

CURRENTS

Newsletter of the Kenai Watershed Forum



Winter 2014

www.KenaiWatershed.org • 907-260-5449

Working together for healthy watersheds on the Kenai Peninsula

Kenai Watershed Forum Celebrates its 14th Year of Watershed Quality Monitoring

by Branden Bornemann - KWF GIS/Water Quality Specialist

Just as certain norms of behavior are required to form, foster, and preserve a healthy society, so are they required to maintain a sustainable environment on which that society depends. This maxim is especially true for our community and it's deeply entangled natural and cultural resources. Nowhere else that I've lived, visited, or dreamed of going seems to lend itself more to this sort of holistic ecological view, imparting upon all of us that call the Kenai Peninsula home a sense of place and interconnectedness. This affective bond between people and place, for many of us, is intrinsically tied to our natural resources and subsequently helps to define our shared cultural values. One of the cultural values of our area that we at the Kenai Watershed Forum (KWF) value most is stewardship.

Stewardship is an ethic that embodies the responsible management of something entrusted to one's care (Merriam-Webster). More specifically, environmental stewardship is the responsibility for environmental quality shared by all those whose actions affect the environment (<http://www.epa.gov/stewardship/>). By simply living on the Kenai Peninsula, we all have a shared responsibility to be environmental stewards and our actions can often speak louder than our words. This core value and idea is exemplified in KWF's bi-annual Kenai River Watershed Water Quality Monitoring event, previously known as Agency Baseline and herein referred to as Watershed Quality Monitoring (WQM). The WQM event that



Volunteer from Trout Unlimited helps gather samples from Juneau Creek near Cooper Landing.

Continue on Page 4: Water Quality

Susan Giani leaves a Legacy

We'd like to take a moment to send out our love and thanks to Susan Giani, and her family and friends. Susan's love for the outdoors led her to hike, raft, climb and explore wild places, and her commitment to this community ran deep. When she died in January 2013, her family chose KWF to accept donations on her behalf. Hoping to honor her ethic of



outdoor adventure, funds were used to support our summer day camp scholarships and ten low-income children were able to learn and play outside last summer with the funds we received. We thank Susan so much for her joy and spirit, and for helping the next generation discover the outdoors. If you would like to know more about making memorial donations, please contact our development office.

In Memory of Susan Giani
Kevin Draeger
Jeff & Danielle Bundy
James & Sherry Keller
Barbara & Lucien Lane
Suzanne Radonsky
Joseph & Diana Dimenna

Lovalaska. Pick.Click.Give.

Rivers rush with the spirits of you and me. Celebrate and support healthy watersheds with vibrant communities and rivers full of fish. You are the river and the river is you.

PICK.CLICK.GIVE. to KENAI WATERSHED FORUM

This year you'll have the opportunity to GIVE to charities of your choice through Pick.Click.Give. Please think about healthy habitats, strong salmon runs, and future generations. Show you "Lovalaska" by choosing Kenai Watershed Forum. You'll be making a clear choice you care about Alaska's rivers.



In this Issue...

Water Quality Monitoring Program
Susan Giani Memorial • Stream Watch Volunteers
Beach Sampling in Kenai • Membership Update
Invasive Species - Most Wanted List
Calendar of Events • Summer Camp Registration



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Kenai Watershed Forum (KWF) is a local 501(c)(3) non-profit organization dedicated to maintaining the health of the watersheds on the Kenai Peninsula, Alaska. KWF is recognized as the regional watershed organization of the Kenai Peninsula, Alaska, successfully identifying and addressing the needs of the region by providing high quality EDUCATION, RESTORATION, and RESEARCH programs.

Our mission is "working together for healthy watersheds on the Kenai Peninsula". KWF is a dynamic and maturing organization that is poised to serve the Kenai Peninsula and the State of Alaska with increasing effectiveness in the near and distant future.

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A letter from Development Director

Dear KWF Members, Supporters, and Friends,

Temperatures are dropping. These few weeks of unseasonably warm weather have had us at KWF thinking about our spring and summer plans. It seems an appropriate window of opportunity to recap last summer's activities and preview what's to come!

The 2013 season saw us making steady progress on many of our long-term projects. For information on our ongoing research, look to Branden Borneman's update on water quality testing, or to summer intern Jeff Sires' beach sampling memorandum. Our restoration work was particularly impressive this summer; Stream Watch volunteers removed nearly 2000 lbs of litter from our waterways, a number so outrageous because it includes the decaying metal skeleton of a washed-out footbridge hauled out of Bishop Creek. We couldn't have done it without the help of hardworking Stream Watch volunteers - check out Lisa Beranek's article for more on the community volunteerism that energizes Stream Watch and makes those projects possible.

