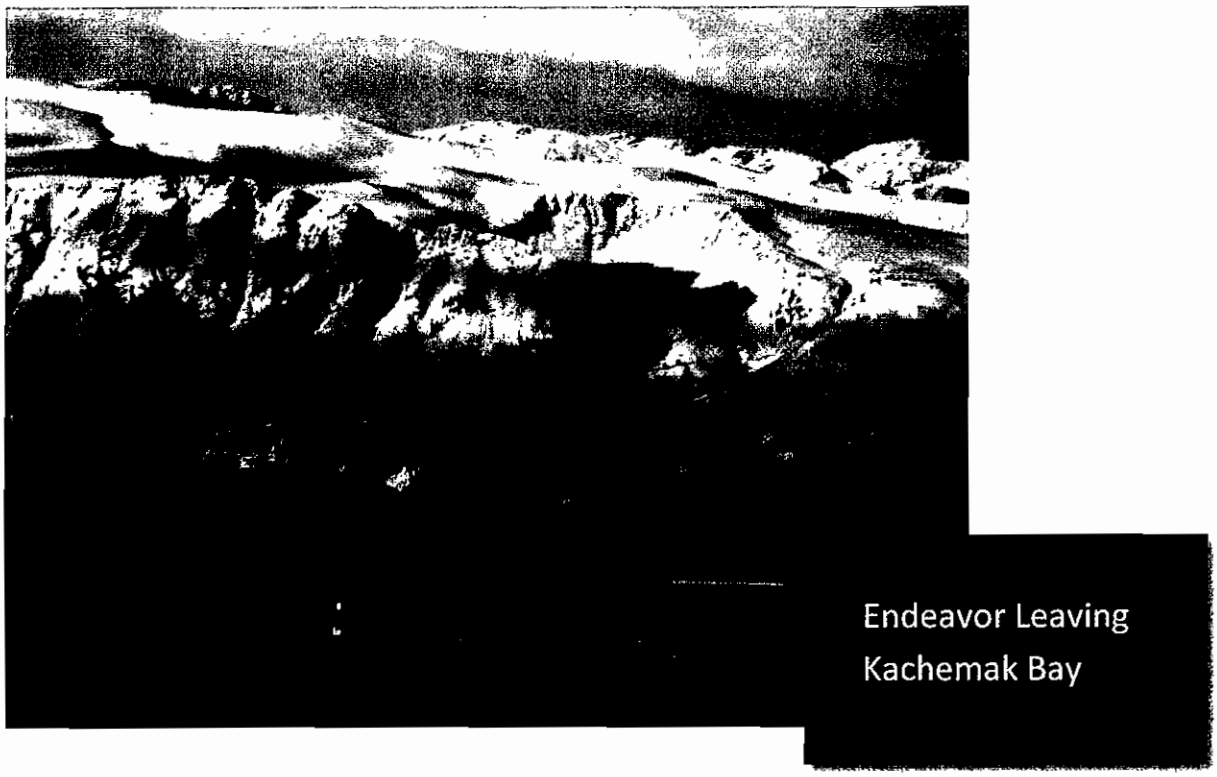
PORT AND HARBOR ADVISORY COMMISSION



Endeavor Leaving
Kachemak Bay

Regular Meeting
April 24, 2013, Wednesday
5:00 p.m.

City Hall Cowles Council Chambers

491 E. Pioneer Avenue

Homer, Alaska 99603

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PORT AND HARBOR ADVISORY COMMISSION **APRIL 24, 2013**
491 E. PIONEER AVENUE **WEDNESDAY, 5:00 P.M.**
HOMER, ALASKA **COWLES COUNCIL CHAMBERS**

NOTICE OF MEETING
REGULAR MEETING AGENDA

1. CALL TO ORDER
2. APPROVAL OF THE AGENDA
3. PUBLIC COMMENT REGARDING ITEMS ON THE AGENDA
4. RECONSIDERATION
5. APPROVAL OF MINUTES
A. Regular Meeting Minutes for March 27, 2013 Page 5
6. VISITORS
7. STAFF & COUNCIL REPORT/COMMITTEE REPORTS/ BOROUGH REPORTS
A. Staff Report for April 2013 Page 9
8. **PUBLIC HEARING**
9. PENDING BUSINESS
10. NEW BUSINESS
A. Strategic Plan Update
1. Memorandum from Harbormaster Bryan Hawkins Re: Strategic Plan Update dated April 17, 2013 Page 11
a. Strategic Plan 2011 Page 13
11. INFORMATIONAL ITEMS
A. Monthly Statistical & Performance Report Page 15
B. Weekly Crane and Ice Report Page 17
C. Deep Water Dock Report Page 19
D. Pioneer Dock Report Page 21
E. Pioneer Dock Ferry Landings Report Page 22
F. Water Usage 2013 Page 23
G. Invite to the Kachemak Bay Water Trail Launch Site, Creating the Plan Page 27
H. NERRS Science Collaborative Progress Report 8/21/2012 to 3/1/2013 Page 29

12. COMMENTS OF THE AUDIENCE
13. COMMENTS OF THE CITY STAFF
14.* COMMENTS OF THE COUNCILMEMBER *(If one is assigned)
15. COMMENTS OF THE CHAIR
16. COMMENTS OF THE COMMISSION
17. **ADJOURNMENT/NEXT REGULAR MEETING IS SCHEDULED FOR WEDNESDAY, MAY 22 2013,** at 6:00 p.m. in the City Hall Cowles Council Chambers 491 E. Pioneer Avenue, Homer, Alaska.

Session 13-03, a Regular Meeting of the Port and Harbor Advisory Commission was called to order at 5:05 p.m. by Chair Cathy Ulmer on March 27, 2013 at the City Hall Cowles Council Chambers located at 491 E. Pioneer Avenue, Homer, Alaska.

PRESENT: COMMISSIONER HARTLEY, STOCKBURGER, HOWARD, ULMER

ABSENT: COMMISSIONER WEDIN, ZIMMERMAN (EXCUSED)

STAFF: HARBORMASTER HAWKINS
DEPUTY CITY CLERK KRAUSE

APPROVAL OF THE AGENDA

The agenda was approved by consensus of the commission.

PUBLIC COMMENT REGARDING ITEMS ON THE AGENDA *(3 Minute Time Limit)*

Brad Faulkner, city resident, commented on the final design for the completion of the Spit Trail. He expressed one concern for drainage but during a conversation with Mr. Meyer before the meeting has alleviated any concerns he had; he additionally stated that it would be nice to have a kiosk next to the Seafarer's Memorial or End of the Road Park for the Water Trail an up and coming project.

Mr. Meyer, Public Works Director, commented that they did not intend to solve any drainage problems but that they would create any either.

Mr. Robert Archibald, Parks and Recreation Commissioner and a member of the Water Trail Committee, he commented that the Commission is very excited to see the completion of this trail and it has been a long time in coming. The Commission would like to express that they are very excited to see more opportunities to see recreation on the Spit. AS a member of the steering committee he wanted to let the commission know that they are working hard to get this Trail established and there is a lot more work still to do, they are working on the other side of the bay and trying to establish places to stay; this is just the beginning.

Rick Malley, city resident, works at the Independent Living Center (ILC) he is the ADA Specialist for the Kenai Peninsula and works from the ILC; he wanted to comment on the ADA requirements for the Spit Trail and provided some information for the commission on accessibility for new and renovation projects. He was reviewing the plans and notices that one of the ramps was being reconstructed and noted that would require ADA regulations to be implemented. He wanted to ensure that accessibility was included in the renovations of the dock. He noted that in 2010 the laws regarding ADA were amended to include Harbors, Trails, boat slips and such.

There were no further comments.

RECONSIDERATION

There were no items for reconsideration.

APPROVAL OF MINUTES

A. Regular Meeting Minutes for February 27

The minutes were approved as presented by consensus of the Commission.

VISITORS

A. Juneau Harbor Slide Show – Commission Wedin

Commissioner Wedin was not in attendance. The presentation was postponed until the next meeting.

STAFF & COUNCIL REPORT/COMMITTEE REPORTS/BOROUGH REPORTS
(Chair set time limit not to exceed 5 minutes)

A. Port & Harbor Director's Staff Report – March 2013

Harbormaster Hawkins provided a verbal briefing on his staff report. He commented on the review and update to the Emergency Operations Plan. He elaborated on the corner fenders at the Deep Water Dock and one of the pin piles breaking off under floor level; he noted that the bill on Derelict Vessels seems to have some legs and has made it through various committees; the System 5 Upgrade is at 95% complete, this is part of the Harbor Improvement List; he had a long discussion with Senator Micciche on harbor projects big and small; Alaska Industrial Export Authority sent some folks to Homer headed up by the First National Bank folks, provided a Harbor 101 and tour of the merchants around town, they were unaware on how important the marine trades impacted Homer's economy. They were very impressed especially how one project may impact so many businesses locally. He noted that once the state's budget is passed they could receive funding for projects in July so they are trying to be ready. Mr. Hawkins commented on the science collaborative meeting which was focused on land level rise and sea level rise how it affects the city and the spit or not and if they will need taller boots, we will not.

Chair Ulmer questioned the removal of the animal feces on the docks and getting that enforced. Mr. Hawkins noted that bags are supplied but if they are going to enforce one thing then all other laws regarding leashes should be enforced too.

