



Clean Boating in the Susitna Valley

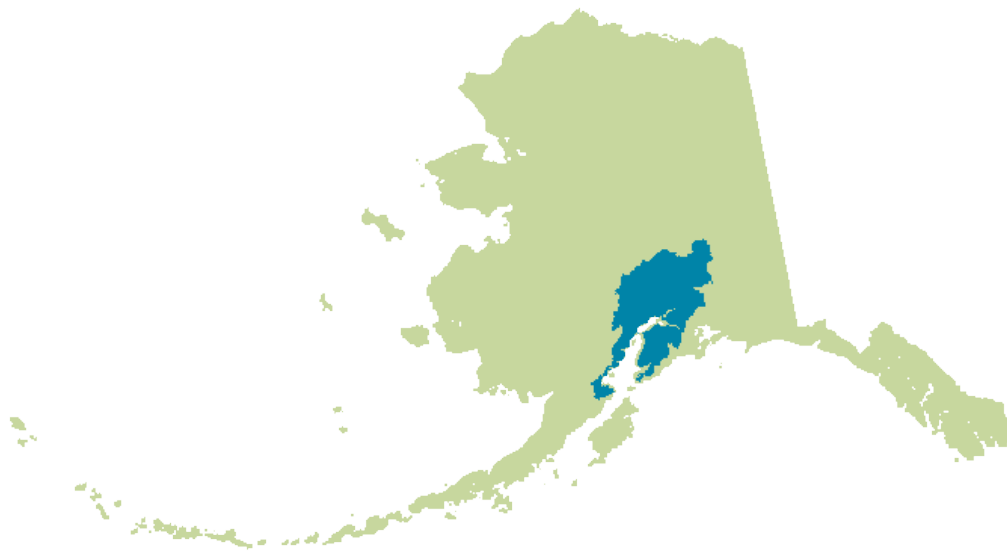
FY 2015 Final Report



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Cook Inletkeeper is a community-based nonprofit organization that combines advocacy, outreach, and science toward its mission to protect Alaska's Cook Inlet watershed and the life it sustains.

Report prepared by:

Heather Leba
Clean Boating Coordinator
Cook Inletkeeper
3734 Ben Walters Ln. Suite 201
Homer, AK 99603
(907) 235-4068
www.inletkeeper.org

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Cover photo: Jet skis line the shore at Big Lake north launch.

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INTRODUCTION

The Mat-Su Valley is a recreational hotspot for boating, fishing, and camping. Boaters come from all over Southcentral Alaska, including Anchorage, to recreate in the Mat-Su Valley. This influx of people provides economic growth opportunities for the area, and the Valley has many communities deeply connected to their nearby waterbodies.

High boat use on lakes and rivers, however, can lead to high levels of petroleum hydrocarbons in the water. Water quality testing on several popu-

highlighted three regional waterbodies as top priorities for educational outreach to reduce pollution. Big Lake, the Little Susitna, and the Deshka River support many species of fish and aquatic life, including several species of salmon. Persistent and increased levels of hydrocarbons can have negative impacts on juvenile and adult fish health. It is important to take this into consideration as we continue to expand and explore ways to effectively reach out to boaters and educate them on the impacts of hydrocarbon pollution in high priority waterways.



Thousands of Alaskans come to Valley waterbodies to recreate and use motorized watercraft during the summer months. Here, boats and jetskis line the shore at Big Lake.

lar waterbodies by the Alaska Department of Environmental Conservation (ADEC) has demonstrated harmful levels of oil and gas as a result of high boat use. Gasoline can come from individual leaks, drips and spills, with additional (and likely larger) inputs from the release of unburned fuel out of the exhaust into the water during combustion from older 2-stroke outboard engines.

Water quality testing and boat use patterns have

Boaters throughout the Mat-Su region can no longer afford to recreate without understanding how they can be part of a solution to the pollution problems facing the community. Through this ongoing project, our overarching objective is to work with local communities, private businesses, Alaska State Parks, boaters and other stakeholder groups to identify and fill gaps in clean boating education and resources to ultimately reduce petroleum pollution in these and other Mat-Su Valley waterbodies.

Over the past fiscal year (July 2014—June 2015, FY15), Cook Inletkeeper built upon past years efforts and expanded this project to include clean boating outreach not only at Big Lake, but also to reach a broader population of boaters at the Little Susitna River Public Use Facility and Deshka Landing in Willow.

