

**Invitation to discuss
Coastal Regional Sediment Management Plan for the
Eureka Littoral Cell**

**Humboldt Bay Harbor, Recreation and Conservation District
601 Startare Drive, Eureka, CA 95501 (Woodley Island)
December 8, 9:00 am - Noon**

Agenda:

9:00 Introduction of attendees

9:15 Summary of findings, Dilip Trivedi

10:30 Break

10:45 Discussion of findings

11:15 Discussion of possibilities for implementation

12:00 Adjourn

Betsy,

In general, black indicates presenter speaking. Red indicates stakeholder speaking, OR a point that is directly addressing things we need to do in terms of outreach/facilitation. Numbered/lettered attribution to stakeholder indicates that I chose not to identify or did not know exactly who was speaking...In some instances stakeholders are identified in this document by their names, and in some not. Green indicates a contested point. Purple indicates that I have no idea what the person is talking about (only happens once). Let me know if you have questions.

Jacqui

Introductions:

Betsy Watson, HSU, Elizabeth.watson@humboldt.edu, (707) 826-5421

John Dingler, USACE, john.r.dingler@usace.army.mil

Joel Beininger, USACE, joel.r.benegar@usace.army.mil

Dilip Trivedi, Moffatt and Nichol, dtrevidi@moffattnichol.com

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Tom Lisle, US Forest Service, Thomas.lisle@gmail.com, 839-0573

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Sam Brynt - HSU

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Eric Nelson, HB Nat'l Wildlife Refuge, Eric_T_Nelson@fws.gov

Susan Schlosser, University of CA Sea Grant Program, sschlosser@ucsd.edu

Cliff Davenport, CA Geological Survey/CSMW, clif.davenport@conservation.ca.gov

Dave Fuller, Bureau of Land Management, dfuller@ca.blm.gov, (707)825-2315

David Hull, Humboldt Bay Harbor District, dhull@portofhumboltdbay.org, (707)443-0801

Adam Wagschal, HT Harvey Ecology, awagschal@harveyecology.com (707)496-2088

Presentation on Projector: PowerPoint Slides from ReportMtg@.pdf

(Presentation, report, and literature, especially that which Moffatt Nichol Team collected from Humboldt Room and local data libraries, announced to be made available through an FTP site accessible to all).

“Data Gathering and Assimilation Report Summary – Summary of draft report:”

(Slide missing from pdf; summary of pdf report)

- Governance Structure
- Coastal Processes and sediment budget
- Critical Erosion Areas
- Dredging and disposal practices
- Biological Considerations
- Societal Considerations
- Geospatial Data
- Data Gaps

Dilip

Fluvial Inputs

- Geographic boundaries: Eureka Littoral Cell – has been submitted to be Trinidad Head and Falls Cape. Within the Littoral Cell are three major sources of sediment: Little River, Mad River, Eel River (reference: Griggs Report, which draws on other studies and Humboldt State papers).
- Slide three (fluvial inputs) shows sediment that remains on beach, which is a margin/fraction of what is expected to be suspended.
- Sediment tends to end up in dune fields in the North, and in canyons with millions of yards of sediment in South.
- Marshes are not showing a lot of accretion, which indicates that the sediment is not coming back in.
- Uncertainty exists as to where suspended sediment is going...

Modeling and Predictions System (MOPS) Findings

Summarizes summer and winter transport, which overall seems to balance.

Navigation Channel Dredging (p. 4 Report)

- Displays estimate of about a million yards sand and gravel (very coarse sand).
- Fields Landing area has by far highest fine material concentration. Eureka Inner Channel also has high concentration of silty material.
- Sediment in inner channel is tested every 3 years and dredged as needed. On the presented map, everything in colored portions is demonstrated to be clean. Certain spots have had to be treated/dredged. Chemical content is not necessarily the main reason for *not* dredging. Material may be *not* dredged/transported due to particle size of sand, esp. fines.
 - RE: Question of other rivers as sediment transport sources, literature and data review has not indicated that these contribute significantly to material sediment concentrations shown on map.
 - RE: Economic impact of sediment plan is closely connected to safety, and is under consideration as per the dredge material plan.
 - RE: Deepening project ... “Bigger holes attract more sediment” – phenomenon not completely understood. El Nino events may impact accumulation of sediment in ways uncharacteristic of usual patterns.
 - Look into “Continental Sediment Margins” for data on Eel River sediment flows (including El Nino and “normal”) Joel Benigar has scan of section of book; Susan Schlosser has entire book.

Federal Channel Dredging (p. 5 Report)

- Sandy: anticipate another 40-mil/50-mil. tops.
- Entrance channel is dredged using army corps equipment. “Generally that practice would like to be continued.” Corps uses “Hopper Dredges.” Northern/outer reach is also dredged using Hoppers.
- Hoppers limit capability or possibilities to move dredged material, and dictate some options for reuse of material, because it’s sand mixed w/water.

Outreach

- Betsy – Continue discussion with people regarding possibilities for use.
- Caltrans – cannot deal with sediment reuse because of their contracting apparatus.
 - Hank Seamens – use in road repair (see Caltrans)
- CHERT (Local extractors). Three different people are interested and want to see report.
 - Re: How to reduce sediment: Per economic conditions, local needs are being met w/current dredging practices but extractors are open to the possibility of dredging more.
 - Material is being barged elsewhere (particularly, Vancouver to SF Bay area) and CHERT is looking into that. All are adamant and interested.
 - CHERT can take material from river if it's in the estuary, but cannot once it's reached [the beach].
 - RE: Positive interest in future removing more gravel before it gets to the littoral system.

Stakeholder 1: Also “big market in San Diego area” looking to catch up w/deficit something like 1mil. Yards/year beach compatible sediment. (Idea for disposal/transport).

Stakeholder 2: Given that dredging in the channel may not decrease the amount of sedimentation in littoral zone, building up economic need/market around transporting dredged materials may not actually address problem of excess sediment.

Stakeholder 3: Railroad option for transport in future.

Sediment Reuse: Five Options: (Listed in PDF p. 6)

Beach Creation Option 1 (Pg. 7, PDF)

King Salmon Bhune Point: “Typical beach restoration project.”

- Has railroad embankment; sandy material could be placed there.
- Wave angle indicates “good place to have a beach.” Area has predominant wave direction that is straight through...not on an angle.
- A lot of sand could be put there.
- Only need would be a means for sediment to be taken from hoppers and disposed onto beach. Possible use of “pumper” dredge.
- As a “pilot project,” it may be more affordable.

David Fuller (BLM): Possible interest in federal funding for restoration on site 1.

Susan Schlosser: Go back to data to look at sediment movement from the 80's to understand “if sand will stay there.”

David Hull: There is room for sand around wastewater discharge, City of Eureka.

Army Corps (Dingler and Benegar)

- Army Corps must manage most cost effective way. “Hoods” have been shown to be so.
- Harbor district is non-federal sponsor to oversee implementation of plan....

- Storm-waves, even on open beach, can create beach retreat. Therefore...this beach proposal should be modeled and model included in proposed plan for consideration.

Beach Creation Option 2: “Beaches eliminate need for big sea walls...they provide flood control.”

General area – HWY 101 Safety Corridor (pg. 8, Pdf)

Stakeholder Concerns:

- Eel Grass (although such vegetation does not show up on photograph...)
- High Mud Flats
- Issue of flooding on Hwy.
- Shorebird habitat – loss of wetland
- Notion that Hwy. is *below* railroad (in reality), though not necessarily depicted as such in illustration (See Cross-section, Pg. 9, PDF)

Potential Functions of Sand/Beach in Area:

- Multi-use coastal trail (bike trail).
- Target *different* species (sandy beach vs. mud flats)
 - It comes down to a “discussion for community.” What are the local needs for ag. lands? Mud flats? What is value for high mud flat vs. intertidal marsh?

Stakeholder A: Area is under “bay conservation” and most of area is owned by Fish and Wildlife service. They decide use...or whoever is controlling agency decides.

Stakeholder B: RE: Local Community for Rails to trails. Rails don’t have funding/grants lined up. Trails people do, so this project should consult with ‘trails’ people.

Dune Creation Option:

Samoa Peninsula

Stockpiling Sands. Will it stop invasive plant issue?

Many Questions, though option is worth considering on both N. and S. spit.