PUBLIC HEARING *(3 minute time limit)*

There were no public hearings scheduled.

PENDING BUSINESS

A. 2013 Proposed Improvements for the Homer Spit

Mr. Carey Meyer, Public Works Director, provided the commissioners with updates on proposed projects for the Spit. He wanted to make sure that the commissioners were aware of the locations for the proposed improvements and provided a map with all the locations highlighted. Some of the key issues are as follows:

- Homer Spit Trail
    - replacing the Boardwalk instead of installation of asphalt will be done. The new boardwalk will be two feet wider than the existing; the turnouts will also be two feet deeper.
    - Benches will be placed along the Trail along with a Shelter with seating at the entrance to the docks to accommodate passengers and residents
    - Overlooks placed at the corner of Freightdock Road and Homer Spit Road will also have benches.
    - The parking lot at the End of the Road park will be paved and have appropriate drainage and landscaping in place. The parking will be striped to allow for maximum capacity also allowing for buses to use as a turn-around if needed.

In response to Commissioner Hartley regarding project timelines Mr. Meyer expected the improvements to the Spit Trail and at the Deep Water Dock should be bidding in June with contractor starting in July through September and completion would be the beginning of the 2014 season. The restrooms will be let for bidding in the next couple of weeks and should be completed this construction season.

Mr. Meyer continued to elaborate on some of the landscaping and interpretive signage that may be installed along the Spit Trail.

Commissioner Stockburger inquired about installation of any shelters at the Overlook areas. In response Mr. Meyer stated they had not but will examine the project carefully and see if the budget may allow for a shelter to be constructed. He also acknowledged that all the projects will be in accordance with the ADA requirements including the restrooms.

Mr. Meyer also noted that they will be contacting all leaseholders who may be impacted for their input on this project.

NEW BUSINESS

There was no new business on the agenda.

INFORMATIONAL MATERIALS
A. Monthly Statistical & Performance Report for January 2013

Chair Ulmer noted for the record that the report enclosed was for February.

Commissioner Hartley inquired about the reduction in numbers on the fish docks and fuel. He was wondering if there was a direct reason for the lesser amounts.

B. Weekly Crane and Ice Report
C. Deep Water Dock Report
D. Pioneer Dock Report & Ferry Landings Report
E. Water Usage Report
F. 2013 Council Meeting Attendance Schedule
G. Memorandum from Lisa Ellington to Bryan Hawkins dated March 13, 2013 Re: Seward Site Visit

There was a brief discussion on the Homer Port & Harbor Administrative Staff visit to the City of Seward's Port & Harbor.

COMMENTS OF THE AUDIENCE

Nancy Hillstrand, owner of Coal Point, commented on the installation of shelters that the view shed is taken into consideration.

COMMENTS OF THE CITY STAFF

Harbormaster Hawkins commented on a handout of information regarding percentages of leaseholders by zip code. He noted that 52% of the Leaseholders are from Homer, 17% are from Anchorage, 24% from the peninsula, 5% from out of state.

Ms. Krause commented it was nice to visit with the Commissioners.

COMMENTS OF THE COUNCILMEMBER (*If one has been assigned)*

There were no council members present.

COMMENTS OF THE CHAIR

Chair Ulmer thanked everyone for all the good work. A lot was done. She welcomed Commissioner Howard back.

COMMENTS OF THE COMMISSION

Commissioner Hartley had no comments.

Commissioner Howard commented that it was good to be back and really great to see the progress being made on these projects, if we get the dollars, let's make it happen and get it all done. It's really exciting over the next 24 months to watch this all come together.

Commissioner Stockburger agreed with Commissioner Howard's sentiments and noted a comment made before the meeting he acknowledged the efforts made by Bryan Hawkins to get these projects going and that it was good to be in this position to help that process out.

ADJOURN

There being no more business to come before the Commission the meeting was adjourned by Chair Ulmer at 6:00 p.m. The next regular meeting is scheduled for April 24, 2013 at 5:00 p.m. in the City Hall Cowles Council Chambers.

_____
RENEE KRAUSE, CMC, DEPUTY CITY CLERK I

Approved:_____

City of Homer
Port / Harbor
4350 Homer Spit Road
Homer, Alaska 99603-8005

Telephone (907) 235-3160
Fax (907) 235-3152
E-mail Port@ci.homer.ak.us
Web Site http://port.ci.homer.ak.us

APRIL 2013 PORT & HARBOR STAFF REPORT

1. Administration

Staff met with:

- Contractors & City Staff – Teleconference Regarding Pre-Construction Start Up Meeting for the Deep Water Dock Fender Replacement Project
- Planning, Admin, & Public Works Staff – Spit Trails Design & Planning
- City Attorney's Office Holly Wells – Teleconference Regarding Outfall Line Agreement Revisions
- City Manager & Public Works Director Carey Meyers – Teleconference Regarding Deep Water Dock Expansion Project TORA for $2 Million & Responsibilities from ADOT to City
- Land's End Staff & Film Crew – Possible Series Shoot for Homer Spit
- Homer Spit Lessee & Project Manager Dan Nelsen – Spit Trail Stairs & ROW Access
- Bay Weld Boats – 100th Boat Open House Celebration
- City Manager & City Attorney Tom Klinkner – Port and Harbor Revenue Bond Resolution for City Council
- Bruce Flanigan & City Manager – Alaskan Coastal Freight Lease for New Area
- PND Engineers – Teleconference Regarding Homer Boat Ramp Kick-off Meeting
- Fish Factory Mike McCune – Fish Grinder Best Management Practices

An extensive meeting between Public Works and Port and Harbor Staff, and representatives from Jay Brandt, Telaborg, R&M Consulting, a consultant for welding and zinc coatings, and Spray Metalizing was held April 5th to discuss the conditions of the new fenders. A plan forward was agreed on to sandblast the problem areas and recoat with spray metalizing product, re-welding the areas required by the consultant. Project Manager Dan Nelsen asked for a scope of work plan for the repairs and timeline.

Bryan Hawkins attended the public hearing on HB131, Abandoned and Derelict Vessels on April 9th at Representative Paul Seaton's Office. HB 131 passed through the Senate Regional Affairs Committee and the Senate. It is now on its way to the Governor's desk for final approval.

2. Operations

Vessel landings at the Pioneer and Deep Water Dock included the drill rig Endeavour, Ocean Ranger, Arctic Titan, Alaska Titan, Millennium Star, Discovery, CISPRI Perseverance, Sesok, Augustine and Barge Mr. Ed, SERVS Endeavor, Pacific Wolf and DBL54. The Deep Water Dock outer face fender system is currently under construction and is not available for dockage. All traffic is now being routed to the Pioneer Dock. Beach landings included the Helenka B, Unimak Trader, Devon, Polar Bear, Barge 180-2, Tonsina, and Cape Caution.

After seven months of dockage and preparation, Buccaneer's drill rig Endeavour departed the outer face of the Deep Water Dock without incident on Friday, March 29th. Talon Security, the private contractor staffing the security gates, concluded its operations accordingly. During the Endeavour's seven month stay, there was only one incident involving HPD and a disgruntled employee, one incident involving EMS response and an employee who suffered from difficulty breathing, and no pollution incidents.

The Homer Chamber of Commerce's Winter King Salmon Tournament commenced on Saturday, March 23rd. Operation Staff provided coverage at the Chamber to assist with vessel registration and mooring information on Friday, March 22nd from 10am to 6pm. 175 boats participated in the tournament.

- SERVS Alyeska conducted oil spill response drills with Homer's fleet of contracted commercial fishing vessels from April 4th through April 10th. Approximately 30 vessels participated in the drills.
- The Winter Metered Power Program concluded on April 15th. Over 65 vessels used this program over the course of the winter.
- Operation Staff responded to two oil spills in the small boat harbor; one occurring on April 3rd, the other on April 15th.
- On March 25th, Operation Staff responded to an EMS call at the hockey rink involving a patient suffering from a seizure.
- On March 29th, a Harbor Officer prevented a 40 foot sail boat from sinking during his graveyard shift.
- Harbor Officer Brad Somers represented the Port of Homer while working with the Homer Chamber of Commerce at the Great Alaska Sportsman's Show at the Sullivan Arena in Anchorage from March 28th through March 31st.

3. Ice Plant

Mechanical issues have finally been resolved on Crane #7, which is back on line. Peter Alfiche has returned for another season as the Temp Fish Dock Laborer and we're very happy to see him again. The Ice Men have started work on moving the office upstairs now that renovations are complete. A month into the season and ice making is going well and strong.

4. Port Maintenance

Port Maintenance un-winterized the Ramp 4 and 6 restrooms and made sure the Load and Launch Ramp was well sanded for the Winter King Tournament. They finished modifications to the new patrol skiff trailer, which now works great, and oversaw contractors finish repairs on a Deep Water Dock fender, Pioneer Dock piling, and dolphin fender. Also of special note: a new salt water well was drilled for the Fish Grinder building.