Big Lake

The residential community in Big Lake is growing. The 2010 population was 3,350; this represents an increase of over 27% from the 2000 census. Additionally, thousands of visitors come to Big Lake during summer months for boating, fishing, and jet skiing. Drivers entering the Big

Lake community are greeted by a large map of the area with the headline: “Alaska’s Year-Round Playground”. There are 4 private marinas on Big Lake with over 300 slips for boat moorage and public boat launches at two state and one borough-owned public recreation areas, all of which are heavily used for lake access during the summer. In 2006, ADEC listed Big Lake as



A map of Big Lake greets visitors at the turn-off to North Shore Drive.

impaired for petroleum hydrocarbon pollution above state water quality standards. The primary source of hydrocarbons (e.g. gasoline) to Big Lake is motorized watercraft—boats and personal use watercraft. Water monitoring results show higher concentrations of hydrocarbons during busy holiday weekends and in certain locations: near marinas, boat launches, and other high traffic areas in the east basin. Additional testing in 2013 showed hydrocarbon levels continue to exceed water quality standards on good weather days during the summer.

Starting in 2010, a community Water Quality Workgroup of Big Lake residents and stakeholders developed an Action Plan for reducing hydrocarbon pollution in Big Lake. Among other

identified action items, outreach and education was a primary focus. The Water Quality Workgroup prioritized ensuring that all motorized watercraft users on Big Lake know and implement basic skills to maintain and run their engines with minimal fuel, oil, and other hazardous materials released into the water. Unfortunately, these skills are often not learned and tend to be overlooked by boaters throughout Alaska. All boaters can use efficient and effective best management practices to dramatically reduce, and in some cases eliminate, harmful discharges. Best management practices can also save money in fuel costs and maintenance. Through this project we are bringing these tools to boaters throughout the region, with a continued heavy focus at Big Lake itself.

Little Susitna River

Other regional waterbodies face similar pollution concerns to Big Lake, including the Little Susitna River. The ADEC has conducted water quality sampling on the Little Susitna since 2004. High boat traffic on the Little Su helped catalyze preliminary testing for hydrocarbons and turbidity in 2007. Sampling conducted above, at and below the Public Use Facility in 2007-2010 documented hydrocarbon levels exceeding state water quality standards, and high turbidity during times of increased boat use. The Little Susitna is a popular sport fishing and hunting area, with high boater and fisher volume during Chinook salmon season in June and Coho salmon season during August. In 2017, the Alaska Board of Fisheries will put in place a 2-stroke engine ban during all fishing activities. This regulation may be a catalyst that stimulates boaters to upgrade their engines which will help reduce hydrocarbons in the Little Su.

Deshka River

Access to the Deshka River is through Deshka Landing, a privately-owned boat launch on a slough of the Susitna River. Boaters launch here to access remote homes, cabins, and fish on the Deshka River and other tributaries of the Susitna. Fishing pressure is highest during the early-summer Chinook salmon runs, and again in late-July/early-August during the Coho salmon runs. Additionally, closures that impact other areas such as the Little Su may not close the Deshka, likely resulting in increased pressure as fishermen move to open areas to fish. Limited water quality sampling on the Deshka River by ADEC indicates there may be elevated levels of petroleum hydrocarbons, especially in the lower 3 miles of the River. Similar to water quality concerns on Big Lake and the Little Su, high boat use can lead to high levels of hydrocarbons in the water.

Our Project

Concerned citizens founded Cook Inletkeeper in 1995. Inletkeeper is a 501c(3) non-profit organization with the mission to protect Alaska's Cook Inlet and the life it sustains. Organizational values include protecting water quality, wild salmon, lasting communities and sustainable local economies. Funding for this project came from the ADEC's Alaska Clean Water Actions grant program. Through this funding we can work with boaters throughout Southcentral Alaska who recreate in the Mat-Su Valley and enjoy Big Lake, the Little Su and Deshka River, on our common long-term goal to improve water quality so these waters of concern meet State water quality standards and are healthy for salmon and other aquatic life.

The individual tasks under this project all focus

on improving water quality through effective boater outreach. Objectives for this specific grant year were to: 1) Continue to implement the successful educational clean boating program developed during FY13/FY14, ensuring that boaters know how to practice clean boating skills with an understanding of the negative impacts of petroleum on human health and fish habitat; 2) Empower regional boaters to practice and encourage clean boating techniques through a broad clean boating outreach campaign; and 3) Work with stakeholders to develop a framework for a hypothetical 2-stroke "buy-back" program.

