

# Natural Currents

“To provide education and leadership in the conservation and sustainable use of soil- and water-related resources through cooperative programs that protect, restore, and improve our environment.”



## WINTER ISSUE:

- Fox River Flats—A Unique Area 1
- Operation Eradication: Elodea on the Peninsula 1
- Hay Producers Workshop Schedule 3
- 2014 Changes to the High Tunnel Program 3

## Board of Supervisors

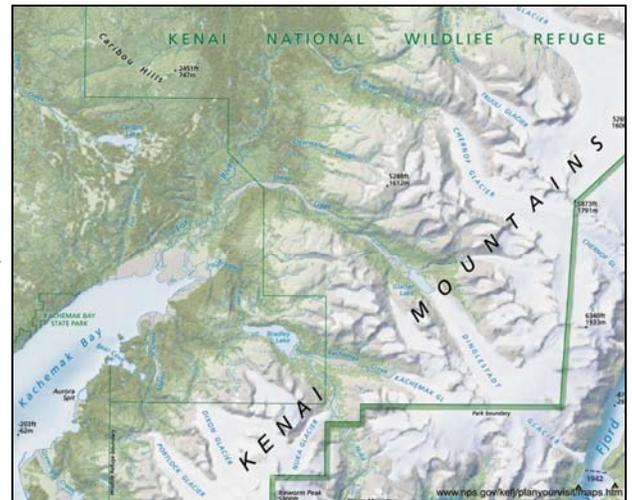
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## THERE'S SOMETHING SPECIAL AT THE HEAD OF THE BAY

“The Head of the Bay.” “Fox River Flats.” “The Fox and the Sheep.” These names conjure up special places with unique rhythms and seasons—different from anywhere else around Kachemak Bay. What makes this area so unique and special? For one thing, the head of Kachemak Bay is shaped by the only glacier-fed, braided river systems on this side of the Kenai Peninsula. It's an area more like the Resurrection River valley in Seward than like river systems draining into the east side of Cook Inlet—namely, the non-glacial, snow- and rain-fed Anchor, Ninilchik, Stariski, and Deep Creek systems and the glacier-lake-fed Kenai and Kasilof Rivers. That means that Fox River and Sheep Creek carry frigid, silt-laden waters pouring out of the Harding Ice Field in the Kenai Mountains to south and east—the Chernof Glacier feeding the Fox, the Dinglestadt Glacier feeding the Sheep (see map above). As these silt-laden waters deposit new sandbars here or spill over there, they sculpt multiple, ever-shifting channels; these interweave, split apart, and snake towards the bay as shown in the map above (Fox River is on the north, the larger Sheep Creek channel, on the south).



## OPERATION ERADICATION

This winter the Kenai Peninsula Cooperative Weed Management Area (CWMA) has been planning and prepping for the upcoming thaw and the launch of an offensive against the aggressive invasive waterweed Elodea. Elodea is a highly invasive and potentially devastating aquatic plant that can compromise fish habitat, inhibit recreation, and decrease land value. First detected in Stormy Lake in 2011, Elodea was found in both Daniels and Beck Lakes during 2012 field surveys covering 68 high-priority waterbodies across the Kenai Peninsula. All three infected lakes are on the northern peninsula. CWMA members have assessed all available tools for eradicating Elodea in order to formulate a thorough Integrated Pest Management Plan. This assessment makes clear that truly eradicating this weed will involve chemical herbicides. The CWMA is now acquiring permits needed for an intensive, three-season, multi-stage application of appropriate aquatic herbicides. The plan is to conduct an early application of diquat—a non-selective topical herbicide—just after ice goes out in spring 2014. This will be followed by applications of fluridone—a systemic herbicide inhibiting chlorophyll production—during spring and fall 2014, spring 2015, and spring 2016. Stormy and Beck Lakes will both receive whole-lake treatments; Daniels Lake will be partially treated in five discrete areas.

