

Public Involvement in the Soldotna Creek Northern Pike Eradication Project

Rotenone Treatment Narrative: ADFG's pike eradication plan in Soldotna Creek involves systematically treating the majority of the Soldotna Creek drainage with rotenone over a four-year period beginning with a treatment of Union Lake, East and West Mackey Lakes and Derks Lake from October 6-10, 2014. For planning and treatment purposes, the Soldotna Creek Drainage has been divided into two sections by a long-standing road/ beaver dam barrier at the outlet of Derks Lake that ADF&G has reinforced to be impassible for fish. The first section (Area 1) encompassing the aforementioned lakes contains no other fish species than northern pike. Following the rotenone treatments this fall, ADF&G will clear the lakes of dead pike to the extent possible and monitor the degradation of the rotenone under the ice during the winter. At ice-out in the spring of 2015, ADF&G will conduct an assessment to ensure all pike from Area 1 have been eradicated. The remainder of the drainage (Area 2) contains the mainstem of Soldotna Creek, Tree Lake, and Sevena Lake. These waters still contain native fish including Dolly Varden, steelhead, rainbow trout, lamprey, round whitefish, eulachon, coho salmon, pink salmon, sockeye salmon, Chinook salmon, sticklebacks, and slimy sculpin. Substantial efforts will take place in 2015 to relocate as many individuals of each species as possible to the Area 1 lakes that, at this point, will be devoid of fish. This will begin the process of restoring fish populations in the drainage. Area 2 will then be treated with rotenone in 2016 and 2017. Some native fish will be killed in this section. However, the USFWS operated a video weir at the Kenai River/ Soldotna Creek confluence in 2009 and 2010. Their data demonstrated upstream passage of ~1,600 Dolly Varden, 510 coho salmon, 225 steelhead, 142 eulachon, 95 pink salmon, and 58 sockeye salmon during the period the weir was operating. The timing of the upstream movements of all these species, however, occurred outside the window in which ADF&G plans to conduct the rotenone treatments. Rotenone will be applied to this open water section in late June because this is the period when water levels and flow rates will be the lowest and will require the least amount of rotenone. Though there will undoubtedly be some, ADF&G anticipates no long-term impacts to non-target fish species and no impacts to fish residing outside the treatment area. This will be mitigated by the native fish relocation effort in 2015.

As the rotenone is being applied to the mainstem of Soldotna Creek, it will be neutralized with Potassium Permanganate with two neutralization stations located approximately 30 minutes stream-travel distance above the confluence of Soldotna Creek and the Kenai River. Caged fish will be monitored very closely downstream of the neutralization stations to ensure that rotenone is not escaping into the Kenai River. If these sentinel fish show any signs of rotenone exposure, staff operating the neutralization stations will be immediately notified to increase the amount of Potassium Permanganate. However, even if a small amount of rotenone were to enter the Kenai, the volume of the Kenai River will be sufficient to dilute any rotenone residues to such a degree that there would not be any harmful effects to Kenai River fish. Following the rotenone treatments to Area 2 in 2016 and 2017, Area 2 will be thoroughly assessed to ensure that all pike have been eradicated. The Derks Lake barrier will then be breached to allow fish passage throughout the drainage. The native fish held over in Area 1 and upstream migrations from the Kenai River will restore native fish populations throughout the drainage while the threat of northern pike establishing in the Moose River tributary will be eliminated.

Public Scoping Process:

1. ADF&G hired USKH, a private consulting firm, to conduct an independent public scoping process to determine the level of community support for this project
2. USKH and ADF&G worked together to advertise public scoping meetings
 - Press Release announcing public meetings issued on March 8, 2012 (APPENDIX A)
 - Meetings advertised on KSRM (Kenai Peninsula radio station) <http://radiokenai.net/fish-and-game-concerned-about-pike-in-soldotna-creek/>
 - Invitations to meetings mailed to 447 Soldotna Creek area landowners on March 12, 2012 (APPENDIX B)
 - Meeting flyers posted to local business message boards
3. Pre-Meeting Public Scoping
 - USKH contacted 25 stakeholders (known people or organizations with a history of interest, concern, or involvement in pike eradication projects) by phone to introduce the project and survey their opinion of it.
4. Three Public Meetings held March 22-24, 2012 and facilitated by USKH
 - Location: Environmental Education Center (Kenai National Wildlife Refuge Headquarters), Soldotna
 - Format: 45-minute seminar on the proposed plan given by ADF&G followed by an open house where attendees could discuss questions with ADF&G staff and fill out a written survey administered by USKH
 - Attendance: ~50 people attended meetings or filled out written surveys
5. Questions/ Comments/ Concerns During the Public Scoping Process:
See USKH public scoping report for further detail (APPENDIX C)

Note: Many of the comments and questions arising during public scoping came from the same individuals. * is an avid pike fisherman who opposes any efforts to remove northern pike and ** are individuals from the same family who are fundamentally opposed to the use of pesticides. None of these individuals own property on waters that would be treated during this project.

Comments in Support

- Soldotna Creek lakes were once productive sport fisheries. Many are now devoid of fish other than pike. Residents expressed a desire to see the fisheries restored.
- The threat of pike colonizing Kenai River tributaries such as the Moose River or Beaver Creek is too great not to take action.
- If pike populations remain on the Kenai Peninsula, the sport and commercial fishing economy on the Kenai could be jeopardized.

- Soldotna Creek pike need to be eradicated because they are a source for further illegal introductions.
- This project needs to move forward so that the Kenai Peninsula doesn't become like the Mat-Su Valley.
- One stakeholder, KRSA, wrote a letter of thanks for the scoping process and support for the proposed project.

Comments in Opposition (*responses in italics*)

- ADF&G is vilifying pike in the Susitna River and elsewhere to trick the public into believing pike are the culprit behind salmon declines rather than overharvest or mismanagement*
 - i. During presentations, ADF&G tries to explain that, under the right habitat conditions such as Soldotna Creek, pike can extirpate salmon populations (i.e. Alexander Creek). However, this is not typically the case in habitats that are not ideal for pike.*
- Desire not to lose pike fishing opportunities on the Kenai Peninsula*
 - i. Northern pike are an invasive species on the Kenai Peninsula and present a great risk to native fish populations.*
- This project is a potential waste of money. It is technically difficult to execute and it just takes one person to reintroduce pike.*
 - i. This is a valid concern, but it would tie ADF&G's hands for any potential effort to address the pike problem. ADF&G has substantially increased outreach efforts to inform the public that pike are not native to Southcentral Alaska, are a threat to fisheries, and illegal stocking has significant penalties. Over the last decade, public awareness has increased, and illegal stockings have slowed down substantially.*
 - ii. This is the largest pike eradication project to date, but ADF&G staff have been trained at the National Conservation Training Center on proper project planning and use of rotenone. Further, project staff are state of Alaska-certified aquatic pesticide applicators. ADF&G also contracted Brian Finlayson, the author of the Rotenone Use Manuals, in 2010 to fly over and visit the drainage to confirm the feasibility of successful rotenone treatments in Soldotna Creek.*
- Skepticism that rotenone can really eradicate pike entirely from the drainage
 - i. It can be done, and full drainage treatments have been executed successfully in the lower 48 for other species. ADF&G is optimizing its potential for success by gillnetting spawning pike in the spawning seasons preceding treatment to reduce the number of offspring (i.e. juvenile pike that will hide out in marshy areas).*
- Frustration that there are not more ecologically sensitive options for pike eradication**
 - i. Draining and pesticide use are the only proven eradication options for removal of entire fish populations.*
- Belief that rotenone causes Parkinson's Disease and that ADF&G is minimizing this risk**