As the grantee for this project, Cook Inletkeeper utilized state fiscal year (FY) 15 (July 1, 2014–June 30, 2015) funding from the state of Alaska to hire a new Clean Boating Coordinator (Heather Leba) to oversee the on-the-ground implementation of these goals, including clean boating outreach to the wider regional community of boaters, including the Little Su PUF and Deshka Landing. Inletkeeper also worked with regional stakeholders to develop a framework for a 2-stroke trade-up incentive program. Included in this final report are summaries of all activities done under this grant project in FY15, and an overview of future work we will be doing under a fifth year of funding through FY16.

LAUNCH HOST PROGRAM

The Launch Host program began at Big Lake and is intended to educate boaters one-on-one about the importance of clean boating and tools to keep our rivers and lakes clean. Similar programs exist in other states, including a large “Dockwalkers” program in California (<http://www.coastal.ca.gov/ccbn/dockwalkers.html>).

The foundation of this program lies in one-on-one boater outreach with boaters as they launch and load their boats. Through this engagement, boaters receive free clean boating kits and are asked to fill out a clean boating survey.

For this project, clean boating kits included an oil absorbent pad, a magnet with clean fueling tips, brochures on clean bilges/spill response/clean oil changes, a floating keychain, a Clean Boating on Big Lake sticker, Clean Boating Little Su sticker, a Cook Inletkeeper sticker, a clean boating fishing license holder containing a card of clean boating practices, and a tote bag. Clean boating surveys capture basic demographic information about boaters, as well as information on their boats, their clean boating knowledge and their relevant boating behaviors. We updated our survey and moved to electronic survey collection on iPads, which made summarizing boater responses easier. Copies of the FY15 boater surveys are included in the Appendix, along with copies of media articles and clean boating flyers. Summarized survey results are included in this report under ‘Boater Survey Results’.

Since the beginning of this effort in FY12, finding volunteers has been challenging during the busy summer months. Inletkeeper’s Clean Boating Coordinator conducted much of the launch outreach herself during FY15. Volunteers who did help during the weekends were trained one-on-one, right as they began working with the clean boating kits and surveys at the launches.



Top: Outreach table at Burkesshore Marina during the Fall Fishing Derby. Bottom: Clean Boating kit materials on display. Photo: C. Inman

The Clean Boating Coordinator and volunteers distributed 161 clean boating kits (Big Lake, 77; Little Su, 58; Doshka, 26) and 103 surveys through the FY15 Launch Host program. We visited Big Lake on 20 days, Little Su on 6 days, and Doshka on 4 days. One kit was generally distributed for each survey; however, boaters who refused the survey still received a kit if requested. We only distributed bilge pillows to boaters who can use them (i.e. boats with contained bilges, not to people with jetskis or open skiffs).

Big Lake launches were the typically the busiest, with three locations to visit: the North Campground launch, South Campground launch, and the Mat-Su Borough launch. The Little Su PUF was the main location where outreach was conducted for the Little Su, since this is the most popular access point for this river. Deshka Landing is a privately owned launch facility and provides access to the mainstem Susitna River, Deshka River and other tributaries.

Continuing with the successful approach from FY14, an outreach table was set up during Launch Host efforts at the boat launches. Each table had a project banner, a boating kit, a demonstration of the amounts of oil and gas lost with three types of common outboard engines, and temporary tattoos for kids. This was an interactive and fairly neutral way to get a message out about pollution prevention while boating. The Big Lake South Launch campground is not very busy and boaters are more relaxed, with more time to stop and engage. The Big Lake North Launch is a larger and much busier campground, and has more in-and-out launching activity. Deshka Landing is quite a busy launch, with most boaters focused on getting out on the water. The best time to reach boaters is while they are waiting to launch, walking from the parking lot, or waiting for their trailer. Boaters at the Little Su PUF are more relaxed and much more willing to spend time talking, taking surveys, and leisurely launch their boats. Efforts were made in FY15 to spend the most time at Big Lake, but visit the Little Su and Deshka as often as possible.

A number of local businesses assisted in spreading the word about the Clean Boating on Big Lake campaign and Launch Host program (more on this in the Public Outreach section on Page



Top: Cook Inletkeeper Intern Hillary Fleming at the Little Su PUF distributing kits. Bottom: Deshka Landing launch.