- N. Spit beach shoreline has receded; not dunes. Corps has looked at placing sand in front of it.
- Sand from Eel may not go past jetty’s, so depositing sand on the beach may be viable pilot project.
- Tom Liles: Sand on dunes is very well sorted by the wind. Added sand will impact plant life due to different mixture of particle size.
- Stakeholder C: Dunes (N. Spit) are high enough to provide protection from tsunami,’ though it’s a “different story” on the S. Spit.
- Dune Community/Dunes Forum/Friends of the Dunes/Wildlife Center Staff –
Outreach Calls

Wetland Restoration Option

- Example: Teal Island, possible location for pilot project (pilot projects make permitting easier when dealing with Army Corps and funding).
- Concept: Reversing subsidence by placing fill material. The kind of material depends on the amount needed.
- Questions: How could material be brought in? Hopper dredge...equipped w/pump-out is easy enough to pump onto island and water would just fall out. Existing practices and standing pipeline dredges could do this easily. This could also be applied to places along the bay as well...

Via David Hull: If material is clean, City of Arcata shows interest. However coordination with City and funding will impact implementation (ex: timing and permits influence readiness for project). District's facility at fields landing could be used for storage ("offloading transfer facility") in South Bay, also by the bridge in North Bay.

Salt Marsh: recreating what bay would have looked like before parcels (in PDF pgs 16, 17)

- Slide 1: Transition from mud-flats. Could incorporate both sandy and fine. Perhaps sandy berm on outer and backfill with fine material.
- Slide 2: Non-depositional. High mud flats not going to convert into fringe marshes, but making it flat allows possibility of accreting and gathering more fine sediments.

Improve Levee System

Levees incur risk by going higher due to geological principles. However, backfilling jetty's is an option. A large amount of material could be used as a 'set-back levee,' aka berm.

Issues:

- Sea level rise and improving levee systems: need for closer look at places to be protected (places to use set-back berms, and economic value of protecting certain areas vs. others.)
- Area presented on map (p. 18 pdf) is a Bureau of Reclamation District. It is mostly public lands. Ownership by Caltrans, Fish and Game, and other entities along levee (5-7 miles).
- **Area represents critical infrastructure, habitat, erosion. etc...** Recommend utilizing decision matrix in dealing with levee system.
 - "Decision Matrix" example: Sand Compatibility an Opportunistic Use Program (SCOUP) – available on CRSMP website.
 - Humboldt Bay Initiative already holds discussion relative to sea level rise, etc. Suggest holding a broader, more public forum, with groups who already working on such issues.

Dredge Material Transfer Option

Recognizing that: Corps Dredge cannot deliver sediment to stockpile areas on land.

- Areas between margins of channel can serve as disposal points. Once deposited there it can potentially be mined and moved again. Practiced in San Francisco as

such, however currently project is stopped and sand is coming in from Vancouver boat carriers.

Issues:

- Economic versus ecological merit of sand transport option (clean sediment as a resource)
 - Beneficial reuse or resource? An issue of framing: As money-making resource (to ship ‘down South’) potential for negative environmental impact of turning dredging into an economic practice.
 - Basic question: Do we want to use dredged material or keep dumping it in the hoods?
 - CSMW philosophy is that sediment is a resource because it has value in restoration of natural processes vs. notion that **Economic Practices create deficits and/or need for restoration.**
 - Sand is needed in So.Cal, vs. **Defining problems as centered on needs outside of area may polarize issue locally**
- Concern that dredged material deposited between channel margins goes into channel.
- Suggestion for “just one” stockpile area (the more northern one).
- Reuse: is reuse a mandate w/in mission currently? Answer: Depends on area plan. Dredging does not necessarily authorize sites for reuse. If included in plan reuse site will be brought before congressional decision.
 - Nexus with Corps and decision-process creates some uncertainty in planning; YET Corps SHOULD NOT present a restriction for planning based on current authorization policies.
 - Ex: in SF Corps and other agencies piggybacked on CSMW pilot project...
 - Ex: San Diego County (plan found on CSMW website) plan included Corps for dredging, while Corps had not officially “signed on yet” but it is included as option (pending approval/authorization).

John Dingler

Predictive capabilities w/in Corps

Wave energy!?

Esaons (SP??) Cannot work safely w/in 40 feet of water. Must work w/in 40-50feet of water. Range is outside wave energy...area for times throughout year...?

Site working on developing for DMMP would meet criteria for distance and time involved...to make it no more expensive than target dump at hoods. Sand placed has SLOW migration. Slow rate of migration makes it viable as option...for placement of sediment for demonstration site. Was (in SF)/Can Be modeled by Corps using Delph model.

Question: Is wave energy demonstration site under consideration for sediment transport off-shore?

Next Steps:

How to frame discussion of ‘reuse/transport’ of dredged materials for report.

Draft: Purpose to IDENTIFY and FOSTER DISCUSSION at local level.

- In Eureka Littoral Cell, there are a range of options, needs, and alternatives. Therefore, presentation of proposed plans in report may generate ongoing dispute... even contestation among divergent stakeholder groups working on issues.
- **Question: How do we frame the presentation of potential sediment management plans in a way that will accommodate the needs for planning while acknowledging sometimes contradictory perspectives on economics/land-use/value/theories of future use and condition of coastal land?**

Via David Hull/Adam Wagschall: Refer to Humboldt Bay Management Plan for issues already adopted/accepted by district such as sea level rise.

Take draft report to Humboldt Bay Management Committee Initiative Team and other such groups to discuss, and do so when other local specialists/stakeholders are there.

Danger in proposing a parallel “draft” such as the one presented on MPA (will be met with resistance)

General areas critical for consideration: Subsidence, levee system, sea level rise.

Approach: Take proposal/draft to groups, and frame CRSMP as a “resource” issue rather than “problem” issue.

- Creating options: Once a list exists that is presentable to “public,” then take that list to the groups to have THEM identify locations of critical areas.
- Use general maps, but not specific (in PDF, this would be the first few maps...).
- Present economic and ‘bigger picture’ frame within this draft/list to generate more willingness in participation.

Change in outreach effort: Bigger forum. Target “groups” working on issues in addition to agencies.

Look at Existing Plans from Sandag, and Santa Barbara/Ventura area to see “what goes into a plan” “how a plan is constructed” as a guide in coming to a conclusion for a plan that works for up here. Up here our problems are not as big...but we have lots of little ones.

Need upland source data – to provide to stakeholders – to give credibility to project (Contact Tom Liles)

Need comprehensive “interest group” list who have stake in Sediment Reuse.

Acknowledge issue of upland sources and sea level rise, but stay within scope of project.

- Provide a definition of upland sources and sea level rise in relation to this project, and include a statement/paragraph with reference to sources.

Report/Draft to be completed in next steps will go out to *groups*, but *NOT* to the *public*, yet.

Value of current report: menu of options of what could be done...a “next phase” would be to work w/stakeholders and organizations/policy proposals.

Could be problematic to be left with a final product of something as unfinished as ‘menu.’ Also problem that this specific and well-done report will be shelved and not adopted once Corps/Consulting facilitation absent.

Therefore, facilitate participation from those who will implement the plan BEFORE it is finalized. Stakeholder agreement facilitated in planning process and identify/solicit leadership for implementation (w/in planning).

Create proposal plans using specifics (measures, considerations, problems...benefits, methods for implementation, permits, impact analysis). ‘Ready for takeoff...’
Would Include: What is practical engineering-wise (dredging...reuse, transport, time-frame)

There IS interest by Harbor District and Corps particularly around issue of dredging.

Discussion as to what practical purpose the final document will serve, and what it will consist of that will facilitate its use in Humboldt County:

- Short list of: places where fine grain could be used as determined by municipalities, so that sediment storage could be done in preparation, and identify locations for storage.

List of problems + list of resources (Dilip)

- Discuss options.
- Describe them
- No more than 20 pg. document that can be circulated to larger group. Next meeting would be w/larger group.