- i. *There has been debate in the last decade on whether rotenone can cause Parkinson's Disease. Prolonged, direct exposure reduces the level of dopamine in the brain. In lab animals, this causes symptoms consistent with PD and other neurological conditions. However, the studies investigating this are completely unrelated to fisheries management. Neurologists studying diseases such as PD use rotenone in lab animals to mimic symptoms they are researching. In all such studies, laboratory animals are intravenously or intragastrically administered concentrated rotenone for prolonged periods (i.e. weeks) to induce these effects. These studies are not relevant to fisheries management because the concentration of rotenone used (0.05 ppm) when diluted into a lake are not, in any way, comparable to the exposures in the medical studies. However, recognizing that debate on the subject exists and that information available online and in the literature is complex and inconsistent for the interested public to weed through, ADF&G has adopted a policy of advising the closure of any water body that is treated with rotenone with signs and public notices until water tests indicate the chemical is completely degraded. No exposure equates to no human health risk for the public, and ADF&G staff are well-trained and protected with appropriate protective gear when handling the rotenone during treatments.*
- Strong belief that ADF&G is misrepresenting rotenone in terms of human health risks and impacts to water sources and other organisms**
 - i. *ADF&G has had several discussions over the phone with this commenter to discuss any potential risks associated with rotenone and assist her in understanding the complex and often contradictory information available on the internet.*
- Concern that closing the water bodies means residents could not swim in the lakes**
 - i. *This is true. The public would be advised through signage to avoid contact with treated waters until water tests confirm the rotenone has degraded. However, treatment timing for the first four lakes will occur primarily in October when people would not likely be swimming. The remainder of the drainage will be treated during the summer months, but the majority of this treatment area is the mainstem of Soldotna Creek which is not use for swimming. The two lakes to be treated during this time are also remote and have few residences on them, so impacts to swimmers will be minimal.*
- Concern that food sources could be displaced for waterfowl
 - i. *Small fish and some invertebrates will be killed during the treatment and may require waterfowl to look for forage in nearby waters. Many water bodies are proximate to the treatment area, so alternative forage areas will be readily available for waterfowl.*
- One individual wrote a letter suggesting a technical alternative to control pike by adding a water control structure to the Sevena Lake outlet.

- i. This was a feasible option to potentially control the spread of northern pike from Sevena Lake, but it is not an eradication option. Northern pike eradication is the goal of this project.*

General Comments

- ADF&G needs well-funded education programs to prevent illegal fish stocking as much as conducting eradication projects.
 - i. Agreed, and efforts are on-going through PSAs, sportsman shows, presentations, print materials, websites, radio ads, etc.*
- Concern that this project isn't likely to move forward because of 'NIMBYs' and pike fishing advocates.
 - i. The permitting processes for the project will make impartial decisions as to whether or not the project should move forward.*
- Concern that funding for the project wasn't already in hand at the time of the public meetings.
 - i. At the time of public scoping it was not known whether there was strong support or opposition to the project concept. After scoping concluded that there was community support, ADF&G applied for and acquired \$298,600 in grant funds (matched with \$113,000 in staff salaries) to complete the 2014 treatments. In 2014, ADF&G applied for an additional \$447,100 in grant funds (to be matched with \$159,000 in staff salaries) to complete the remaining treatments in 2016 and 2017. This grant application is currently under review.*
- Concern about the timeframe of the permitting processes and a strong desire for the project to commence immediately
 - i. Permitting takes a minimum of a year for a project like this, and though this seems like a long time, it ensures the project will be well executed and all considerations will be met.*
- Desire for ADF&G to stop gillnetting the lakes because of the danger to waterfowl and because gillnetting is ineffective for eradicating pike
 - i. Some gillnetting still will be required ahead of the rotenone treatments and then afterward to confirm the treatments were successful. However, there will be no dangers to water fowl because these nets will be set under the ice during the winter. If any open-water netting will occur, staff will attend the nets at all times and will remove waterfowl that become entangled to maximize their likelihood of survival. After pike are removed from the drainage, gillnetting in these lakes will no longer be necessary, and ADF&G will rely on eDNA detection techniques to monitor for pike presence.*
- Critique that ADF&G is first addressing this issue now when it has been going on for decades
 - i. Fair critique. Because pike are a sport fish where they are native, there was question early on if they could provide a sport fishing opportunity in Southcentral. Through the decades the impact of pike*

has become more and more obvious, and the Department is currently working to reduce the threat.

- Critique of the open-house format of the meeting**
 - i. *This format was suggested by the facilitator after meetings for previous eradication projects were dominated by a very small, but vocal group that intimidated other attendees from participating. This format allowed all attendees to feel comfortable having their comments and questions addressed. However, the attendees that were the most vocal in previous meetings were very unhappy with this format change.*
- Critique of the facilitator**
 - i. *The meeting attendees that disliked the open house format critiqued the facilitator for not changing the meeting format at their request and believed the facilitator used PR techniques to sway public opinion.*
- Accolades on the seminar and desire to see it given more broadly as a pike education tool

Environmental Questions

- What are the potential wildlife impacts from the use of rotenone?
 - i. *Birds, mammals, or organisms that lack gills are not at all adversely affected by rotenone at the concentrations used in fish management. Fish-eating waterfowl may be temporarily displaced to nearby water bodies while their forage species are recovering (The project EA has a detailed analysis of this question).*
- What are the potential effects to non-target species?
 - i. *Plankton and gill-breathing aquatic invertebrate populations will be temporarily reduced. Non-target fish will also be killed although significant mitigation measures will be in place to address this. The project is divided into two areas. The first area contains no other fish than pike. Once the pike are gone from this area, native fish from the second area that does contain native species will be relocated to the first area to begin reestablishing native fish populations. (The project EA has a detailed description of this; Also see project narrative p.1)*
- Are there fish kills outside of the treatment area?
 - i. *It is extremely unlikely that any fish kills will occur outside Soldotna Creek. This is because rotenone will be neutralized before it enters the Kenai River. The neutralization plan will occur, but is largely precautionary. The flow rates of the Kenai River, on their own, are sufficient to dilute rotenone to non-harmful levels.*
- How long does rotenone persist in cold water?
 - i. *ADF&G anticipates rotenone from October treatments (area one) to remain active throughout the winter. It will quickly degrade at ice out when it is exposed to light and warmer temperatures. Rotenone from treatments during summer months (area two) will degrade much quicker, on the order of days or weeks rather than months.*
- Are garden plants affected by rotenone?
 - i. *Rotenone does not affect plants in any way.*

