

San Francisco Estuary Wetlands Regional Monitoring Program (WRMP): Bridging Data with Decision-Making for Adaptive Management

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Wetland Program Development Grant Conference
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Outline

- WRMP general background
- Role of Wetland Program Development Grants in the program
- Bridging data with decision-making

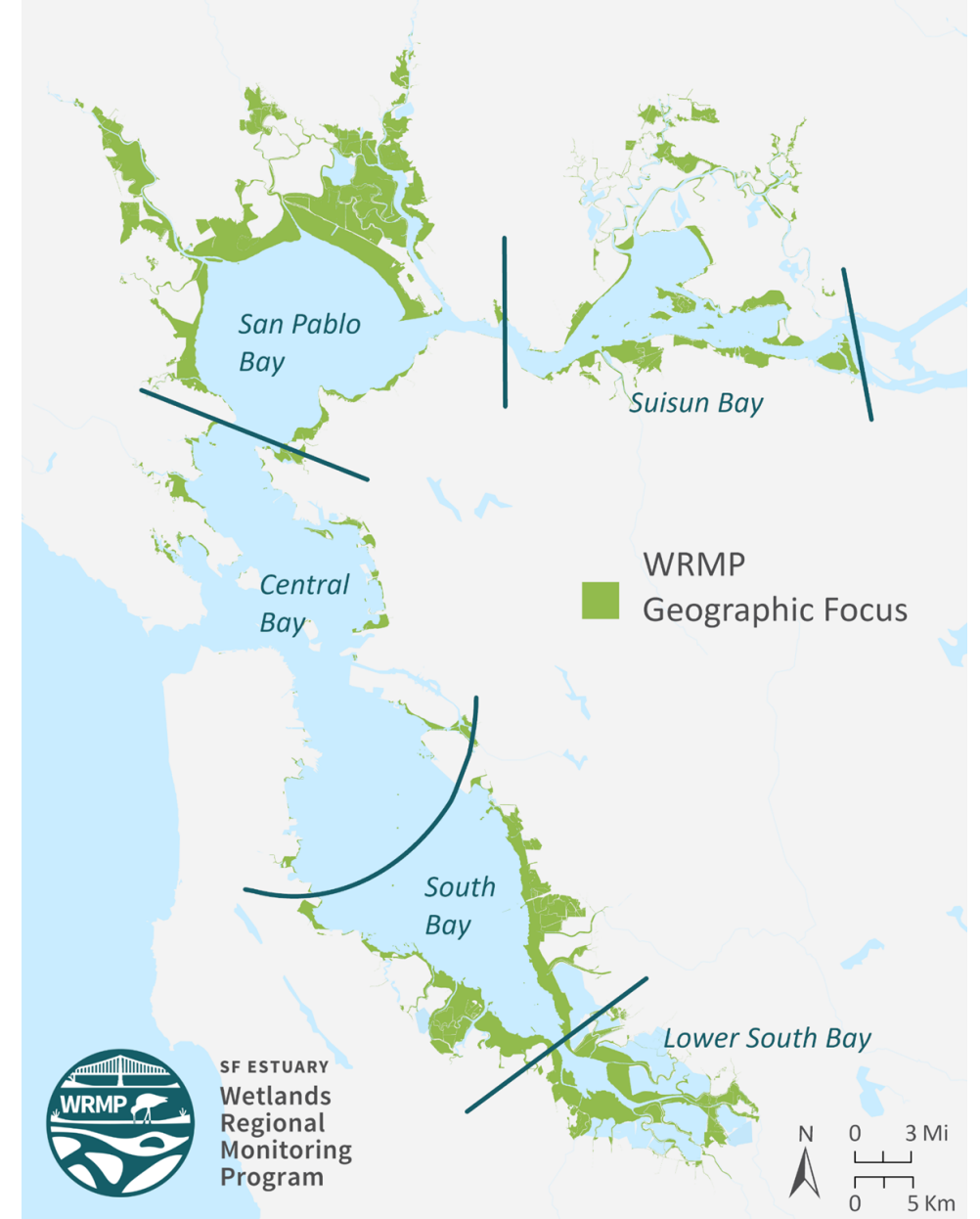
28 Estuaries of National Significance - Section 320 CWA



WRMP Mission

The WRMP delivers coordinated regional monitoring of the San Francisco Estuary's wetlands to:

- 1) Inform science-based decision-making for wetland restoration and adaptive management, and
- 2) Increase the cost-effectiveness of permit-driven monitoring associated with wetland restoration projects.