Group to meet with: Humboldt Bay Initiative (HBI): Jan 28, 8:30-12

CRSMP Meeting 2

12/8/10

Name	Organization	Contact email/phone
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Clif Davenport	Ca. Geological Survey / CSMW	dfuller@ca.blm.gov
Susan Schlosser	Univ of Calif Sea Grant Program	707 825-2315
Eric Nelson	HB Nat'l Wildlife Refuge	clif.davenport@conservation.ca.gov
John Mello	Calif. Dept. Fish & Game	sschlosser@ucsd.edu
Pete Orange	H. B. Management T. Advisory	Eric.T.Nelson@fws.gov
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Brian Leslie	Moffatt + Nichol	orange1@humboldt.org
Joel Benegar	USACE	thomas.lisle@gmail.com
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EUREKA LITTORAL CELL COASTAL REGIONAL SEDIMENT MANAGEMENT PLAN

Stakeholder Meeting No: 2

Dec 8, 2010

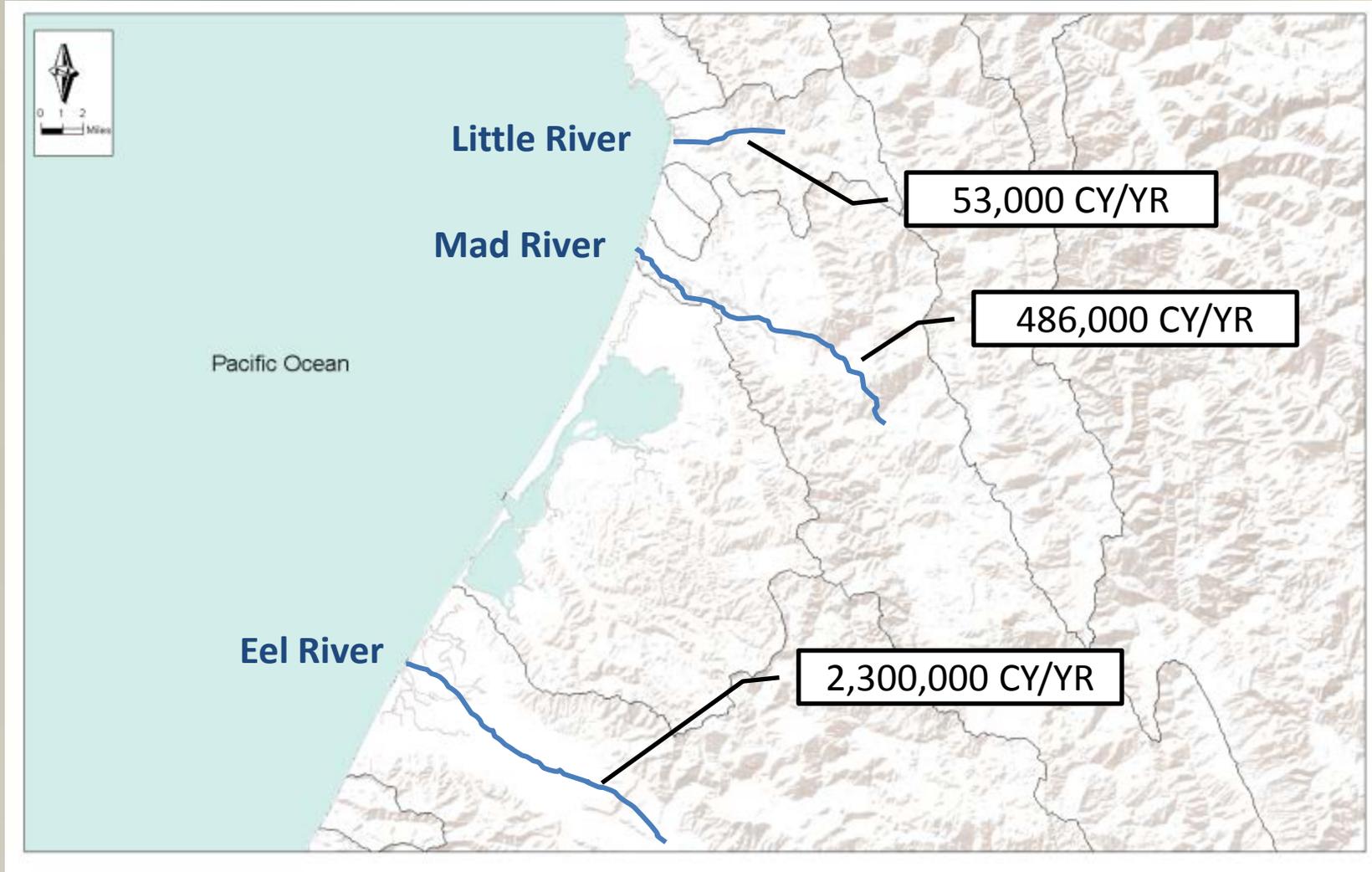
MEETING OBJECTIVES

- Present Summary of Data / Literature
- Discuss Potential Implementation Projects
- Obtain Feedback / Ideas

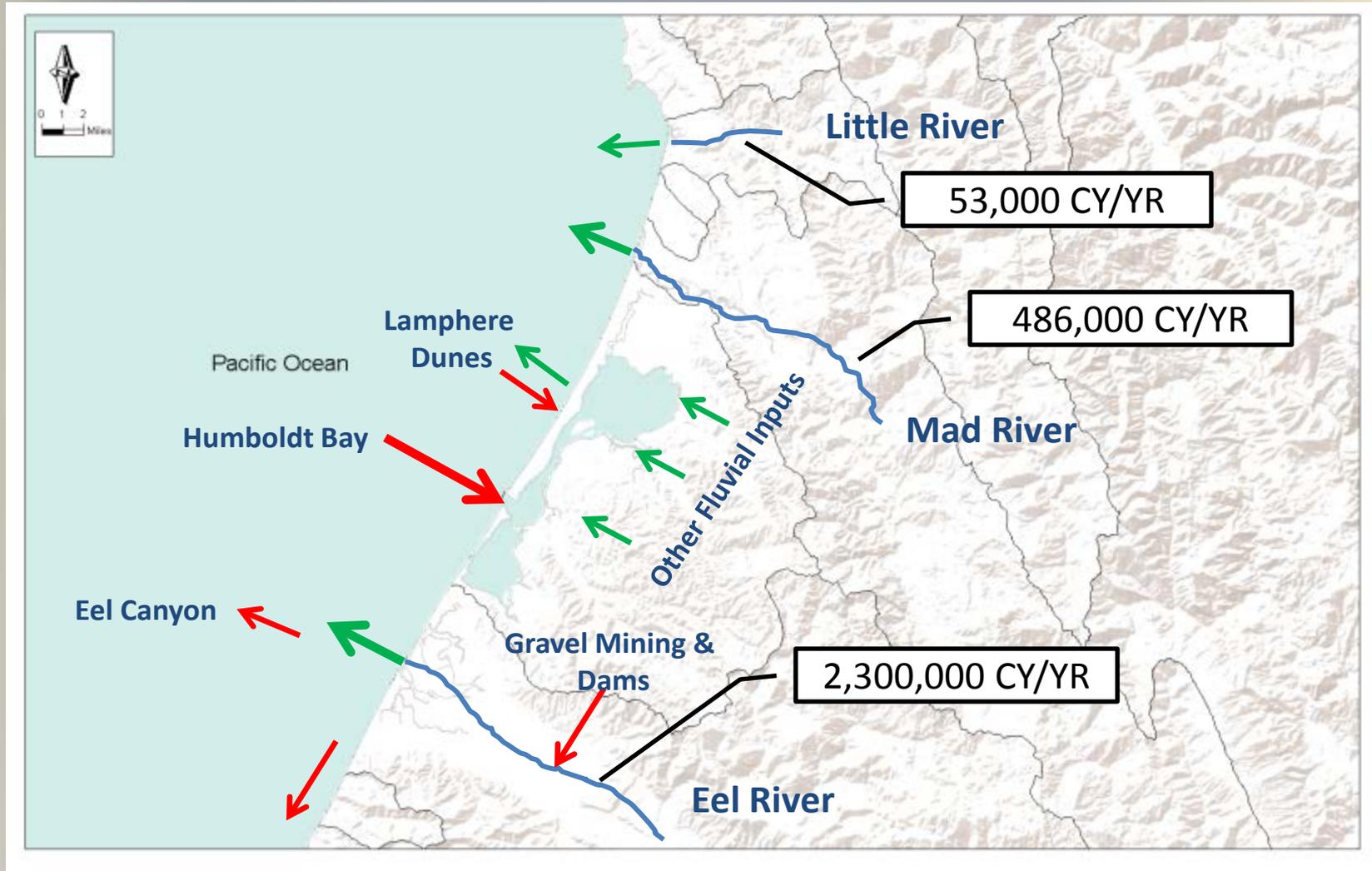
Data Gathering and Assimilation Report Summary

- Governance Structure
- Coastal Processes and Sediment Budget
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- Dredging and Disposal Practices
- Biological Considerations
- Societal Considerations
- Geospatial Data
- Data Gaps