Health Questions

- What are the human-health risks from the use of rotenone?
 - i. *The primary risk is to rotenone applicators because the applicators are the only people exposed to the pure, concentrated rotenone products. Once the rotenone is diluted into water bodies, it is technically safe for the public. Regardless, ADF&G will advise closures of all treated areas. No exposure equates to no human health risk. (A detailed analysis of human health risks from rotenone is found in the project EA).*
- Can potable water sources be affected?
 - i. *Rotenone does not penetrate soil substrates more than 3 inches, so wells and potable water resources will not be affected. To increase the comfort of residents, however, well water in the area will be regularly tested until the rotenone is fully degraded in the treatment area.*
- Is rotenone a carcinogen?
 - i. *Rotenone is not a carcinogen. (A detailed discussion of this question is found in the project EA).*

6. Additional Correspondence

- Newspaper article published in the Kenai Peninsula Clarion on 1/6/13 announcing that ADF&G had acquired funding for the first phase of this project (<http://peninsulaclarion.com/news/2013-01-06/funds-granted-for-2-peninsula-based-conservation-projects>)

Permitting Processes:

1. APDES Permit (Alaska Pollutant Discharge Elimination System Permit)
 - Administered by the Alaska Department of Environmental Conservation (ADEC)
 - Preparation of detailed permit application
 - Filing of “Notice of Intent” with the ADEC
 - Completed 9/16/13
2. ADEC Pesticide Use Permit
 - Detailed Permit Application
 - i. Documents project area, ensures product registration, identifies product quantity, methods of delivery, application timing, certified applicators, etc.
 - Includes a 30-day public comment period
 - i. Public notices of the comment period ran in the Kenai Peninsula Clarion on April 20th and 21st, 2013 (APPENDIX D)
 - ii. ADF&G went door to door to ~ 50 residences on Soldotna Creek lakes to verbally tell them about the comment period

- iii. ADF&G called the households identified during public scoping as opposed to the project to let them know about the comment period
 - iv. Courtesy letter announcing the public comment period sent on 4/24/2014 to 75 landowners (APPENDIX E)
 - v. Courtesy letter announcing the public comment period issued during the Kenai Peninsula Sportsman Show (APPENDIX F)
 - vi. Courtesy e-mail to Stakeholders announcing the public comment period sent on 4/28/14 (APPENDIX G)
 - vii. Comment period ran from April 22nd – May 22nd, 2013
 - 1. One comment was submitted to the ADEC from ** expressing their same concerns described in the public scoping section
- Weighing both ADF&G’s application packet and the public comment, ADEC issued the Pesticide Use Permit on 5/23/14
 - There is a mandatory 40-day stay before a permitted action can commence to allow the public an opportunity to contest the ADEC’s decision.
 - i. The stay passed, and the ADEC pesticide use permit process is complete.

3. National Environmental Policy Act

- Federal funding is the nexus that triggers the NEPA process
- Includes the development and Federal review of an Environmental Assessment (EA)
 - i. Completed in the spring of 2013
 - ii. Formally submitted to the USFWS on April 20th for public review
 - iii. Posted to ADF&G’s website on April 20th
(<http://www.adfg.alaska.gov/index.cfm?adfg=rotenone.currentprojects>)
- Includes a 30-day public comment period
 - i. Comment period ran from April 22nd – May 22nd, 2013 in conjunction with the ADEC pesticide use permit comment period
 - 1. Two comments were received
 - a. One comment was emphatically in support of the project
 - b. The other comment was from ** and was the same comment submitted to the ADEC
 - i. Per NEPA procedures, ADF&G provided a written response to the USFWS addressing the opposing comment
- USFWS is currently completing their EA review and preparing a “Finding of No Significant Impact (FONSI)”
 - i. When the FONSI is signed by the USFWS regional director, the NEPA process for this project will be complete.
 - 1. ADF&G has verbal communication for the USFWS that the FONSI is soon forthcoming.

Future Public Correspondence:

1. News Release to be issued ahead of the rotenone treatments
2. Landowner letter and FAQ to be mailed to Soldotna Creek residents (APPENDIX H)
3. Signs will be posted around the water bodies advising their closure until the rotenone treatment is completed, followed by replacement signage advising the public to not contact treated waters until ADF&G determines the rotenone is fully degraded.

ADF&G Public Involvement Appendices A-H

Appendix A

Division of Sport Fish
Charles Swanton, Director
PO Box 115526
Juneau, AK 99811-5526
www.adfg.alaska.gov



Alaska Department of Fish and Game
Cora Campbell, Commissioner
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PRESS RELEASE

For Immediate Release:
March 8, 2012

**CONTACT: Robert Begich, Area Management
Fisheries Biologist or Jason Pawluk, Assistant
Area Management Biologist
Division of Sport Fish, Soldotna: (907) 262-9368**

Public Scoping Meetings Examine Alternatives for Invasive Northern Pike Control in the Soldotna Creek Drainage

The Alaska Department of Fish and Game, Division of Sport Fish, announces that three public scoping meetings will be held in March 2012 to discuss alternatives for addressing the invasive northern pike issue in the Soldotna Creek Drainage. The meetings will provide an opportunity to:

- 1) Learn about impacts caused by invasive northern pike;
- 2) Hear about a plan the department is considering that could remove invasive northern pike from the drainage and restore its native fishes; and
- 3) Share your views and observations with the department.

The department has contracted USKH, a multi-discipline design firm, to facilitate these public meetings. Information gathered from these meetings will help guide the department's response to address the presence of invasive northern pike in the Soldotna Creek Drainage.