City of Homer
Port / Harbor
4350 Homer Spit Road
Homer, Alaska 99603-8005

Telephone (907) 235-3160
Fax (907) 235-3152
E-mail port@ci.homer.ak.us
Web Site http://port.ci.homer.ak.us

MEMORANDUM

TO: PORT & HARBOR ADVISORY COMMISSION

FROM: BRYAN HAWKINS, PORT DIRECTOR/HARBORMASTER

DATE: APRIL 17, 2013

SUBJECT: STRATEGIC PLAN UPDATE

A quick review of the Port Commission's 2011 Strategic Plan shows that there has been progress on many of the overall goals. The commission may want to consider removing some of the items from the list that have been completed and/or possibly adding new goals to the plan.

A few suggested subjects are:

- Energy Consumption Reduction: This could be in lighting for all harbor facilities, equipment upgrades such as the Ice Plant compressor, and more efficient heating systems such as a waste oil burner for the Port Maintenance shop.
- Expansion Projects: Deep Water Dock, East Harbor, and/or a Marine Haul-out Repair Facility.
- Port Marketing
- Harbor Marketing
- New Revenue-generating Ideas

Recommendations

Please review the 2011 Port and Harbor Commission's Strategic Plan and come to the next Port and Harbor Commission meeting on April 24th prepared for discussions on updating the plan.

Attached: Port and Harbor Commission's 2011 Strategic Plan

Port and Harbor Advisory Commission Strategic Plan - 2011

Mission statement:

Act in an advisory capacity to the City Manager and the City Council on the problems and development of the City Port and Harbor facilities. Consideration may include the physical facilities, possible future development and recommendations on land use within the Port and Harbor areas.

Overall Goals:

1. Conduct faster, more productive meetings
2. Become a more effective Commission - provide timely, relevant comment to the City Council on Port and Harbor issues
3. Have a better understanding of the budget process
4. Establish committees when needed to work on specific tasks

Short Term Goals - less than 6 months or by the end of 2011 (not prioritized)

1. Conduct more efficient meetings
2. Improve Harbor Recycling Efforts
3. Parking- Encourage administration/Council to gain greater control
4. Gain a better understanding of the budget process, and provide comments to the Administration (Harbormaster, City Manager) in a timely manner for possible inclusion in the 2012 budget.
5. Develop a strategy to work with the City Council
6. Improvements to Barge Ramp - facilities need to be repaired and replaced due to increased usage.

Midterm Goals 1-3 years (2012-2014)

1. Continue to refine City Leasing Policies
2. Continue to understand the budget, include setting fees, and dedication of sales tax
3. Lobby for restroom access on Fish Dock Road
4. Lobby Council for funds to create a port marketing plan
5. Improvements to Barge Terminal Facility
6. Container Freight System - Support Staff in research and market analysis regarding interest, cost effectiveness and benefits to the Kenai Peninsula

Long Term 5 or more years (2016-??)

1. Build a new harbormaster office
2. Encourage the City to lobby ACOE and the state to address erosion control on the Spit, both on the west side and the harbor side
3. Long range harbor planning, east harbor expansion

Action Plan - Who does what, and when?

Staff

- Provide yearly information about the budget
- Inform the Commission of City Council actions and discussion of Harbor issues

Commission

- Attend City Council meetings as assigned
- Attend work sessions and training opportunities
- Come prepared to make a motion for action at meetings, or ask staff before the meeting for more information
- Request a City Council member attend Port and Harbor meetings
- Ask questions about the budget process. Request information from the Harbormaster.

Clerks

- Help the Commission learn to be more efficient and effective
- Help the Commission learn to better communicate with the City Council (Memorandums vs Resolutions and Ordinances)

Port & Harbor
Monthly Statistical & Performance Report

For the Month of: **March 2013**

Moorage Sales	2013	2012
Daily Transient	108	89
Monthly Transient	71	65
Semi-Annual Transient	5	3
Annual Transient	2	2
Annual Reserved	0	0

Grid Usage		
1 Unit = 1 Grid Tide Use	2013	2012
Wood Grid	3	8
Steel Grid	5	2

Services & Incidents	2013	2012
Vessels Towed	0	3
Vessels Moved	8	7
Vessels Pumped	2	2
Vessels Sunk	0	1
Vessel Accidents	1	3
Vessel Impounds	1	1
Equipment Impounds	0	1
Vehicle Impounds	0	0
Property Damage	3	1
Pollution Incident	2	1
Fires Reported/Assists	1	0
EMT Assists	2	1
Police Assists	2	2
Public Assists	4	13
Thefts Reported	0	0

Parking Passes	2013	2012
Long-term Pass	3	4
Monthly Long-term Pass	0	n/a
Seasonal Pass	0	0

Stall Wait List		
No. on list at Month's End	2013	2012
18' Stall	4	6
20' Stall	1	1
24' Stall	12	11
32' Stall	25	40
40' Stall	29	28
S0' Stall	15	17
75' Stall	8	5
Total:	94	108

Docking & Beach/Barge Use		
1 Unit = 1 or 1/2 Day Use	2013	2012
Deep Water Dock	77	29
Pioneer Dock	19	31
Beach Landings	27	1
Barge Ramp	9	6

Wharfage (in short tons)		
In Tons, Converted from Lb./Gal.	2013	2012
Seafood	633	986
Cargo/Other	830	7
Fuel	24,529	18,441

Crane Hours	2013	2012
	161.2	209.9

Ice Sales	2013	2012
For the Month of March	37	131
Year to Date Total	37	131

Difference between 2012 YTD and 2013 YTD: 94 tons less

U:Office/Stats-Monthly/March 2013

WEEKLY CRANE TIME / TONS OF ICE
City of Homer - Fish Dock 2013

Date From	Date To	Crane Hours (Weekly)	YTD Crane	Tons of Ice (Weekly)	YTD Ice
12/31/2012	1/6/2013	15.7	15.7	shut down for maintenance	
1/7/2013	1/13/2013	15.5	31.2	shut down for maintenance	
1/14/2013	1/20/2013	9.8	41	shut down for maintenance	
1/21/2013	1/27/2013	12.5	53.5	shut down for maintenance	
1/28/2013	2/3/2013	17	70.5	shut down for maintenance	
2/4/2013	2/10/2013	19.8	90.5	shut down for maintenance	
2/11/2013	2/17/2013	11.1	101.4	shut down for maintenance	
2/18/2013	2/24/2013	30.6	132	shut down for maintenance	
2/25/2013	3/3/2013	41.5	174.5	shut down for maintenance	
3/4/2013	3/10/2013	40.2	214.7	shut down for maintenance	
3/11/2013	3/17/2013	52.8	267.5	shut down for maintenance	
3/18/2013	3/24/2013	32.7	300.2	9	9
3/25/2013	3/31/2013	35.5	335.7	28	37
4/1/2013	4/7/2013	41.4	377.1	38	75
4/8/2013	4/14/2013	32.5	409.6	93	168
4/15/2013	4/21/2013				
4/22/2013	4/28/2013				
4/29/2013	5/5/2013				
5/6/2013	5/12/2013				
5/13/2013	5/19/2013				
5/20/2013	5/26/2013				
5/27/2013	6/2/2013				
6/3/2013	6/9/2013				
6/10/2013	6/16/2013				
6/17/2013	6/23/2013				
6/24/2013	6/30/2013				
7/1/2013	7/7/2013				
7/8/2013	7/14/2013				
7/15/2013	7/21/2013				
7/22/2013	7/28/2013				
7/29/2013	8/4/2013				
8/5/2013	8/11/2013				
8/12/2013	8/18/2013				
8/19/2013	8/25/2013				
8/26/2013	9/1/2013				
9/2/2013	9/8/2013				
9/9/2013	9/15/2013				
9/16/2013	9/22/2013				
9/23/2013	9/29/2013				
9/30/2013	10/6/2013				
10/7/2013	10/13/2013				
10/14/2013	10/20/2013				
10/21/2013	10/27/2013				
10/28/2013	11/3/2013				
11/4/2013	11/10/2013				
11/11/2013	11/17/2013				
11/18/2013	11/24/2013			shut down for maintenance	
11/25/2013	12/1/2013			shut down for maintenance	
12/2/2013	12/8/2013			shut down for maintenance	
12/9/2013	12/15/2013			shut down for maintenance	
12/16/2013	12/22/2013			shut down for maintenance	
12/23/2013	12/29/2013			shut down for maintenance	

