Physical Processes
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DWR West Sacramento – Room 234, 09:30-12:00

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H1.1.1

- Instead of ecocline can we use location
  - Metric 1 – location of site (x, y)
  - Metric 2 – location of major water inputs, distance to ocean, distance to other restorations
- There's a feedback loop where the stie will effect the surrounding areas
- What's energy input metric?
  - It's the distance of the site from the river channel
  - Remove energy from hypothesis
- A measure would be velocity and conductivity
  - This hypothesis deals with more the location, while the site will deal with water quality
- Need to specify measurement type (ie rki vs straight line between river and site) – likely to be addressed in the text

Methods Comparison
Metric – topography & elevation

- Spot elevation surveys (takes point elevations across the site)
- LIDAR
  - Pros-get most of the site elevation
  - Cons – thick elevations and water level interference
  - Notes - resolution will differ
  - Frequency – 1 to 5 years
- Survey Transects/Spot Elevations
  - Pros – ground truth of LIDAR, good for channel transects, be used above and below ground
  - Cons – can be complicated to characterize elevation change, spatially limited view of the site
  -

Metric – Bathemetry

- Sonar
  - Pros – Characterize most of the site, total accretion
  - Cons – no vegetation sampling
  - Survey transects for groundtruthing
  -

Metric – channel length and channel complexity

- Aerial photos w/GIS analysis

    - Frequency – 1-3 years.  Survey a lot during first 5 years, and then every 5 years
    - Pros – characterize entire site
    - Cons – think veg barrier, water interference with reading

Metric – Topographic/Habitat heterogeneity

- CRAM
    - Pros -
- GIS analysis
- Aerial Photos
- Length of edge
- Area by habitat type/depth class

Metric – Vertical accreation rates

- before/after elevation surveys
    - Pros – overall accretion rates, less bias than other methods
    - Cons – not fine scale readings
- Sediment plates/pins
    - Pros – Easy and cheap to set up, better to capture erosion too
    - Cons – Cause their own localized erosion
- SETs
    - Pros – detect small chagnes
    - Cons – Costly,difficult to install correctly
- Feldspar (or marker horizon)
    - Pros – Easy and cheap to set up, characterize the source of accretion
    - Cons – can wash away, placement bias

Metric – Sediment loading

- Sonde
    - Pros – Sonde is already out there and it's easy to add a probe
    - Cons - Typically not collect due to expense, hard to collect good quality data.

Metric – Sedimet Type

- Silt, gravel, gravel composition
    - Grab Samples
        - Pros – Subsrate in hand
    - Side Scan sonar
        - Pros – characterize more area of the substrate
        - Cons – Limited by boat movement
- Suspended sediment partical size
    - Lazer instrumentation
        - Pros – Fast
        - Cons – Accuracy

Metric – Water Velocity

- ADCP
  - Pros – characterization of a channel, may be abel to tease apart why veg occurs in one location and not another
  - Cons – difficult to extract relevant data in some cases, expensive
- Point velocity meter
  - Pros – used for fish sampling
  - Cons – taken at one point

Metrics – tidal excursion

- Calculated from the tidal velocity, encompassed in flux

Metrics – tidal elevation (formely tidal datum)

Metric component – tidal range

- Pressure transducer
  - Freq – Continous (> 1 year)
  - Pros –
  - Cons -
  - Tied to geodetic series
- Calculate tidal statistics
  - Calculated georeferenced time series of water levels

Metric component – topographic elevation

- Topography + tidal range with GIS analysis to get area of intertidal habitat

- USGS data on NWIS - sediment data
- Precipitation – DWR
- West of Mallard Island – McKee literature shows methods in sediment supply
- CDEC - annual precipitation
- Discharge - CDEC and NIWS
- Delta Hydrology – DAYFLOW (updates once a year)
- Exports – BOR delta cross channel, DAYFLOW, DSM2
- Climate patterns – NOAA
- X2 – DAYFLOW, modeled by DWR (may be internally available)
- Sediment – NWIS
- Sea level rise – NOAA?