Public scoping meetings will be held at the Environmental Education Center building (log building north of the visitor parking lot) located at the Kenai National Wildlife Refuge Headquarters and Visitor Center on Ski Hill Road. The dates and times of the meetings are as follows:

Thursday March 22 - 12:00 pm to 1:30 pm (slide show at 12:15 pm)

Thursday March 22 - 6:30 pm to 8:00 pm (slide show at 6:45 pm)

Saturday March 24 - 10:30 am to 12:00 pm (slide show at 10:45am)

- END -

Appendix B

Dear property owner:

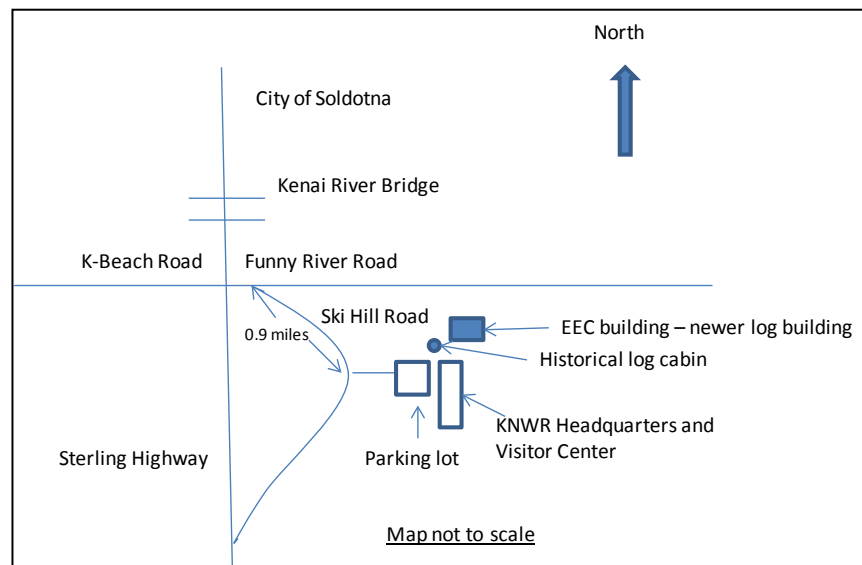
A search of Kenai Peninsula Borough land records indicates that you may own property near a lake or stream within the Soldotna Creek drainage. You are being contacted because the Alaska Department of Fish and Game, Division of Sport Fish (Soldotna Office), will be sponsoring several public scoping meetings regarding the issue of invasive northern pike in the Soldotna Creek drainage. The meetings, along with other efforts to engage landowners in the scoping process, will be facilitated by the multi-discipline design firm USKH. The meetings will provide the public an opportunity to:

- 1) Learn about impacts caused by invasive northern pike;
- 2) Hear about a plan the department is considering that could remove invasive northern pike from the drainage and restore its native fishes; and
- 3) Share your views and observations with the department.

We encourage you to attend one of three meetings to be held at the Environmental Education Center (EEC) located next to the Kenai National Wildlife Refuge Headquarters and Visitor Center off of Ski Hill Road in Soldotna. We have scheduled multiple meetings to accommodate all parties interested in attending; information provided by the department will be similar at each meeting. Meeting dates and times are as follows:

- Thursday March 22 - 12:00 pm to 1:30 pm (slide show at 12:15 pm)
- Thursday March 22 - 6:30 pm to 8:00 pm (slide show at 6:45 pm)
- Saturday March 24 - 10:30 am to 12:00 pm (slide show at 10:45 am)

A locator map of the EEC building is provided below. For more information, please call ADF&G at 262-9368 and ask for Robert Begich (area management biologist with the Division of Sport Fish) or Jason Pawluk (assistant area management biologist).



Appendix C

Soldotna Creek Drainage Invasive Northern Pike Public Scoping Summary Report

To: Rob Massengill, ADF&G

Date: September 25, 2012

From: Sara Wilson Doyle, USKH, Planner & Public Involvement

Subject: Soldotna Creek Drainage Invasive Northern Pike Public Scoping Process Input Summary

Scoping Process

In March 2012, the Alaska Department of Fish and Game (ADF&G) contracted USKH, a multi-discipline design firm, to facilitate a public scoping process to gather input in order to guide the Department's response to invasive northern pike in the Soldotna Creek Drainage. This memo presents a summary of public input gathered in March and April 2012, based on the following outreach and scoping process:

- **Property owner mailing:** ADF&G obtained an address list of 447 property owners adjoining or proximate to the Soldotna Creek drainage. In early March, 2012 each property owner was mailed a letter notifying them of the upcoming public meetings, and encouraging them to participate in the scoping process.
- **Stakeholder interviews:** ADF&G provided USKH with a contact list of organizations and individuals identified as having a specific interest or likely concerns around invasive northern pike in the Soldotna Creek Drainage. Phone conversations were held with twenty-five stakeholders to both inform them about the scoping process, and to gather input on northern pike's presence and measures to remove the invasive species from the Soldotna Creek Drainage.
- **Public meetings:** Three public scoping meetings were held in March 2012 at the Kenai National Wildlife Refuge's Environmental Education Center in Soldotna, at a location easily accessible to Soldotna Creek Drainage property owners, and interested citizens and organizations. An effort was made to enable broader participation by hosting three separate meetings at varied times:

Scoping Meeting #1, March 22, 2012 - 12:00 pm to 1:30 pm (slide show at 12:15 pm)

Scoping Meeting #2, March 22, 2012 - 6:30 pm to 8:00 pm (slide show at 6:45 pm)

Scoping Meeting #3, March 24, 2012 - 10:30 am to 12:00 pm (slide show at 10:45 pm)

Scoping meeting outreach and advertisements included phone contact and/or email to 465 individuals and organizations, a press release, newspaper advertisements, and the posting of fliers in key locations. Forty-four individuals attended the series of meetings, which had a consistent format as outlined following:

Meeting Agenda

1. WELCOME AND INTRODUCTIONS (≈ 10 minutes)

The meeting began with a statement of the meeting purpose, and ADF&G's goals for the overall scoping process.

Meeting Purpose: ADF&G's Goals

- 1) To help participants learn more about Soldotna Creek Drainage northern pike and the Department's concern about their presence;
- 2) To help participants understand different actions the Department is considering to control or remove northern pike from the Soldotna Creek Drainage; and
- 3) To seek participant's input specific to the Department's assessment and potential actions to control or remove northern pike from Soldotna Creek Drainage.

Participants were reminded that this was a scoping, education, and outreach meeting, not a formal hearing. Attendees were encouraged to take advantage of the less formal setting to ask questions, seek clarification, and provide thoughts and input. ADF&G staff and participants then all introduced themselves as follows:

a) ADF&G Staff

Rob Massengill, Fisheries Biologist for ADF&G Sport Fish Division

Tim McKinley, Area Research Supervisor for ADF&G Sport Fish Division

Jason Pawluk, Assistant Area Management Biologist for ADF&G Sport Fish Division

Kristine Dunker, Regional Invasive Species Coordinator for ADF&G Sport Fish Division

Robert Begich, Area Management Biologist for ADF&G Sport Fish Division

b) Attendees

Scoping meeting attendees were asked: "Please tell us who you are: Your name, Where you live, Why you are here, and What you value about Soldotna Creek Drainage?" In response, individuals explained their association with the Soldotna Creek drainage, and/or their interests.

2. PUBLIC SCOPING PROCESS (≈ 5 minutes)

ADF&G's facilitator described the Soldotna Creek Drainage northern pike scoping process, meeting ground rules, how to provide input, and how the input would be used to help ADF&G to consider potential actions to control or remove northern pike from the Soldotna Creek Drainage.