Deep Water Dock 2013

Date	Vessel	LOA	Times	Billed	#Dock	$ Dock	Service Chg
12/31/12	Rig Endeavour			Buccaneer Alaska	1	$ 1,958.38	
1/1 - 1/30/13	Rig Endeavour		$2582 X 30	Buccaneer Alaska	1	$ 77,460.00	
1/4/13	Discovery	183	0800/1300	Ocean Marine Services	2	$ 253.00	na
1/10/13	Discovery	183	0645/0800 am	Ocean Marine Services	2	$ 78.68	na
1/10/13	Discovery	183	1430/1445 pm	Ocean Marine Services	2	$ 78.68	na
1/11/13	Discovery	183	0800/1330	Ocean Marine Services	2	$ 253.00	na
1/18/13	Discovery	183	0830/1630	Ocean Marine Services	2	$ 253.00	na
1/23/13	Discovery	183	0800/	Ocean Marine Services	2	$ 506.00	na
1/24/13	Discovery	183	/0815	Ocean Marine Services	2	$ 253.00	na
1/24/13	Discovery	183	1400/1430	Ocean Marine Services	2	$ 78.68	na
1/25/13	Discovery	183	0800/1330	Ocean Marine Services	2	$ 253.00	na
1/27/13	Endeavor	181	0530/1525	Cispri	2	$ 253.00	na
1/31-2/27/13	Rig Endeavour		$2582 X 28	Buccaneer Alaska	1	$ 72,296.00	
1/31/13	Discovery	183	1330/1400	Ocean Marine Services	2	$ 78.68	na
2/1/13	Discovery	183	0800/1330	Ocean Marine Services	2	$ 253.00	na
2/7/13	Discovery	183	0615/0800 am	Ocean Marine Services	2	$ 78.68	na
2/7/13	Discovery	183	1400/1545 pm	Ocean Marine Services	2	$ 78.68	na
2/8/13	Discovery	183	0745/1245	Ocean Marine Services	2	$ 253.00	na
2/14/13	Endeavor CISPRI	181	0120/	Cispri	2	$ 506.00	na
2/15/13	Endeavor CISPRI	181	/0730	Cispri	2	$ 253.00	na
2/15/13	Discovery	183	0745/1400	Ocean Marine Services	2	$ 253.00	na
2/15/13	Endeavor CISPRI	181	1430/	Cispri	2	$ 253.00	na
2/16/13	Endeavor CISPRI	181	/1430	Cispri	2	$ 506.00	na
2/19/13	Endeavor CISPRI	181	0745/	Cispri	2	$ 506.00	na
2/20/13	Endeavor CISPRI	181		Cispri	2	$ 506.00	
2/21/13	Endeavor CISPRI	181	/0645	Cispri	2	$ 253.00	
2/21/13	Discovery	183	0700/1030 am	Ocean Marine Services	2	$ 78.68	na
2/21/13	Discovery	183	1350/1630 pm	Ocean Marine Services	2	$ 78.68	na
2/22/13	Endeavor CISPRI	181	0630/0730	Cispri	2	$ 78.68	na
2/22/13	Discovery	183	0740/1300	Ocean Marine Services	2	$ 253.00	na
2/25/13	Endeavor CISPRI	181	0745/	Cispri	2	$ 506.00	na
2/26/13	Endeavor CISPRI	181		Cispri	2	$ 506.00	
2/27/13	Endeavor CISPRI	181		Cispri	2	$ 506.00	
2/28-3/28/13	Rig Endeavour		2582 X 29	Buccaneer Alaska	1	$ 74,878.00	
2/28/13	Endeavor CISPRI	181	/1600	Cispri	2	$ 506.00	
3/1/13	Discovery	183	0545/1330	Ocean Marine Services	2	$ 253.00	na
3/6/13	Endeavor CISPRI	181	0600/? 1/2 per BH	Cispri	2	$ 253.00	na
3/7/13	Endeavor CISPRI	181	0900/1200	Cispri	2	$ 78.68	na
3/7/13	Discovery	183	0700/0800	Ocean Marine Services	2	$ 78.68	na
3/7/13	Discovery	183	1400/1800	Ocean Marine Services	2	$ 78.68	na
3/8/13	Endeavor CISPRI	181	0630/0730	Cispri	2	$ 78.68	na
3/8/13	Discovery	183	0745/1430	Ocean Marine Services	2	$ 253.00	na
3/9/13	Endeavor CISPRI	181	1145/	Cispri	2	$ 506.00	na
3/10/13	Endeavor CISPRI	181		Cispri	2	$ 506.00	
3/11/13	Endeavor CISPRI	181		Cispri	2	$ 506.00	
3/12/13	Endeavor CISPRI	181	/1000	Cispri	2	$ 253.00	
3/20/13	Endeavor CISPRI	181	0800/1600	Cispri	2	$ 253.00	na
3/21/13	Discovery	183	0630/0800	Ocean Marine Services	2	$ 78.68	na
3/21/13	Discovery	183	1345/1415	Ocean Marine Services	2	$ 78.68	na
3/22/13	Discovery	183	0745/1330	Ocean Marine Services	2	$ 253.00	na
3/22/13	Millie Cruz&Innoko	144	1430/2100	Jay Brant	2	$ 253.00	na
3/25/13	Alaska Titan	120	0700/	Buccaneer Alaska	2	$ 506.00	na
3/25/13	Arctic Titan	120	0730/	Buccaneer Alaska	2	$ 506.00	na
3/25/13	Ocean Ranger	115	0800/	Buccaneer Alaska	2	$ 506.00	na
3/26/13	Alaska Titan	120		Buccaneer Alaska	2	$ 506.00	
3/26/13	Arctic Titan	120		Buccaneer Alaska	2	$ 506.00	
3/26/13	Ocean Ranger	115		Buccaneer Alaska	2	$ 506.00	
3/27/13	Alaska Titan	120		Buccaneer Alaska	2	$ 506.00	
3/27/13	Arctic Titan	120		Buccaneer Alaska	2	$ 506.00	
3/27/13	Ocean Ranger	115		Buccaneer Alaska	2	$ 506.00	
3/28/13	Alaska Titan	120		Buccaneer Alaska	2	$ 506.00	
3/28/13	Arctic Titan	120		Buccaneer Alaska	2	$ 506.00	
3/28/13	Ocean Ranger	115		Buccaneer Alaska	2	$ 506.00	
						$ 244,976.58	$ -
4/18/13							

Pioneer Dock 2013

Date	Vessel	LOA	Times	Billed	#Dock	$ Dock	Service Chg
01/02/13	Perseverance	189	1645/2245	Cispri	1	$ 506.00	$ 52.00
01/03/13	Nunaniq	155	2300/0900	Northland Holdings	1	$ 506.00	$ 52.00
01/09/13	Perseverance	189	0730/?	Cispri	1	$ 506.00	$ 52.00
01/10/13	Millenium Star	105	0645/1640	Olympic Tug	1	$ 506.00	$ 52.00
01/11/13	Millenium Star	105	0630/1000	Olympic Tug	1	$ 506.00	$ 52.00
01/11/13	Pacific Explorer	105	1245/	Buccanneer AK	1	$ 506.00	$ 52.00
01/12/13	Pacific Explorer	105		Buccanneer AK	1	$ 506.00	
01/13/13	Pacific Explorer	105		Buccanneer AK	1	$ 506.00	
01/14/13	Pacific Explorer	105	/0530	Buccanneer AK	1	$ 506.00	
01/14/13	Perseverance	189	0830/	Cispri	1	$ 506.00	$ 52.00
01/15/13	Perseverance	189	/1900	Cispri	1	$ 506.00	
01/22/13	Pacific Wolf & DBL 54	395	0815/1640	Kirby Offshore	1	$ 1,206.00	$ 52.00
01/24/13	Sisuaq	292	1330/2300	Harvey Gulf	1	$ 788.00	$ 52.00
01/30/13	Pacific Wolf & DBL 54	395	1300/	Kirby Offshore	1	$ 1,206.00	$ 52.00
01/31/13	Pacific Wolf & DBL 54	395	/1830	Kirby Offshore	1	$ 1,206.00	
02/07/13	Pacific Wolf & DBL 54	395	0745/1610	Kirby Offshore	1	$ 1,206.00	$ 52.00
02/15/13	Pacific Wolf & DBL 54	395	1400/2245	Kirby Offshore	1	$ 1,206.00	$ 52.00
02/21/13	Endeavor CISPRI	181	0700/1415	Cispri	1	$ 506.00	$ 52.00
03/04/13	Pacific Wolf & DBL 54	395	0300/2030	Kirby Offshore	1	$ 1,206.00	$ 52.00
03/08/13	Discovery	183	1630/2015	Ocean Marine	1	$ 506.00	$ 52.00
03/13/13	Ocean Eagle/St Alias	335	1235/1730	Jay Brant Const.	1	$ 1,005.00	$ 52.00
03/18/13	Pacific Wolf & DBL 54	395	0900/1930	Kirby Offshore	1	$ 1,206.00	$ 52.00

Pioneer Dock 2013

Date	Vessel	LOA	Times	Billed	#Dock	$ Dock	Service Chg
			Year to Date Totals:		**22**	**$ 16,813.00**	**$ 884.00**
04/18/13							
Ferry Landings Pioneer Dock 2013:			DWD 2013:				
January	4						
February	6						
March	5						
April							
May							
June							
July							
August							
September							
October							
November							
December							

Water Usage 2013

PIONEER DOCK $ 194.05 minimum charge
$102.00 CONX

DATE	VESSEL	Begin Read	End Read	Gal.	Charged	Conx Fee
01/03/13	Nunaniq	2071600	2074300	2700	$ 194.05	$ 102.00
01/13/13	Pacific Explorer	2074300	2077800	3500	$ 194.05	$ 102.00
01/22/13	Pacific Explorer	189600	192600	3000	$ 194.05	$ 102.00
02/15/13	Pacific Wolf & DBL 54	192600	195200	2600	$ 194.05	$ 102.00
02/21/13	Endeavor CISPRI	2077800	2086400	8600	$ 333.77	$ 102.00
03/18/13	Pacific Wolf & DBL 54	195200	203900	8700	$ 337.65	$ 102.00
04/02/13	Pacific Wolf & DBL 54	203900	207700	3800	$ 194.05	$ 102.00
04/05/13	Discovery	207700	247300	39600	$ 1,536.88	$ 102.00
4/15/13	Tiglax	247340	250530	3190	$ 194.05	$ 102.00
				0		
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				0		
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				0		
				0		
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				0		
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				0		
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				0		
	washing down dock results in missing begin/end reads		.	**75690**	**$ 3,372.60**	**$ 918.00**