12). Campground hosts and volunteers helped hang Clean Boating on Big Lake banners at the entrance to North launch and info flyers were hung at the pay station kiosks at the North Big Lake launch and the Little Su PUF. The staff at Burkesshore Marina handed out clean boating stickers and bilge socks to interested boaters. The owners of Deshka Landing handed out stickers and hung spill prevention signs near the launch.

BOATER SURVEY RESULTS

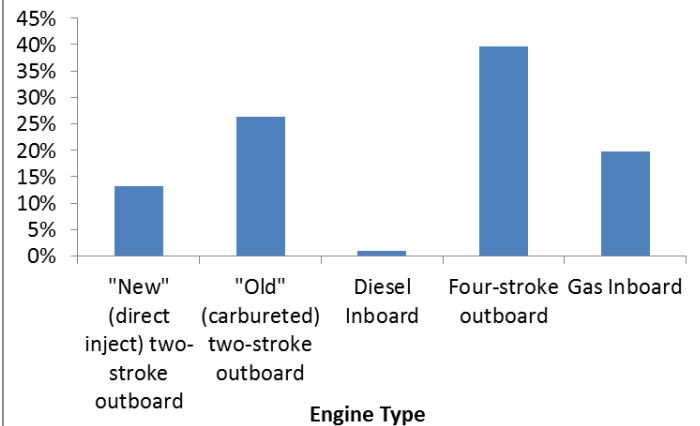
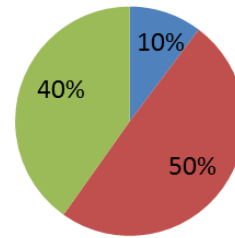
Boaters completed a combined total of 36 surveys at Big Lake during FY15, 45 surveys at the Little Su, and 22 surveys at Deshka Landing. We gave out 161 kits spread across all launches. Many boaters refused to take a survey at Big Lake, citing lack of time or interest and their desire to get out on the water as soon as possible. Thirty-six percent of the total boaters surveyed lived in Anchorage most of the year, while 35% came from Wasilla, 10% from Palmer, 6% from Eagle River, and 6% from Big Lake. Results from this question continue to support the finding that the broader boater population at these launches is represented by several communities in Southcentral, and that wider outreach efforts (i.e. radio advertising and regional boat shows) are going to be increasingly important for effective messaging.

This year we saw an increase in boater awareness and knowledge of the pollution concerns at Big Lake. The majority of boaters surveyed at Big Lake (88%), Deshka Landing (91%), and the Little Su (100%) knew that Big Lake was listed as polluted. The top pollution concern for boaters at Deshka Landing was old carbureted 2-stroke motors. This demonstrates that our broad-scale outreach efforts and expanded radio advertising is beginning to have an impact. Despite their awareness of pollution, the majority (50%) of boaters still do not use oil absorbents. Clearly, although we are making progress, education to change behaviors is a long-term effort.

Out of the 103 boaters surveyed, four-stroke engines (40%) and old carbureted 2-strokes (26%) were the most common engine types used by boaters at Big Lake, the Little Su and Deshka Landing. Of those boaters surveyed, 35% at Big Lake said they had a 2-stroke, 29% at the Little Su, and 18% at Deshka Landing used 2-strokes.

How often do you use absorbents when in your bilge or when fueling?

Always Never Sometimes



Top: Percentage of boaters surveyed who said they use absorbents when fueling or in their bilge.

Bottom: The majority of respondents indicated they have a 4-stroke engine on their boat (40%), followed by older 2-strokes (26%) and gas inboards (20%).

The top three actions that boaters were willing to engage in to support clean boating practices were: 1) use absorbent pads in the bilge; 2) drain boats away from the launch; and 3) minimize idling. Spreading the word and talking to other boaters about clean boating practices continues to be the least popular proposed action.

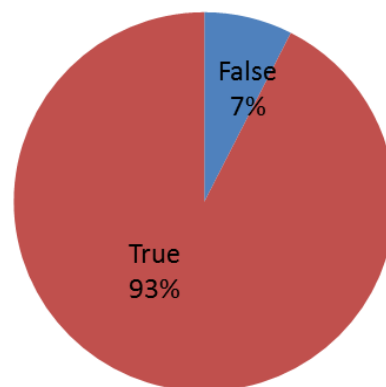
Twenty-nine percent of boaters surveyed said that they sometimes use oil absorbents, 15% said they always use them, and 60% said they never use absorbents. In the past we have seen this correspond with where people fuel their boats—many people fuel at gas stations where they don't think of containing spills. This is definitely a storm-water runoff concern, however is outside of the scope of this project as the nearest land-based gas stations are often a mile or more from launches.