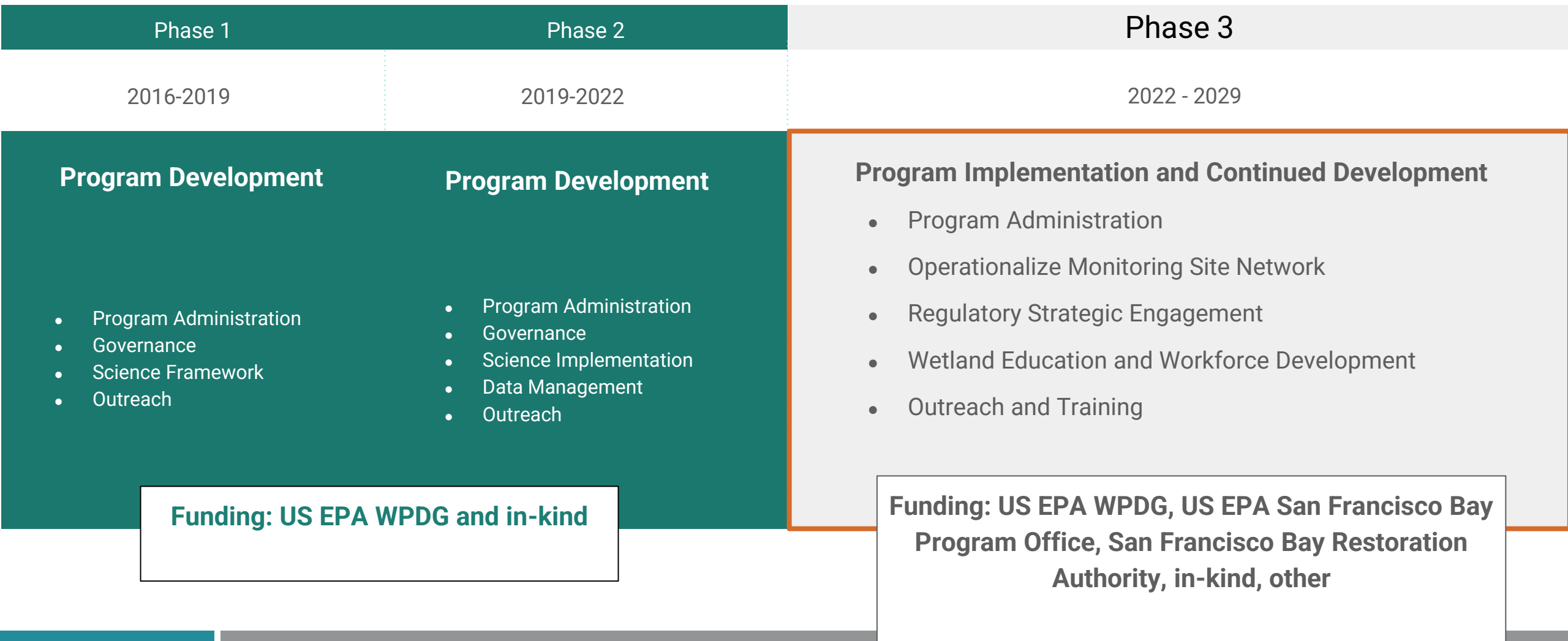


Why Regional Monitoring?