3. PRESENTATION (≈ 40 minutes)

A slide show was presented by ADF&G providing in-depth information regarding northern pike's introduction to the region, its impacts, and the possible actions being considered by ADF&G to control or remove northern pike from the Soldotna Creek Drainage.

4. INPUT AND INFORMATION OPEN HOUSE (≈ 30 minutes)

An open house was held where participants could pick up handouts with more detailed information, review posters and displays, ask further questions of ADF&G staff, and provide input to the facilitator.

- **Input forms/written comments:** Eight individuals completed written input forms regarding northern pike's presence and potential measures to remove northern pike from the Soldotna Creek Drainage. In addition, one regional organization wrote a letter thanking ADF&G for their scoping effort and voicing support for the proposed plan to remove northern pike from the Soldotna Creek Drainage. Finally, one individual provided a detailed letter outlining a technical suggestion for controlling pike by adding a water level control structure at the Sevena Lake outlet.

Public Input Summary

During the scoping process several major categories of input and public opinion emerged. Following is an aggregated summary, specific to broader categories, covering the issues and public opinions shared by members of the public and interested organizations. The statements that follow are directly based from individual's comments and opinions provided over the course of the public scoping process.

1. Soldotna Creek Drainage

Public input provided background on the Soldotna Creek Drainage and its relationship to residents and the region. Key themes include:

- **Community Context:** Soldotna Creek is a small stream that flows approximately 14 km before it drains into the Kenai River. It is located in the lowlands of the western Kenai Peninsula and encompasses bog meadows, ponds, and several lakes. Land ownership surrounding Soldotna Creek and its lakes is predominantly private, with single family residential homes located along the waterfront to take advantage of recreational and scenic values. The Alaska Department of Natural Resources has some undeveloped easements to allow public access to some of the drainage's bigger lakes; however, these remain undeveloped at this time. According to some residents, these public access easements support occasional foot traffic to the lakes by the public, and allow the use of small crafts (canoes, kayaks, etc.). However, because of the small size and quiet residential atmosphere of the lakes, attempts to provide more formal, developed public access (e.g., boat launches, parking, formal trails) have not been supported by residents when they have been advocated in the past.
- **Historical Conditions:** A number of longtime residents of East and West Mackey lakes and the Soldotna Creek Drainage participated in the scoping process. In their collective memory, dating to the early 1970's and prior, the drainage was very different when residents first arrived. According to anecdotes, the drainage was "thick with rainbows" until the early 1980s, when the first pike were intentionally and illegally introduced to the drainage by a resident. By the mid-1980s, some huge pike were present in the drainage. However, within a matter of years, the pike apparently ate out the rainbow trout, Dolly Varden, and other native fish, because residents were no longer seeing or catching native fish species from Soldotna Creek Drainage waters. At the same time, as stocks of native fish declined, pike visibly began eating dragonflies, water birds, and each other. Within a few years, the size of pike in the system apparently dropped as they ate out food supplies. One resident raised concern that during this same time period, migratory bird populations on the drainage's lakes began a significant decline that continues to be of concern today. Other residents noted observations about pike's predatory taking of young water birds including young loons and Bonaparte's gulls. One final historical observation by some residents focused on "illegal blockages between lakes" by property owners in past decades. Scoping participants mentioned that this could have affected the original fish populations and may be impacting the overall ecological functioning of the drainage.
- **Current Conditions:** Many residents participating in the scoping process compare the drainage today with their memory of past conditions, and expressed deep concerns and a heightened sense of loss. The lakes today, according to many, are a shadow of the recreational attraction they once were. Currently, the "only fishing value of the drainage's larger lakes are for small pike," which according to some, "at least give kids something to fish." Additionally, the drainage's lakes are popular for recreation with residents for swimming, boating, bird watching and wildlife viewing.

2. Regional Pike Infestation Concerns

Because of the regional implications associated with pike infestations, public input also focused on concerns around the threat of pike spreading from the Soldotna Creek Drainage to other Kenai Peninsula fisheries. Key concerns include:

- **Threats to the Kenai River, and other Peninsula Fisheries:** A number of scoping participants stated that the presence of northern pike in the Soldotna Creek drainage is especially alarming because it empties into the Kenai River and Cook Inlet. The spread of pike into these systems can directly impact other fish stocks that serve as a significant economic engine on the Kenai Peninsula. The Kenai region is branded as one of the world's few premier fishing destinations for salmon and rainbow trout. Along this same theme, during the scoping process several organizations representing commercial fisheries, anglers, and tourism expressed strong concerns about the potential for invasive pike to spread from the Soldotna Creek Drainage, and to impact these opportunities and compromise their livelihoods. A common view was expressed that if pike populations get out of control, it may not be possible to retain the world class angling and commercial fishing that is vital to the Kenai Peninsula's economy. Moreover, one semi-retired fisheries biologist described how the Soldotna Creek Drainage's invasive Pike "has been and continues to be the source of the few pike that have been captured or reported in the Kenai River watershed. If nothing is done to remove pike from Soldotna Creek it is only a matter of time before reproducing pike populations will become established in additional Kenai River tributaries." This individual is especially concerned about reproducing pike populations becoming established in the Beaver Creek or Moose River watersheds, as these are important rearing areas for Coho salmon that also contribute to the Kenai River Coho salmon run. During the scoping process, a majority of participants shared concern over the further spread of invasive pike and expressed a strong desire for ADF&G to act quickly to eliminate pike from all locations on the Kenai Peninsula, and in the Soldotna Creek Drainage, to keep negative fisheries impacts from accelerating through the entire region.
- **Intentional Pike Spreading:** Participants in the scoping process remember pike's introduction to the drainage several decades ago by a "well meaning, but ill-informed" resident (ADFG verified the presence of pike were in the drainage as early as the mid-1970's). Some participants who have been eye-witnesses to the impacts of pike in the drainage are surprised at the "misinformation and lack of awareness of pike as a problem" even today among the greater population on the Kenai Peninsula. In their opinion, well-funded pike education programs are just as critical as any eradication efforts, and need to be a priority of ADF&G, especially within all of the region's schools. One organization recommended that ADF&G's scoping meeting presentation needs to be given at public venues across the region (Kenai Peninsula Borough, Cities, Chambers, Boards of Directors for key organizations (KRSMA), Kenai Peninsula College, etc.) and also via public relations and media campaigns, including through guest articles in the region's newspapers. A final point is that the presence of pike in the Soldotna Creek Drainage retains an ongoing threat to other waterways, as it creates an ongoing possible source for the intentional or unintentional spreading of northern pike on the Kenai Peninsula through catch and release into other waterways.
- **The Susitna Drainage Example:** The northern pike's penetration into the Susitna Drainage across Cook Inlet was highlighted by scoping participants as a potential example of what could happen on the Kenai Peninsula as a result of unchecked pike populations in the Soldotna Creek Drainage over time. A regional stakeholder representing the fishing sector noted, "We have been following the Soldotna Creek Pike issue for quite some time and understand the implications to Kenai River juvenile fish and resident species stocks if this issue isn't resolved sooner rather than later. We have seen the devastation unchecked pike stocks have caused in other Cook Inlet regions to salmon stocks and resident species over the last decade, and

recognize the importance of invasive pike removal in instances where they jeopardize the rearing capabilities of other native stocks.” A resident in the drainage echoed this sentiment: “It is critical to act NOW or we will end up like the Susitna Drainage.” At the same time, one individual refutes that there is any pike problem in the Susitna Drainage, and alleges that the public is being “fed lies” in order to vilify pike and take attention away from environmental changes, as well as tremendous commercial and recreational fishing pressures, which are the real culprit in the decline of native fish populations.