Water Usage 2013

DWD

$ 194.05 minimum charge

$102.00 CONX

DATE	VESSEL	Begin Read	End Read	Gal.	Charged	Conx Fee
1/5/13	Rig Endeavour	2296000	2347000	51000	$ 1,979.31	$ 102.00
1/11/13	Millenium Star	2347000	2351000	4000	$ 194.05	$ 102.00
1/18/13	Discovery	2351000	2385000	34000	$ 1,319.43	$ 102.00
1/24/13	Rig Endeavour	2385000	2444000	59000	$ 2,289.79	$ 102.00
1/25/13	Discovery	2444000	2461000	17000	$ 659.77	$ 102.00
2/1/13	Discovery	2461000	2479000	18000	$ 698.58	$ 102.00
2/2/13	Millenium Star	2479000	2482000	3000	$ 194.05	$ 102.00
2/7/13	Rig Endeavour	2482000	2534000	52000	$ 2,018.12	$ 102.00
2/15/13	Rig Endeavour	2534000	2573000	39000	$ 1,513.59	$ 102.00
2/19-20/13	Rig Endeavour	2573000	2620000	47000	$ 1,824.07	$ 102.00
2/25-26/13	Rig Endeavour	2620600	2666000	45400	$ 1,761.97	$ 102.00
3/1/13	Millenium Star	2666000	2670000	4000	$ 194.05	$ 102.00
3/3-4/13	Rig Endeavour	2670000	2709000	39000	$ 1,513.59	$ 102.00
3/6/13	Rig Endeavour	2709000	2711800	2800	$ 194.05	$ 102.00
3/7/13	Discovery	2,711,800	2,745,000	33200	$ 1,288.49	$ 102.00
3/9/13	Rig Endeavour	2,745,000	2,797,000	52000	$ 2,018.12	$ 102.00
3/18/13	Rig Endeavour	2797000	2848000	51000	$ 1,979.31	$ 102.00
3/20/13	Endeavor CISPRI	2848000	2857000	9000	$ 349.29	$ 102.00
3/22/13	Discovery	2857700	2,892,000	34300	$ 1,331.18	$ 102.00
3/24-25/2013	Rig Endeavour	2892000	2,924,000	32000	$ 1,241.92	$ 102.00
3/27/13	Millenium Star	2924000	2,928,000	4000	$ 194.05	$ 102.00
3/29/13	Discovery	2928000	2,963,000	35000	$ 1,358.35	$ 102.00
4/15/13	Millenium Star	2963350	2,969,000	5650	$ 219.28	$ 102.00
				0		
				0		
				0		
				0		
				0		
				0		
				671350	**$ 26,334.41**	**$ 2,346.00**

washing down dock results in missing begin/end reads

1342700

HOMER
ALASKA

Kachemak Bay
Water Trail

A SPECIAL INVITATION!

KACHEMAK BAY WATER TRAIL LAUNCH SITE
~Creating The Concept Plan~

Tuesday, April 23, 2013
3:30pm-5:30pm
Oyster Co-op, Top Floor

The City of Homer has identified the northeast corner of the Pier 1 area on the spit for Homer's Kachemak Bay Water Trail launch site (see back of page). Now we want to figure out what facilities the site should include, where they should be placed, and how the traffic should flow to and from the site.

We value your input!

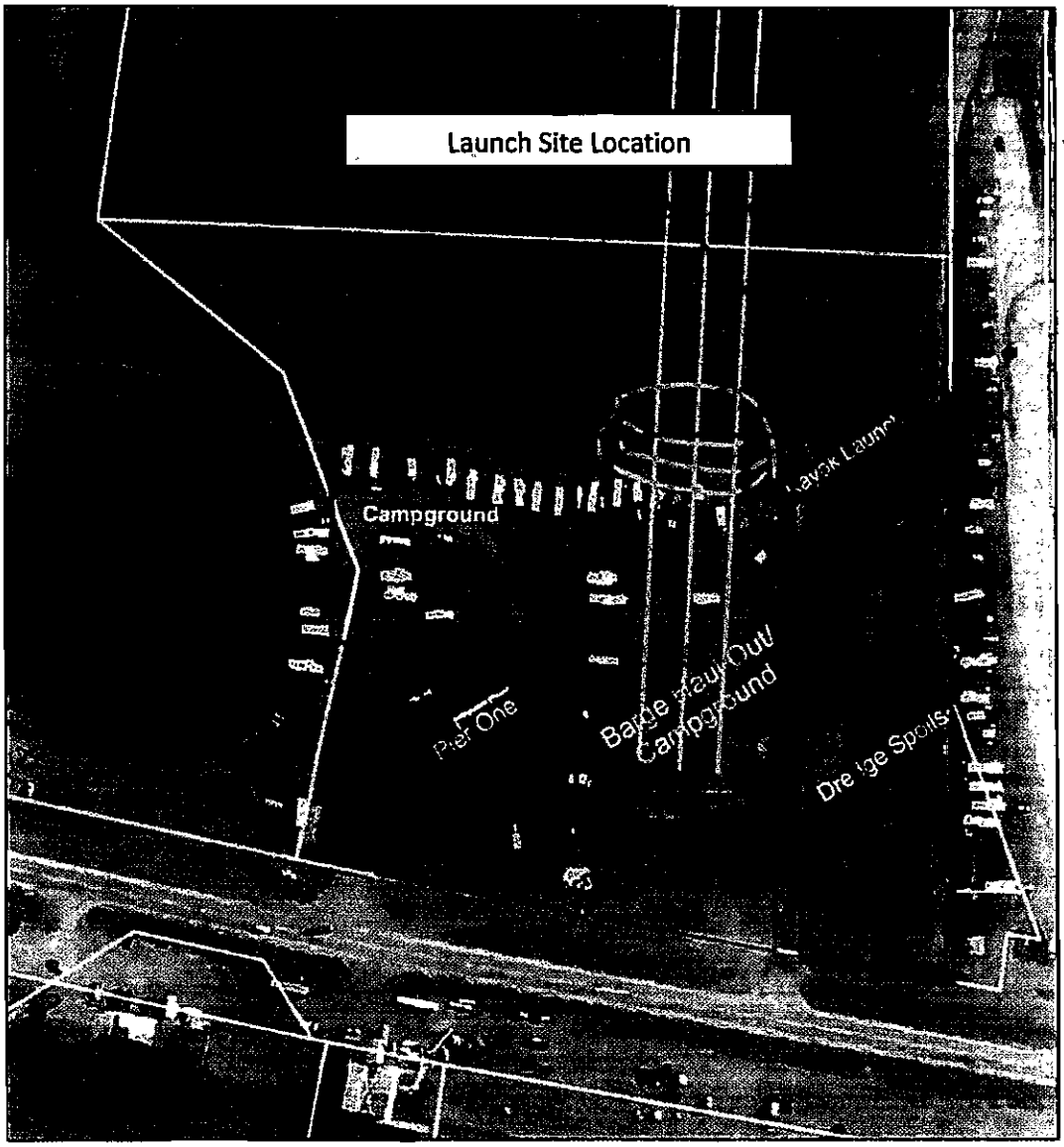
Please join us to share your knowledge and help us create the conceptual site plan. We'll provide a project overview and site analysis then work together with you to develop the plan. We'll also visit the actual launch site to talk about how the concept plan could look on-the-ground.

The City of Homer Planning and Zoning Department will lead the meeting and we'll have a professional landscape architect from the American Society of Landscape Architects Alaska Chapter, as well as outdoor recreation planners from the NPS Rivers, Trails and Conservation Assistance (RTCA) program, to help guide our efforts.

If you have any questions, please call:

Rick Abboud, City Planner
City of Homer Planning & Zoning Department
235-3106

Dave Brann, Co-Chair
KBWT Steering Committee
235-6018



City of Homer
Planning and Zoning Department
8-15-12

Pier One Site

0 50 100 150 200 400 Feet

N E S W

Disclaimer:
It is expressly understood the City of Homer, its council, board, departments, employees and agents are not responsible for any errors or omissions contained herein, or deductions, interpretations or conclusions drawn therefrom.