Clear skies and warm weather made us all eager to get out of the office and accomplish our on-river goals, and on cloudy days there was always the bubbling laughter of Dan Pascucci's Summer Camp kids and his own booming energy to buoy us.

Though we are still remembering our summer days, deadlines loom and remind us of all that 2014 promises. Registration for Summer Camp 2014 is around the corner, preparations for the 20th year Stream Watch celebration are under way, and perhaps most telling of all, pieces of the 2014 Kenai River Festival are beginning to slide nicely in place, though to many of us last year's festival still lives fresh in the memory.

Simply put, we had a really good year. We're proud to bring to you a final reminder of all that we accomplished, to close the book on 2013 with satisfaction. The new year beckons, and we're hard at work to ensure it's a good one.

Sincerely,
Josselyn O'Connor
KWF Development Director



Playing near Skilak Lake on Feb. 9, 2014.

KWF Calendar of Events

February 26, 2014 • Caring for the Kenai Contest Deadline

Caring for the Kenai is an award winning environmental contest that challenges high school students to answer the question "What can I do, invent, or create to better care for the environment on the Kenai Peninsula, or to help improve the area's preparedness for a natural disaster?" For more information: <http://caringforthekenai.com>

May 15-18, 2014 • Kenai Birding Festival

Highlighting the natural wonders that draw thousands of birds and visitors to the Kenai Peninsula, the annual Kenai Birding Festival is designed for birders of all levels and interests. With guided hikes, river trips, presentations, children's activities, and self guided tours there is an opportunity for every interest and level! For more information, visit www.kenaiwatershed.org or find the festival on Facebook!

June TBA, 2014 • Stream Watch Ambassador Orientation

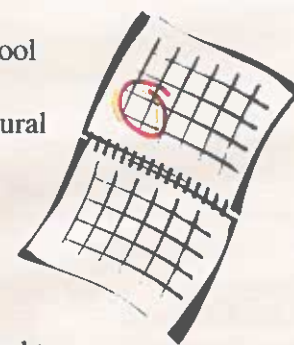
Make a difference this summer: Become a Stream Watch Ambassador! Ambassadors provide a stewardship presence on the river by sharing information on ethical angling, bear safety and river health. Meet river enthusiasts from across the state, enjoy a volunteer campsite and make a difference by protecting local rivers. For more information contact StreamWatch@kenaiwatershed.org or (907) 398-4304.

June 6, 7, 8, 2014 • Kenai River Festival

Let's Celebrate! Free, Family Fun for Everyone! The 24th annual Kenai River Festival, June 6-8, grew out of the Kenai Watershed Forum's desire to provide a free, fun setting for the community to celebrate the river that gives so much. Learn how to give back to the river keeping it healthy and productive for generations to come. Legendary festival highlights include 20 foot long magical Łuq'a the salmon, world famous pioneer salmon dinners, Run for the River 5K/10 mile race, free riverside entertainment and more. To learn more, visit www.kenaiwatershed.org.

August 2014 TBD • KWF Hosts the Wild & Scenic Rivers Film Festival Anchorage • Seward • Homer • Kenai/Soldotna

Considered one of the nation's premiere outdoor and adventure film festival's, this year's films combine stellar filmmaking, beautiful cinematography and first-rate storytelling to inform and inspire. KWF will host the Wild & Scenic Rivers Film Festival in four locations this year: Anchorage, Seward, Homer, and Kenai/Soldotna. We will be choosing dates and venues soon... stay tuned!





Stream Watch Volunteers: Making a Splash this Summer!

With soaring temperatures and record breaking sunny summer days, Stream Watch Volunteers were out pounding the boardwalks, completing river protection projects and sharing tips to help protect sensitive near shore areas along the Kenai, Kaslof and Russian Rivers.

Jointly administered through the Kenai Watershed Forum and the Chugach National Forest, the Stream Watch program trains volunteers both young and old and from near and far to connect with more than 4,000 people on peninsula rivers while removing more than 2000 pounds of litter and completing other one-day river protection projects. As the Stream Watch program prepares to celebrate its 20th year this year, volunteers and staff alike are excited to continue to make a difference through sharing messages about riverside plant protection and packing out wildlife endangering litter.

Long time volunteer Colleen Marinucci dedicates more than 30 hours each summer to river protection through Stream Watch. Colleen lives in Anchorage but travels to the peninsula to protect the land and waters that she loves. Colleen is one of a handful of volunteers who come from outside of the peninsula to volunteer. The program appreciates dedicated volunteers like Colleen and therefore provides free volunteer camping sites and all of the supplies to make a difference each summer.

When asked about travelling so far to volunteer, Colleen explained, "I love coming to the Russian and Kenai Rivers to perform Stream Watch duties because I've seen a difference in vegetation improvement this program has achieved. I enjoy the company of other volunteers and talking with visitors". Many travelling volunteers would not be able to donate their time if volunteer campsites were not provided.