3. Pike Eradication Challenges

The scoping process solicited public input on pike removal in the Susitna Drainage, and a number of stakeholders and citizens provided comments around pike eradication challenges generally:

- **Political and institutional support.** A strong concern was voiced that ADF&G will find it politically and socially challenging to move forward with pike eradication efforts in the Soldotna Creek drainage: “It has been tried and shot down before.” According to some residents “NIMBYs” have kept ADF&G from addressing the pike infestation, starting long ago when eradication plans were first considered (in the 1990s). In their words, “Eradication efforts have always been shut down by a vocal minority.” Pike fishing advocates were also noted as having a strong role in undermining past eradication plans. During the scoping process, a few individuals commented that they would publically oppose eradication efforts, including one pike advocate who expressed their dismay that ADF&G only cares about a single species (salmon), and vilifies pike. Two other individuals cited their reasons for opposing the current pike eradication plan as being rotenone’s possible health effects on people and wildlife.
- **Financial resources.** Several individuals were concerned at the lack of in-hand funding for ADF&G to implement proposed plans to remove pike in the Soldotna Creek Drainage. Moreover, permitting timeframes will limit the speed with which anything can be undertaken to address the pike infestation, allowing the problem to expand potentially “beyond a point of no return.” Also, a few individuals commented that eradication efforts are “a waste of a lot of money,” either because invasive pike are “Too tough to get rid of” or because “Just one individual has the potential to illegally reintroduce pike, making eradication efforts expensive and useless.”
- **Eradication effectiveness:** A number of residents expressed concern that given the longstanding spread of pike, and the openness of the Soldotna Creek Drainage system, any efforts to eradicate pike can only slow, not stop pike. Pike were noted to be extremely hardy fish, and there is some concern whether eradication efforts and any money invested will really work. One individual mentioned that perhaps the lakes can be treated, but expressed their opinion that treating the creek will not work.
- **Netting is not working (and is hurting migratory birds):** In the recent past ADF&G conducted seasonal pike netting in some of the lakes in the Soldotna Creek Drainage to remove pike, and ADF&G continues to conduct net surveys on some lakes. Residents in the region mentioned that this did not measurably reduce pike populations, but more importantly, it unintentionally affects migratory birds, which many residents enjoy watching as they settle in and nest every year. There is a concern that netting needs to stop because of migratory bird population declines. Additionally, there was one complaint that money invested in this activity is not very effective, as it requires effort and expense year to year, and also adds nuisance traffic in and out of the neighborhoods and lakes.
- **Limited eradication methods and options:** A number of individuals expressed frustration that there are so few effective methods for pike eradication, and that the methods available are “so drastic.” Some individuals holding this opinion wanted ADF&G to invest heavily in prevention through public education “So we don’t have to do this again.” One individual expressed their

opinion that ADF&G has not truly explored ecologically sensitive approaches. In their words, “The introduction of pike into the Soldotna Creek Drainage has created a change in the ecological habitat which warrants sensitive, intense, and really open and honest dialogue by fish and game officials. I am interested in environmentally safe solutions to problems which will affect my children and grandchildren.”

4. Proposed Rotenone Treatment to address Pike in Soldotna Creek Drainage

The public scoping process focused to a large extent on ADF&G sharing what they believe to be the only potentially effective pike eradication option for the Soldotna Creek Drainage: a phased rotenone treatment combined with measures to preserve native fish stocks to re-populate the drainage, along with controls to ensure that rotenone does not enter or impact the Kenai River. Eradication and other measures to eliminate pike risks are being considered by ADF&G in response to the departments’ legal mandate to:

- Protect Alaska’s fisheries within Alaska Fish and Game Laws and Regulations (Section 16.05.020);
- Control invasive species in its *2010-2014 Sport Fish Division Strategic Plan*; and
- Provide sustained yield fisheries within the State of Alaska Constitution.

Responses to the proposed phased rotenone treatment plan included the following:

- **Support for rotenone treatment based on its historical track record:** A majority of the scoping meeting participants expressed support for the proposed phased rotenone treatment of Soldotna Creek to eradicate pike. Often cited reasons were the “ADF&G’s well-thought out plan” and the long track-record of rotenone’s successful use for pike eradication. A number of individuals reflected that they are resigned to using rotenone since it is the only potentially effective tool for addressing invasive pike in the Soldotna Creek Drainage. Moreover, several individuals commented that rotenone is not a persistent chemical (the mechanism of action is disruption of a cellular process that enables the utilization of oxygen in their blood) and so its use in the drainage is an acceptable risk, acknowledging that, “Although rotenone is not the best thing, it is the only alternative.” Specific comments expressing support include:
 - “The development of the ADF&G plan is insightful, thoughtful, technically sound, well-researched, and without question our best bet.”
 - “You have my support. I like your presentation and really encourage the rotenone.”
 - “After reviewing your plans for this pike mitigation program, we feel confident that the Department can accomplish its goals of removing all pike from the Soldotna Creek drainage without harm to Kenai river fish stocks. We also appreciate your plan to re-establish all native stocks to these waters so they will mirror the fish stocks in these waters prior to the entry of invasive pike.”
 - “I support the proposed plan of rotenone introduction. The experiences of the people who are yet to come here and our children and future generations deserve to inherit an intact, healthy system.”
 - “I strongly support ADF&G’s efforts to remove pike from the Soldotna Creek basin.”
- **Questions, concerns and opposition to rotenone:** A number of rotenone treatment plan supporters, and a couple of individuals who are against the use of rotenone raised a broad range of questions, issues, and concerns specific to the treatment plan:
 - **Potential broader rotenone impacts:** During the scoping process, residents had a number of general questions and concerns about rotenone’s potential impacts beyond its targeted use, including:

- Possible impacts to non-target species both short- and long-term (other fish species, invertebrates, migratory bird populations, wildlife, pets, etc.) both directly through exposure to rotenone, and impacts due to die off of food supplies, or ingesting food and water which has been exposed to rotenone.
 - Possible impacts to potable water sources, including water wells in the vicinity of the application.
 - Potential garden impacts.
 - Short-term and long-term possible human health possible impacts. One resident asked ADF&G to research rotenone’s potential for causing human cancer. Another individual expressed strong concern based on their interpretation of research that “Rotenone is used to cause Parkinson’s disease in lab animals.”
 - Fish-Kills outside the treatment area. One person mentioned that “Using potassium permanganate and adjusting the rotenone concentration to protect the Kenai is a great idea in a closed system. But in an open system such as Soldotna Creek, protecting Kenai River is inexact at best.”
- **Alleged misrepresentation of rotenone’s safety:** Although rotenone has a history of use, a few individuals are highly concerned that “we don’t really know the chemical effects of this toxin.” One input form cited the Material Safety Data Sheet statement for rotenone that, “To the best of our knowledge, the chemical, physical, and toxicological properties (of rotenone) have not been thoroughly investigated.” This individual further expressed concern that untrue or incomplete information was presented by ADF&G during the scoping meetings regarding rotenone, including:
- Chemical impacts to waterways, habitat, potable water, and human health were minimized.
 - Information about fish kills outside the treatment area were not covered, such as at Lake Davis in California.
 - Allegedly, misstatements were given in the public presentation about the amount of rotenone used to exhibit Parkinson’s disease symptoms in lab animals (e.g., huge vs. undetectable levels).
- **Rotenone treatment timing:** During the scoping process, both supporters of rotenone use and individuals opposed to rotenone treatment raised questions and concerns about rotenone treatment timing in the Soldotna Creek Drainage, including:
- **Persistence in cold water:** Rotenone was cited by participants as being persistent in cold environments “where it might remain at levels causing effects for 160 days.” In the view of some individuals, this extends the health and wildlife threats to an unacceptable level, especially given that Alaska’s summer waterways are still cold environments. Other individuals believe that winter application and the persistence of rotenone is a positive attribute, given how tough pike are and the expense of the application. In their view, a longer treatment time will allow better mixing of rotenone within the entire treatment area, and is more likely to make the treatment successful.
 - **Swimming and contact recreation:** Residents in the drainage, and particularly along the lakes, cited concerns that treatment during the summer would impact their activities. Some individuals swim daily.
 - **Timing with migratory bird arrival:** One individual requested that ADF&G needed to work with migratory bird population efforts to plan a better treatment window of time. Because birds decide to nest based on the availability of food, in their view, a late

fall/winter treatment would be best so that arriving birds could find nesting sites off of the drainage. There was also a strong concern that any spring, summer, or early fall treatments (prior to migration) could threaten individual bird's food sources within the Soldotna Creek drainage. Although the birds can fly to find other food in the vicinity, this may interfere with successful nesting and rearing of young. Since these populations are "Already in trouble" and are protected under treaty, it is important to make the extra consideration. Finally, it was unknown whether birds would consume die-off fish and invertebrates following a rotenone treatment. This should also be considered in treatment timing planning.

- **Sevena Lake Outlet Water Control:** During the scoping process, a semi-retired fishery biologist recommended that ADF&G Sport Fish Division investigate the feasibility of a water level control structure at the outlet of Sevena Lake. This could be used in conjunction with rotenone to eliminate the Sevena Lake pike population, by manipulating water levels to leave shallow pike spawning areas high and dry. This individual cites the Cook Inlet Aquaculture Association's water level control structure at the outlet of Daniels Lake as a demonstration that this is feasible (although that structure is used to create high water levels in the outlet stream to enable lake spawning sockeye salmon to reach Daniels Lake from Bishop Creek).

5. Scoping Process related input

A final category of public comments relate to the scoping process and ADF&G generally:

- **Presentation** – The scoping meetings included an in-depth presentation by ADF&G staff, which many meeting participants cited as being well-developed and highly informative. Several participants thanked ADF&G for the "great presentation" and requested that it be shared more widely so that citizens in the broader region, not just the residents in the drainage attending scoping meetings, can better understand the issues and alternatives.
- **Meeting Format** – During one scoping meeting, two individuals expressed a strong desire to change the scheduled meeting format so that audience questions and commentary could be directed at ADF&G staff, rather than breaking into an open house format for one-on-one questioning and input. The facilitator responded that the open house format was intentionally selected because of past meetings where vocal individuals sought to intimidate other participants and ADF&G staff. Moreover, ADF&G staff would be available to respond to and discuss any specific issues and comments by attendees. During the open house that followed, several participants individually thanked the facilitator for retaining the open house format, and creating a comfortable atmosphere for all participants, regardless of their opinion so that "A few individuals couldn't dominate the meeting."
- **Facilitation** – One scoping participant alleged that public relations strategies were used by the facilitator and in the ADF&G presentation to "subtly slant the public scoping process, and present "an argument for using rotenone in the Soldotna Creek Drainage." They found this "as an affront to those citizens not in favor of rotenone usage." In their opinion, the change in the ecological habitat through the introduction of pike warrants a "sensitive, intense, and really open and honest dialogue by Fish and Game officials." Rather than ADF&G proposing rotenone, they want "An ecologically sound solution to be found to this issue."
- **Fisheries Management** – One individual expressed an opinion that ADF&G is pro-salmon, and pro-commercial fishing, and is using the pike as a cover-up for their mismanagement of the inlet and hatchery related fisheries. The individual expressed concern that this scoping process was set up to convince people that pike are bad, and to obtain more funding for ADF&G, rather than address the underlying fisheries management causes effecting regional fisheries, and salmon especially.

- **A Need for Action** – Several individuals voiced their concern that ADF&G has ignored the pike issue for decades, and even since the agency “got concerned” about a decade ago, it has been slow to do anything about northern pike in the Soldotna Creek drainage. These individuals expressed their appreciation that this scoping effort is taking place, but were highly concerned that there is no funding in place for pike eradication, and that more years of inaction are likely to make the problem worse. A number of individuals expressed a sense of immediacy, and concern that “Time is of the essence:”
 - “This is a man-made disaster. Inaction is NOT an option. It is critical to act now.”
 - “We are in an unfortunate situation, but it is one that will not get better unless aggressively addressed.”
 - “We need to get rid of pike as soon as possible for future generations and to save our river.”

Summary

Input gathered during the public scoping process represents broad support for proposed phased rotenone treatment and fisheries restoration of the Soldotna Creek Drainage. At the same time, as ADF&G considers options, members of the public largely expressed a common interest in a course of action that if possible, achieves the following outcomes:

- Action is timed and completed in a manner that minimizes impacts to all forms of recreation that occur near and surrounding the Soldotna Creek Drainage and especially fishing, swimming, and boating in the lakes.
- Preserves the Kenai Peninsula’s world class fisheries, including important populations of rainbow trout, Dolly Varden, lamprey, round whitefish, eulachon, Coho salmon, pink salmon, Sockeye salmon, Chinook salmon, steelhead, and sticklebacks.
- Minimizes health risks to humans and water supplies, while considering issues related to both direct exposure and long term potential effects.
- Minimizes health and food supply impacts to migratory birds and other wildlife.
- Presents a reasonable cost with a reasonable likelihood of effectiveness.
- Limits environmental impacts and site impact to the drainage, and unintentional impacts to the Kenai River.
- Enhancement of the ecology of the whole system by addressing illegal barriers between lakes, and approaching efforts in the drainage holistically.

