

**Summary Report
of
Grays Harbor LTMS Alternatives Workshop
September 29, 2005**

Port of Grays Harbor Commission Room
Thursday, September 29, 2005
3:00 PM – 6:30 PM

Prepared for the
U.S. Army Corps of Engineers, Seattle District

By

ECO Resource Group

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AGENDA

Goal: Develop and understand alternatives for Grays Harbor LTMS

1. Introduction – 3:00 PM – 3:30 PM
 - Who is attending the workshop?
 - What has happened since the last workshop?
 - What will this workshop be about?

2. Alternatives Presentation by Seattle District Corps of Engineers – 3:30 PM – 4:30 PM
 - Present alternatives.
 - What are the alternatives to date? Where did they come from?
 - Clarifying questions from workshop participants.

3. Break for 15 minutes – 4:30 PM – 4:45 PM

4. Dialogue About Alternatives – 4:45 PM – 6:15 PM
 - Are there other alternatives that need to be considered? (group brainstorm)
 - Are there criteria that are missing that need to be included?

 - What are the Pros and Cons of the various alternatives? (small group brainstorm)
 - Report out to full workshop group

5. Next Steps – 6:15 PM – 6:30 PM
 - What will happen next?

Handouts

Agenda

List of alternatives to date with brief summaries

Criteria with clarifications

Situation Map (from Spring 2005 Workshop)

ALTERNATIVES

COMMENTS FROM GROUP DISCUSSION ABOUT ALTERNATIVES

Key:

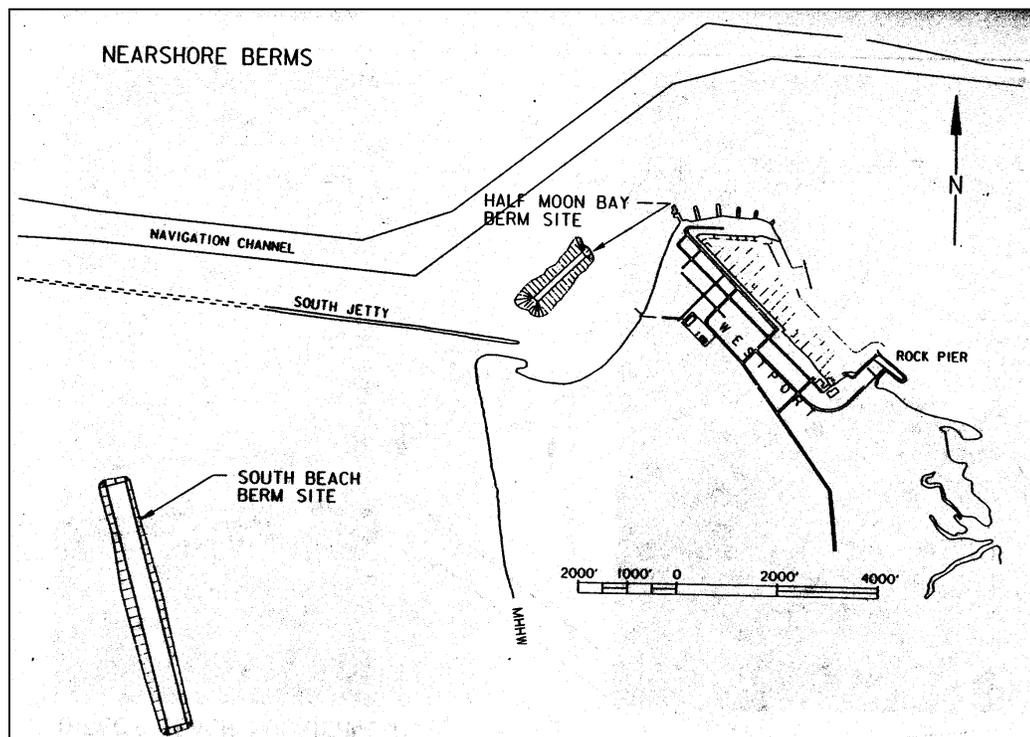
- Comment from participants
 - Corps Response/comment
- Concern about actual threat to navigation project
 - Corps is moving ahead with evaluating alternative because they can't conclude "no risk"
- When will risk be known for certain? Concern that project moves forward without certainty
 - Enough risk from models to move forward
- Concern about lack of representation of technical people
- There should be a better knowledge of models and uncertainty before the alternatives are developed
- Concern the Corps is inviting public comment before technical knowledge available
- Key piece is to work with technical people before alternatives developed
- In past, Corps said there *is* an effect of breach on channel
- How do alternatives affect mitigation agreement.
 - Alternatives won't affect agreements
- Part of agreement is not to include buried revetment
- Will they need to go back to arguments
 - This is scoping process
 - Idea gathering
 - Alternatives may fall off, for numerous reasons
- Ocean Shores Erosion
- Alternatives not used because too expensive
- Many of the alternatives presented have already been rejected in other venues
- Other meetings have provided other alternatives – where are they?
- A lot of work been done (waste of time now to go back)

- Alternatives limited to those from reports on Corps perspective
- Mitigation agreement eliminates most alternatives put forward
- Other alternatives – Weir Jetty – have not been brought up
- What is next for ITRC?
 - o Preliminary responses
 - o Working on schedule now: December time frame
- Should have had material on the alternatives before today (the meeting)
- An alternative may be combined with another
- Mix & match – may complement others
- Project has to be looked at in context of coast as whole
- Larger picture
- Using Columbia River sediment to Grays Harbor advantage

DESCRIPTION OF ALTERNATIVES AND PROS AND CONS BASED ON WORKSHOP DISCUSSION

1. NEARSHORE BERMS ('95 CTH)

Under this alternative, maintenance dredge material would be used to create underwater berms at Half-Moon Bay and South Beach near shore environments. The berm at South Beach would be 500' wide by 5000' long.



Pros:

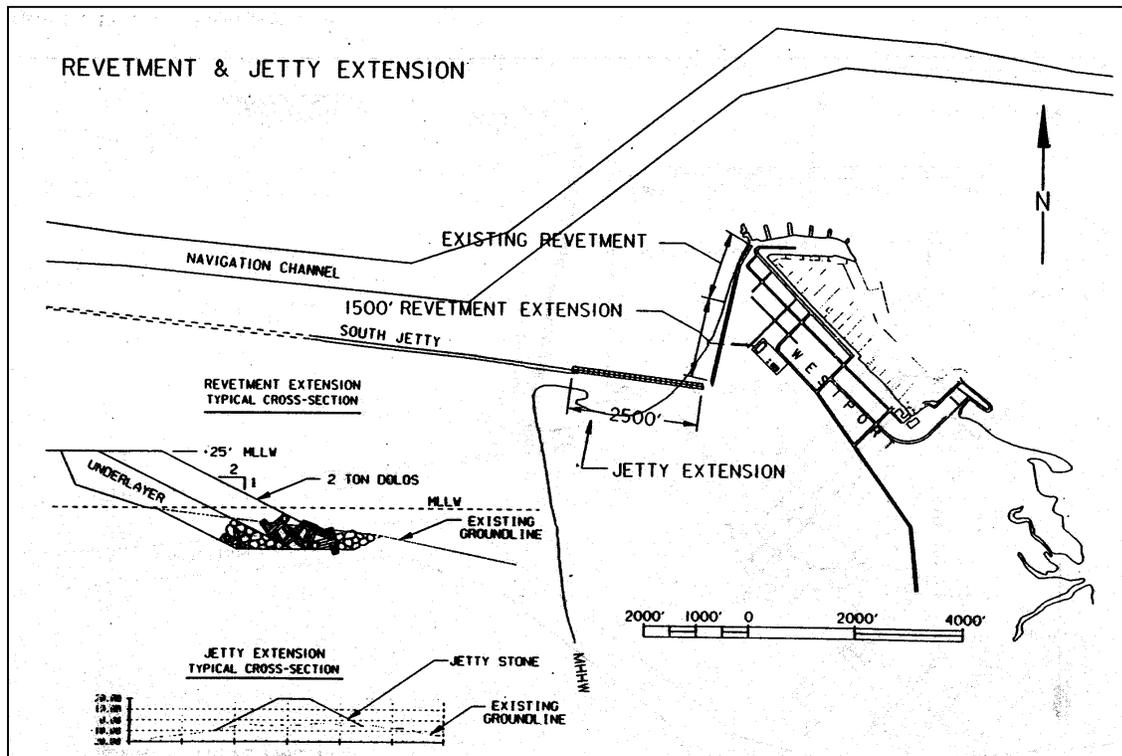
- OK
- Unknown
- Seems to be helping now
- Soft Approach
- Beneficial Use of Dredge Spoils

