

## California Rapid Assessment Method for Wetlands

### Establishing the Assessment Area



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### Background

- The Assessment Area (AA) is the portion of the wetland that is assessed using CRAM.
  - An AA might include a small wetland in its entirety.
  - In most cases the AA will likely be a smaller portion of the wetland.

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### Background

- Establishing a proper AA is a critical step in correctly performing a rapid assessment using CRAM.
- The use of an incorrect AA can yield results that are not reproducible, and that are not likely to relate to stressors or management actions.
- Rules are therefore needed to define the AA.

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### Rule 1

- It is assumed that different wetlands, even neighboring wetlands of the same type, can be managed differently, or for different purposes, and can be subject to different stressors.
- Therefore, each AA must not encompass or involve more than one wetland, even of the same type (do not group wetlands together).

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### Rule 2

- Since CRAM metrics vary between wetland types, each AA must only represent one type of wetland.
- Different types of wetlands can be contiguous with each other, or even nested one within the other, but each AA must only represent one wetland type.

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### Rule 3

- The AA must be classified using CRAM typology.
  - Misclassification of wetlands can lead to using the wrong CRAM module, which in turn will lead to spurious assessments.
- The wetland must be assessed using the metrics designed for its wetland type.

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### Rule 4

- Experience has shown that for the purpose of standardizing the AAs for any wetland type, the overriding considerations are:
  - Hydro-geomorphic integrity
  - Size

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### Hydro-geomorphic Integrity

- Need to be able to distinguish between the effects of management actions and the natural variability within and among wetlands.
- AA should maximize the CRAM signal-to-noise ratio.
- Each AA must therefore encompass most, if not all, of the natural spatial variability in the visible form and structure of its encompassing wetland.
- AA should also encompass most of the internal workings of the wetland that account for its homeostasis.

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### Hydro-geomorphic Integrity

- For an AA to have this desired level of integrity, it should be bounded by obvious physical changes in topography, hydrology, or infrastructure that significantly control the:
  - Sources
  - Volumes
  - Rates
  - General composition... of sediment supplies or water supplies within the AA at the time of the field assessment.

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### Hydro-geomorphic Integrity

- In summary: The boundaries of an AA should not extend beyond any features that represent or cause a major spatial change in water source or sediment source.

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### AA Size

- Larger AAs typically yield higher CRAM scores.
  - CRAM is especially sensitive to wetland structural complexity, and larger AAs can afford more opportunity to encounter variability in structure.
- For any given wetland type, having AAs of very different sizes can introduce variability into CRAM scores.

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### AA Size

- Preferred AA size is generally larger for types of wetlands that tend to have broad, level plains than for wetlands fringing steep terrain.
- To the degree possible, the establishment of an AA should first be based on hydro-geomorphic considerations.
- If this is not applicable, then use the recommended AA size (not to exceed the maximum AA size). Practitioner may use BPJ.

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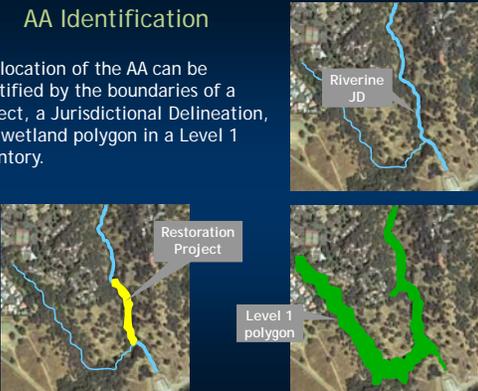
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### AA Identification

The location of the AA can be identified by the boundaries of a project, a Jurisdictional Delineation, or a wetland polygon in a Level 1 inventory.



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### Uniform Size



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### Summary of Considerations for Identification of the AA

- Purpose of Assessment
  - Project (multiple AAs to cover site)
  - Ambient (AA located at probabilistic draw point)
- Hydrogeomorphic Integrity
  - Bounded by changes in flow and sediment regimes
  - Maximize detection of management effects
- Size Limits for AAs
  - Larger AAs have higher or more variable scores
  - Larger AAs take longer to assess

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### Riverine Systems



- AA is the channel, its immediate floodplain, and essential riparian area
- Length = 10x average bankfull width within limits of 100m and 200m

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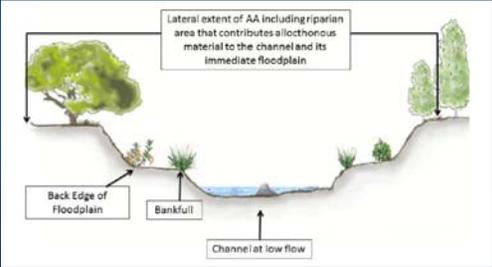
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### AA Includes Portion of Riparian Area Directly Affecting the Channel

AA lateral width includes portion of riparian area that directly provides allochthonous input to the channel and immediate floodplain.



Lateral extent of AA including riparian area that contributes allochthonous material to the channel and its immediate floodplain

Back Edge of Floodplain

Bankfull

Channel at low flow

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### AA Includes Portion of Riparian Area Directly Affecting the Channel



Allochthonous material

Back edge of floodplain

Edge of AA

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### AA Includes Portion of Riparian Area Directly Affecting the Channel



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### Depressional Systems



- Includes up to the backshore as indicated by:
  - Wrack lines
  - Transition from wetland to upland
- Includes the riparian vegetation overhanging the backshore (minimum 2m)
- Not to extend across:
  - More than 10m of open water

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### Depressional Systems



- If the wetland does not have a distinct area of open water in the middle but is more continuous emergent marsh habitat, the AA will be a 1 hectare circle.



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## Depressional Systems

Backshore of wetland and dripline of riparian vegetation



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## Depressional Systems

2m minimum and riparian vegetation overhanging the backshore



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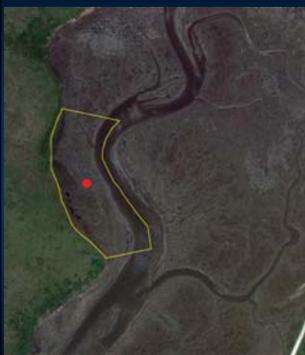
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## Estuarine Systems



- Determine boundary of AA at low tide:
- Not to extend above the backshore:
  - Wrack lines
  - Transition from tidal to upland
- Not to extend across:
  - More than 10m of non-vegetated tidal flat
  - Tidal channel more than 30m wide

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### Estuarine Systems

Identify AA boundaries using:

- Changes in hydrology - weirs, tide gates, etc.
- Backshore of wetland - wrack lines, transition from tidal to upland, etc.
- Change in wetland type - e.g., riverine to estuarine



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### Estuarine Systems

1 hectare circle (recommended AA size)



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### Vernal Pool AAs



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## Step 1: Identify Assessment Areas

- In the office, using aerial imagery
  - Identify pools *probably* interconnected by surface or subsurface hydrology
  - Vernal pool systems usually include 6 pools, with a minimum of 3 pools
    - AAs should not exceed ~10 hectares (300 x 300 m)
  - Extend AA boundary to surface drainage divide
    - But not exceeding 30 meters beyond pool boundary
- Ground-truth the AA boundary

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## Example of Determining AAs



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