Obtaining permits for such a large and complicated project is challenging and requires strategic cooperative efforts. These have been coordinated by the multi-agency partnerships that -

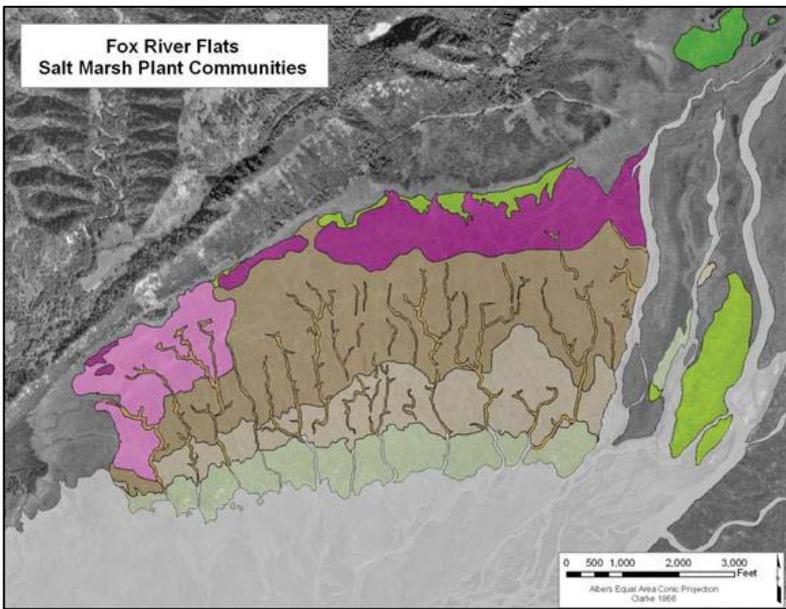
This pattern of shifting channels has created a large delta at the head of Kachemak Bay. The tidal end of this delta supports over 7,000 acres of coastal marsh and mudflat—the largest marsh system in Kachemak Bay. The ebb and flow of tides creates zones within these marshlands, and each zone has its own unique features based on its inundation patterns, salinities, substrates, microclimates, and plant and animal communities (see image at bottom left, from KBRR).

The head of the bay is also unique because it's located right on the boundary of two major Alaskan ecoregions: the region of maritime montane coastal rainforests, found to the east and south of the Fox River valley, and the Cook Inlet Basin, lying to the west. In the relatively wet maritime montane region, deep, steep-sided fjords and long fingers of forest extend to the sea. Lower elevations are dominated by dense rainforests of Sitka spruce. In the drier Cook Inlet Basin—exemplified by the flatlands and rolling hills of the Kenai Lowlands—deciduous woodlands of cottonwood and birch, along with shrublands of willow and alder, intermix with forests of Lutz spruce—a hybrid of Sitka spruce and the white spruce typical of Interior forests. Both ecoregions transition to tundra plant communities at higher elevations. The proximity of these two ecoregions, and the many local variations found here in soils, elevation, aspect, topography, water flows, air movements and temperature, etc., create a rich mosaic of microclimates and habitats that support a wide variety of plants and animals. In the Flats, these include estuaries—where marine and freshwaters mix—that provide critical rearing habitats for juvenile coho and sockeye salmon. Kachemak Bay Research Reserve has been studying these areas.

The state has formally recognized the unique variety and productivity of areas at the head of the bay by establishing two adjacent state Critical Habitat Areas (CHA): Fox River Flats CHA, created in 1972, and Kachemak Bay CHA, created in 1974. This



Here's how this area is described in a 2010 plan written by Homer Soil and Water (see the Coordinated Resource Management Plan on our website). The Fox River Flats is a deltaic plain created by sedimentary deposition from the Fox, Sheep, and Bradley rivers. Deltas form where streams carrying sediment loads reach the sea and their flow velocities slow dramatically. As streamflow slows, sediments that were carried by the current settle out and accumulate on the bottom. The slower the flow, the finer the sediments that settle out. As tide levels fluctuate and freshwater runoff increases and decreases, deposited sediments are picked up, moved, and redeposited. This process creates variously shaped and dynamic deltas. Deltas formed by multiple meandering channels—like the Fox River Flats—are called braided.



area is also within the Kachemak Bay National Estuarine Research Reserve (NERR), designated in 1999 by a partnership of the National Oceanic and Atmospheric Association and the Alaska Department of Fish and Game. The Kachemak Bay NERR is the largest in the nationwide system, encompassing over 360,000 acres of estuarine and upland habitats. It is recognized as one of the most productive, diverse, and intensively used estuaries in Alaska.

Finally, Fox River Flats play such an important role in annual migrations of shorebirds and waterfowl that this area has been identified as a “Site of International Importance” in the Western Hemisphere Shorebird Reserve Network. This designation is based on the fact that more than 100,000 birds use the Flats during annual migrations between summer breeding areas to the north and overwintering areas to the south. In addition, these tidal marshes support critical nesting and feeding areas for many species of waterfowl, as well as haulout areas for harbor seals living in the bay.