Fluvial Inputs



Sediment Budget

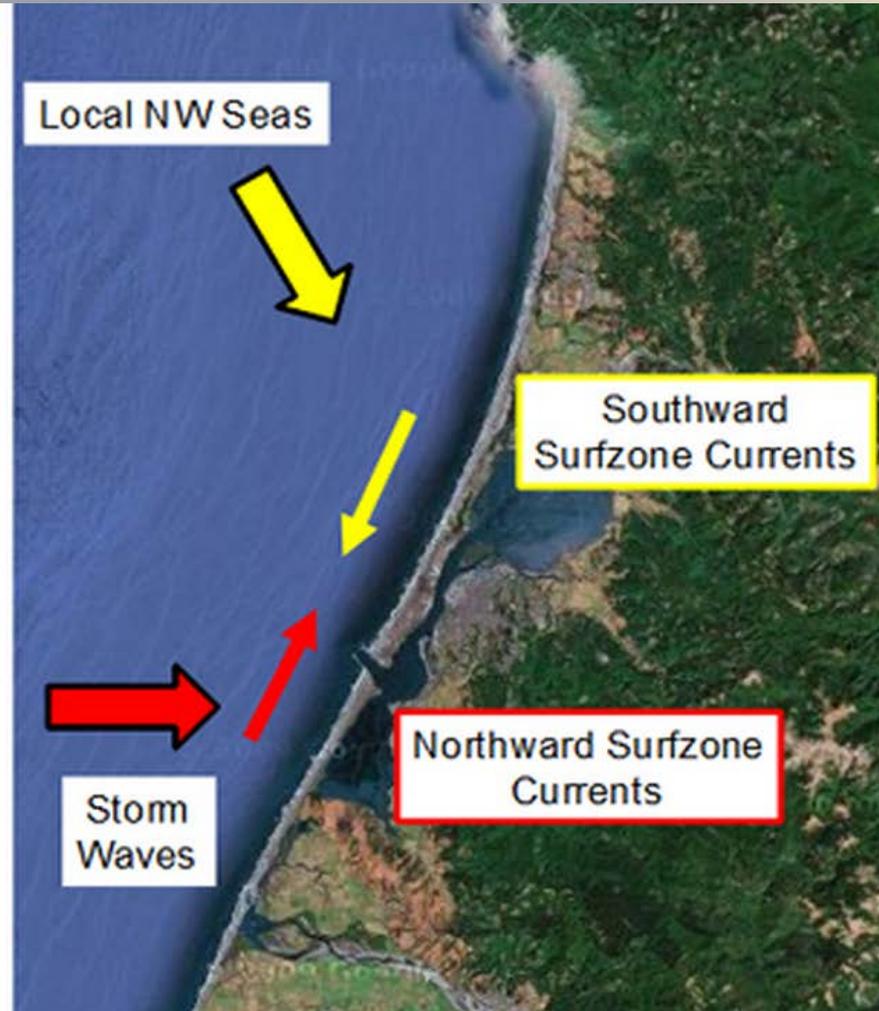


MOPS Findings

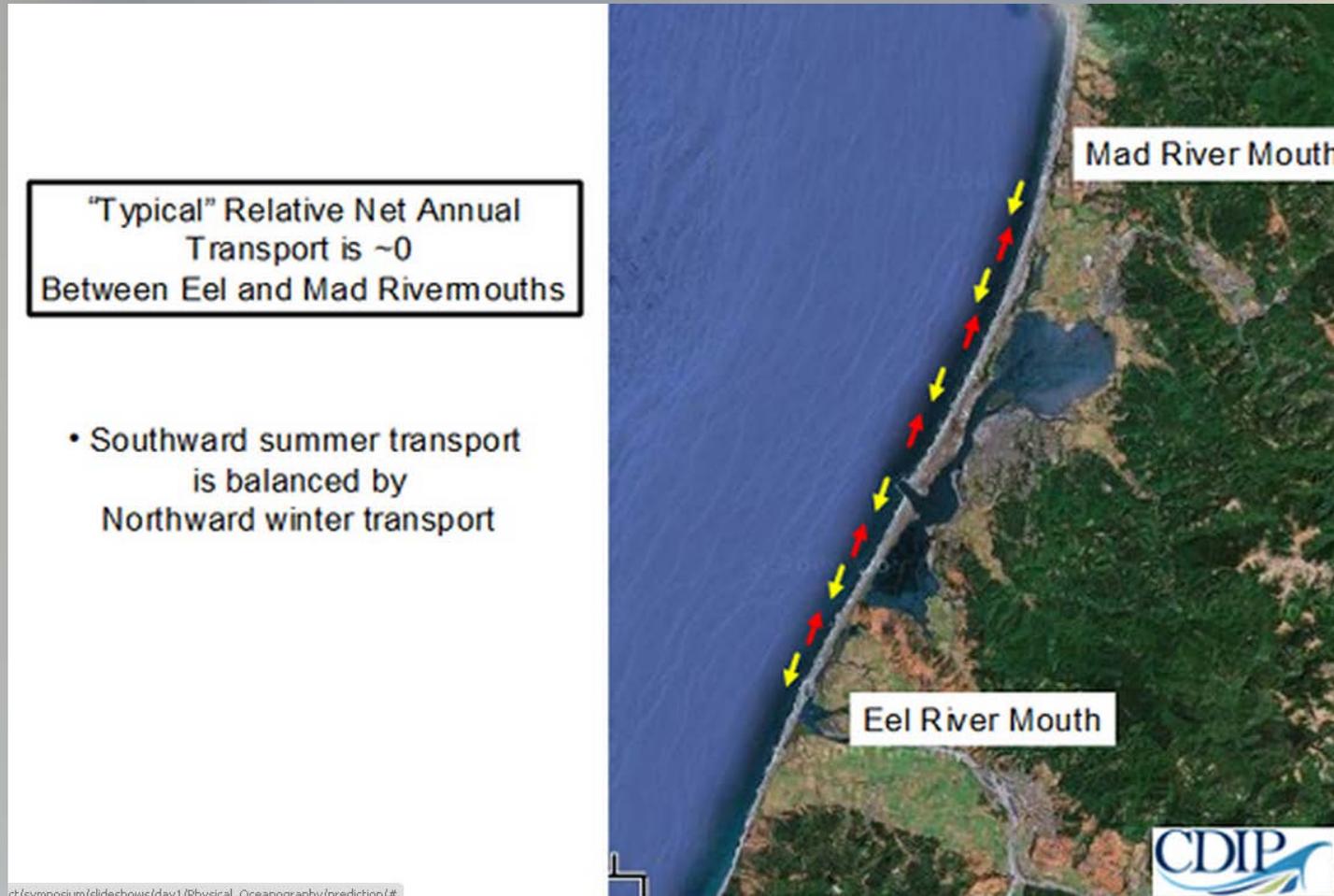
MOP Preliminary Findings 2004-2010

Wave-driven Surfzone Currents & Sediment Transport

- Balance between year-round NW seas and W storm waves
- Summer months dominated by NW seas and southward transport
- Winter months dominated by W sea & swells and northward transport