In addition to free camping sites, the program offers training and flexible volunteer opportunities and shifts. From 2-hour evening shifts and 4-hour weekend shifts and hands-on projects to educational outreach, there is an opportunity for everyone to make a difference, meet new people, learn new skills and polish existing skills.

Stream Watch Volunteer Henry Anderson combines his academic background, education, and his love for fishing during his volunteer shifts. Henry provides important river protection information with anglers, taking many under his wing to impart river stewardship and ethical angling practices. Henry has also helped on major fish habitat restoration projects the program has embarked on, including the removal of a fish passage barrier on Bishop Creek last summer.

Physical barriers to fish passage can cutoff otherwise healthy fish habitat. By simply removing the barrier, fish are instantly connected with miles of pristine spawning and rearing habitat. Once the 30-foot, washed out metal pedestrian bridge was removed from Bishop Creek, fish were seen moving upstream to previously unreachable habitat. Stream Watch volunteers instantly saw the difference they had made.

If you are interested in making a difference through a great day in the great outdoors, whether you are from Hope or Homer, find Stream Watch on Facebook or contact Lisa Beranek the Stream Watch Coordinator at 907.260.5449 or StreamWatch@kenaiwatershed.org for more information.



Images: Stream Watch Volunteers install and maintain temporary fencing to protect sensitive nearshore plants that stabilize the riverbank and provide protection for juvenile King salmon.



Always a good time, Naturally!

Summertime is right around the corner, and if you are looking for something exciting for your 6-12 year olds this summer, you've found it!

We are happy to offer Fur, Fins, Feathers, Flowers, and Fun at Soldotna Creek Park. What better way for your child to spend a summer day than by exploring the banks of Soldotna Creek and searching for aquatic insects, flipping over logs in search of decomposition in action, or playing in a forest pretending to be a predator on the hunt?

Each week long session includes games, crafts, lessons, songs, and most importantly lots and lots of fun! Participants will benefit from spending time outside with new friends exploring rivers and forests on the Kenai Peninsula.

Alaska is full of all sorts of adventures. Come explore Fur, Fins, Feathers, Flowers, and Fun with new friends this summer, and experience Alaska in exciting and educational ways.



**REGISTRATION FOR 2014
OPENS IN MARCH!**

Updating your will or estate plan?

Plan today for tomorrow's gift – and benefit generations to come.

The development staff at KWF can help you plan for tomorrow and receive maximum benefits today. We would be pleased to work with you and your financial or tax advisor to establish the planned gift(s) that are most appropriate for you to achieve your financial planning goals.

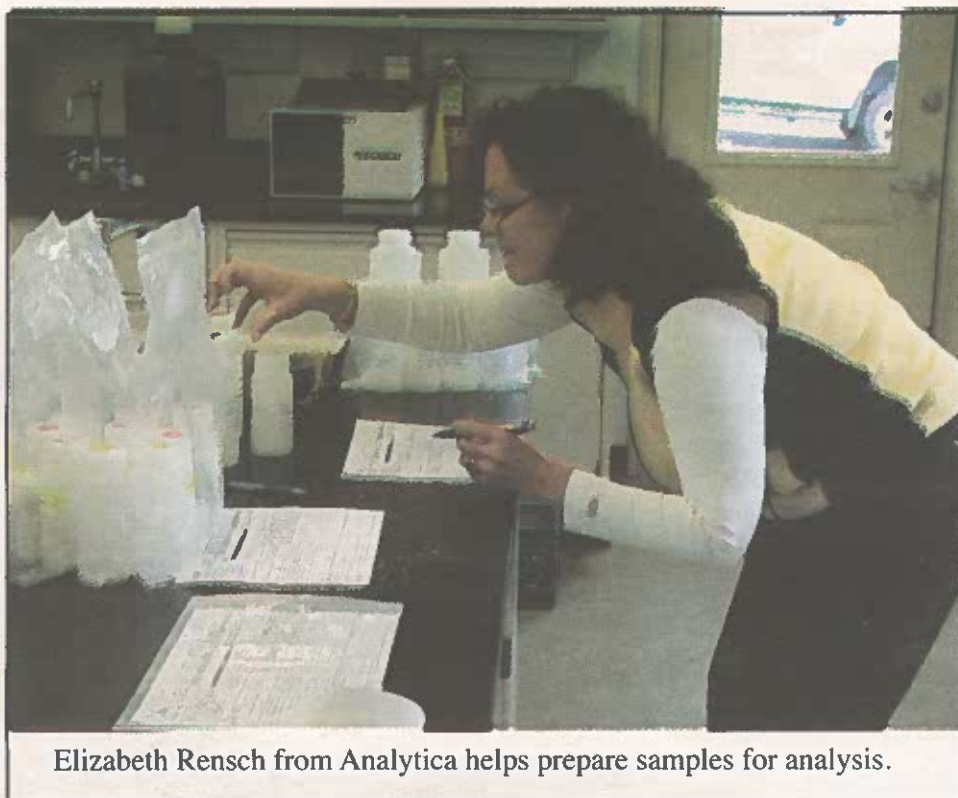
If your plans already include a gift for KWF, please let us know so that we can say "thank you."