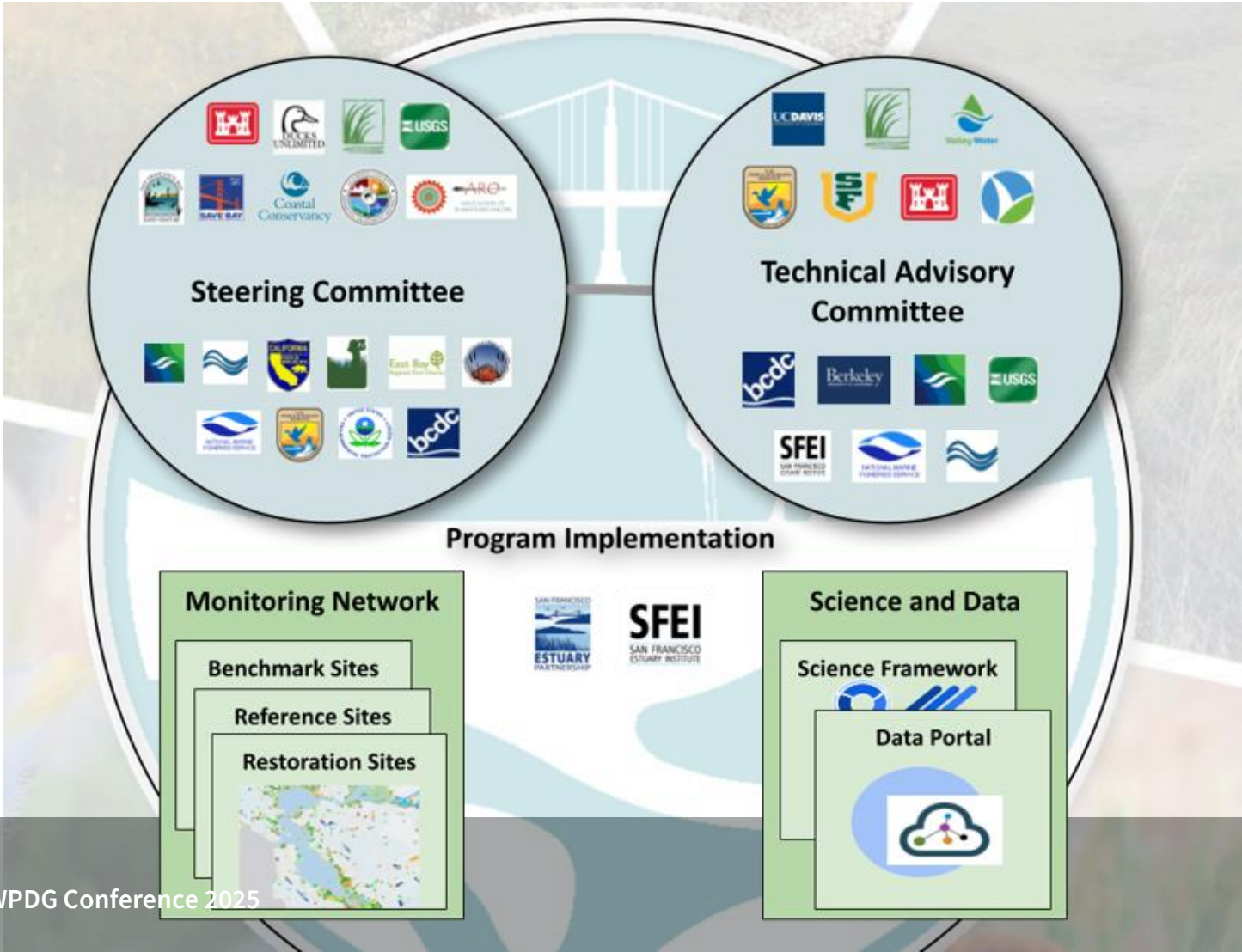
- Answers regionally-important, collaboratively developed management questions.
- Produces information to support decision-making in the face of new environmental stressors.
- Centralizes data management to enable regional analyses for informing adaptive management.
- Makes permit-driven monitoring for restoration projects more cost-effective.



