

# FY18 RSM IPR: Source of Sediment Infilling Kahului Harbor, HI

ERDC: Heidi Wadman  
POH: Tom Smith



**BLUF:** Identifying the sources and transport pathways of sediment infilling Kahului Harbor may lead to improved sediment mitigation strategies and reduction in shoaling rates.

## Challenge/Objectives

- Identify the source(s) of both fine- and coarse-grained sediment infilling Kahului Harbor.
- Quantify sediment transport pathways.

## Approach

- Collection of hydrodynamic and suspended sediment data
- Identification of geochemical markers to discern different point sources on Maui



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## ERDC:

**CHL:** Heidi Wadman  
Jesse McNinch

**EL:** Brooke Stevens

## POH:

Tom Smith

Lauren Molina

Jessica Podoski

## Leveraging/Collaborative Opportunities:

- Base operations out of the Maui Ocean Center
- Cost-share with DOTS
- Cost-share with MCIA

## Stakeholders/Partners

- Jay Carpio, Wailuku Community Managed Makai Area
- Tara Owens, Maui County Planning Dept/Sea Grant
- Duane Kim, Harbors District Manager, Hawaii DOT Harbors
- Nani Shimabuku, POH RSM Project Manager



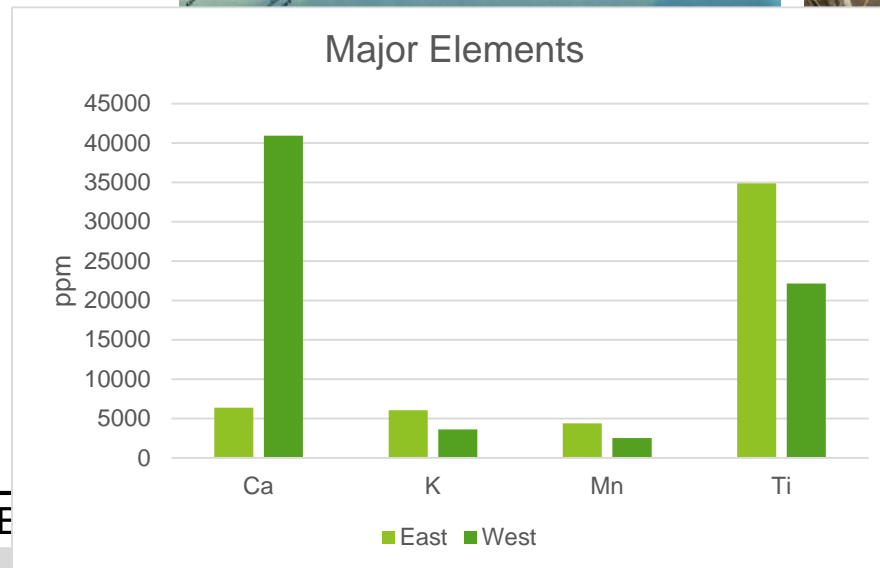
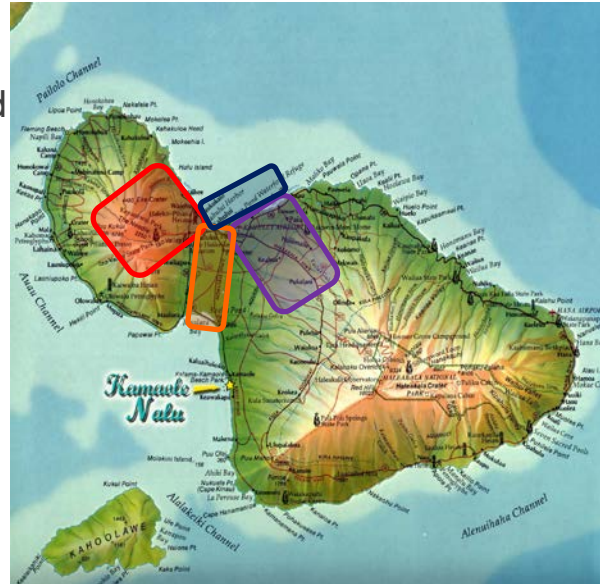
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- Gages deployed from Feb – April, 2018 (waves, currents, suspended sediment)
- Two sediment sampling efforts:
  - Feb: Catchment-wide
  - Apr: Targeted
- Preliminary XRF data:
  - East: **As**, Ba, K, Mn
  - West: **Ca**, Cr, Cu, Ni, Sr
- Samples being prepped for CHN and stable isotopes (terrestrial vs. marine; urban vs. non-urban; agriculture vs. sewage)





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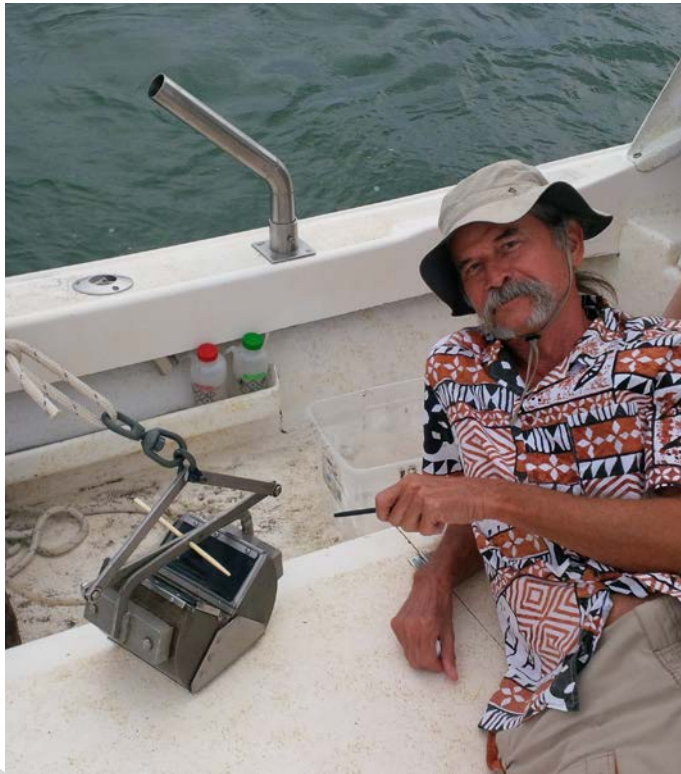
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## Challenges:

- Shipping issue delayed delivery of February sediment samples; forced an unplanned sediment re-collect in April.
- Delayed start to CHN & stable isotopes; data delayed until mid-summer
- Issues with aquadopp data record; ADCPs and CT/turb all recorded fine.



## Path Forward:

- Examine all sedimentary geochemical data to confirm ID of sources; compare with sediment data from the harbor
- Identify source(s) of sediment (mud)
- Erosion of northeast beaches – where is that sand going? Collaboration with local consulting firm...

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## Benefits:

- Erosion of sand from Maui beaches detrimental for shoreline stability, tourism, ecosystem health, etc.
- Preliminary results do not indicate it is being deposited in the harbor (this is good)
- Consulting firm offshore survey identified some sand shoals; could not survey close to shore (may have missed other shoals; limited data)



-- Suggests potential nearshore source of clean beach sand

-- Harbor shoal: muddy at surface; unclear if homogenous vertically (could still be useable)

-- Mitigation of fine-grained sediment at the source could result in “beach-quality” sand in the harbor