Cons:

- Will it help?
- Difficult to maintain berm
- Crab Impacts
- Limited options of placement where it is helpful (shallow, supply).
- ? effectiveness

2. REVETMENT AND JETTY EXTENSION ('95 CTH)

This alternative would include a 2500' eastward extension of the jetty to the junction of a 1500' southward extension of the Westport revetment.



Pros:

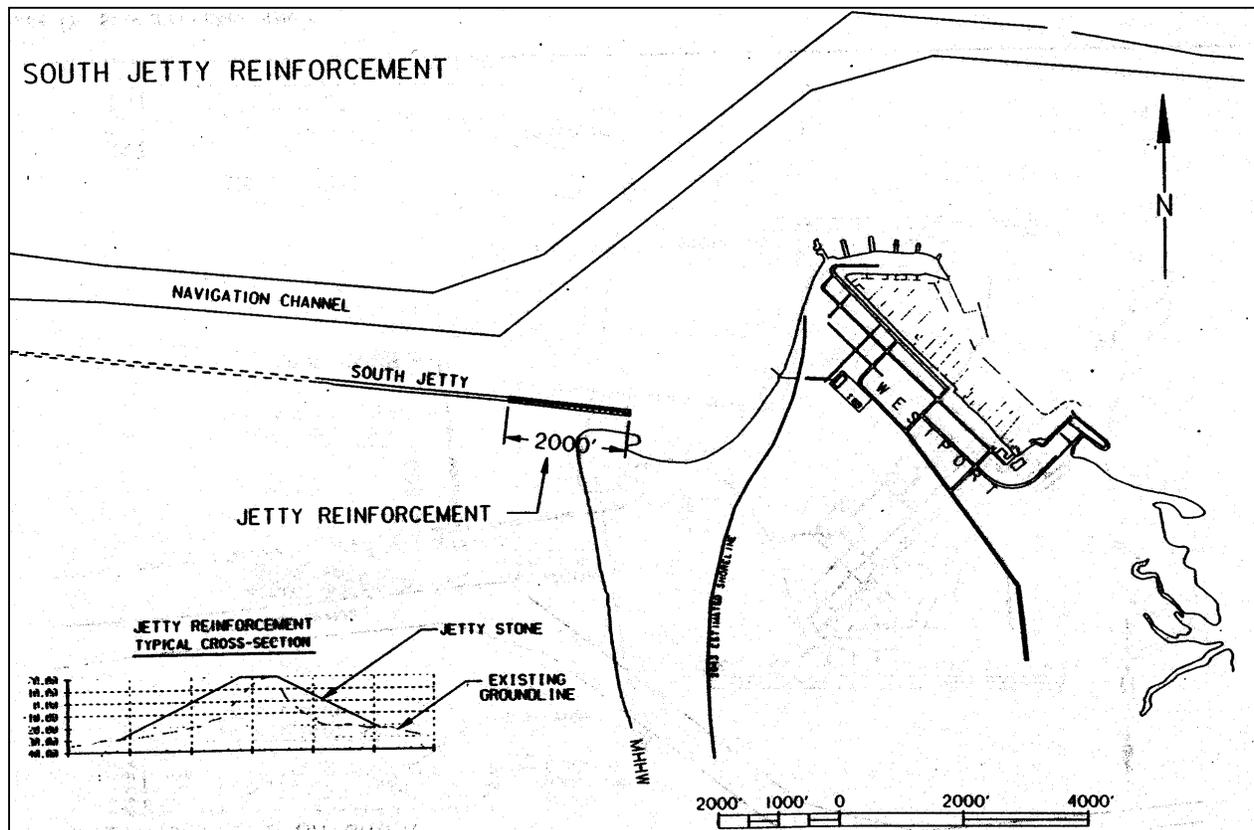
- Eliminates erosion in HMB
- Would work

Cons:

- Reverses legal obligation regarding mitigation
- Rock has environmental impacts
- Would not protect South Beach
- \$
- Too much loss of habitat and beach
- Would take out or eliminate HMB feature
- Would not control erosion of South Beach (Pacific Ocean)
- Breach would still continue
- Impact recreation

3. SOUTH JETTY REINFORCEMENT ('95 CTH)

This alternative included reinforcement of 2000' of the east end of the south jetty to maintain the stability of the jetty in the presence of continued erosion of South Beach and Half Moon Bay.



Pros:

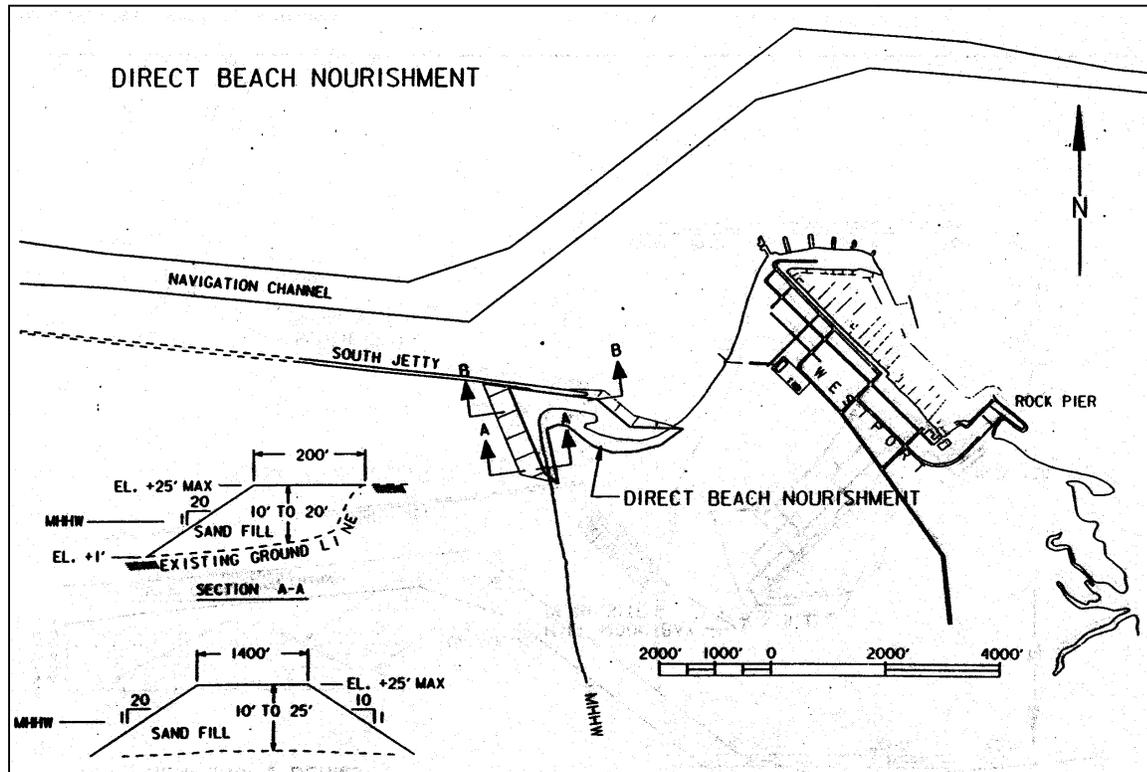
- Already implemented except breach has not been allowed to form