WRMP Phases

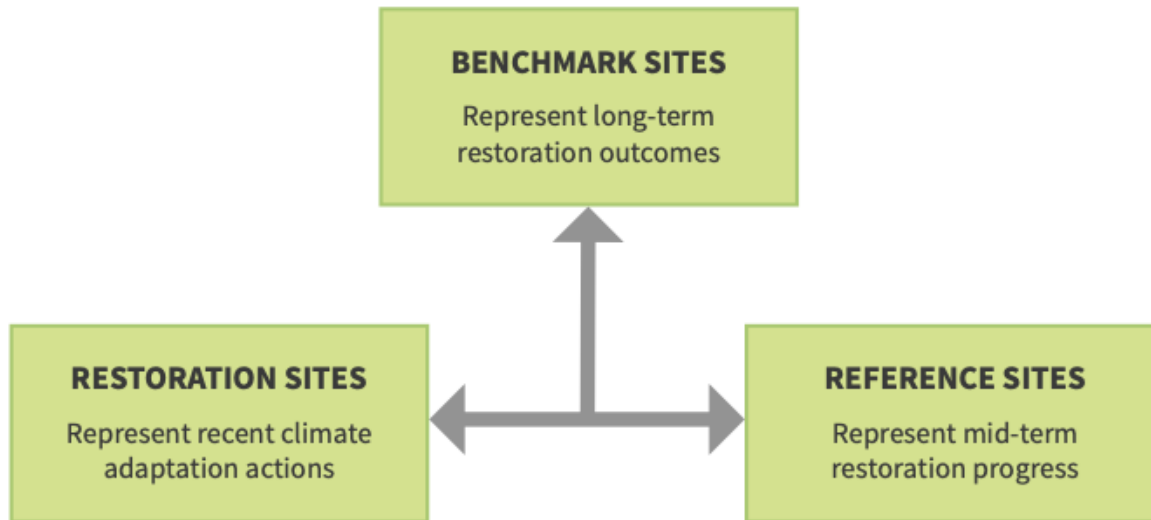


WRMP Program Structure



WRMP Science Framework

Regional Monitoring Site Network



Guiding Questions

Management Questions

Monitoring Questions/Priority Actions

Metrics

Protocols

WRMP Guiding Questions

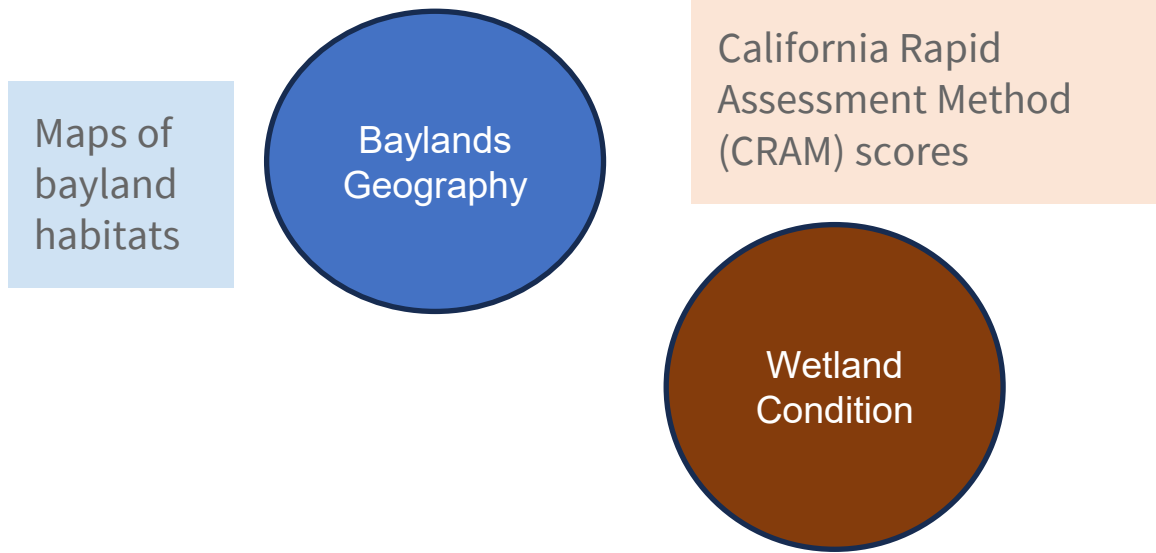
- *Guiding Question 1: **Where are the region's tidal wetlands and wetland projects**, and what net landscape changes in area and condition are occurring?*
- *Guiding Question 2: How are external drivers, such as accelerated sea level rise, development pressure, and changes in runoff and sediment supply, **impacting tidal wetlands**?*
- *Guiding Question 3: How do policies, programs, and projects to protect and restore tidal marshes affect the distribution, abundance, and health of **plants and animals**?*
- *Guiding Question 4: **What new information do we need** to better understand regional lessons from tidal wetland restoration projects in the future?*
- *Guiding Question 5: How do policies, programs, and projects to protect and restore tidal wetlands **benefit and/or impact public health, safety, and recreation**?*

WRMP Current Monitoring Indicators (summarized by topic)