NERRS Science Collaborative Progress Report for the Period 08/31/2012 through 03/1/2013

Project Title: Assessing Coastal Uplift and Habitat Changes in a Glacially Influenced Estuary System Located in Kachemak Bay, Alaska
Principal Investigator(s): Angela Doroff, Steve Baird, and Jeff Freymueller
Project start date: 22 September 2010
Report compiled by: Angela Doroff
Contributing team members and their role in the project: Stacey Buckelew (KBNERR CTP Coordinator), Ed Clark (UAF Geophysical Institute), Jess Ryan, Carmen Field, (KBNERR Education and Outreach), Conrad Field (KBNERR Habitat Biologist)

A. Progress Overview

Understanding the balance of the conflicting forces of land and sea-level rise is important to the communities surrounding Kachemak Bay, which depend on near-shore fisheries for food and safe harbor infrastructure for transportation. A goal of our project is to provide scientific data to community leaders regarding how land and sea-level changes may impact community services and local ecology. This study builds upon existing work on coastal processes developed by the University of Alaska, Fairbanks (UAF) and monitoring and mapping of salt marsh habitats by the Kachemak Bay National Estuarine Research Reserve (KBNERR). In this study, we will model land and sea-level changes in the Kachemak Bay region based on intensive data collection with high precision global positioning system (GPS) instruments. Much of the infrastructure for the city of Homer is not on bedrock, and may have a different rate of change than bedrock sites. Salt marsh plants range from freshwater to salt-tolerant plants in the vegetation community structure and provide a sensitive indicator of sea-level rise. We will develop a long-term monitoring program of emergent vegetation in select salt marshes in Kachemak Bay. When paired with the GPS data, mapped vegetation plant communities provide valuable information on relative shifts in sea-level rise and land-level change over time. In our region, coastal uplift is due to after-effects from the 1964 earthquake, the steady buildup of strain for the next big earthquake (strain accumulation), and rapid melting of heavy ice contained in local glaciers and ice fields (isostatic re-adjustment). Melting glaciers also contribute to local and global sea level rise.

We have continued to make good progress on data acquisition and have had thoughtful communication among researchers and Core Intended Users (CIU) on this project. We completed all field sampling in the salt marshes by the end of September. On 19 September, we held a CIU meeting to discuss the types of products would be most useful to the group. We also presented a surprising result from the Continuously Operating Reference Station site on the Homer Spit (Spit); land level at this site significantly different than its nearest neighbor at the Public

Works station. All sites are indicating uplift with the exception of the Spit. Methods for assessing the problem were discussed; if it is reflective of the entire Spit, the harbor area will not be out-pacing global sea level rise. We decided to omit the regularly scheduled CIU meeting to be held on 5 December 2012 in favor of having a discussion section at our Kachemak Bay Community Council Meeting on the issue of relative sea level rise for the Spit. While surveying our coastal decision-makers, we had an opportunity to work with the Army Corp of Engineers to share information and data on land level changes based on data they had for the Spit. During the winter, we continued sample analyses and data processing. We developed a data table to facilitate data management and metadata from the project.

B. Working with Intended Users:

- **Describe the progress on tasks related to the integration of intended users into the project for this reporting period.**

During this reporting period we held one (CIU) meeting with our collaborators on the study (19 September 2012) and we discussed potential methods of communicating the results back to the group. We presented maps of each of four salt marsh sites in the study showing vegetative cover types, relative abundance of fish in tidal channels, and anadromous streams. During the March CIU meeting, sediment transport was still a major concern for the City of Homer, Harbor representatives. As a result of these previous discussions, we worked with a NOAA intern, Taylor Bennett, to provide a poster on sediment transport processes for the Homer area. The goal of the poster was to provide better information on processes influencing sediment transport and to develop a common vocabulary of terms when we discussed the processes. The poster was presented at this meeting and was then transferred to the City of Homer offices (the maps and poster are part of the meeting notes located at http://www.nerrs.noaa.gov/NSCIndex.aspx?ID=648 (the meeting notes/presentations are along the sidebar)).

We also re-visited the draft parameters for developing products from the study to help refine formats that will be beneficial to the end users of the information. In general, not much new was added at the time of this meeting. The any new information is in italic font below:

a. Making the Time Scale Relevant to Users Needs: Implementation of plans happens within a 5-year time frame but planning for larger-scale fiscal process is longer.
    i. The information on RSL may or may not be at a scale that is useful on the short-term decision-making. *There was general agreement from the group on this.*

    ii. The information is more relevant for long-term budget planning such as 20yr to 50 yr time frame. *ACOE has a longer-term planning*

process (20yrs) for major projects. In general, this still seemed about right from the group.

b. The City of Homer CIUs recommended the following focal areas to provide higher resolution map products for:
    i. Homer Harbor (Homer Spit),
    ii. Kachemak Drive,
    iii. the Seawall area,
    iv. Any area where the bathymetry is a shallow basin and would exaggerate effects of RSL change.
    v. *No new sites were recommended by the group*

c. Other information or data layers that are important to decision-making
    i. For infrastructure and land use planning, include coastal erosion rates to the uplift projections.
    ii. Physical processes such as sediment transport and coastal erosion are part of the equation.
    iii. *No other data layers were identified at this time*

d. Information Transfer doesn't stop here with the researchers and Core Intended Users. People involved in city planning and budgeting need to be comfortable communicating the results of this study to other people they work with such as ACOE, financial planners, and collaborators.
    i. Presenting results from the past (1970s), present, and future case scenarios to help frame the discussions.
    ii. *The group liked this idea*

e. How do we share data and data products from this project? *There wasn't a lot of discussion on this, perhaps more will come in the future. We felt that we would get more of a response when people had something in front of them to provide specific feedback.*

During the CIU meeting, Jeff Freymueller presented on an 'accidental tide gauge' for the Peterson Bay CORS site; this is a novel method for determining water level change over time. He reviewed the ice and tectonic models that he will be updating with this and last year's data. The new data will help validate the existing model structures and perhaps shed some light on post seismic, tectonic and glacial rebound sources of land-level change. The surprising result at the moment is that the CORS site on the Homer Spit (Spit) is significantly different than its nearest neighbor at the Public Works station. All sites are indicating uplift (regardless of whether they are on bedrock on unconsolidated substrates) with the exception of the Spit. At this point, it is unclear if that is true for the entire length of the Spit or if there is something site-specific about the location of the CORS site. Methods for assessing the problem were discussed; if it is reflective of the entire Spit, the harbor area will not be out-pacing global sea level rise.

We decided to omit the regularly scheduled CIU meeting to be held on 5 December 2012 in favor of having a discussion section at our Kachemak Bay Community Council Meeting (also held on 5 December) on the issue of relative sea level rise for the Spit. After a short presentation to introduce the issue we discussed the relative importance of the information to the community. We discussed whether it was warranted to pursue another year of Science Collaborative funding to more accurately determine the rates of land-level change for this area. To aid us in determining the next steps, we used a short key-pad polling survey to gather information from the Community Council; they were in favor of pursuing more information on land-level changes for the Spit. Through email, we further expanded our survey to a larger audience of potential Core Intended Users of the information. Coastal decision-makers demonstrated interest in the problem, particularly how these changes may impact harbor and road infrastructure, land-use planning, and local biology. Of the survey respondents, 60% had participated previously in some or all of the current Science Collaborative work groups. Of these individuals, 82% indicated that the collaborative process has improved their ability to make science-based decisions relating to land and sea-level change and said they would be committed to participation in future meetings and workgroups, assistance in monitoring, and application of study results in their work. Based on this information, we developed a pre-proposal for the Science Collaborative RFP.

- **What did you learn? Have there been any unanticipated challenges or opportunities? Who has been involved?** During this reporting period, staff involved on the project included: the principal investigators, Ed Clark (UAF Geophysical Institute), Carmen Field (KBNERR Education and Outreach), Conrad Field (KBNERR Habitat Biologist), Tammy Hoem Neher (KBNERR Wildlife Technician), and Taylor Bennett (NOAA Intern), and the CIUs.

  KBNERR hired a new Coastal Training Program Coordinator, Stacey Buckelew. Stacey has been getting up to speed on the project and has been assisting in the preparation for the next CIU meeting in March.

- **Has interaction with intended users brought about any changes to your methods for integration of intended users, the intended users involved, or your project objectives?** Thus far, no changes to the methods or sampling have been recommended by our CIU. We are in the process of discussions about how to provide the information generated in this study to decision-makers.

- **How do you anticipate working with intended users in the next six months?**

  In the next six months we will be conducting two more CIU meetings (20 March and 5 June 2013). The meeting in March will be held in Soldotna to facilitate greater participation in by the Kenai Peninsula Borough attendees and will be focused on data discussions and draft products.

We will continue to post meeting materials on our KBNERR and Community Council websites and to encourage additional CIU participants to the meetings.

Progress on project objectives for this reporting period:

- **Describe progress on tasks related to project objectives for this reporting period.**

Objective 1: To determine if bedrock uplift rates in the area are uniform, or if they vary along the length of the Bay.

  - *Hypothesis 1: Bedrock uplift rate is non-uniform, with slower uplift rates at the head of the Bay.*

- Progress to date: The longer time series data (10yrs) are suggesting a fairly uniform uplift rate around Kachemak Bay. In which case, it appears that hypothesis 1 has failed. Given uplift rates are more uniform than suspected, it might allow us to make a more precise estimate of sea level change by averaging in space.

  Independent work ongoing at UAF is showing a great deal of promise for modeling seasonal variations in the GPS data. Seasonal variations do exist in the data (to a greater extent for the horizontal movements that the vertical). The next steps include removal of seasonal variations based on a physical model, and this should give us more accurate estimates of vertical site velocities to test this hypothesis.

- You can access the data at:
  - **UAF: ftp://gps.alaska.edu/pub/gpsdata/permanent/YYYY/ddd/**
  - **UNAVCO: ftp://data-out.unavco.org/pub/rinex/obs/YYYY/ddd/**
  - **UNAVCO: http://facility.unavco.org/data/dai2/app/dai2.html**

Objective 2: To determine if areas surrounding the coastline of Kachemak Bay that are largely comprised of unconsolidated glacial till are experiencing similar uplift projections to sites located on bedrock, and to monitor elevation and changes in vegetation in salt marshes as an indicator of the balance between sea level rise and coastal rebound.