Cons:

- Does not prevent a breach threat
- Moves erosion problem to east
- Still lots of lost habitat and beach
- Doesn't achieve project purpose, doesn't protect against a breach

4. DIRECT BEACH NOURISHMENT ('95 CTH)

This alternative calls for beach nourishment directly in the former breach area. The fill would be constructed by using material dredged annually from the entrance channel, and later supplementing with material dredged specifically for nourishment. The fill would be higher than the jetty, to reduce to possibility of overtopping, and nearly twice as wide as before the 1993 breach.



Pros:

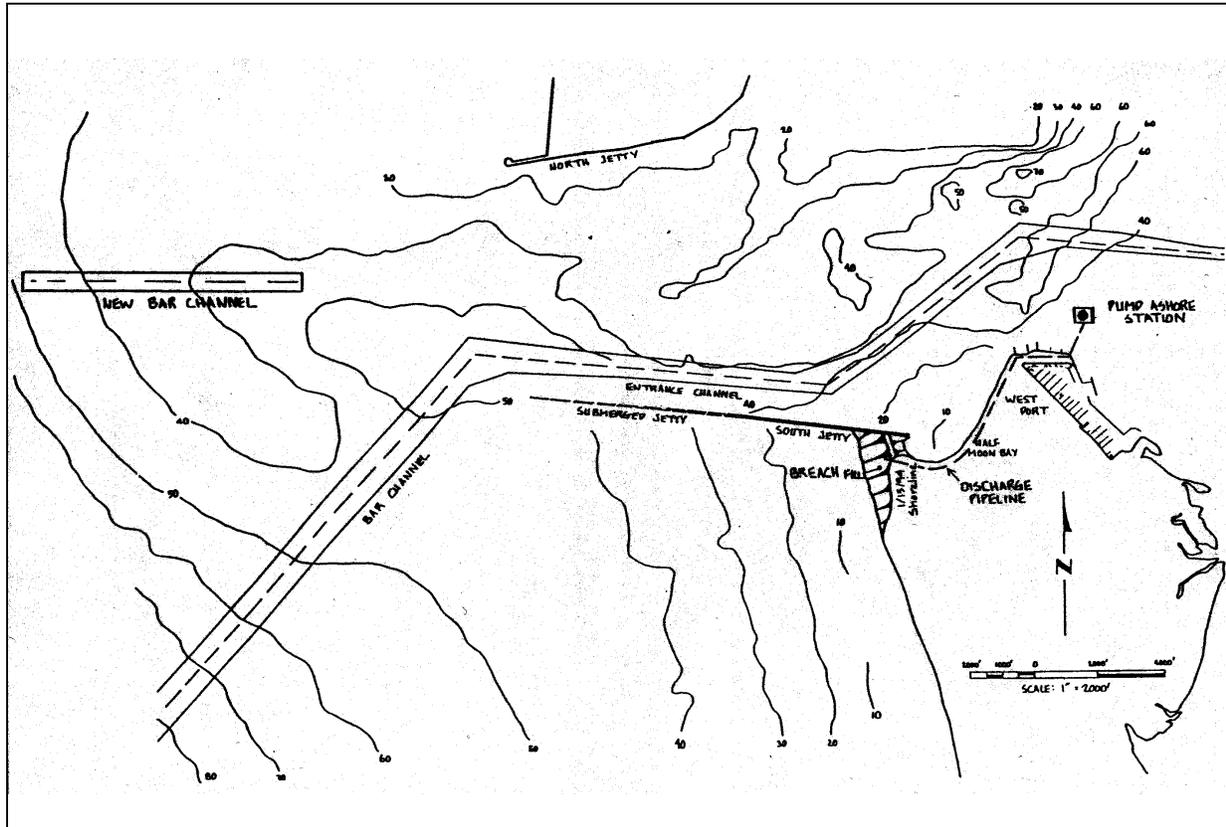
- This would compliment most any of the alternatives
- “soft” approach
- OK
- Similar to nearshore berms

Cons:

- Least permanent solution, requires continued maintenance. Vulnerable to catastrophic storm erosion.
- Public access impacted
- Similar to nearshore berms
- Steep scarps, safety issues (public access)
- Not the most efficient use of \$

5. RELOCATION OF BAR CHANNEL

Relocation of the bar channel from its present alignment to the north and centered between the north and south jetty. This would only be considered if relocation of the entrance channel is selected.



Pros:

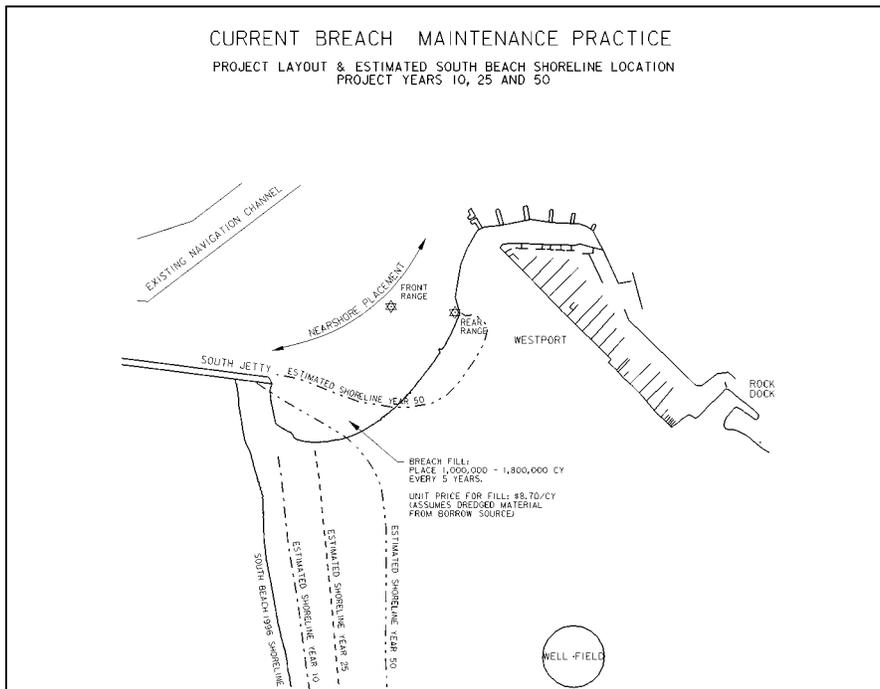
- Reduce energy and may be more helpful to whatever is done within HMB
- Long-term adaptive maintenance
- Indirect benefit
- Shifting may benefit navigation
- Long-term may be cost-effective

Cons:

- Unclear what it would do for erosion
- Lots of crab mitigation
- Indirect impacts
- Shifting may not benefit navigation
- Up-front costs

6. CURRENT BREACH MAINTENANCE PROJECT ('97 ALTERNATIVE 1)

Under this alternative, no specific measures to reduce jetty-induced erosion impacts would be undertaken. The current practice of maintenance dredging and deposition in the Half-Moon Bay and South Beach near shore environments will continue. The 1997 evaluation assumed that a breach would form every 5-10 years, and an emergency repair would be required. This alternative also assumed erosion of South Beach, Half-Moon Bay, and Point Chehalis would continue.