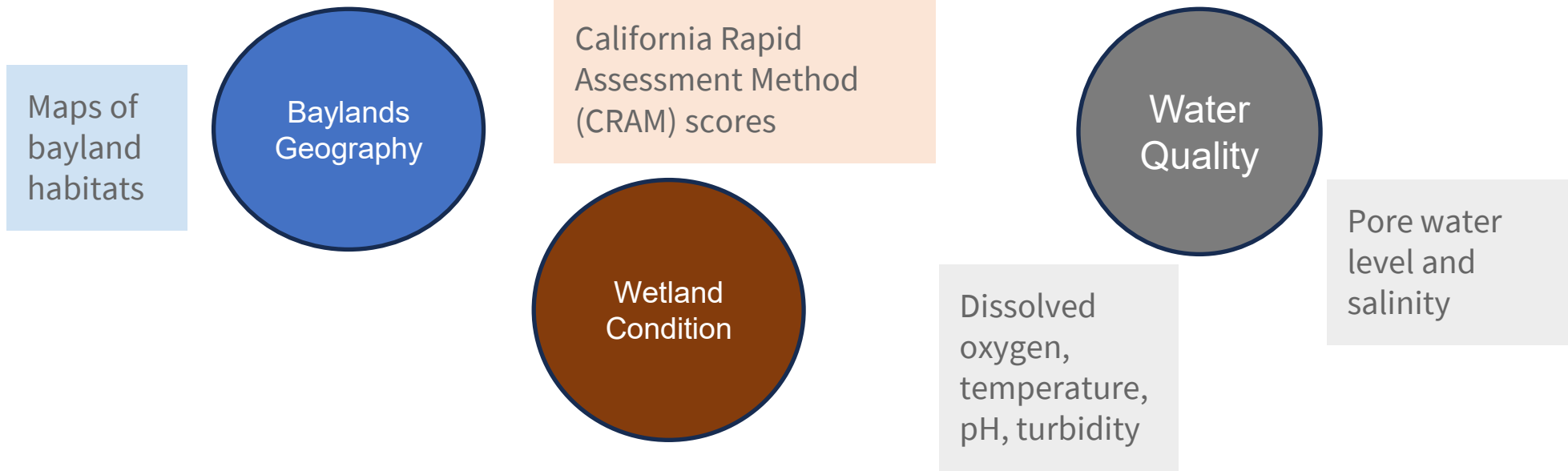
Maps of
bayland
habitats

Baylands
Geography

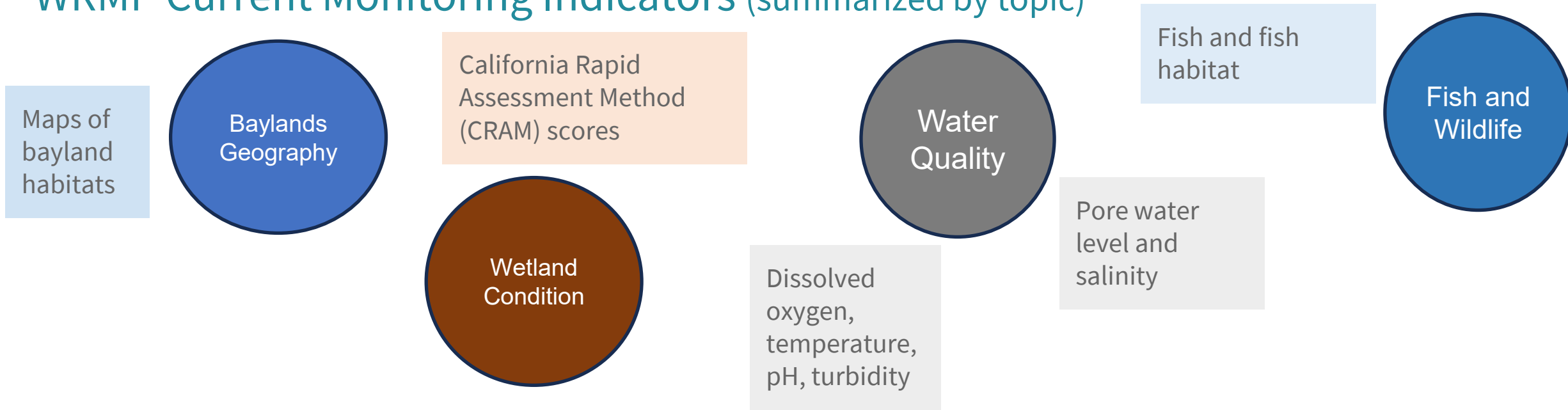
WRMP Current Monitoring Indicators (summarized by topic)



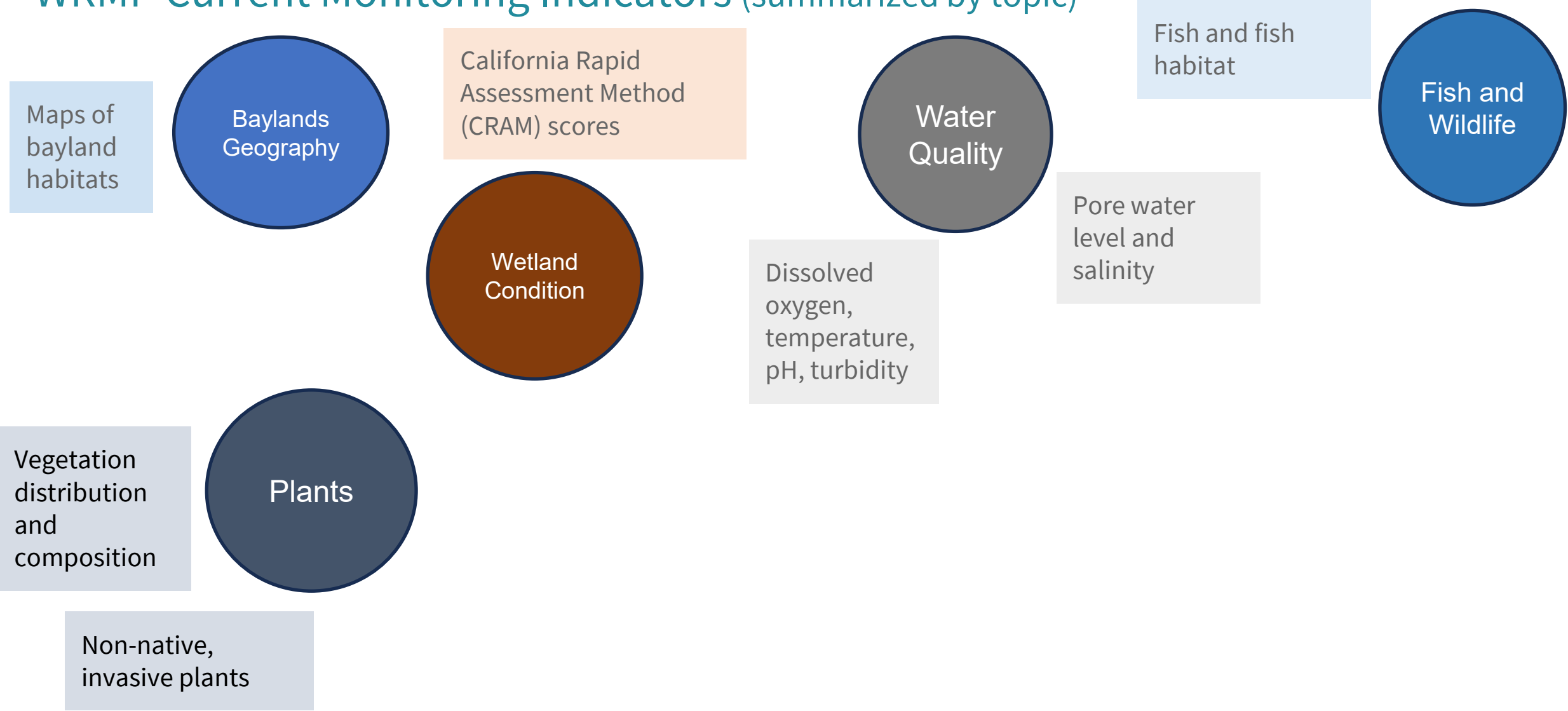
WRMP Current Monitoring Indicators (summarized by topic)