  - *Hypothesis 2: Soft sediments subside and compact, with the surface moving downwards relative to bedrock, and these locations experience less net uplift than bedrock sites.*
  - *Hypothesis 3: Increasing sedimentation and relative sea level fall are shifting salt marsh habitats seaward.*

Progress to date: In a preliminary assessment of the data to date, there is no evidence for uplift rates being different for soft sediments on the north side of the Bay versus the bedrock sites on the south side of the Bay. In the salt marsh habitats, the data time series is not yet long enough to evaluate how land level changes are trending relative to the whole study area.

In order to evaluate shifts in salt marsh habitat, we need to have accurate vegetation cover maps and measures of sediment accumulation or loss at the site. We collected vegetation data for all 4 salt marsh sites and are in the process of updating the vegetation cover maps with data from 196 permanent vegetation plot and an additional 576 plots collected from our community monitors. We have completed high resolution leveling measurements at all 4 salt marsh study sites relative to our benchmarks and to our permanent vegetation monitoring plots. We will also have access to 2012 aerial imagery data for China Poot and Sadie Cove salt marsh sites in the near future.

Objective 3: To improve earlier estimates of coastal uplift rates, which were generated for the greater Kenai Peninsula; refine models to better predict uplift rates in areas between measurement sites; refine estimates of regional sea level rise; and assess the impacts of coastal change for all coastal habitats of Kachemak Bay.

- *Hypothesis 4: Observed uplift rates can be explained by a model that combines isostatic adjustment due to melting of glaciers and icefields, steady tectonic deformation, and post-seismic deformation following the 1964 earthquake. Regional sea level rise can be explained by a combination of global sea level rise and changes in the shape of the mean sea surface related to the deglaciation of southern Alaska. If hypothesis 2 is confirmed, then compaction and subsidence of sediments would need to be added to the model for non-bedrock sites.*

Progress to date: The data mentioned above will help greatly in testing these hypotheses. The data from the pre-existing GPS sites are the most valuable for this work, as their long measurement histories mean they have the most precise estimates of motions. Quantitative testing of this hypothesis is in progress. At present, a postdoctoral researcher (Yan Hu) at UAF is working on an improved model for glacial isostatic adjustment across all of southern Alaska; an update for our region is still in progress.

An additional collaboration on the project came from Kristine Larson from the University of Colorado, who is in the process of completing a paper on tidal variations observed at PBAY (Peterson Bay CORS) using variations in multipath from signals that reflect off the ocean surface and reach the GPS antenna. Given the huge tidal range, it turns out that the GPS receiver makes an excellent "accidental tide gauge". Jeff Freymueller presented these results at our September CIU meeting.

Objective 4: To identify the biotic diversity and community composition among salt marshes which are: ground and surface water fed, glacial melt water fed, and salt marsh habitat historically fed by glacial melt water but which is no longer fed by glaciers.

- *Hypothesis 5: Biological diversity is influenced by the source of freshwater input to the salt marsh habitat.*

Progress to date: With our education team, we developed and implemented a series of trainings for community monitors to and utilized their help in data collections to assess the biological diversity in the 4 salt marsh sites in our study. In addition to the annual monitoring of permanent emergent vegetation plots in the salt marsh sites, we have added

the following one-time sampling at each site: 144 additional vegetation plots, 12 insect fallout traps, 12 insect sweeps, 12 samples for infaunal invertebrates, fish sampling (tidal & freshwater), and bird and mammal species lists. We are currently working with the University of Washington to provide identification of the insects and infaunal invertebrates. The data from the vegetation monitoring will also be used to assist in validation of the vegetation cover-type maps generated in the study. Lists of birds, mammals, and tidal channel fish have been generated for each site. A short summary of all data have been compiled.

Objective 5: To involve and educate local and regional coastal decision makers, local community residents, K-16 students, and other potential Core Intended Users (CIUs) of the information during and after the study.

- *Hypothesis 6: Local decision makers (CIUs) will be able to 1. communicate the benefits and goals of this study to others and 2. integrate and use the data generated from this study if they have opportunities to learn more about the basic geomorphic processes occurring in our region.*
- *Hypothesis 7: By making our outreach and education available to the general public, we will identify additional CIUs of the information generated in this study.*

Progress to date: We have had no formal education outreach activities specific to the Science Collaborative project during this reporting period. We presented the project at Quarterly Community Council meetings as well as surveyed a broad audience of coastal decision-makers to obtain feedback on preliminary results of land level change for the Homer Spit. We devoted an entire Kachemak Bay Research Reserve News letter to the activities of this project in November (see attached).

- **What data did you collect?** We continued data collection through the reporting period and data processing. All CORS sites have been operational for the past 6 months and data collection continues at those sites. Attached is a data table for the project.

- **Has your progress in this period brought about any changes to your methods, the integration of intended users, the intended users involved or the project objectives?**
  There have been no changes to project methods or project objectives to date.

- **Have there been any unanticipated challenges, opportunities, or lessons learned?**
  Overall, our field season is fairly short with abrupt periods of inclement weather; this makes the field schedule condensed and the window for accomplishing all work outlined a challenge.

- **What are your plans for meeting project objectives for the next six months?**
  In the next six months, we will hold two more CIU meetings focusing on CIU presentations, sharing preliminary data, and refining the delivery of the information generated in this study to meet the needs of the CIUs. We will continue working with the data gathered this spring and summer (data entry, error checking, permit reporting, and

summaries) and begin developing specific deliverables from the data sets acquired. This spring, we will have two events associated with this projects, one at a What's New In the Bay Discovery Lab (DL) on Climate Change and the second, a complete DL associated without reaching this project and will be summarizing the results of those and all education outreach efforts for the final report.

C. Benefit to NERRS and NOAA: List any project-related products, accomplishments, or discoveries that may be of interest to scientists or managers working on similar issues, your peers in the NERRS, or to NOAA. These may include, but are not limited to, workshops, trainings, or webinars; expert speakers; new publications; and new partnerships or key findings related to collaboration or applied science.

a. A major benefit to the NERRS is that KBNERR has acquired high-precision GPS and leveling equipment which meets the national program standards. This results in one less reserve needing to borrow the shared equipment.
b. Setting up the long-term vegetation transects utilizing the national program's methods ensure that these data will be compatible with NERRS protocols, which is a benefit.
c. By modeling sea and land-level changes with high precision, we are contributing valuable information to our partners in the National Park Service, U.S. Geological Survey, and U.S. Fish and Wildlife Service who are currently relying on the SLAMM model for sea level rise without the benefit of land-level change.

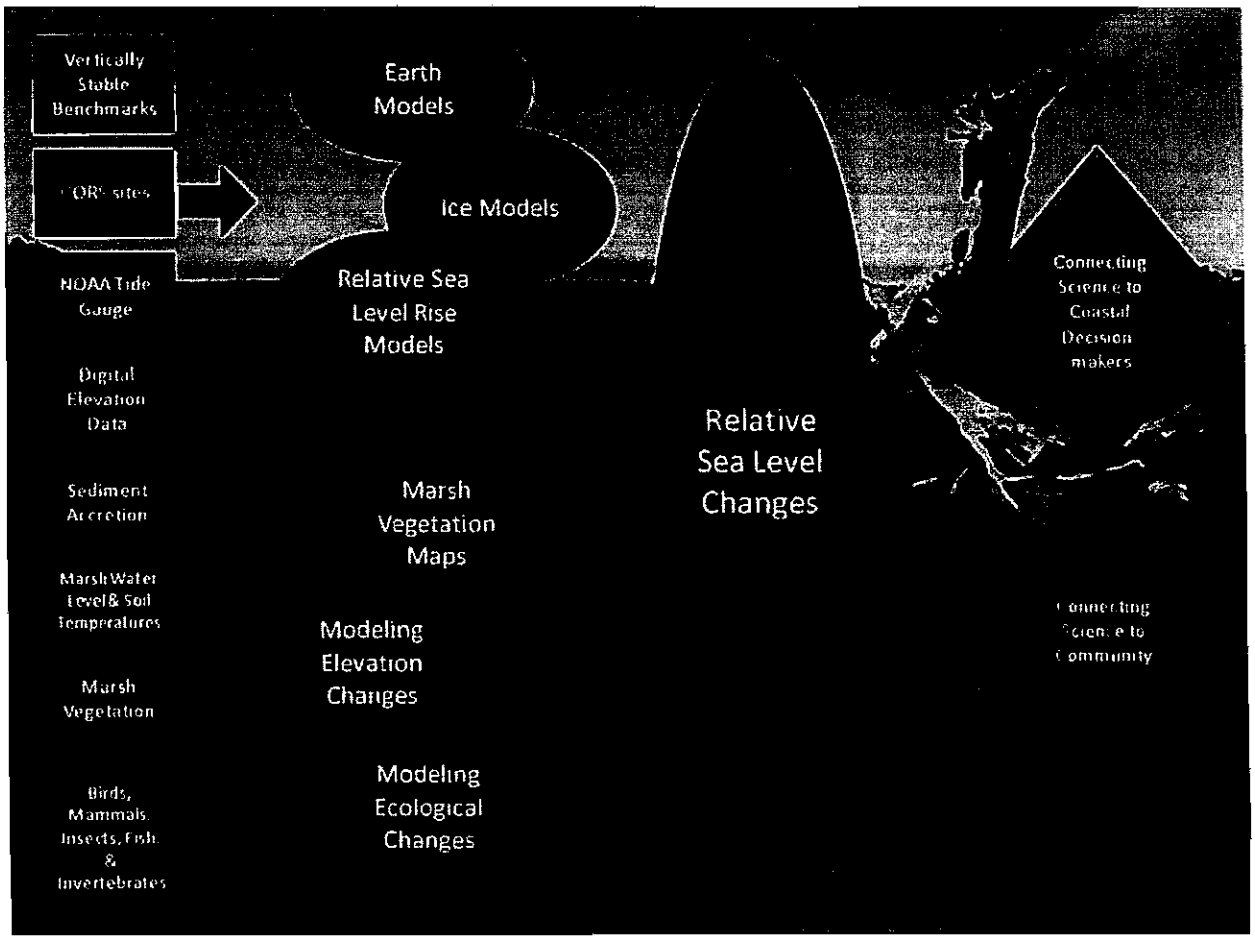
D. Describe any activities, products, accomplishments, or obstacles not addressed in other sections of this report that you feel are important for the Science Collaborative to know.