Water Quality, from Page 1 took place on July 29 and 30, 2013 marked the 14th consecutive year KWF has coordinated this invaluable cooperative partnership effort to sample the Kenai River watershed from Cooper Landing to Cook Inlet.

Every spring (late-April/early-May) and summer (late July) KWF organizes a combination of partnering agencies and organizations to form seven sampling teams to participate in each two-day WQM event. Each sampling team attends a training and methodology review session put on by KWF one day prior to the sampling date. On the sampling day each team visits 2-5 assigned sites for a total of 22 sites spanning all 82 miles of the Kenai River and a number of its tributaries (see Map). These sites are revisited with the aid of GPS and include 13 locations along the Kenai River mainstem and 8 from tributaries near their confluence points. These locations were chosen by dozens of participants in order to accurately represent the Kenai River Watershed's ambient water quality (WQ) conditions (Ashoton, 1998). Finally, the timing of the sampling coincides with an outgoing tide, near low tide, to reduce the potential of collecting water from Cook Inlet.

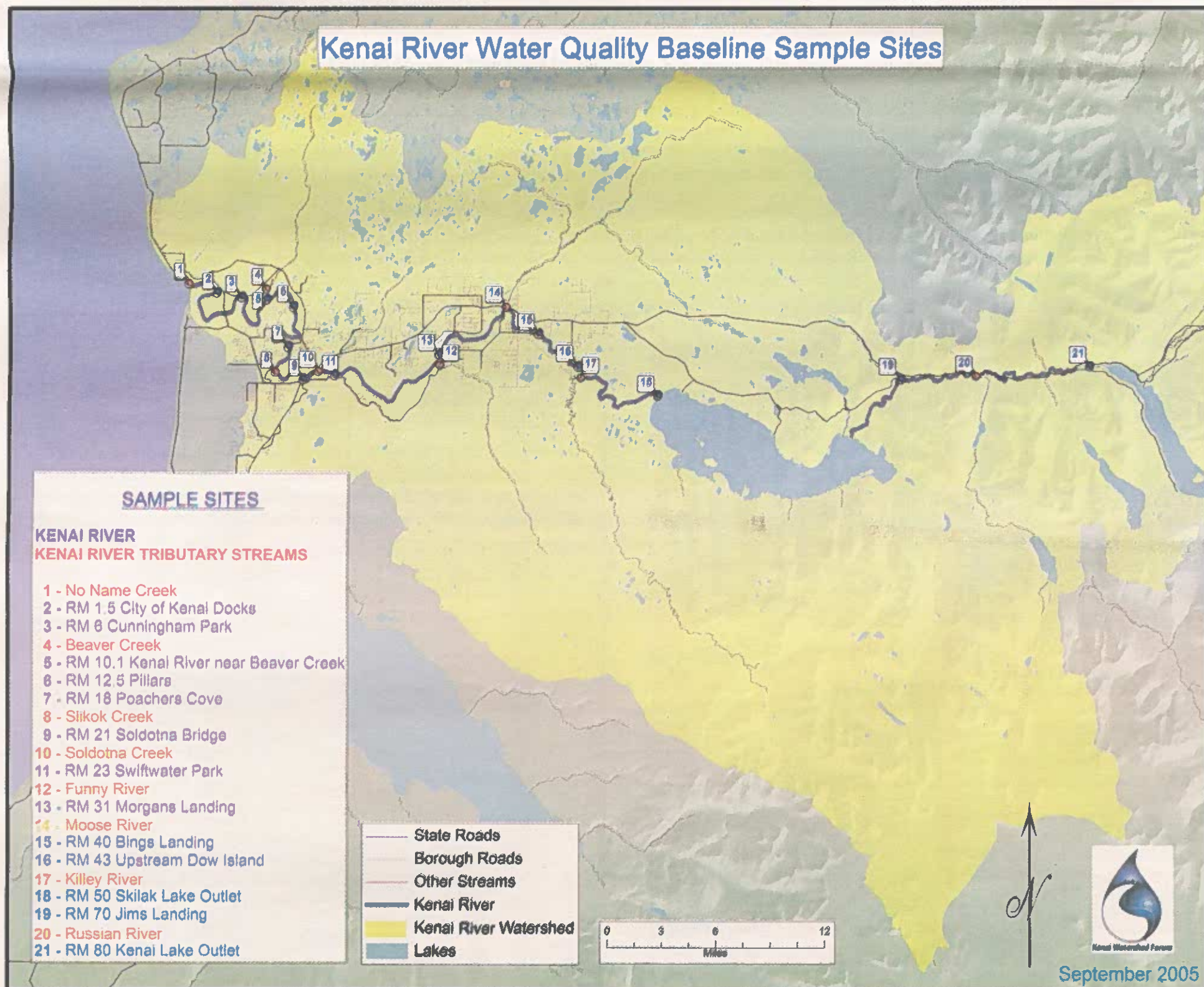


Elizabeth Rensch from Analytica helps prepare samples for analysis.

The WQ parameters sampled for focus on metals, nutrients, hydrocarbons, fecal coliform bacteria, and various field parameters. Arsenic, cadmium, chromium, copper, lead, and zinc are the dissolved metals that are analyzed, and calcium, iron, and magnesium are recorded as total metals. Additionally, we also sample for the nutrients nitrate and phosphorus. Specifically, the hydrocarbons that are collected and analyzed include diesel range organics, gasoline range organics, residual range organics, benzene, toluene, ethylbenzene, m,p-xylene, and o-xylene. Fecal coliform bacteria, pH,

specific conductance, total suspended solids, and turbidity are also analyzed. As with any good field study, data is also recorded for parameters such as weather, boat traffic, photographs, and any special comments the sampling team might like to add at the time of sampling. Lastly, all samples are analyzed at Analytica Group Laboratory in Anchorage and then compared to Alaska (AK) and federal WQ standards for freshwater aquatic life.

This data is beneficial in a number of ways to everyone who calls the Kenai Peninsula home and most importantly to those who will call it home for generations to come. Most notably, this project has developed a scientifically sound "baseline" dataset of WQ parameters over a long-term time period. This allows researchers to analyze the presence, direction, and magnitude of trends, giving us an idea of how the WQ of the Kenai River changes over time and by location. Seeking out these kinds of trends, if and when they exist, helps resource managers define the external conditions that may be contributing to a specific trend in the data. Once a trend and its contributing factors are documented, resource managers can then use that information to facilitate rational decision making. Overall, our hope is to see this WQ data help to (1) define our water resources and their state of health, (2) identify historic and emerging sources of water pollution, (3) formulate priorities for WQ management, including