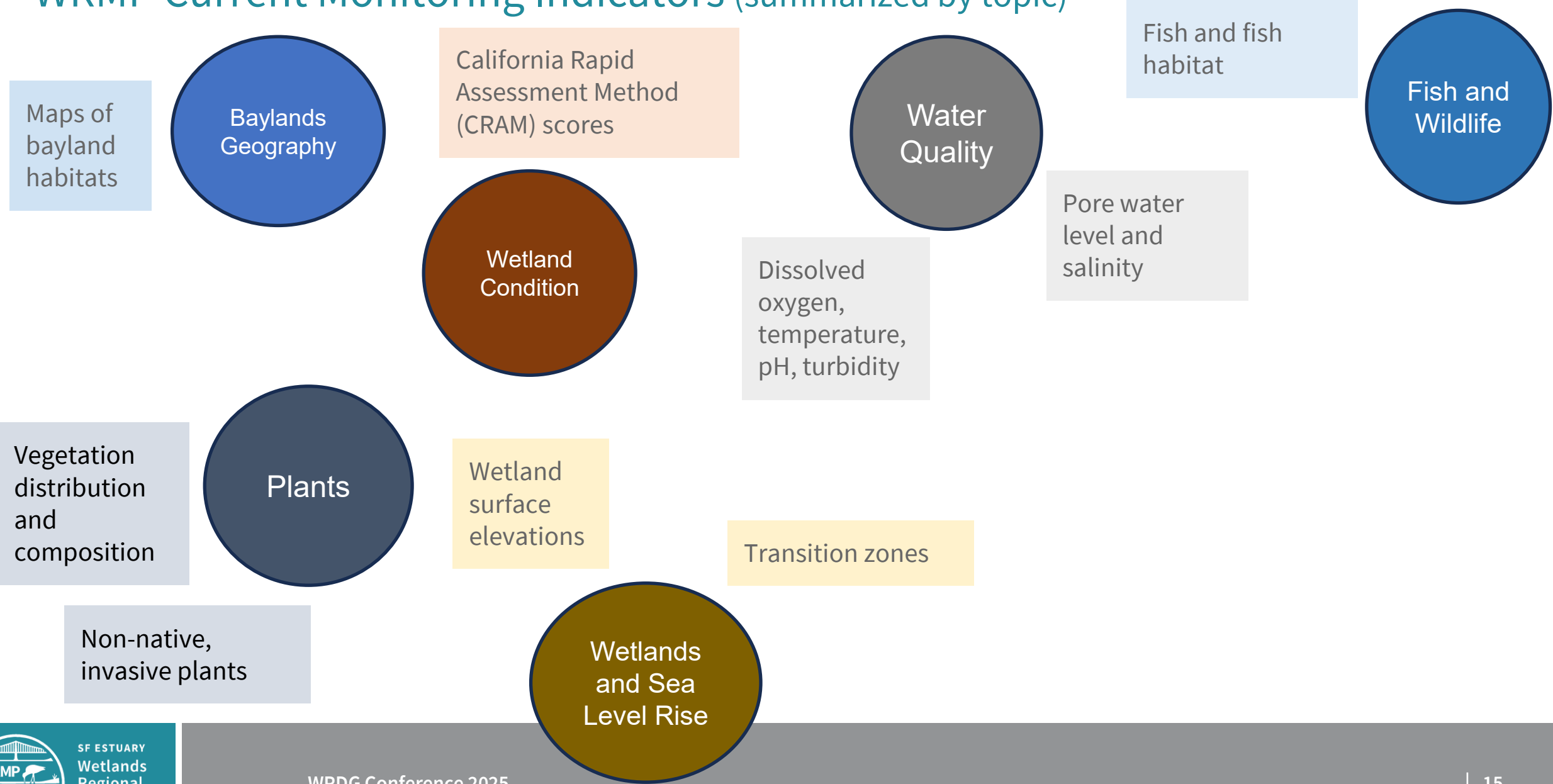
WRMP Current Monitoring Indicators (summarized by topic)