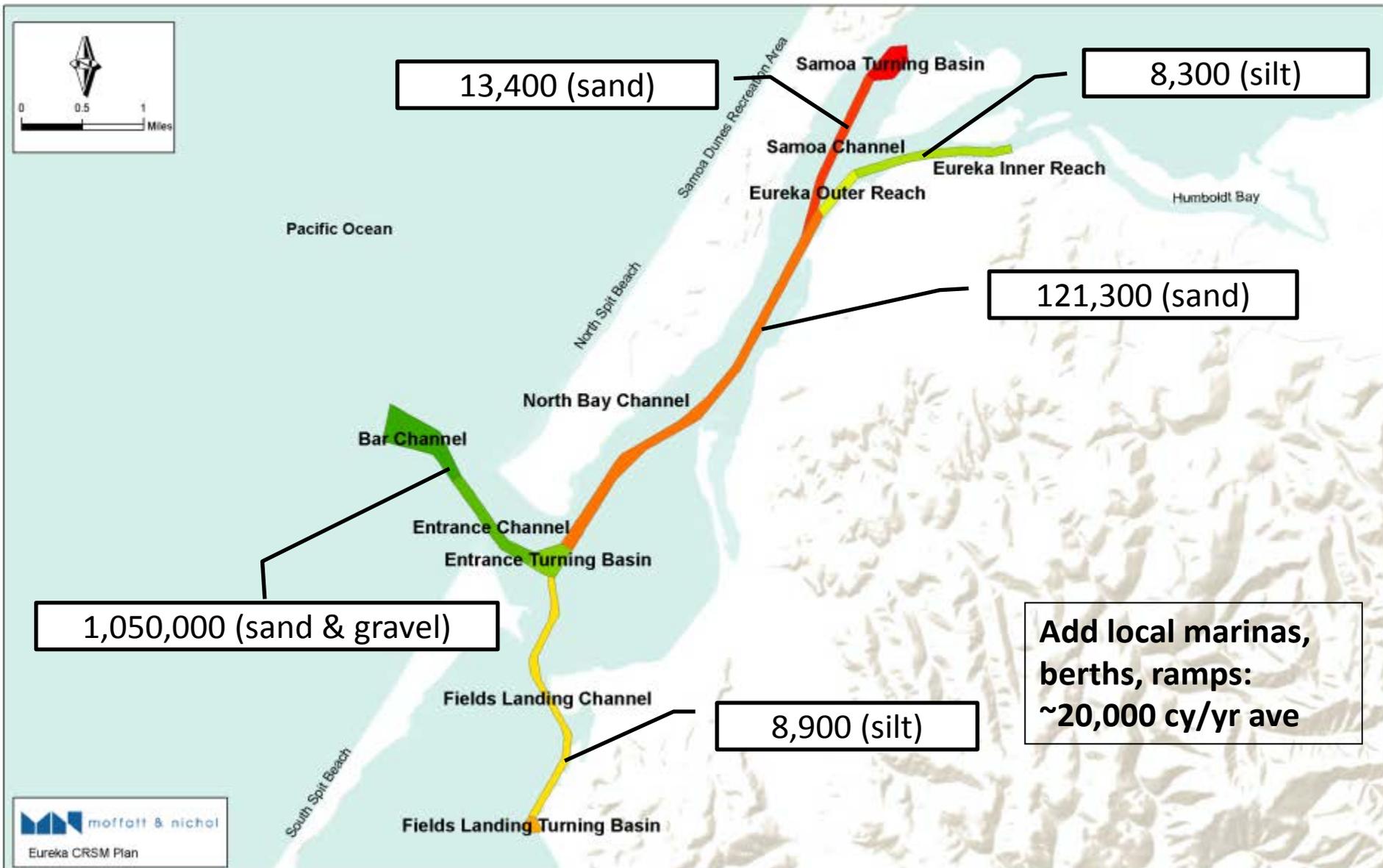
MOPS Findings



ct/symposium/slideshows/day1/Physical_Oceanography/prediction/#



Navigation Channel Dredging



Federal Channel Dredging

- Sandy (Total Volume Available ~ 1.2 MCY/yr):
 - Entrance Channel & Bar
 - North Bay Channel
 - Samoa Channel
- Silty (Total Volume Available ~ 17,000 cy/yr)
 - Eureka Channel
 - Fields Landing

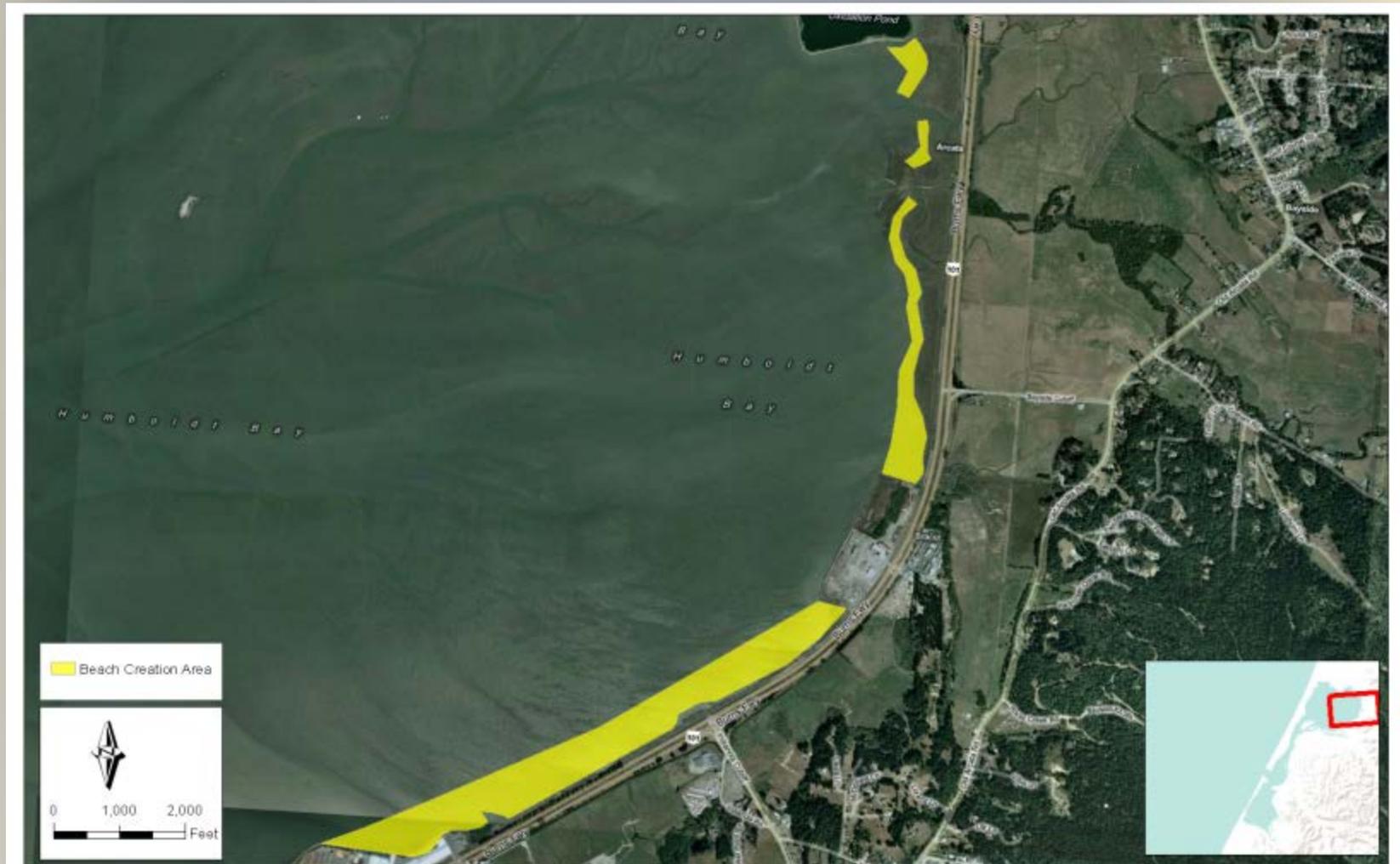
Sediment Reuse Options

- Five Options Considered:
 1. Beach Creation
 2. Dune Creation
 3. Wetland Restoration / Creation
 4. Improve Levee System
 5. Dredge Material Transfer

Beach Creation Option (Site 1)

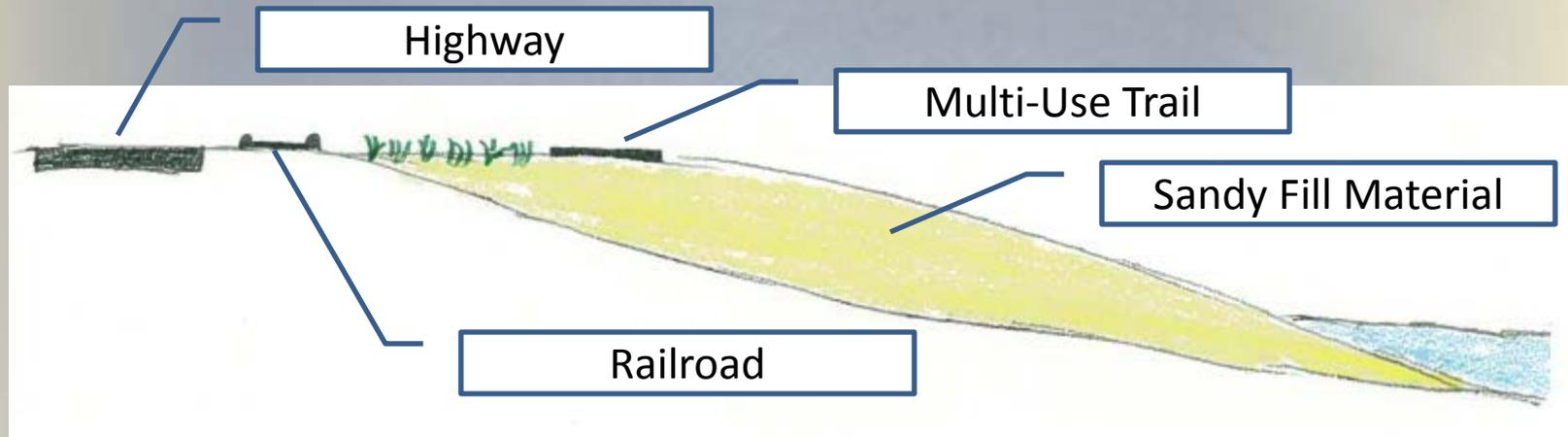


Beach Creation Option (Site 2)