developing and implementing WQ monitoring programs, and (4) evaluate the overall effectiveness of management actions.

One of our success stories that best highlights the importance of a long-term WQM program is the reduction of the total aromatic hydrocarbons of Benzene, Toluene, Ethylbenzene, and Xylene (BTEX) in the Kenai River. Simply stated, this is a direct reduction in the amount of gasoline pollution in the waters of the Kenai River watershed. Since the beginning of our WQM efforts in 2000 and continuing through 2007, KWF had frequently recorded BTEX levels above the AK standard (10 µg/L) in the lower and middle Kenai River during the summer sampling events (no BTEX was reported in any of the spring samples). In 2003, KWF determined that the majority of hydrocarbon contamination resulted from unburned refined gasoline product with outboard motors as the most likely source. Quantifiably, we were able to estimate that well over 10,000 gallons of gasoline entered the Kenai River during the high-use summer months. This ultimately led to the addition of 19-mile segment of the lower Kenai River to the state's impaired waters list in 2007, a decision supported by the U.S. Environmental Protection Agency (EPA) and based upon hydrocarbon pollution trends identified through KWF's WQM efforts.

What followed this listing is an ideal example of KWF's dedication and determination to fulfill our mission of "working together for healthy watersheds on the Kenai Peninsula". By encouraging policy change through our WQM efforts and championing collaboration we were able to join forces with other watershed stakeholders to target the hydrocarbon pollution issue. Thanks to a multiyear EPA grant awarded in 2007, over the next few years we were able to partner with the Kenaitze Indian Tribe, AK Department of Fish and Game, AK Department of Natural Resources, AK Department of Environmental Conservation (DEC), and several other organizations to support Kenai River protection efforts.

These efforts include WQM, riverbank erosion research, community education and outreach, policy change, and the two-stroke boat motor buyback program. Through the WQM efforts led by KWF we were able to quantifiably track the decline of hydrocarbon levels within the Kenai River watershed. Today, that trend continues and the Kenai River has met state water quality standards for hydrocarbons since the aforementioned efforts were initiated in 2008. As a result, the AK DEC removed the 19-mile segment of the lower Kenai

River from the states impaired waters list in 2010. In addition, through our motor buyback program we were able to provide boaters an incentive to replace their inefficient two-stroke motors. This removed over 250 high-emission motors from the Kenai River, which were dismantled and recycled locally, bringing this aspect of the project to a close in 2011. All of these concerted efforts, and some not mentioned here, bring us to where we are today.