1. A data table for the project (see attached)
2. A draft schematic illustration how the data flow contribute to RSL estimates
3. A KBNERR Newsletter highlighting our project

Database	Description	Data Types	Data Structure Relational to:	Comments
Community Monitoring: Vegetation	Along 6 randomly selected perm. vegetation transects (see LTM Veg), 2 100x100m plots were established in the upper & lower marsh; within each, 12 randomly placed 1x1m plots were monitored for plant diversity, fruiting bodies, & % cover estimates.	Access database. GPS locations of 1x1m plot and categories of % cover for each unique plant type & bare ground therein, & presence/absence of vegetation fruiting bodies	CM: birds & mammals CM: insects CM: infaunal inverts CM: fish LTM: vegetation mapping	Status: data entered & error checked These data will be useful to the FRF Juvenile Salmon Studies where intensive insect and vegetation data have been collected along main stem & tributary river channels.
Community Monitoring: Birds & Mammals	A baseline for the presence of birds & mammals encountered incidental to vegetation monitoring	Access database. Visual observations of animals, tracks, feces, vocalizations were all recorded.	CM: insects CM: infaunal inverts CM: vegetation CM: fish	Status: data entered & error checked Notations were made for inside & outside the 100x100m sampling plots
Community Monitoring: Insects (Fall-out traps (IFO) & sweeps)	IFO traps were placed 1 each at the bottom left corner of each 100x100m plot (see CM Veg) and left to collect insects for 24 or 48hrs; insect sweeps were done along the margin of the 100x100m plot for 25m at walking pace prior to disturbing the vegetation with other activities	Access database. GPS location of the IFO; IFO data are processed by UW and are reported in species density; insect sweep sample are also analyzed by UW and reported as relative abundance	CM: birds & mammals CM: infaunal inverts CM: vegetation CM: fish	Status: collection data entered & error checked; samples have been shipped to UW and await processing A representative of each species will be bar-coded and archived at the University of Alaska, Fairbanks in collaboration with the Kenai National Wildlife Refuge.
Community Monitoring: Infaunal invertebrates	A 10cm diameter/15cm deep soil core was collect within each 100x100 sampling plot when a water source could be identified	Access database. GPS location of the core sample collection site. in 2012 photos also taken of the sites. Infaunal invertebrates will be identified to species by UW	CM: birds & mammals CM: insects CM: vegetation CM: fish	Status: collection data entered & error checked; samples have been shipped to UW and await processing Not all upper and lower 100x100m plots had infaunal invertebrate cores taken.
Community Monitoring: Fish	In each of 4 salt marshes, fish were sampled in upper and lower marsh tidal channels. A 25m reach of selected channel was blocked with nets & 3 consecutive passes were made with a pole seine. For each 25m reach sampled, GPS start/end, water conductivity & temp (surface, mid, bottom) & thalwag depth were recorded.	Data on sampling site, bin, length of 1st 50 salmonids and 1st 10 of all other species are in an Excel spreadsheet.	CM: birds & mammals CM: insects CM: vegetation	Status: data entered & error checked; however, the physical characteristics of the site location have not been entered and error checked to date. Note: all sites were sampled in fall 2012 to assist with comparability among marsh sites. Data from BS & CP in 2011 are in an Access database but were collected with differeat methods.
Long-term Monitoring:	Vegetation monitoring protocols follow those established by the	Access database/Arc GIS shapefiles. GPS locations	LTM: vegetation mapping	Status: data entered & error checked

Vegetation	NERRS (with local adaptations from the NPS). Permanent, stratified randomly placed transects were established at each of 4 marsh sites and 1x1m plots were placed every 100m from low to high marsh.	location along the transect (vegetation plots are offset by 1m) & photos of each veg plot; data collected includes: %cover of each vegetation type & bare ground; stem density and canopy height were measured for 1/16m^2 of the sample plot	LTM: leveling LTM: water, soil temperature, & barometric loggers CM: vegetation	These data will be useful to the FRF Juvenile Salmon Studies where intensive insect and vegetation data have been collected along main stem & tributary river channels. These data have also been archived with the NERR CDMO and are undergoing QA/QC review.
Long-term Monitoring: Vegetation mapping	Vegetation cover maps were produced from high resolution aerial photographs and field validated (1996, 2003, & 2004).	Arc GIS shapefiles based on spatially referenced aerial images from (1996). These will be updated based on more recent field data & aerial images.	LTM: vegetation CM: vegetation	All 4 salt marsh sites have vegetation cover maps. We are in the process of validating these with the CM and LTM data.
Long-term Monitoring: Leveling	In each of 4 salt marsh sites, vertically stable benchmarks have been set in soft-sediment and associated bedrock sites (where feasible). Each of the permanent vegetation plots were leveled back to a benchmark site.	The data structure is an Excel spreadsheet of high resolution leveling measurements	LTM: vegetation mapping LTM: water, soil temperature, & barometric loggers	Status: all leveling data are transferred to Excel spreadsheets for summary & analyses.
Long-term Monitoring: Water-level & barometric loggers	In each of 4 salt marsh sites, a water level logger was placed in the upper and lower regions of the site. A single barometric logger was place for the same time period in an upland location	The data structure is an Excel spreadsheet and the instrument is set to record water level every 15 min.	LTM: vegetation mapping LTM: soil temperature loggers	Status: all water level data are transferred to Excel spreadsheets for summary & analyses
Long-term Monitoring: Soil temperatures	In each of 4 salt marsh sites, temp loggers were set at the upper & lower end of transects selected for the community monitoring; these were buried in PVC pipe approx 10cm deep.	The data structure is an Excel spreadsheet and the instrument is set to record soil level every 15 min.	LTM: vegetation mapping LTM: water & barometric loggers	Status: all soil temperature data are transferred to Excel spreadsheets for summary & analyses.
Long-term Monitoring: Static GPS Campaigns on Vertically Stable Benchmarks	In each of 4 salt marsh sites a minimum of 3 vert. stable benchmarks are monitored 2-3d intervals 2x yearly. Annual 2-3d occupations occur for bedrock benchmark sites throughout the greater study area (n=15?)	All data are raw GPS data	LTM: CORS	Status: We are currently in the process of checking these solutions.
Long-term Monitoring:	5 CORS are in operation (1 on bedrock and the remaining 4 are	UAF: ftp://gps.alaska.edu/pub/gp	LTM: Static GPS	Status: data collection continues

CORS Sites	on unconsolidated soil types). Additional data is available from pre-existing CORS sites on bedrock located at Bradley Lake and near Seldovia.	sdata/permanent/YYYY/ddd/ UNAVCO: ftp://data-out.unavco.org/pub/rinex/obs/YYYY/ddd/ UNAVCO: http://facility.unavco.org/data/dai2/app/dai2.html		
NOAA Tide Gauge	Water level and temperature data from 1964 to present are available from the NOAA tide station located at the Seldovia Harbor	http://tidesandcurrents.noaa.gov/data_menu.shtml?stn=9455500 Seldovia, AK&type=Tide Data		Status: data collection continues
LiDAR in Kachemak Bay	LIDAR data from 2008 are available for 2 of 4 salt marsh sites	Raw LiDAR files; these have been also converted to DEM's in Arc GIS http://www.csc.noaa.gov/digitalcoast/data/coastallidar/download	LTM: vegetation mapping LTM: leveling LTM: water& barometric loggers CM: vegetation	Status: 2012 data should be available soon for the salt marshes on the south side of Kachemak Bay


Vertically Stable Benchmarks
CORS sites
NOAA Tide Gauge
Digital Elevation Data
Sediment Accretion
Marsh Water Level & Soil Temperatures
Marsh Vegetation
Birds, Mammals, Insects, Fish, & Invertebrates
Earth Models
Ice Models
Relative Sea Level Rise Models
Marsh Vegetation Maps
Modeling Elevation Changes
Modeling Ecological Changes
Relative Sea Level Changes
Connecting Science to Coastal Decision makers
Connecting Science to Community