(*Elodea continued from page 1*) define the CWMA. At the same time, others have been advocating for funding from local, state, and federal sources; the herbicides alone will cost over \$600,000. The Kenai Peninsula Borough has already committed \$40,000, and at the top of this year's CIP list, Mayor Navarre requested \$700,000 from the state for *Elodea* eradication. Though seed funding so far secured is limited, the CWMA is working hard to leverage those funds through various grant opportunities. Additional details will be sorted out as the project nears its start dates, but with an agency cooperative like the CWMA focused on the task, *Elodea*'s days on the peninsula are numbered.

## 2014 CHANGES TO HIGH TUNNEL PROGRAM

Most of you are familiar with the high tunnel cost-share program offered by the Natural Resources Conservation Service. High tunnels can extend the growing season by a month or more in spring and fall and are funded through the NRCS Environmental Quality Incentives Program (EQIP). High tunnels differ from greenhouses primarily in that plants must be grown in the soil, not in containers on tables. For 2014, NRCS has introduced a few changes to its high tunnel program. Changes include eliminating size restrictions on high tunnels; which in previous years were limited to about 2100 square feet (e.g., a 30-by-70-ft high tunnel). If you have already received NRCS funding for a high tunnel, you can now apply to put up another one. Also, producers with high tunnels who have not yet received cost share funds for nutrient management or other high tunnel conservation practices can now apply for such practices to improve overall soil and water quality. If you are currently applying for a high tunnel, you can apply for related conservation practices at the same time. There are eligibility requirements to receive funding, one of which is that NRCS will only cost share for high tunnels on land that is currently in production. For more information, contact the NRCS Homer Field Office at 235-8177 ext 3.

### RECOGNIZING ELODEA

*Distinguishing features of Elodea:*

**Leaf**—arranged in whorls of 3 densely packed along the stem. Leaves are about 1 cm long.

**Stem**—Long and slender, generally branched, and typically lighter in color than the leaves.

*Elodea* remains submersed and forms tangled masses in lakes, ponds, and slow moving streams.



Photo: Karin Sonnen

**HEY!**

### PRODUCERS AND CONSUMERS

UAF/Cooperative Extension in partnership with Fox River Cattlemen's Association and KSWCD are hosting a Forage Workshop in Kenai and Homer.

**Kenai - Monday, February 10, 2014**

5:30 PM registration, 6:00-8:00 PM program, Kenai Library Conference Room

**Homer - Tuesday, February 11, 2014**

5:30 PM registration, 6:00-8:00 PM program, Kachemak Bay Campus Room 219

To pre-register, contact Vicki Heinz at UAF CES Kenai District, 907.262.5824 or [vheinz@alaska.edu](mailto:vheinz@alaska.edu)

Dr. Mingchu Zhang will present on "Organic and inorganic nutrient sources for hay production in Alaska." The talk will cover results of experiments in Homer and Fairbanks areas on hay production from adding organic or inorganic fertilizers. He will also briefly discuss soil testing.

Dr. Milan Shipka will present on "Hay quality considerations and how best to use the hay you have available." You can't change the quality of hay once you've put it in your barn. Anyone with animals needs to consider the nutrient needs of their animals and how best to get nutrients to their animals. Dr. Shipka will discuss nutrient needs and digestion in ruminants (examples of ruminants are cattle, goat, sheep, llama, alpaca, etc.) and nutrient needs and digestion in horses.

**This FREE workshop is offered to all animal and hay producers and the interested public.**

To find out more about Homer Soil and Water Conservation District programs and projects, visit our website at [www.homerswcd.org](http://www.homerswcd.org).

## UPCOMING EVENTS & DEADLINES

February 11 Forage Workshop 5:30 Registration 6:00—8:00 @

Kenai Peninsula College, Kachemak Bay Campus -Home

February 12 HSWCD Board Meeting 5:00 pm @ USDA Service Center

March 12 HSWCD Board Meeting 5:00 pm @ USDA Service Center

April 25 –Kenai Peninsula Cooperative Weed Management Area Annual Weed Workshop -Soldotna

*Please Note:* Continuous sign-up for NRCS Environmental Quality Incentive Program—Homer Field Office.

In partnership with USDA NRCS, the HSWCD is an Equal Opportunity Provider and Employer



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