Pros:

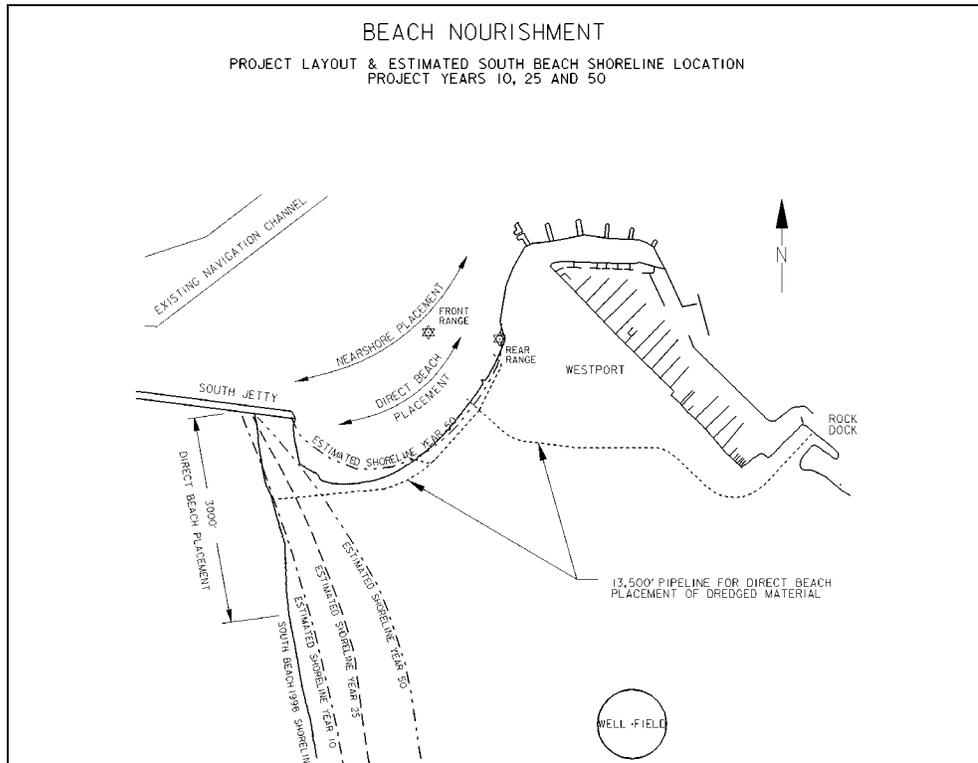
- Same as 1 & 3

Cons:

- Why wait until it breaches?
- Same as 1 & 3
- Dependent on \$ supply
- Very expensive and will have net loss of shoreline. Uncertainty of funding for such a large expenditure
- Don't have ability to complete required NEPA documents for requested emergency actions.

7. BEACH NOURISHMENT ('97 ALTERNATIVE 2)

This alternative includes a complex regime of supplementing the current practice of maintenance dredging and deposition in the Half-Moon Bay and South Beach near shore environments with additional beach nourishment directly on both beaches. As dredge material becomes scarce, nourishment material will need to come from borrow sources. The rate of nourishment will result in a net gain of beach at Half-Moon Bay, while the South Beach continues to diminish gradually over the project life.



Pros:

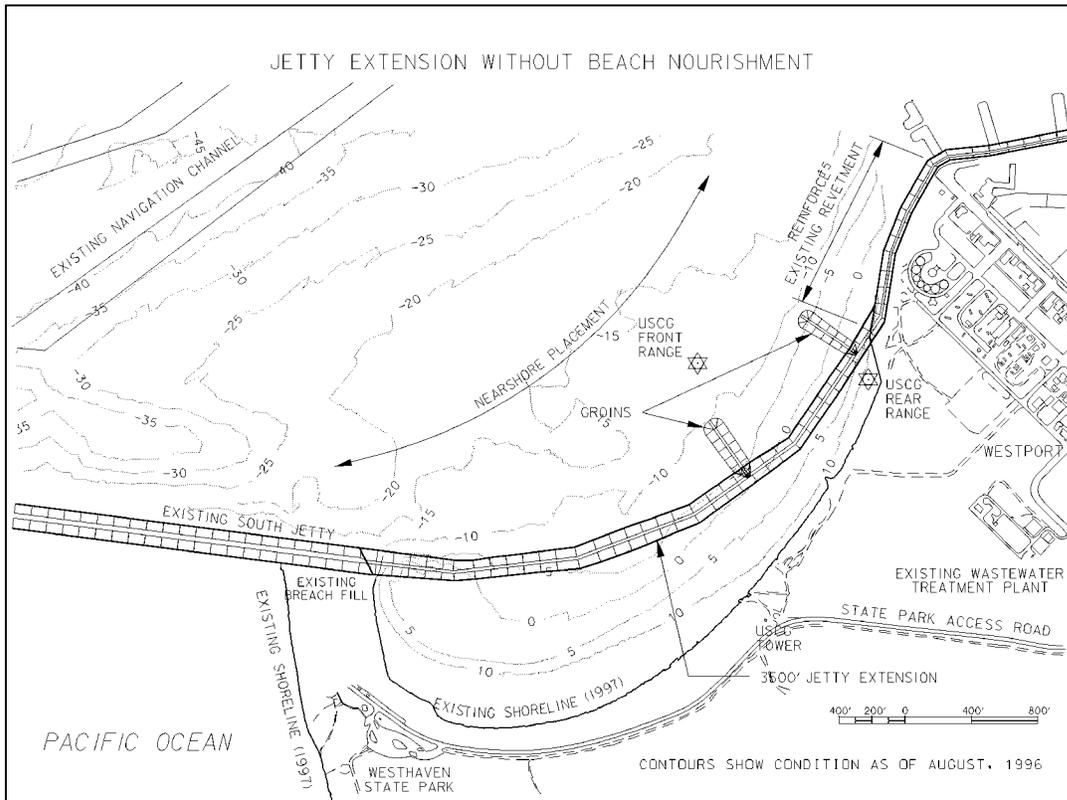
- Good option to consider
- Not armoring

Cons:

Borrow sources are a problem.

8. JETTY EXTENSION WITHOUT BEACH NOURISHMENT ('97 ALTERNATIVE 3A)

This alternative would extend the South Jetty in a northeastward alignment for a total of 3,500 feet, completed in one phase, ultimately connecting the jetty to Chehalis Point. Additionally, the jetty extension will include two groins, and the Chehalis Point revetment will be reinforced. The current practice of maintenance dredging and deposition in the Half-Moon Bay and South Beach near shore environments would continue.