When asked when they would be likely to replace their older 2-stroke engine, 31% of respondents said they would if there was a cost-share/buy-back program, 19% said if the engine breaks down beyond repair, 14% said if it was required by law, and 24% said it was not applicable to them. These data show that there are barriers to engine replacement within the boating community, but that a buy-back program would be an incentive for some boaters to replace their older 2-strokes.

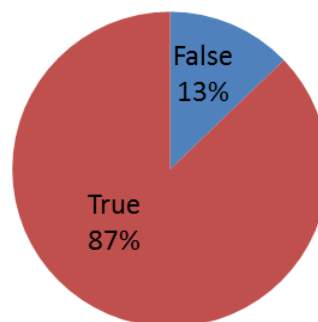
Mat-Su Outdoorsman Show

In addition to outreach at Big Lake, the Little Su and Deshka launches, the Clean Boating Coordinator and volunteers talked with over 100 individuals about clean boating on Big Lake and other Valley waterbodies at the Mat-Su Outdoorsman Show in March 2015. Boaters at the show completed 40 surveys and received clean boating kits in return. The majority (45%) of boaters said they lived in Wasilla, with Palmer the next most common location at 15%. Four stroke outboard motors were the most common engine type (40%), followed by older carbureted 2-strokes (20%), and new direct fuel injected 2-strokes (18%). When asked if they used oil absorbents in their bilges or while fueling 28% said

Big Lake is listed as polluted for hydrocarbons?



Little Su is at risk for being listed as polluted for hydrocarbons?



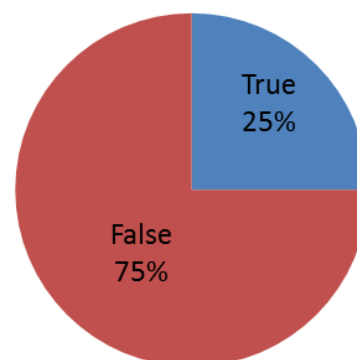
Most survey respondents were aware of the pollution concerns at Big Lake and the Little Susitna River. This awareness indicates great progress towards positive change throughout the region.

“always”, 28% said “sometimes”, and 44% said “never”. When asked if it was legal to use soaps to disperse a spill or sheen, 75% of boaters said “false” and 25% said “true”. The majority of boaters knew that Big Lake was listed as polluted for hydrocarbons (93%) and that the Little Susitna

was at risk of being listed (87%). When asked what their top pollution concern was, 45% said “routine small oil/gas spills & leaks”, 45% “old-carbureted 2-stroke engines”, 33% said “invasive species, and 20% said “improper sewage disposal”. When asked to elaborate on these issues, many boaters said they would like to upgrade their engine, but cannot afford to. Boaters also indicated concern about sewage leaching into Big Lake from ageing septic tanks along the banks.

The top three actions that boaters were willing to engage in to support clean boating practices were: 1) use absorbent pads in the bilge and when fueling; 2) fuel away from the water; and 3) drain the boat away from the launch. Upgrading to a new 2-stroke or 4-stroke was the least popular option. Boaters who indicated they owned a 2-stroke engine were asked when they would be most likely to replace their 2-stroke engine. Thirty-eight percent said they would if it was required by law, 25% said if there was a cost-share buy-back program, 25% said pollution concerns in lakes and rivers, and 12% said if the engine breaks down beyond repair. Similar to what we saw at the launches, a buy-back program would be an incentive for some boaters to replace their old 2-stroke engines.

It's legal to disperse oil sheens with detergents?



Top: Three-quarters of boaters surveyed at the Mat-Su Outdoorsman Show knew it was illegal to use soaps to disperse a sheen. A quarter believed it was legal to disperse sheens with detergents. Bottom: Volunteer launch hosts working with boaters to fill out clean boating surveys at Big Lake. Photo: C. Inman.