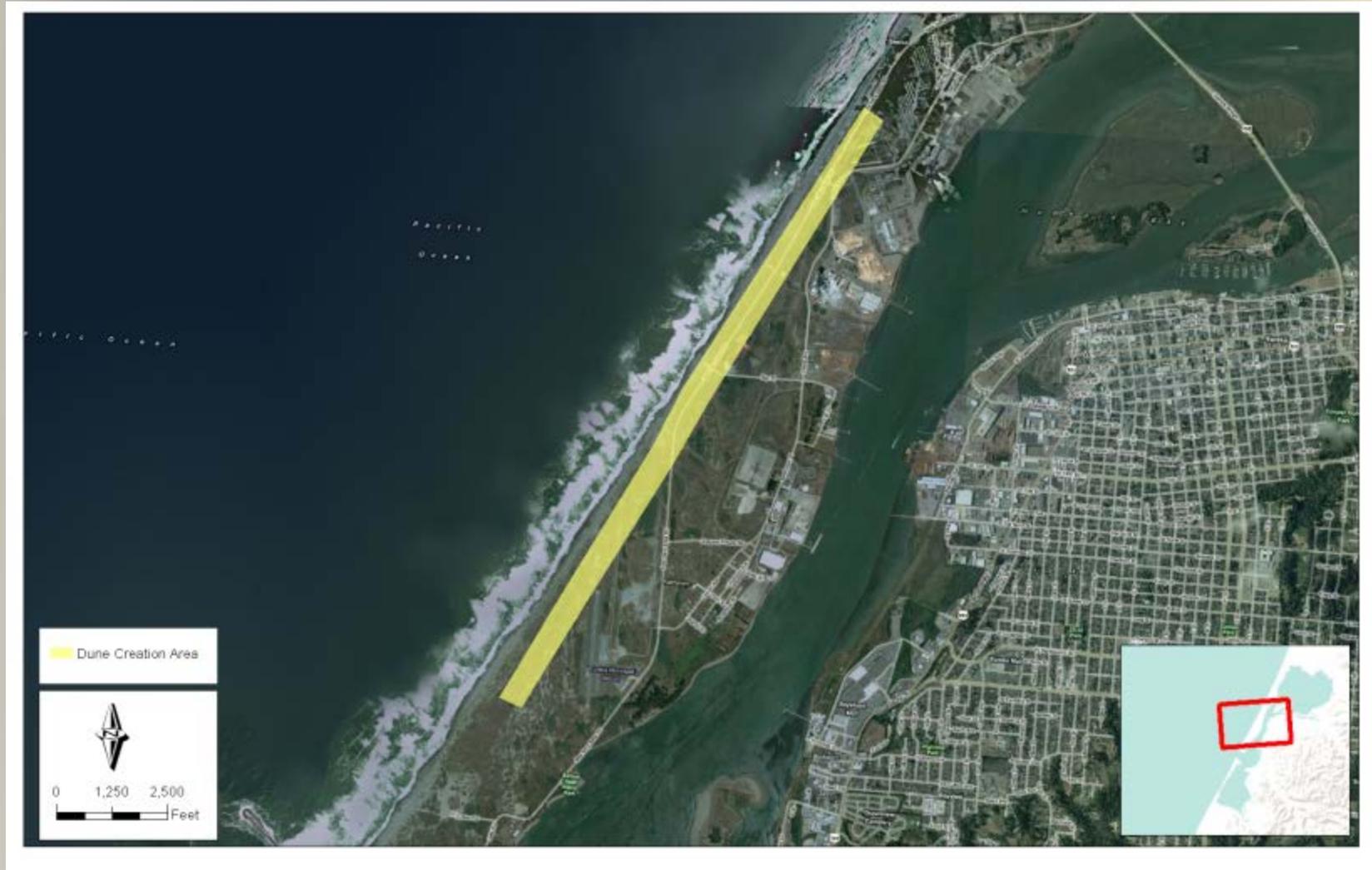


Beach Creation Option

- Utilize material to create a beach for recreation or “soft” form of shoreline protection
- Coarse (Sandy) material is needed