Pros:

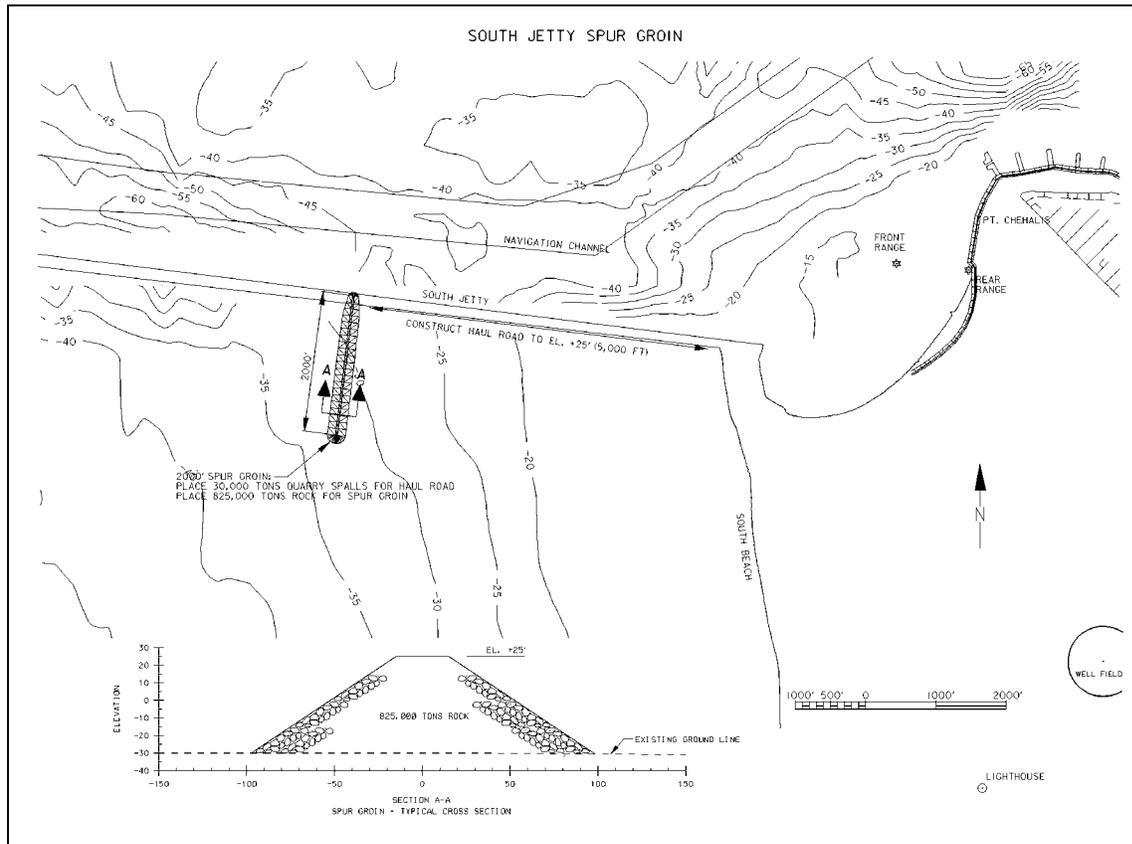
- Same as 2

Cons:

- Same as 2
- Litigation issues
- No HMB
- Move problem south
- Conflicts with existing buried revetment mitigation agreement
- Absolutely not – too much rock, high cost

9. SOUTH JETTY SPUR GROIN ('95 CTH & '97 ALTERNATIVE 5)

This alternative consists of constructing an off-shore spur groin extending 2000 feet southward from the south jetty, thereby protecting South Beach. No new action will occur at Half-Moon Bay or Point Chehalis. This alternative is very expensive when compared to other alternatives, and was dropped from consideration in 1997.



Pros:

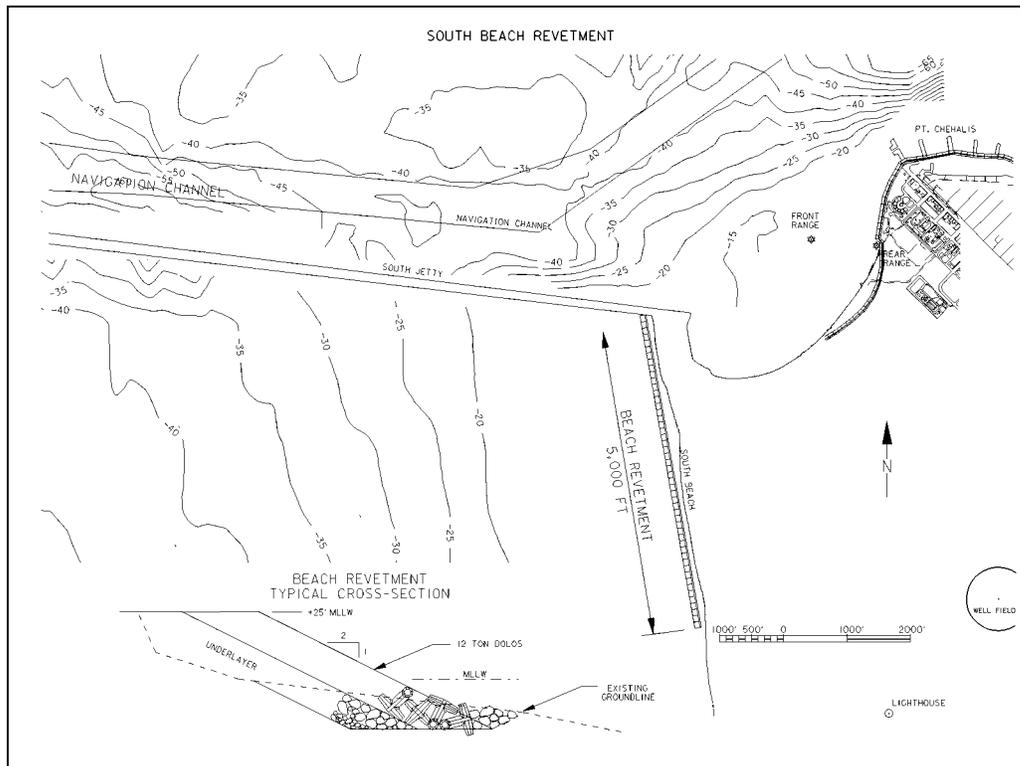
- Accretion of ocean side

Cons:

- Surf-smelt spawning beds adversely impacted
- Surfing adversely impacted
- Doesn't resolve problem on beach. Just chasing the problem
- Doesn't address erosion in HMB
- \$
- unknown benefit
- requires additional study
- moves issues of erosion
- impact recreation (surfers)

10. SOUTH BEACH REVETMENT ('95 CTH & '97 ALTERNATIVE 6)

This alternative consists of a beach revetment constructed of rock and/or large concrete armor units. The revetment would extend from the South Jetty southward for approximately 5,000 feet. No new action will occur at Half-Moon Bay or Point Chehalis. This alternative is very expensive when compared to other alternatives, and was dropped from consideration in 1997.



