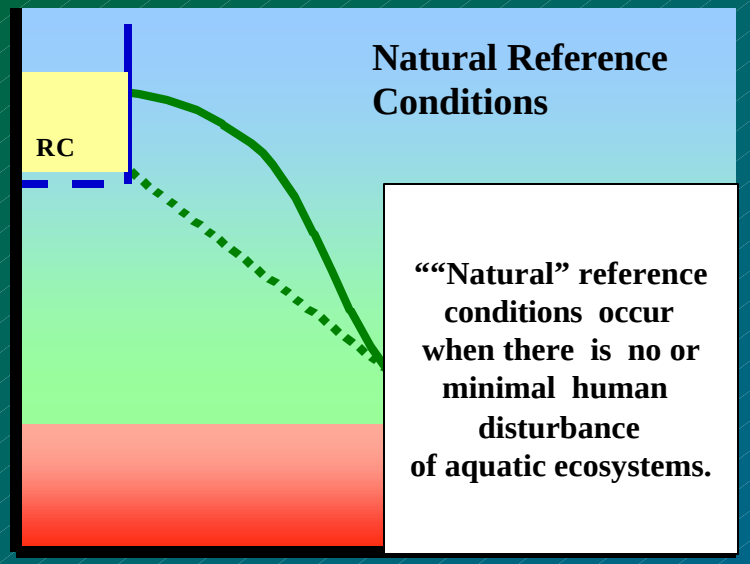
Scenario 3 for establishing restoration targets (per 40 CFR 131.10j)

Reference Condition Scenarios Based Upon Best Existing Conditions



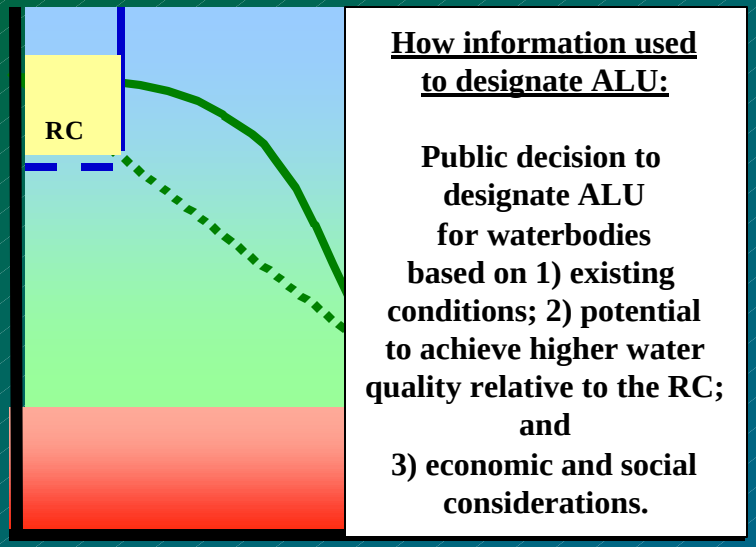
Scenario #1: Establishing Reference Conditions (RC): Best Existing Conditions Meet CWA Integrity Objective, There is No or Minimal Human Disturbance (DRAFT)





Biological Condition

Hypothetical Example:



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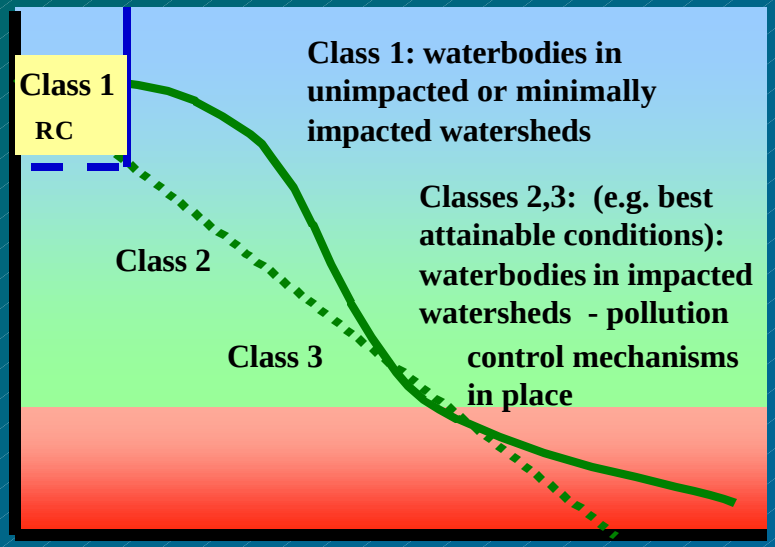
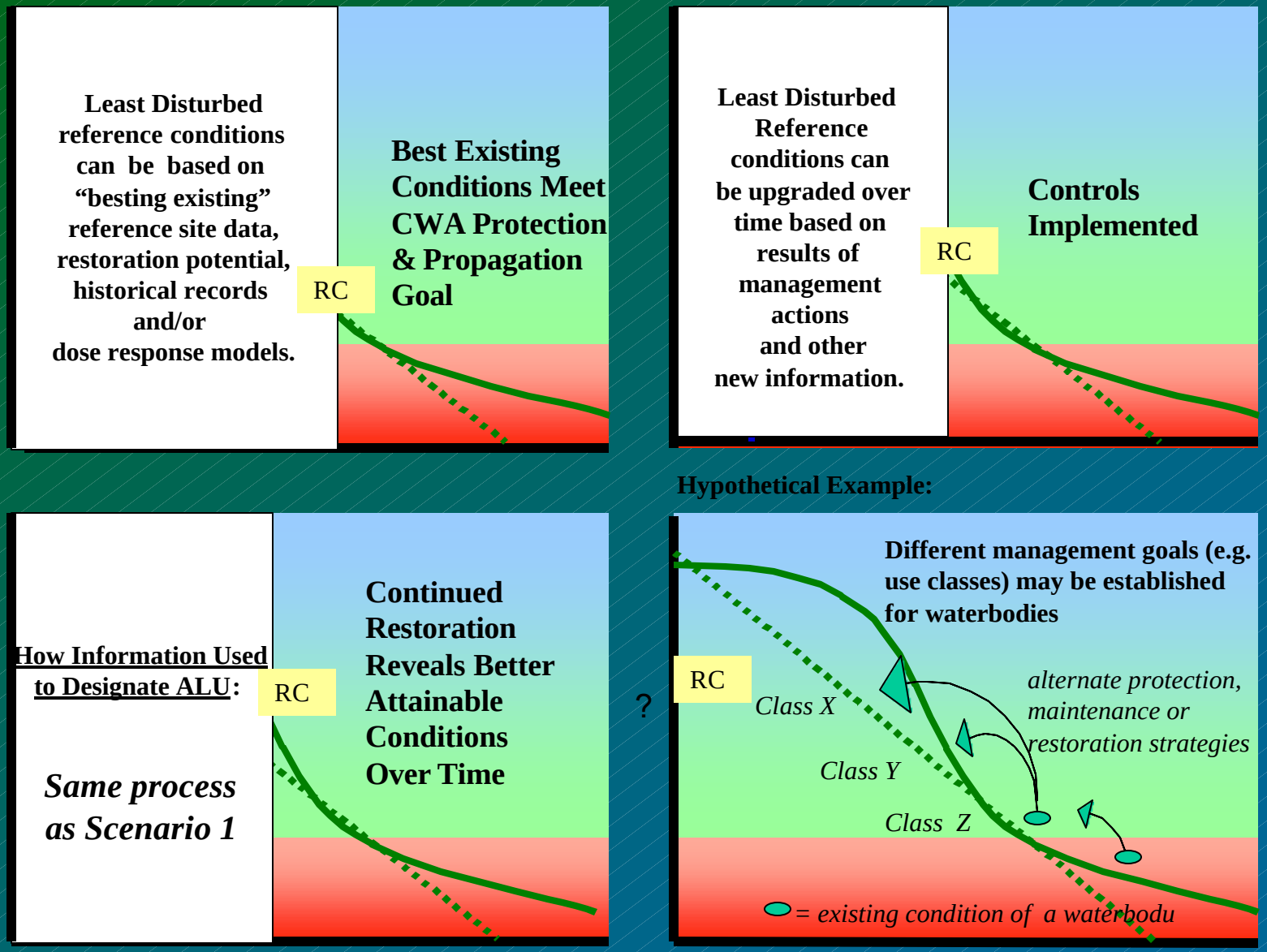


Effect of Human Influence (Dominant Land Use/Disturbance Gradient)

Scenario 2: Establish Least Disturbed Reference Conditions when best existing conditions support CWA Protection & Propagation Goal but do not meet the CWA Integrity Objective. Effect of human activity is moderate and widespread.