We are proud to report that during the July 2013 KWF WQM event the Kenai River continued its trend of meeting state water quality standards for BTEX for the sixth consecutive summer in a row. This, of course, is good news and while we are happy to reflect on the past successes of this project, we are also eager to look forward. As we enter the next stage of KWF's WQM project we are faced with a whole new set of exciting challenges. Paramount among all of those, we are experiencing reduced funding for this project as state and federal financial support has waned. We are currently seeking out new financial partners to help sustain our WQM efforts into the future. In addition, we are motivated and enthusiastic to engage our existing partners, local researchers, and the general public this winter to discuss the next steps for this project and to identify new goals and objectives.

We don't know what the next big trend will be from our WQM efforts, or if there will be one at all, but we believe it's beneficial to all of us to continue to monitor the WQ of this great watershed. After all, that is our mission and we take our role as environmental stewards of the place we all call home seriously with the hope that we are able to prosper for generations to come.



Not all sampling is work! Several volunteers get a day out of the office and on the water. Several sites are only accessible by boat/canoe.

to help support this project, including financial contributions, volunteering, and taking a general interest in the science and policy which helps to define our community today and in the future.

A special thanks to our project partners...

This project would not exist without the assistance and cooperation of the following...

- AK Dept. of Environmental Conservation
- AK Dept. of Fish and Game
- AK Dept. of Natural Resources
- Analytica Group
- City of Soldotna
- Cook Inlet Aquaculture Association
- Kenai Peninsula Borough
- US Forest Service
- US Fish and Wildlife Service
- City of Kenai

Additional support provided by...

- Kenaitze Indian Tribe
- The Nature Conservancy
- Tauriainen Engineering and Testing
- Alaska Wildland Adventures
- Kenai Peninsula Trout Unlimited

In addition, we would like to express our sincerest appreciation to the many landowners who graciously allowed access to the Kenai River and its tributaries from their property and the volunteers who spent countless hours of their time on this effort.

Thank you!



Amber Wheat, ADF&G, marks the location for sampling at Soldotna Creek.

If you'd like to learn more about KWF's WQM there are a number of ways to do so. First, give us a call or stop by our office; sharing information is critical to our mission and frankly, to science in general. Visit our website at: <http://www.kenaiwatershed.org/research/baseline.html>. Follow the link about two-thirds of the way down the page to explore over 13,000 WQM records dating from 2000-present.

Finally, there are a number of other ways



2013 Kenai River Beach Sampling

by Jeff Sires

As you may have read in a past Peninsula Clarion article titled "Testing the Water", the Kenai Watershed Forum has been a large part of a continued effort to monitor water quality at the mouth of the Kenai River. As part of the Alaska BEACH Grant Program, funded by the Alaska Department of Environmental Conservation through the City of Kenai, KWF field teams collected water quality samples and real time measurements on the north and south sides of the Kenai City Beach throughout the summer of 2013. Water samples were collected twice weekly, packaged, and then shipped to Anchorage for analysis. In Anchorage, Analytica Group analyzes the samples and reports Fecal Coliform and Enterococci bacteria levels to KWF and the DEC in order to assure that the beaches are safe for recreational use.

What is the Alaska BEACH Grant Program?

In response to health and safety concerns at public beaches around the country, the United States Environmental Protection Agency signed the Beach Environmental Assessment & Coastal Health (BEACH) Grant Program into law in October of 2000. In Alaska, surveys were sent to coastal communities to gather information on public and recreational use beaches. The Alaska DEC then issued grants for water quality monitoring to be conducted by local environmental organizations like the Kenai Watershed Forum.

At the Kenai City Beaches, the Kenai Watershed Forum has been sampling as a contractor to the City of Kenai since 2011.

Why is it important to monitor Fecal Coliform and Enterococci bacteria levels?

Fecal Coliform is a type of naturally occurring bacteria found in the intestine and feces (thus the name fecal coliform) of humans, cows, horses, pigs, birds and many other animals. Although not usually harmful on its own, fecal coliform is an indicator of other pathogens that can cause dysentery, gastroenteritis, and hepatitis A.

Enterococci bacteria are also indicative of fecal contamination in water. Enterococci testing is widely used as an alternative to fecal coliform testing for salt water applications because of the bacteria's ability to survive longer in a marine environment. The presence of enterococci is linked to urinary tract infections, diverticulitis, and meningitis. Water with high levels of either fecal coliform or enterococci should not be ingested.

Why does monitoring take place during the summer?