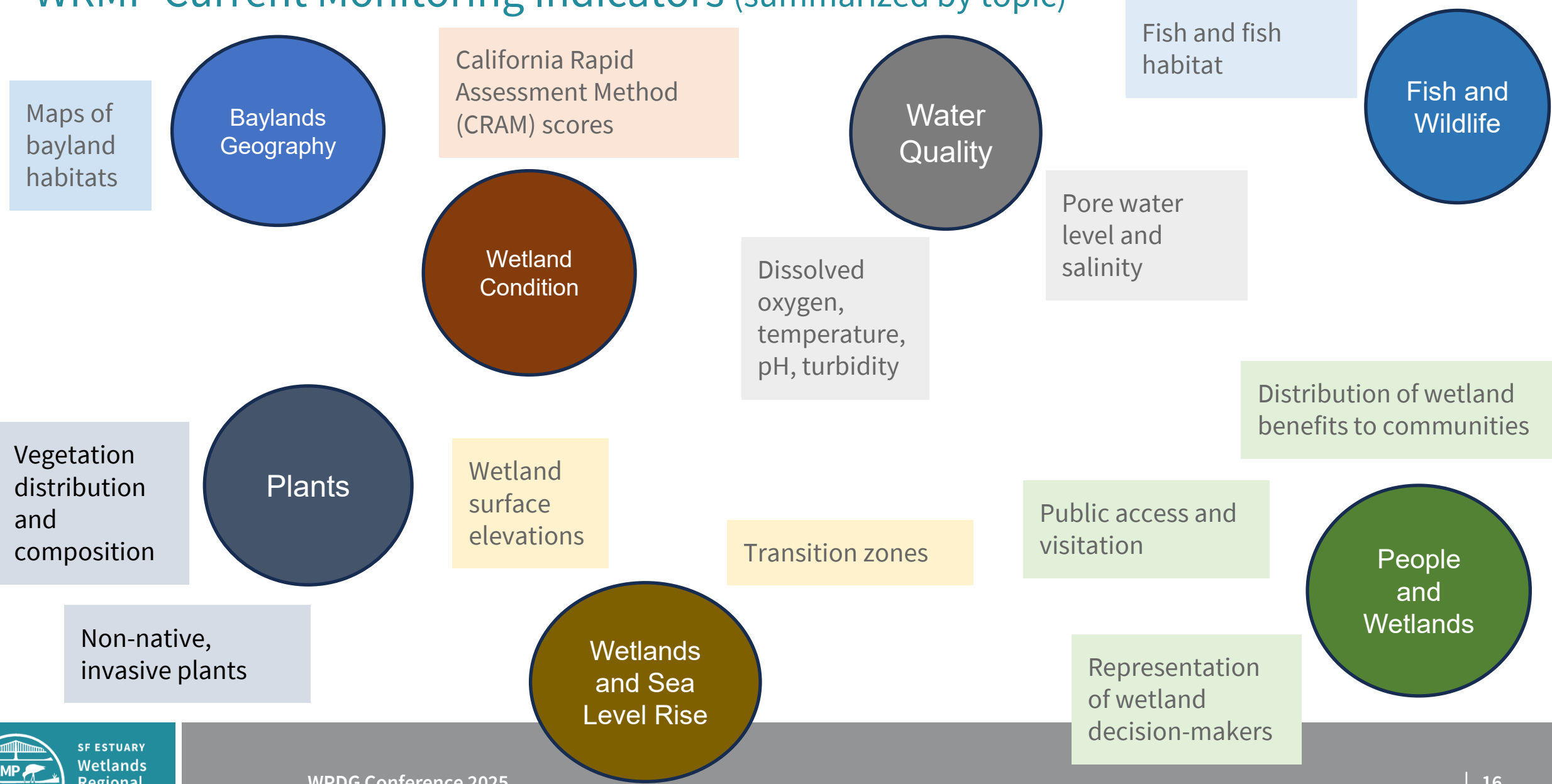
WRMP Current Monitoring Indicators (summarized by topic)