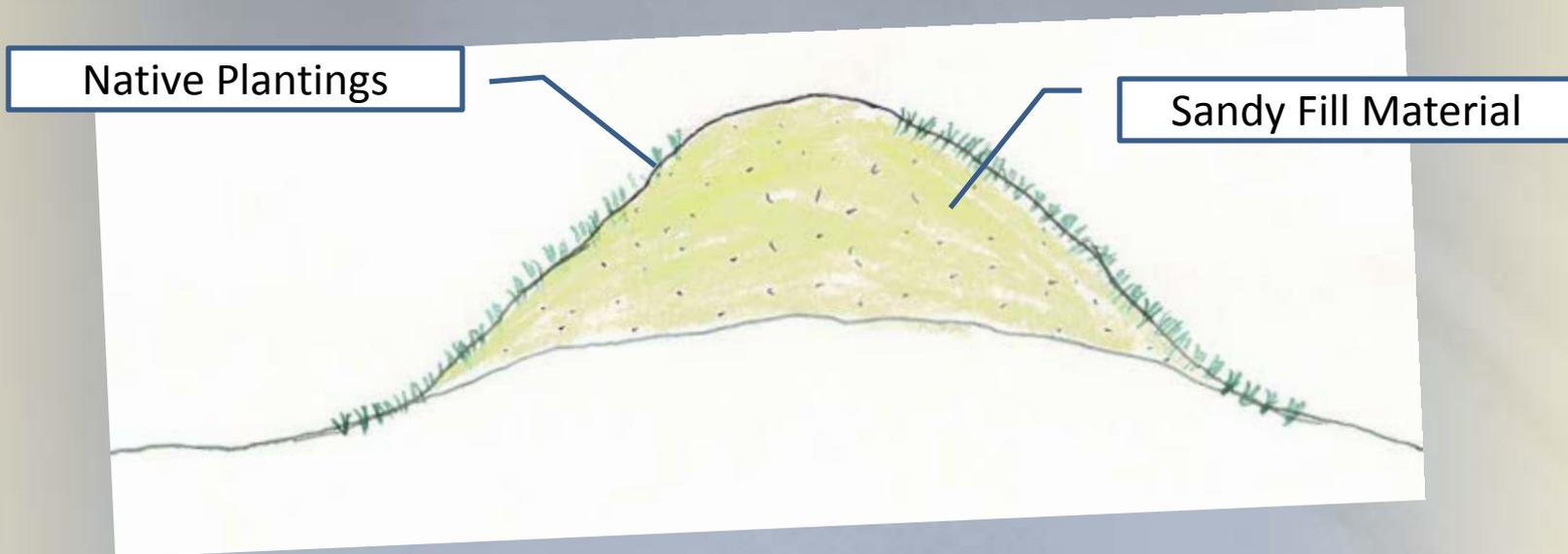


Dune Creation Option

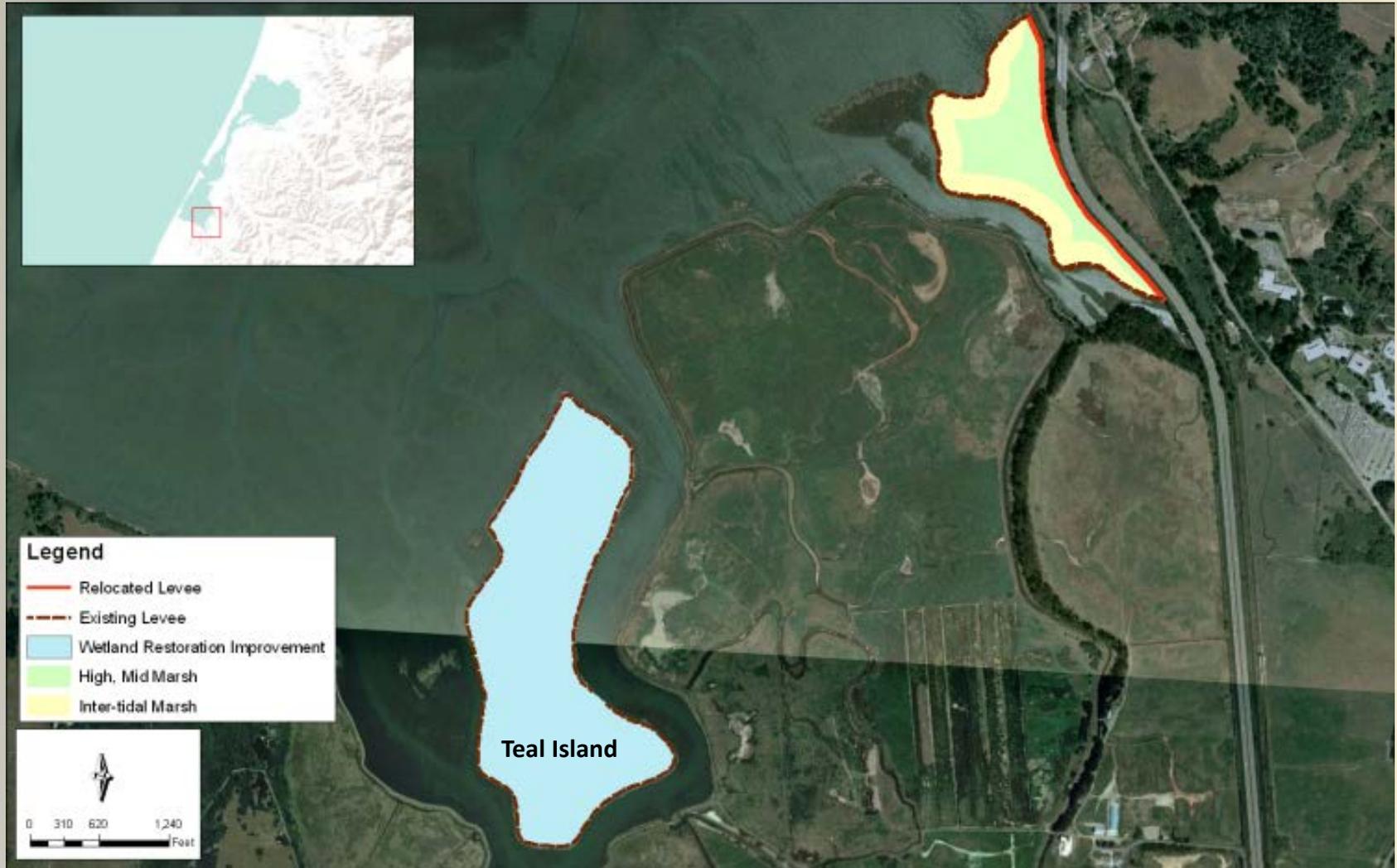


Dune Creation Option

- Raised / bolstered dune
- Sandy Fill covered with native plantings

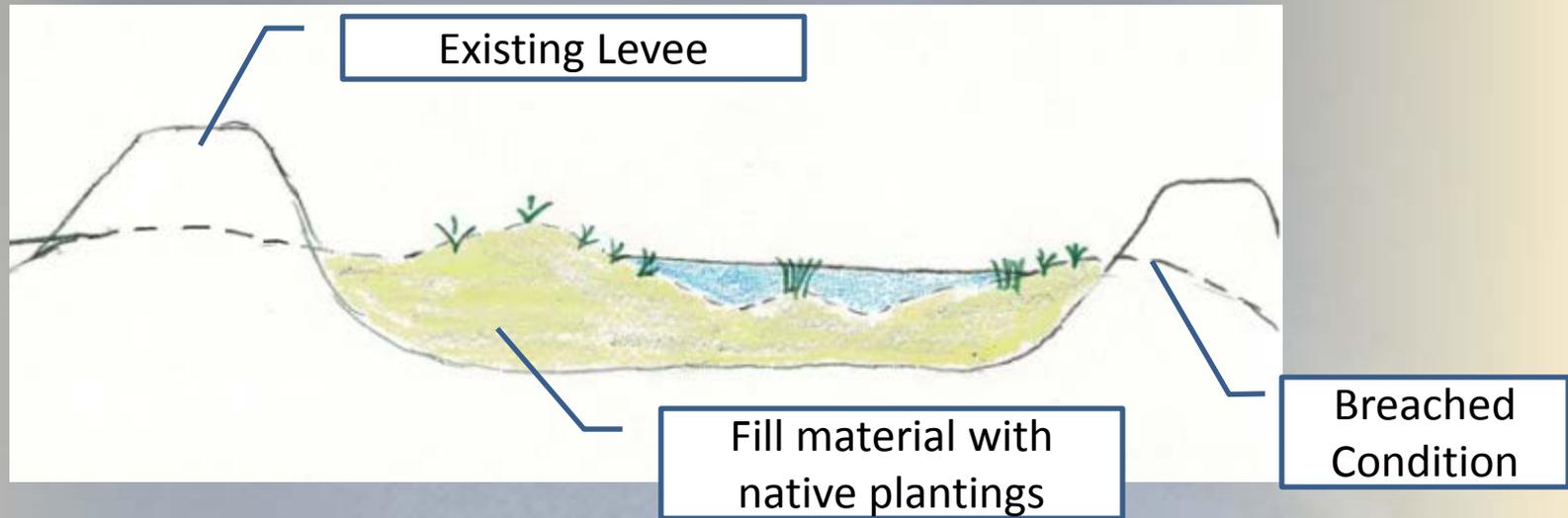


Wetland Restoration Option



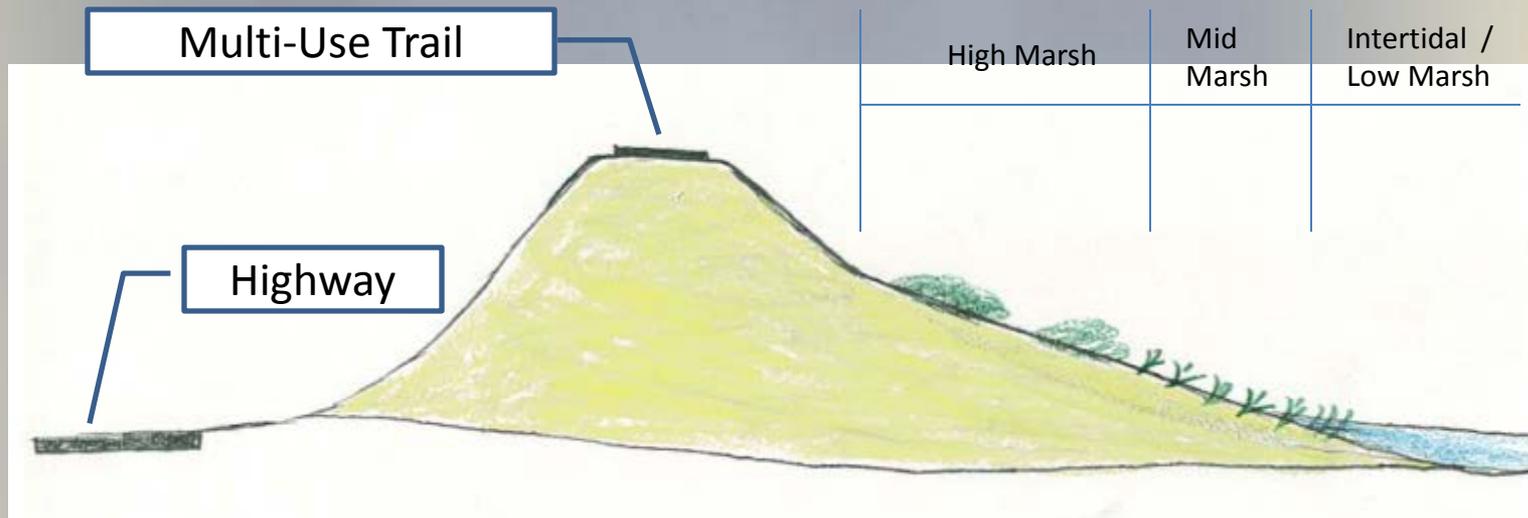
Wetland Restoration Option

- Breach / Remove Levee



Wetland Restoration Option

- Relocate Levee

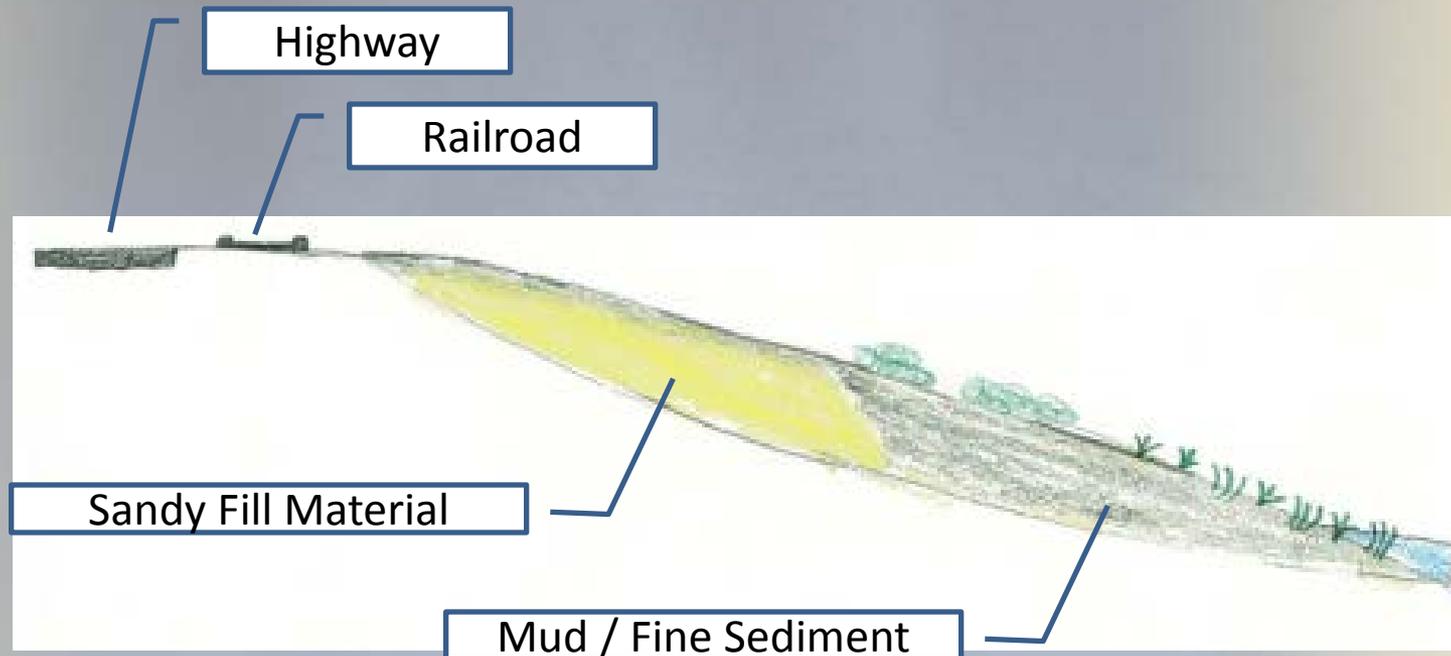


Wetland Restoration Option



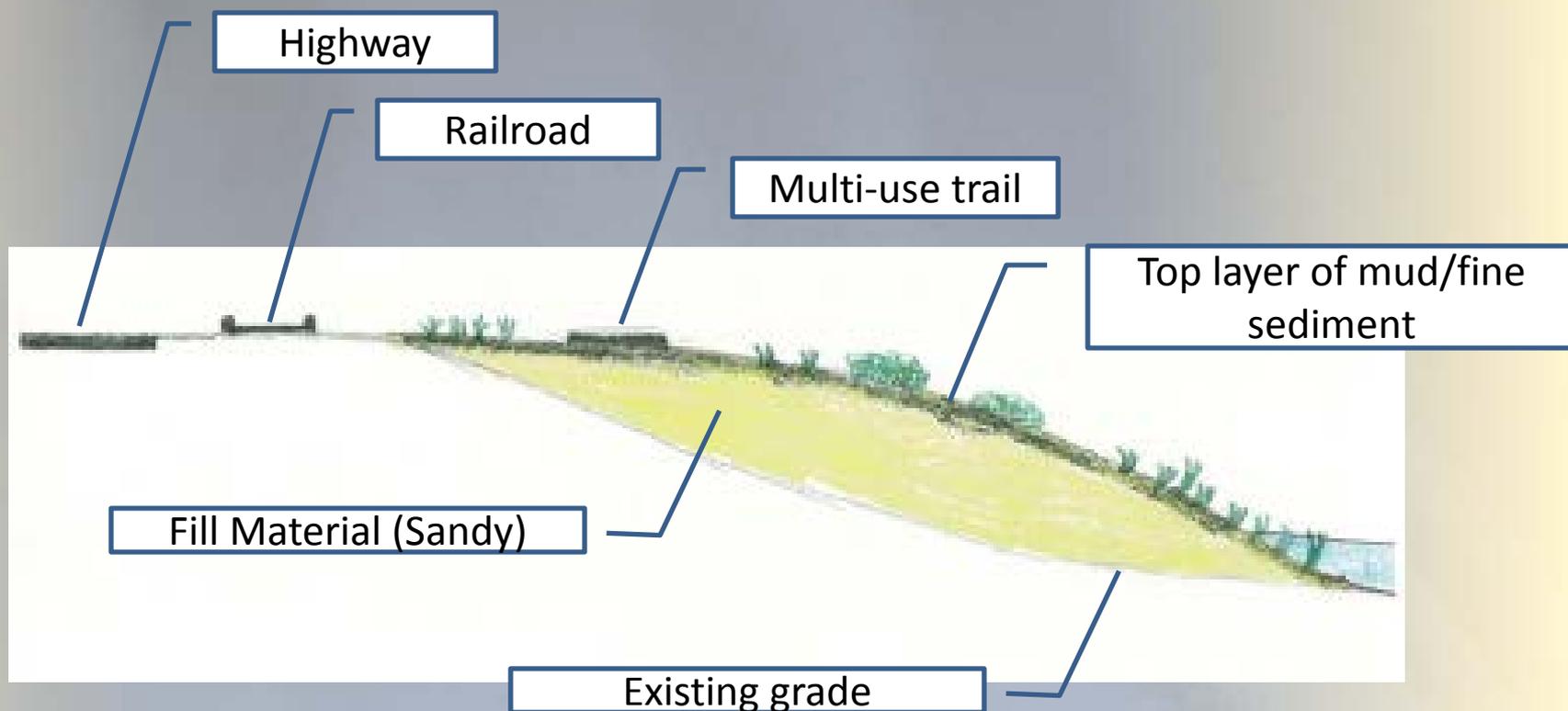