Beginning July 10th and ending on July 31st, the personal use dipnet season promises the Kenai's famed late-run of sockeye salmon. During these few weeks, a small, makeshift city of Alaska state residents, and large flocks of birds travel to the beaches hoping to reap the benefits of a limited resource. While a few birds are easy to spot at the beach on any day of the year, the smell and taste of trash, fish carcass, and even human waste (i.e. Porta-potties) during the dipnet season will undoubtedly attract thousands.

With all of these birds in the area, there will naturally be a significant amount of bird feces on the beach and in the water. Bird feces carry the bacteria that are being tested for in this monitoring project. Coupling high levels of fecal bacteria, with high human traffic makes the summer an important time to monitor water quality.

Are birds the only source of fecal contamination at the mouth of the river?

Although not the only source, birds are the largest contributor to fecal coliform bacteria in this area. Microbial source tracking was performed on water samples in 2011 in order to determine the origin of individual fecal hits. This study confirmed avian sources contribute the majority of all fecal bacteria found in the water samples.

What are the sampling and analysis procedures used in this project?

Twice a week, typically on Sunday and Wednesday, during the months of June, July and August, a KWF field team collects water samples at a varying

combination of four different locations on the north and south beaches. These locations, as well as a background location at the Warren Ames Bridge in Kenai, were chosen by the DEC. Five samples are collected during each sampling event, including two taken at the same site for a quality control measure known as a field replicate. The quality of these samples is assured by real-time, on-site measurements and observations.

The sample bottles are then packaged in coolers for temperature control, and shipped to Analytica Group in Anchorage. Within six hours of the sampling event, analysis is completed. Results are then compared to state water quality standards for exceedances.

How is the bacteria measured, and what is an exceedance?

Bacteria levels are measured in units of MPN/100mL for enterococci, and CFU/100mL for fecal coliform. These represent "most probable number of coliform per 100mL of water", and "colony forming units per 100mL of water" respectively. Analytica Group follows ASTM standardized testing methods to conduct the analysis and reports levels of enterococci and fecal coliform in these units.

Test results showing coliform units to be higher than EPA standards for recreational use water, either for one sample or in an average of several samples, are known as exceedances. If an exceedance occurs, the DEC determines how best to educate the public, and manage the problem.

I'm not drinking the water at the beach, why should I be concerned?

Good sense tells us that drinking untreated water is generally not a good idea. The presence of thousands of animals, which all leave waste of some kind in the water, further validates this sense. Although one might not ingest beach water intentionally, there are still instances in which it may be ingested unintentionally. To list a few:

- Fish pulled from the river and eaten can carry problematic bacteria with it
- Water splashing into, or being transmitted from hands into the eyes, ears, nose or mouth
- Children playing in the water unaware of the problems associated with ingestion

In short, there are several ways in which these bacteria can enter your system, so it is important to take caution when using the water for any reason.

What can I do to avoid getting sick, and to prevent water quality issues at the Kenai beaches?

The Kenai City Beaches, the Kenai River, and the Cook Inlet provide excellent recreational opportunities for humans, as well as critical habitat for a wide range of animal and plant species. While humans and animals can make use of these resources harmoniously, measures must be taken to assure they are safe for both.

The ecologic processes that take place in the river, in the ocean, and on the beaches are interconnected in such a way that each user of these resources can have an effect on the other. For example, as was stated in a previous section, salmon migrate up the river, dip-netters camp on the beach to catch these salmon, and birds flock in large numbers to pick through trash and fish remains.

Birds are a constant presence at the beach, but these large flocks emerge partly as a result of a highly concentrated combination of different types of waste. It doesn't take a scientist to determine that proper disposal of waste would mean that the

beach wouldn't be quite so attractive to these birds. Without so much "leftovers" to pick through, it's probable that some of the birds would seek out alternative scavenging grounds. Smaller bird counts would reduce the amount of bird feces in the water, thus reducing bacteria levels and improving water quality. Each user of the beach can assist in this matter by properly managing fish waste and garbage. Not only is this a responsible practice, but also the law, enforced by the Kenai Police.

In addition to being respectful of the environment, beach users should make sure to wash their hands, clothes and fish with clean water to prevent contact with or ingestion of pathogenic bacteria.



Water samples are collected at South Kenai Beach in June.



A dipnetter cleans his catch amid scattered fish waste.



During the dipnet season, birds and humans alike can be found in large numbers on the beach.



***Phalaris arundinacea* A.K.A. REED CANARY GRASS**

Wanted for: choking and slowing stream flow resulting in loss of maintenance of gravel bottoms essential for salmon reproduction. Known hangouts: Beaver Creek, Bing's Landing, roadsides, and many more.