COMMUNITY OUTREACH

A major component of this ongoing project is raising awareness among boaters and the surrounding communities of the collective impact of individual spills of fuels and oils on water quality. Many boaters come to recreate on rivers and lakes in the Susitna Valley from Anchorage, Eagle River, Wasilla, Palmer and other Southcentral communities. Therefore, spreading awareness in these larger population centers is critical to achieving success. In addition to the Launch Host Program (described on page 7), specific actions to increase public awareness are described in detail below.

Print News

The Clean Boating Coordinator wrote clean boating letters to the editor for local and regional print media. Letters were printed in the *Frontiersman* and *The Big Lake Times*. Copies are included in the Appendix.

Radio

With so many boaters coming to Valley boat launches from large population centers in the region, radio advertising is an extremely effective way of raising clean boating awareness. During the first quarter we worked with a professional radio person in Homer and developed two versions of a new 30 second clean boating radio advertisement for FY15. Optima Public Relations was contracted to do placement of one of the ads. Increased funding from ADEC in FY15 for radio advertisements allowed for paid radio advertisement placements during the first and fourth quarters. This was an exciting opportunity that we will expand upon in FY16. The ad can be heard at <http://inletkeeper.org/resources/contents/clean-boating-radio-psa-1/view> and



Top: Boaters take a survey at the Mat-Su Outdoorsman's Show Clean Boating booth. Bottom: A generic clean boating sticker, developed by Cook Inletkeeper, which was used in the early part of this project.

<http://inletkeeper.org/resources/contents/clean-boating-radio-psa-2/view>.

Six radio stations (KTNA 88.9FM, KAYO 100.9FM, KVNT 92.5FM and 1020 AM, KMBQ 99.7 FM, KXLW 96.3FM & KBEAR 104.1FM) played our audio PSAs from July-September 2014 and May-June 2015, focusing more air time during weekends and targeting audiences in Anchorage and throughout the Mat-Su Valley. In-

letkeeper's Heather Leba was a guest on the Tom Anderson Show (KVNT 92.5FM) four times during the fourth quarter to talk about the objectives of the clean boating program and inform local boaters how they could get involved. This is a great way to reach a lot of boaters in the Valley and Anchorage with a positive and pro-active message, and we look forward to continuing and expanding this effort in FY16.

Mat-Su Outdoorsman Show

As part of this project, Cook Inletkeeper hosted a table at the Mat-Su Outdoorsman's Show for three days in March at the Menard Sports Complex in Wasilla. This show continues to be a very effective early-season outreach event, and we will attend it again in FY16. Over three days, Inletkeeper staff and volunteers talked with many individuals about clean boating on Big Lake and other Valley waterbodies. Boaters completed 40 surveys and received clean boating kits in return. Survey responses are described in more detail on page 10. Keychains and stickers continue to be the most popular items at our tables, aside from the oil absorbents which boaters highly value.

We had intended to participate in the Big Lake Boat show, but it was cancelled last minute by the organizers, so we did not attend.

Big Lake Fall Fishing Derby

Sponsored by the Big Lake Chamber of Commerce, the Big Lake Fall Fishing Derby is a popular event with boaters and is held at Burkesshore Marina. In FY15 the Fishing Derby occurred in September. Over 100 people attended the Derby, and the Clean Boating Coordinator hosted a clean boating table at the event. This venue pro-

vides good local outreach opportunities in the fall, after much of the recreational boating at Big Lake has died down. We will continue to have a clean boating presence at the Fall Fishing Derby in FY16.

Community Participation

In addition to the above efforts, we engaged the following community partners in outreach efforts to raise awareness of clean boating practices and resources in the Big Lake area:

- Big Lake Community Council
- Mat-Su Borough Assemblyman Dan Mayfield
- Burkesshore Marina (200 stickers for distribution, 5 kits, and 20 bilge socks)
- Big Lake campground launch attendants (15 kits, clean boating flyers, 50 stickers)



Boater at Big Lake Fall Fishing Derby at Burkesshore Marina holding a dolly vardeen.