Pros:

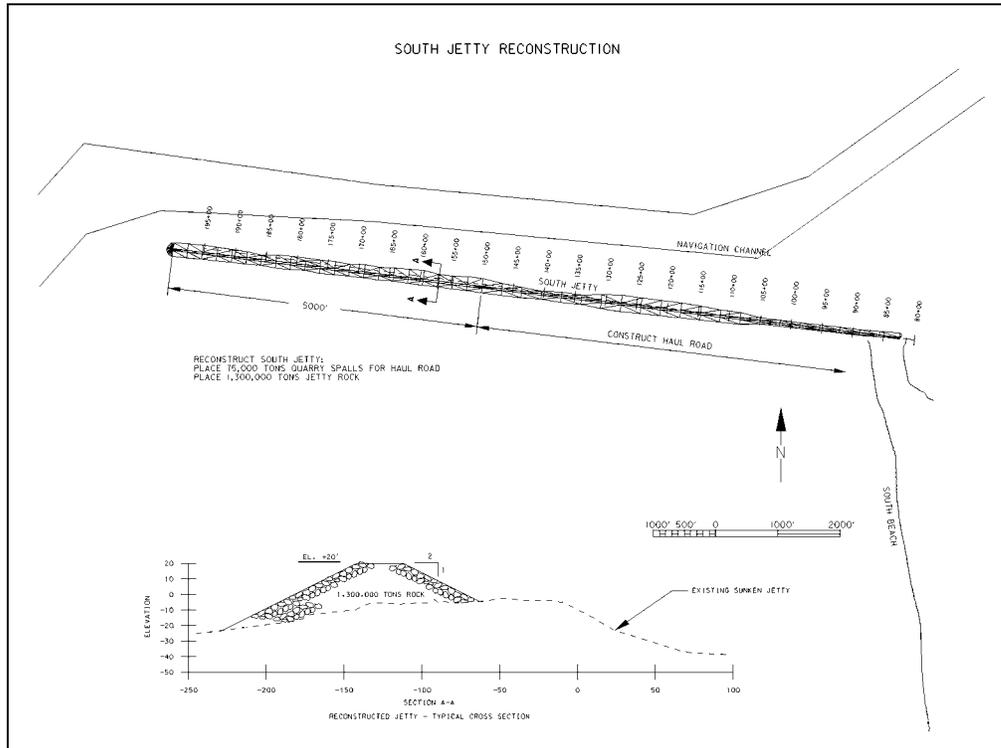
- Stabilizes shoreline in the area of the revetment

Cons:

- Cuts off all beach access
- Surf smelt and razor clams gone
- Surfing gone
- Safety
- Decreases or eliminates recreational access to the beaches and has end effects
- Environmental impacts of rock not acceptable
- Disruption to north shore transport
- End cut erosion on south end
- Doesn't address HMP

11. SOUTH JETTY RECONSTRUCTION ('97 ALTERNATIVE 7)

This alternative consists of reconstructing the South Jetty to the 1939 dimensions in order to trap sand on South Beach. This would be relatively short-lived, and erosion of South Beach would continue. Additionally, this alternative would contribute to erosion at Point Chehalis, and could undermine the north jetty. This is the most expensive alternative presented in 1997.



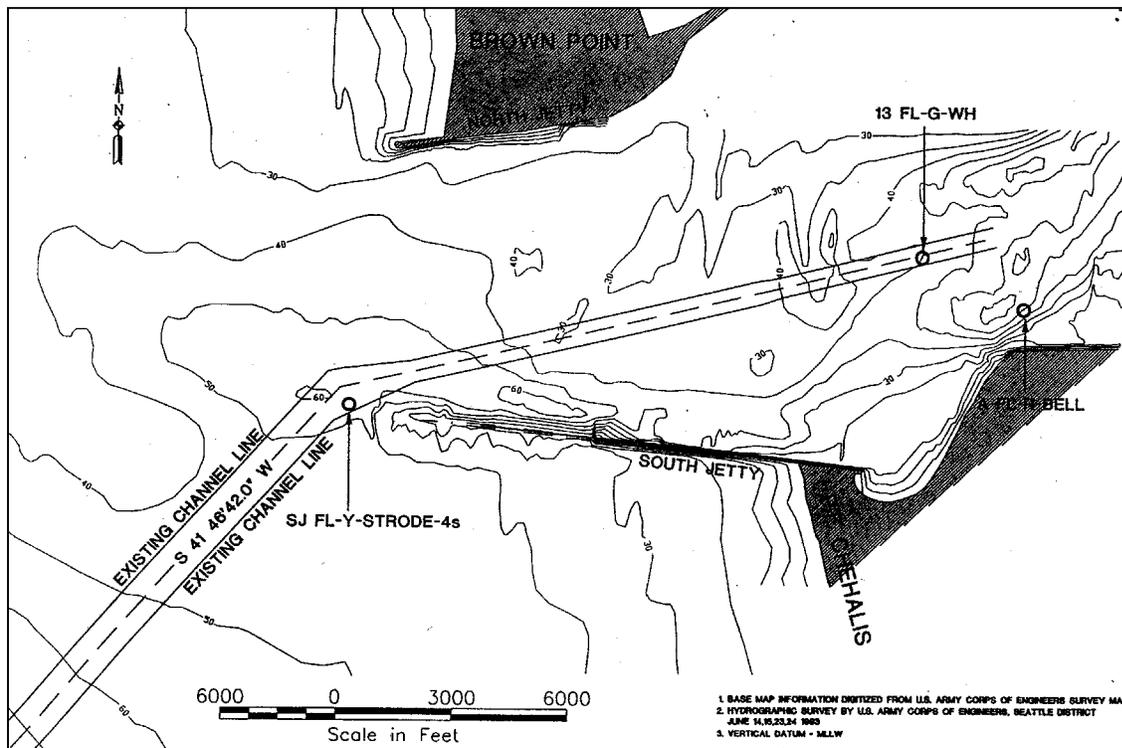
Pros:

Cons:

- Too costly and doesn't fix HMB
- Statements about erosion and eliminating Alt. Needs to be revisited
- Could contribute to erosion
- \$ cost
- didn't work

12. STRAIGHTEN CHANNEL (SEGMENT PARALLEL TO S. JETTY - ELIMINATE DOG-LEG) ('97 ALTERNATIVE 4)

This alternative concept would include a new alignment of the navigation channel. The navigation channel would be realigned in to become a single, straight segment to the north. This would direct currents away from the south jetty and Half-Moon Bay, where they are suspected of causing erosion. Erosion of South Beach was assumed to continue without additional measures during the 1997 evaluation.



Pro:

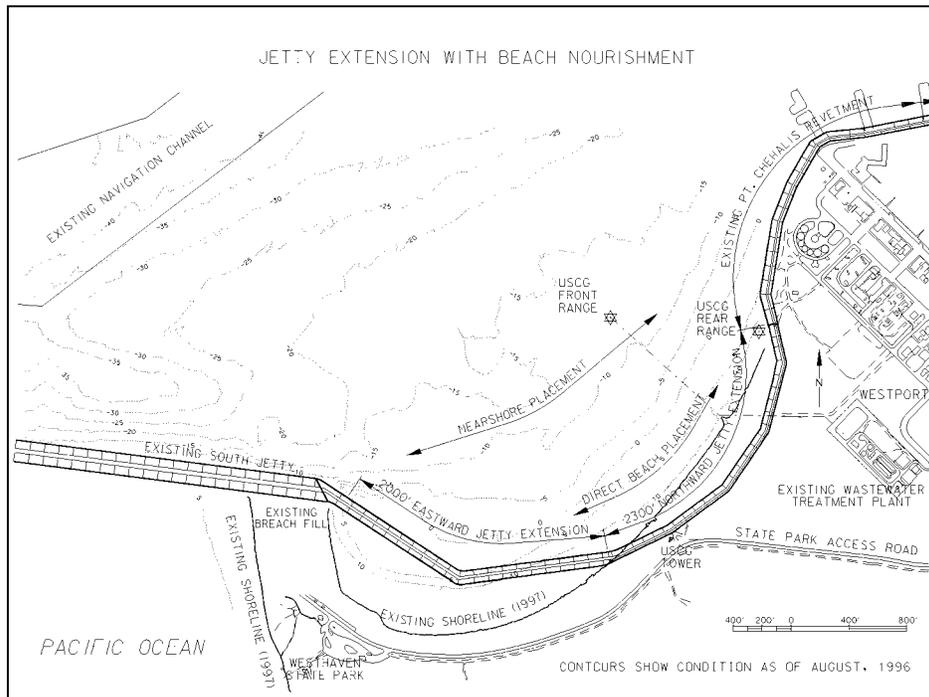
- Reduce energy and may be more helpful to whatever is done within HMB.
- Navigation benefits
- Would solve HMB problem
- Moves channel away from eroding areas (a plus)
- Cost effective?