***Vicia cracca* A.K.A. BIRD VETCH or HAIRY VETCH**

Wanted for: altering soil conditions by teaming up with soil bacteria. Also known to cause limb dieback and chlorotic needles (due to lack of chlorophyll) in conifers when covered in dense mats. Known hangouts: Seward, Soldotna, Homer, Sterling Highway, and many more.



***Hieracium aurantiacum* A.K.A. ORANGE HAWKWEED or DEVIL'S PAINTBRUSH**

Wanted for: creating dense mats that exclude other plants and for reducing foraging value of grazing species. Known hangouts: Kenai Airport, Cohoe Loop, Homer, roadsides, and many more.

WANTED

INVASIVE SPECIES

WHAT YOU CAN DO

Why care?

Invasive species can have severe ecological and economic impacts for the Kenai Peninsula. They often outcompete native plants, changing the plant community structure, which leads to a change in the function of the ecosystem. When this happens many aspects can be affected such as soil chemistry as well as frequency and intensity of wildfires. The displacement of native plants can also lead to loss of natural food sources and habitat for wildlife. In addition, there are economic costs associated with structural damage, obstruction on road shoulders, clogged waterways, and loss of recreational and commercial fisheries.

Early Detection Rapid Response (EDRR)

With early detection and eradication of small, newly found populations we have the best chance against invasive species that make their way to the Kenai Peninsula. Use of EDRR reduces the economic costs associated with management of invasive species that have taken over areas. All it takes is regular monitoring, but despite best efforts, invasive species managers can't fight them off alone.

What You Can Do!

Prevention is the most ideal and effective method of thwarting invasive species. If we don't give them the chance to spread, negative ecological and economic impacts cannot occur in the first place.

Here's how you can help:

- Be sure to clean equipment including ATVs, boats, trailers, etc. before moving to another trail/river/lake/home. While we may be in a hurry to move on to the next place, taking time for this routine will help prevent new infestations.
- Allow all gear to dry completely for at least five days before next use. Items that remain damp can harbor small particles of invasive species that remain viable for weeks.
- If you are not able to wait five days, decontaminate all equipment with hot water (140° F) or a 2% bleach solution. If using bleach test on gear first to ensure no damage results.
- Make sure your boots, clothes, and even your dogs are free from seeds. As a reminder, felt soled waders are illegal to wear.
- Verify the plants you purchase are not invasive species. Also, some invasive species like to hitchhike in plant pots so watch out for these and notify the vendor if you see one.
- Buy Certified Weed Free supplies for a project including topsoil, seeds, feed, gravel, etc.
- If you find an invasive species take a good photo, even a sample, and call or email the Alaska Department of Fish and Game.

1-877-INVASIV (468-2748)
dfg.dsf.InvasiveSpecies@alaska.gov



***Elodea Canadensis* A.K.A. ELODEA**

Wanted for: degrading fish habitat and displacing native species. Dense stands of Elodea make boat travel difficult and can endanger floatplane operations. Also decreases property value. Known hangouts: Stormy, Beck and Daniels Lakes.



***Melilotus alba* A.K.A. WHITE SWEETCLOVER or HONEY CLOVER**

Wanted for: overtopping and shading native species. Also contains coumarin, which is toxic to animals and is capable of spreading 28 known plant viruses via pollinating distributors. Known hangouts: Homer Spit, Sterling Highway, and Swanson River Rd.



***Cirsium arvense* A.K.A. CANADA THISTLE or CURSED THISTLE**

Wanted for: drawing pollinating insects away from native species, accumulating nitrates in soil which leads to poisoning animals upon ingestion, and for hosting other unwanted pests such as bean aphids and sod-web worms. Known hangouts: East End Rd.



KWF Support • Help shape our Future

Thank you from the bottom of our hearts!

It is more important than ever to become engaged and help shape the future of our watersheds. Everyone that lives and plays on the Kenai Peninsula is responsible for its future. Support for the Kenai Watershed Forum gives you an opportunity to help shape the future of our watersheds and celebrate KWF's ongoing commitment to healthy natural resources. Please participate and support KWF; become part of the largest community united by a common mission of "working together for healthy watersheds on the Kenai Peninsula."

We encourage you do your part and make a financial contribution to KWF. We continue to provide quality education, restoration, and research to the residents and visitors to the Kenai Peninsula and need your help to continue serving our communities.

Generous support from 12/01/13 to 2/18/14 listed below.

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Thank you!

Yes! I want to support KWF!

Here is your chance to give something back! Help support our mission through a financial contribution. Everyone who lives and plays on the Kenai Peninsula benefits from remarkable natural resources. Your membership gift gives you a role in shaping the future of the Kenai Peninsula watersheds. You will enjoy our newsletter, Currents, invitations to special events, and many other unique benefits.

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