DRAFT



Scenario 3: Establish Restoration Targets and/or Reference Conditions (RC) when there is severe and widespread human impact and existing conditions do not support the CWA Protection & Propagation Goal (draft)

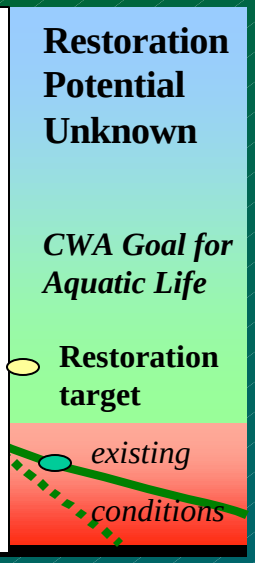
Biological Condition

Restoration Targets based on:

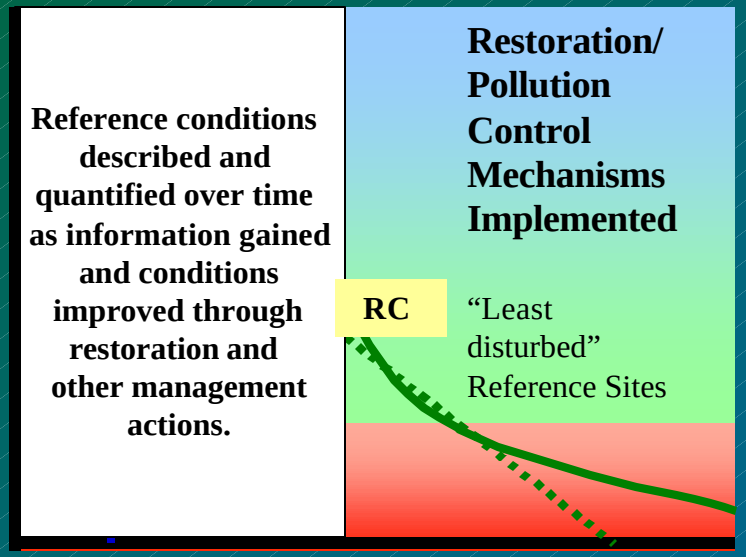
1) Historical data to qualitatively project restoration targets based on what was once there and what the public values;

2) Dose response relationships to model ecological response and set quantitative restoration targets for stressors (e.g. water quality criteria); and/or

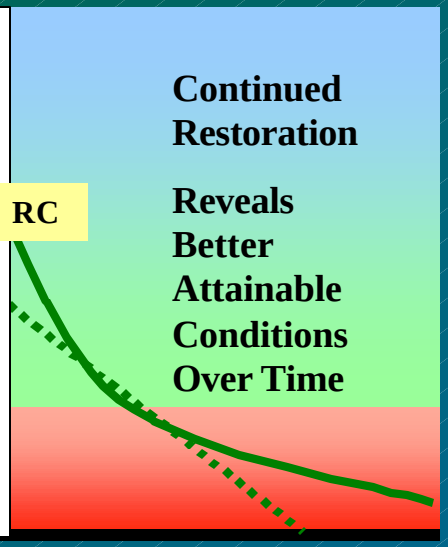
3) Implementation of State control mechanisms



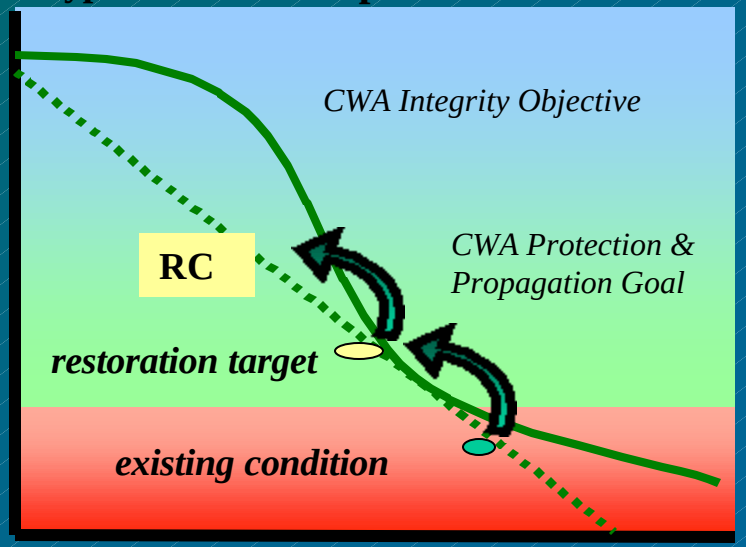
Reference conditions described and quantified over time as information gained and conditions improved through restoration and other management actions.



How information used to designate ALU:
ALU designations initially projected & then upgraded over time based on restoration, reference site data, modeling & historical records. Process same as Scenario 1



Hypothetical Example:



Effect of Human Influence (Dominant Land Use/Disturbance Gradient)

FUTURE DIRECTIONS

The Goal:

- All States use bioassessments to evaluate the health of aquatic life in all waterbodies
- Bioassessment data is used to better define aquatic life uses
- Quantifiable biocriteria are in all State/Tribal water quality standards to protect aquatic life uses
- Biocriteria/bioassessments used in ongoing regulatory programs
- Biocriteria/bioassessments used to assess the effectiveness of water quality management efforts
- Bioassessment data and biocriteria used to better communicate the health of the Nation's waters