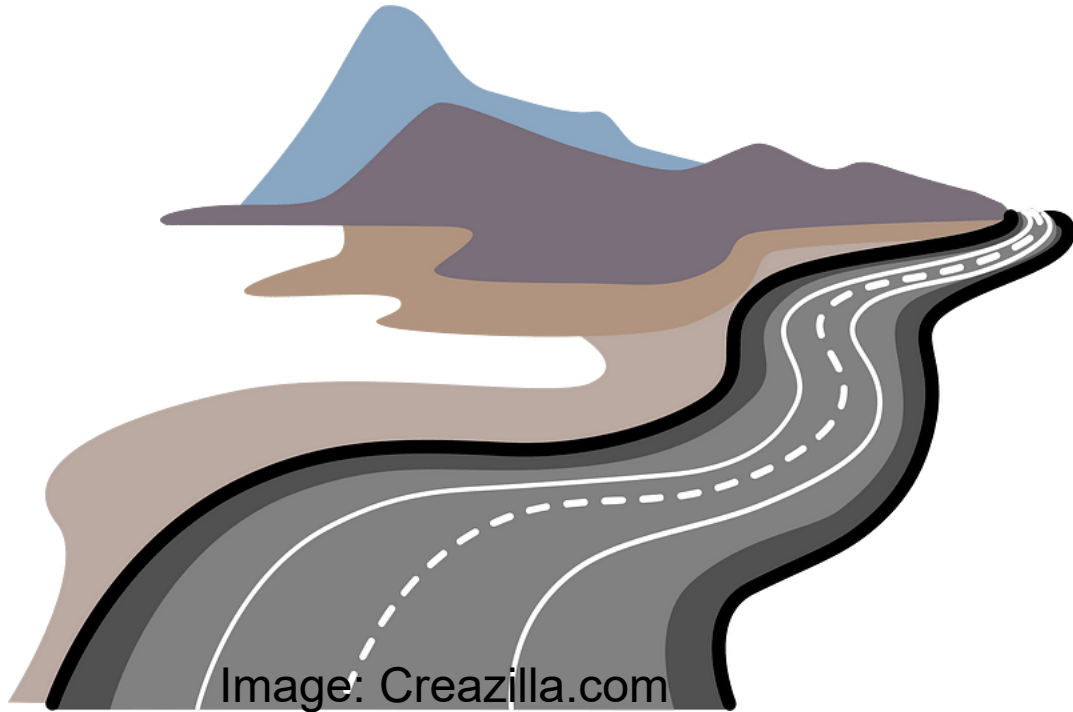
WRMP Current Monitoring Indicators (summarized by topic)



WRMP Current Monitoring Indicators (summarized by topic)




Bridging Data with Decision-Making: Regulatory Engagement Roadmap



Key next steps for the WRMP are:


- Maintain and further build relationships with regulatory agencies.
- Collaborate with regulators and restoration project implementers to build consensus on the opportunities for the WRMP to support efficient and cost-effective monitoring to meet permit conditions in wetland restoration and multi-benefit projects.
- Prioritize and advance regulatory agency monitoring needs within the WRMP process.

Bridging Data with Decision-Making: Outreach and Training




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Monitoring Results Science Framework About Engage Resources Search




Where are our wetlands?

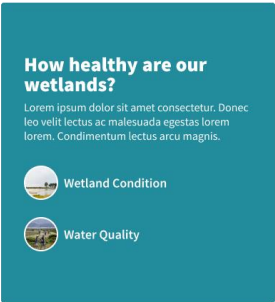
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 Bay Geography

 Wetlands & Sea Level Rise





SF ESTUARY Wetlands Regional Monitoring Program





How healthy are our wetlands?

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 Wetland Condition


 Water Quality








Who uses our wetlands?

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 Fish & Wildlife

 Plant Communities


 People & Wetlands



Collaborative Science for Healthy Wetlands

Public webinars

Webinars



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Small-group coaching on new products / tools



Tidal Marsh Extent Webinar

Apr 14, 2025 | General, Technical, Webinars

The WRMP held a webinar on April 16, 2025...



Introducing the Baylands Habitat Map 2020¹ Part 1

Oct 4, 2024 | General, Technical, Webinars

The Baylands Habitat Map 2020 (BHM...

Wetland Education and Workforce Development



Poster credit: Multicultural Center of Marin



Photo: Courtesy of Cris Criollo

Thank you!

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Extra slides

WRMP Guiding & Management Questions (summarized)

GQ 1: Where are the tidal wetlands and how are they changing?

MQ 1A: How are **marshes** changing over time?

MQ 1B: Are changes impacting **water quality**?

GQ 2: How are external factors impacting tidal wetlands?

MQ 2A: How are **elevations** changing over time?

MQ 2B: Is there enough **sediment** to support marshes?

GQ 3: How are plants and animals affected?

MQ 3A: How are **fish & wildlife habitats** changing?

MQ 3B: How are **fish & wildlife populations** changing?

GQ 4: What new information do we need?

MQ 4A: How can **interventions** help sustain or increase marsh ecosystem quantity & quality?

GQ 5: How are public health, safety, and recreation affected?

MQ 5A: What strategies influence how restoration affects **mosquito & disease vector populations**?

MQ 5B: What **data will help optimize** marsh restoration, mosquito & vector control, fish & wildlife support and public access?

MQ 5C&D: How are **benefits** distributed geographically and demographically, and how do they progress over time?

Human dimensions indicators can...

- Highlight why wetlands are important to people.
- Help wetland managers understand what physical elements or outreach & engagement efforts lead to increased benefits to people.
- Help evaluate progress on agency mandates about environmental equity.