Cons:

- Doesn't do anything for erosion
- Would not stay in place
- Benefit/effect on breaching unclear
- Back bay would erode
- Hazardous for small boats

13. JETTY EXTENSION WITH BEACH NOURISHMENT ('97 ALTERNATIVE 3B)

This plan would extend the existing South Jetty in an eastward alignment for a total of 4,300 feet, completed in 2 phases, ultimately connecting the jetty to Chehalis Point at year 25*. In addition to the current practice of maintenance dredging and deposition in the Half-Moon Bay and South Beach near shore environments, The beach at Half-Moon Bay would be nourished every 4 years. This was the recommended and approved plan in 1997.



Pros:

- Same pros as Alternative 2 - \$, environmental

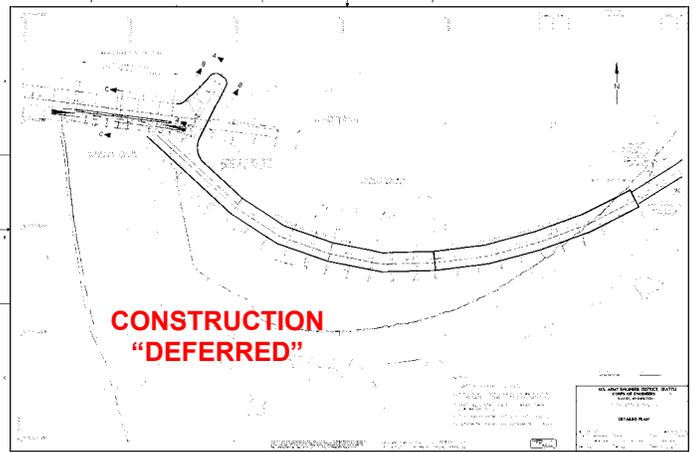
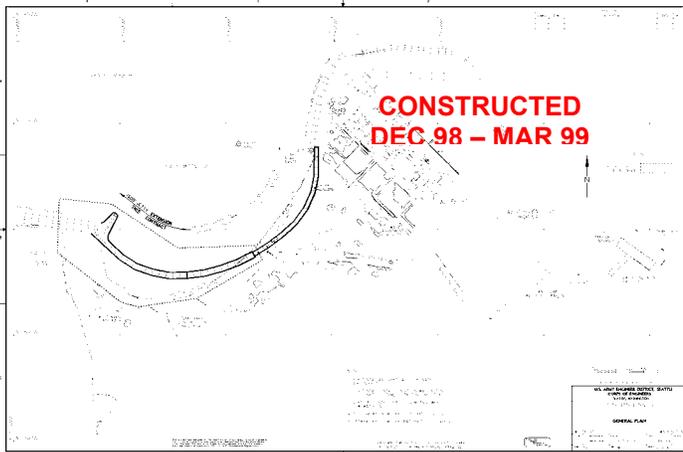
Cons:

- Same cons as Alternative 2 - \$, environmental
- Too much habitat loss
- Conflicts with existing buried revetment mitigation agreement
- Lose beach in front
- litigation
- can't hold sand because of reflective energy

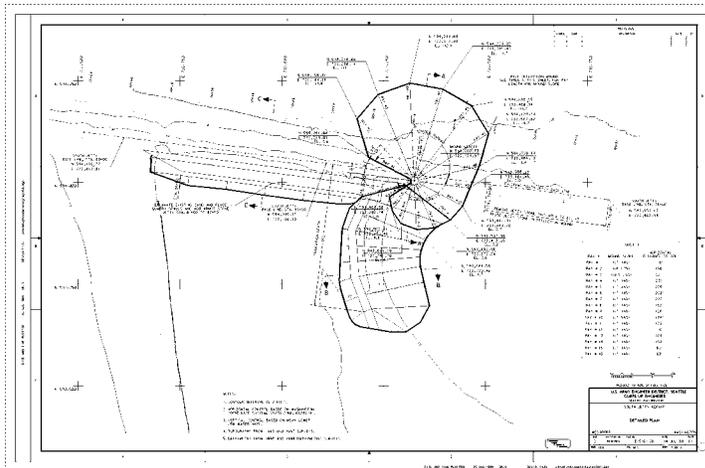
* All alternatives are based on a 50-year project life.

14. IMPLEMENTED PLAN FROM 1997

Phase I – a 1,900’ extension of the Point Chehalis revetment was implemented. Phase II – a 2500’ eastward extension of the South Jetty was deferred. A modified phase II plan for jetty repair was developed which included terminating and reinforcing the east end of the jetty by constructing a wave refraction-diffraction mound, constructing a gravel transition beach, and reinforcing 650’ of the jetty that abuts the breach fill material.



Implemented Plan



Pros:

- OK if you can keep covered with sand. (let sand in to keep covered)

Cons:

- Not functional as built
- Currently not working
- Accelerating erosion

(Alternatives 15 through 22 were brought forward at the meeting by participants. Several of these alternatives had been presented in other reports.)

15. BURIED REVETMENT BETWEEN SOUTH BEACH AND HMB

Pros:

- Doesn't impact habitat in HMB.
- Addresses erosion from both sides (sandy substrate)

Cons:

- Requires maintenance
- Relatively expensive

16. GRAVEL COBBLE TRANSITION BEACH

Pros:

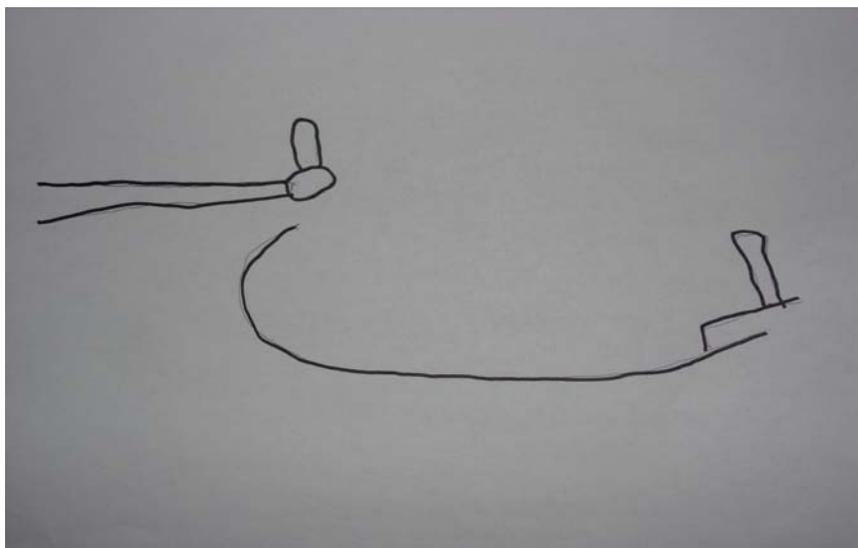
- Somewhat effective in addressing erosion
- More stable than sand nourishments. Equal to or less costly over the long-term

Cons:

- Disperses where unintended
- Migrates and changes adjacent beaches
- Requires periodic nourishment
- Impacts habitat
- Impact public access
- litigation

17. PT. CHEHALIS CONTROL POINT

Structure to reduce long-shore transport and retain sand in HMB.