Wetland Restoration Option

- Salt Marsh Creation



Wetland Restoration Option

- Salt Marsh Creation (cont.)

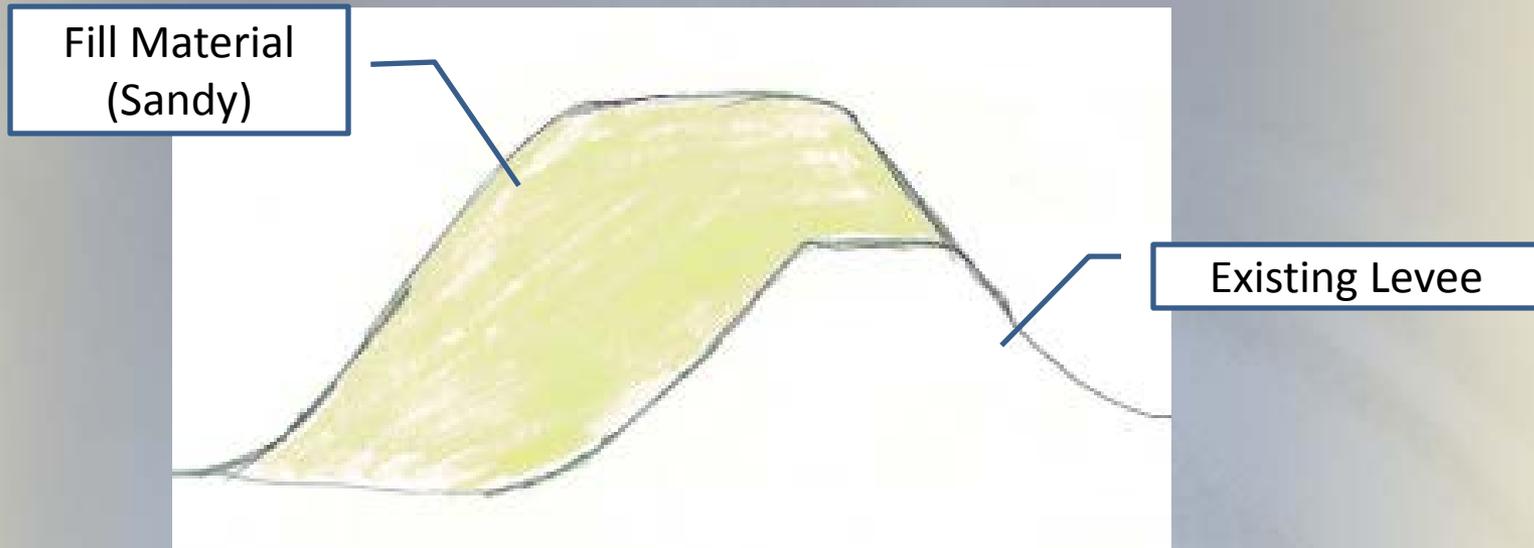


Improve Levee System Option



Improve Levee System Option

- Raise / bolster existing levee(s)



Dredge Material Transfer Option



Dredge Material Transfer Option

- Designate disposal sites within the bay where material would be made available to sand miners.
- Disposal site / dredging vessel criteria:
 - Water Depth of -30 MLLW
 - Capacity of 100,000 CY