Two-Stroke Buy-Back Program

During FY15, the Clean Boating Coordinator discussed the idea of a hypothetical 2-stroke engine

buyback program with Anchorage and Valley stakeholders, agencies, and businesses. The overall consensus was that a buyback program is a great idea, but numerous barriers exist for funding, implementation, and garnering support and participation from the boating public. Should a program be developed, several Anchorage and Valley businesses said they may be interested in participating, including Burkesshore Marina in Big Lake, Alaska Mining and Diving in Anchorage, and Anchorage Schnitzer, a salvage company in Anchorage. Advertising through radio and print media, and couching this program in such a way that encourages voluntary participation through the lens of “getting ahead of the problem” could be a successful approach. There are currently no regulations in place limiting older 2-stroke engine use on Big Lake, but boaters should be aware that if hydrocarbon levels continue to be elevated, that could become a reality. In addition, 2-stroke engine restrictions will take effect in 2017 on the Little Susitna River. Were a buy-back program to be pursued, it should be targeted not only at Big Lake boaters but at those on the Little Su as well. The largest hurdle for this program would be securing funding in order to provide monetary incentives to boaters who choose to upgrade and trade in their old 2-strokes and paying a salvage company to dispose of the old motors. A copy of the final suggested framework based on our research is included in the Appendix.

We have received positive and appreciative feedback about this project from many community partners, businesses and boaters throughout the Mat-Su Valley. These business owners, including Burkesshore Marina staff, are dedicated to providing boaters with clean boating materials and helping reduce hydrocarbon pollution in regional waterbodies. Clean boating resources are



Cook Inletkeeper staff spoke with many boaters and received some positive feedback at Big Lake during FY15.

centered around many businesses and organizations throughout the Valley and we hope to partner with more of them during our new FY16 initiatives. Our approach of “common sense practices and good housekeeping tips” is appreciated, and has proven to be non-confrontational. Although it is difficult say how much pollution prevention has been achieved directly through the education efforts, clean boating awareness has certainly risen, and many businesses and boaters recognize the need for these efforts. However, we feel that it is unlikely that pollution and hydrocarbon levels will be reduced through outreach alone, and that future regulations or restrictions may be necessary to see measureable changes in water quality. Further, many boaters, specifically those at Big Lake, have not made the connection between impaired water quality and impacts to salmon health. We’d like to pursue this topic during FY 16 and develop ideas about how to spread the message that impaired water is detrimental to the health of juvenile and adult salmon within the Mat-Su Valley.

Cook Inletkeeper received a fifth year of funding under the ADEC Alaska Clean Water Action grant program to continue and expand this project through 2015 and into 2016 (FY16). During FY16, Inletkeeper's Clean Boating Coordinator will continue on-the-ground implementation of the Clean Boating in the Susitna Valley efforts, including at Big Lake. The FY16 project objectives are expanded to include:

1. Continue and expand the educational clean boating program developed through previous ACWA grants;
2. Broadly educate regional boaters on the im-

pacts of older carbureted 2-stroke engines on sensitive waterbodies and aquatic life; and,

3. Implement a new online clean boating incentive program using the BoatUS Foundation's free online clean boating course and partner with local businesses to develop a new boater incentive discount card .

In FY16 we will include outreach efforts at Big Lake, the Little Susitna River, Deshka Landing, and add outreach at the Kenai River launches. We will continue to work with campground hosts and launch staff, but will scale back our outreach efforts at launches since we have not found it to be an economic or efficient way of reaching boaters. We will again host a clean boating table, with information on Big Lake, the Little Su and the Deshka, at the Fall Fishing Derby at Big Lake in September 2015, the Mat Su Outdoorsman's Show in March 2016, and the Big Lake Boat and Sports Show in May 2016. New to FY16 will be a program to partner with local businesses to develop a new boater incentive discount card for boaters completing a free online clean boating course done by the BoatUS Foundation in order to reach a broader audience of regional boaters.



"Baby salmon live here" sign posted at the Big Lake north launch.

ACKNOWLEDGEMENTS

Cook Inletkeeper would like to thank the community of Big Lake for their engagement, support, and dedication to these efforts and so many more to help improve and protect the water quality in Big Lake. Thank you to all of the boaters at the Little Su and Deshka Landing who were supportive of this program and provided helpful insight. We'd like to especially thank Nick and Katie Gittlein, Bekah Mathiesen, Dan Mayfield, Hillary Fleming, Kylee Singh, Heather Liller, Kathleen Gustafson, Jamie and Justin High at Deshka Landing, Tom Anderson, Ink Spot, and Don Smith of A-1 Signs. We'd also like to thank Holly Peterson, Catherine Inman, Frankie Barker, Cindy Gilder, Laura Eldred, Damon Hampel, and Wayne Biessel for their ideas, critical involvement, and support throughout this project and for their efforts on other efforts to protect Big Lake, the Little Su, and Deshka River's water quality for present and future generations.

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