Pros/cons:

- Would help but indirectly
- Potential environmental or public use issues
- Potential downdrift

18. MODIFICATION OF THE EAST END OF THE SOUTH JETTY

Sub 1 – Raise submerged portion east of the mound (500' or 200')

Sub 2 – Increase the size of the diffraction mound.

Sub 3 – Add diffraction spur

Pros:

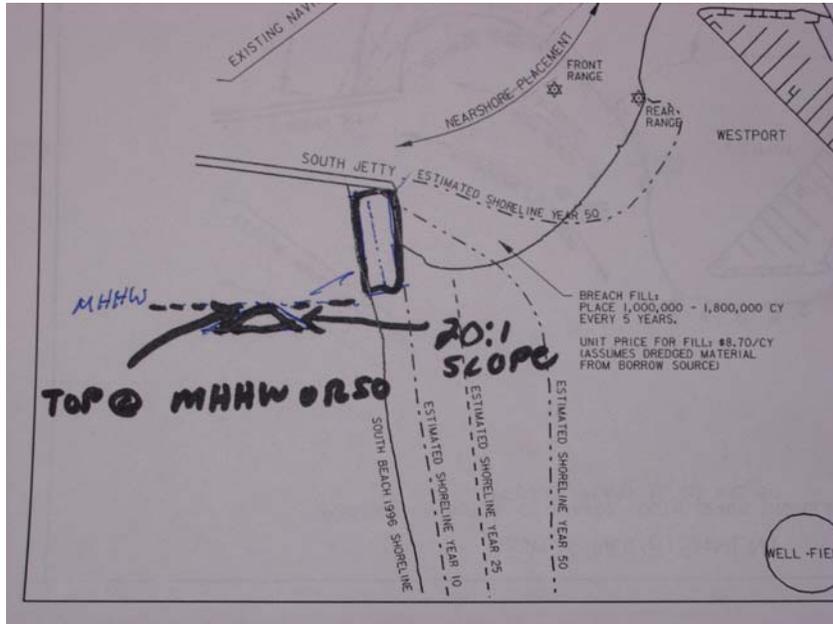
- Addresses diffraction and refraction problems
- Addresses HMB

Cons:

- Doesn't address south beach erosion

19. WEIR JETTY

Sand comes in from the ocean, fills in HMB to non-erosive equilibrium, designed to be “adjustable” to provide more or less sand to fine-tune equilibrium.



Pros:

- Fill in HMB to provide protection. Takes advantage of sediment transport to protect area.

Cons:

- Need more information as to whether this would work in the high energy that is associated with HMB.
- End cut issues
- Rock impacts to subtidal
- Requires armoring shoreline
- Sediment transport potential to channel

20. CONSTRUCTION OF SUBMERGED BERM OR BREAKWATER

Sub 1 – Segmented submerged breakwater

Sub 2 – Continuous Nearshore berm

Pros:

- Addresses HMB erosion
- Segmented still allows sand transport

Cons:

- Doesn't address beach erosion
- Impacts to public use
- Impacts to HMB habitat
- (off shore segmented berm): navigation problems/safety; cover fishing habitat
- Unknown impacts to recreation
- Doesn't address South Beach

21. ALLOW BREACH TO FORM

Pros:

- Yes! – soft approach
- Good fishing
- Captures sand moving from south
- Don't need authority or environmental documents to implement this alternative

Cons:

- Risk to navigation features possible
- Politically unacceptable
- Technically unacceptable
- Difficult to permit fill once breach is formed
- Potential loss of shoreline, loss of recreation, loss of habitat, and potential negative impacts to navigation channel
- Don't know yet

22. TERRACED REVETMENT

Pros:

- Direct approach to HMB erosion prevention
- Eliminates scarp - safer
- Preserves status quo

Cons

- Doesn't address South Beach erosion
- May require complimentary action

SUMMARY - NEXT STEPS

Post meeting summary next 2 weeks

Newsletter

Accepting other alternatives and criteria through the end October

Getting engineering report

Corps will work with Phil Osborne and Bob Burkle for descriptions of alternatives offered during the workshop, and how they function

Look at pros & cons, match with criteria: Do they meet threshold criteria to begin with?

Once ITR report done, allow for conclusions in the process of alternative development

Post ITR report on web site

How to factor other future changes – i.e., deepening? These will be looked at in the Corps evaluation

HANDOUTS

Grays Harbor Long Term Management Strategy

CRITERIA FOR EVALUATION OF POTENTIAL STRATEGY ACTIONS

Project Purpose

The purpose of the Grays Harbor LTMS study is to assess the threat of a breach to the federal navigation project and to assess and recommend the most appropriate long-term strategy to maintain and protect federal navigation project features.

Criteria

The Corps must use the following **threshold criteria** when evaluating potential government actions:

- The project must accomplish the project purpose
- The plan must be feasible from an engineering standpoint
- The plan must be economically viable (cost-effective)
- The plan must be environmentally acceptable (receive approval and concurrence from resource agencies)
- The plan must be within the Corps' Operation & Maintenance authority for the Grays Harbor Navigation Project
- The plan must comply with existing state and federal laws
- The plan must maintain the Corps obligations related to the existing revetment
- The design must anticipate a decreasing availability of maintenance dredged material that is suitable for beach nourishment

Sub Criteria - Through collaborative meetings, the following **sub-criteria** have been proposed:

Engineering:

- Meets existing navigational needs
- Accounts for long term "erosional trend" throughout the study area
- Considers the sediment budget for ecological beneficial use
- Considers the sediment budget for project cost savings
- Considers sediment budget for protection of navigational features
- The extent of impacts to navigation features
- Maintains navigational safety

Biological/Environmental:

- Are there impacts to benthic resources
- Are there potential impacts on sediment quality
- Are there potential impacts on water quality
- Are there impacts on shellfish aquaculture
- Are there impacts on vegetation (land and water)
- Is it environmentally sustainable?
- Are there impacts on salmon, bull trout and forage fish?
- Are there impacts on shorebirds
- Are there impacts on crabs?
- Does it provide for no net loss of fish and shellfish habitat (productive capacity)?

Economic:

- Consider capital costs and compare all alternatives
- Compare annual maintenance costs

- Considers navigation uses and impacts (all class/type of vessels)
- Are there aquaculture industry impacts?

Other:

- Maintains public safety
- Maintains Coast Guard accessibility
- Meets seismic design criteria
- Are there sea level rise impacts over the course of the strategy
- Is the system-wide functionality of the preferred alternative defined well enough to determine impacts of choices
- Are there recreational impacts
- Are there incidental consequences of implementation
- Is it locally acceptable
- Does it protect infrastructure from erosion