Appendix D

PUBLISHER'S AFFIDAVIT

UNITED STATES OF AMERICA, }
STATE OF ALASKA } ss:

Becky Thomas being first duly sworn, on oath deposes and says:

That I am and was at all times here in this affidavit mentions, Supervisor of Legals of the Peninsula Clarion, a newspaper of general circulation and published at Kenai, Alaska, that the

Public Notice

a printed copy of which is hereto annexed was published in said paper one each and every day for two successive and consecutive days in the issues on the following dates:
April 20 & 21, 2014

X Becky Thomas

SUBSCRIBED AND SWORN to me before this 22nd day of April, 2014

Carne Russell

NOTARY PUBLIC in favor for the State of Alaska.

My Commission expires 27-Aug-16

The Alaska Department of Fish and Game requests comments from the public regarding the Soldotna Creek Drainage Restoration Project Environmental Assessment (EA).

A copy of the EA is available upon request, or can be viewed online at:

<http://www.adfg.alaska.gov/index.cfm?adfg=rotenone.currentprojects>

COMMENTS: Comments must be received no later than 4:00 p.m. Alaska Standard Time on May 21, 2014. To be considered, comments can be submitted in writing by postal mail, fax or e-mail. Mailed comments must be post-marked prior to May 22, 2012.

Mailing Address: Robert Massengill
43961 K-Beach Road, Suite B
Soldotna, AK 99669
Fax: 907-262-4709
E-mail: robert.massengill@alaska.gov

PROJECT NAME: Soldotna Creek Drainage Restoration Project

PROJECT SUMMARY AND LOCATION: Northern pike have caused the extinction of native fish species in several lakes within the Soldotna Creek drainage and have been documented entering the Kenai River from Soldotna Creek. Currently, there is no known self-sustaining population of northern pike in the Kenai River drainage outside of Soldotna Creek. If nothing is done to control the spread of northern pike, native fish species will be threatened. The Alaska Department of Fish and Game has, with public input, evaluated alternatives for addressing the invasive northern pike issue and believes the use of rotenone (a plant-based pesticide;

<http://www.adfg.alaska.gov/index.cfm?adfg=rotenone.main>)

is the most cost effective and efficient method to remove them. The Alaska Department of Fish and Game is planning a multi-year northern pike eradication project, where the western branch of the Soldotna Creek drainage, including Union Lake, West Mackey Lake, East Mackey Lake and Derks Lake will be treated with rotenone to remove northern pike. This project is set to begin in the fall of 2014. The remainder of the Soldotna Creek drainage (mainstem creek and headwater lakes) will likely be treated with rotenone during the summer of 2016 and 2017. ADF&G has produced an EA for the Soldotna Creek Drainage Restoration Project and is requesting public comments.

PROJECT NEED: The Soldotna Creek Drainage is directly connected to the Kenai River. Should northern pike populations expand beyond the Soldotna Creek Drainage into the Kenai River Drainage, the productivity of wild trout and salmon fisheries would be threatened. The objectives of this treatment are to protect critical wild fish habitat by completely removing northern pike from the Soldotna Creek Drainage.

PUBLISHED: 4/20, 21, 2014 1687/1036

Appendix E



5/4/2014

Soldotna Creek Restoration Project (Pike Control) Update

Invasive northern pike have eliminated native rainbow trout and other fish species from several lakes in the Soldotna Creek drainage. Northern pike from the Soldotna Creek Drainage are known to enter the Kenai River where they could potentially damage native fish populations elsewhere should they become established in places like the Moose River where pike habitat is ideal.

ADFG has developed a northern pike removal plan that involves systematically treating the majority of the Soldotna Creek drainage with rotenone over a four-year period beginning with a treatment of Union Lake, East and West Mackey Lake and Derks Lake in early October of 2014. Rotenone is a plant-based chemical that is toxic to fish and commonly used for fish management. Rotenone has been used successfully by ADFG to remove northern pike from several Kenai Peninsula lakes. When applied at the low concentrations used for fish management, rotenone is not harmful to people, mammals, birds or plants and breaks down naturally from sunlight and warm temperatures. Rotenone does not travel more than 1-3 inches through soil so groundwater should not be affected. If the pike eradication project is successful, treated lakes will be restocked with native fish (i.e. rainbow trout, Dolly Varden, etc.) collected from other areas in the Soldotna Creek drainage.

Currently, ADFG is involved in the permitting process for this project. As part of this process, public notices for an Alaska Department of Environmental Conservation (ADEC) Permit to Apply Pesticides and an Environmental Assessment (EA) were posted in the Peninsula Clarion on April 20 and 21, 2014. If interested, you can contact Diedra Anliker of ADEC for specific information regarding the Application for Permit to Apply Pesticides via email diedra.anliker@alaska.gov, or by phone (907-376-2846). Written comments may be submitted to the following addresses and received no later than 4:00 p.m. Alaska Standard Time on May 21, 2014.

Rebecca Colvin
Department of Environmental Conservation
Pesticide Program
555 Cordova Street, Anchorage, AK 99501
Fax: 907-269-7600
Email: rebecca.colvin@alaska.gov

The EA can be reviewed online at: <http://www.adfg.alaska.gov/index.cfm?adfg=rotenone.currentprojects> . Written comments for the EA may be submitted to the following addresses and received no later than 4:00 p.m. Alaska Standard Time on May 21, 2014.

Robert Massengill
43961 K-Beach Road, Suite B
Soldotna, AK 99669
Fax: 907-262-4709
Email: robert.massengill@alaska.gov

Mailed comments must be postmarked prior to May 22, 2012.

Appendix F



5/4/2014

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ADFG has developed a northern pike removal plan that involves systematically treating the majority of the Soldotna Creek drainage with rotenone over a four-year period beginning with a treatment of Union Lake, East and West Mackey Lake and Derks Lake in early October of 2014. Rotenone is a plant-based chemical that is toxic to fish and commonly used for fish management. Rotenone has been used successfully by ADFG to remove northern pike from several Kenai Peninsula lakes. When applied at the low concentrations used for fish management, rotenone is not harmful to people, mammals, birds or plants and breaks down naturally from sunlight and warm temperatures. Rotenone does not travel more than 1-3 inches through soil so groundwater should not be affected. If the pike eradication project is successful, treated lakes will be restocked with native fish (i.e. rainbow trout, Dolly Varden, etc.) collected from other areas in the Soldotna Creek drainage.

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Appendix G

From: [Dunker, Kristine J. \(DFG\)](#)
To: [Dunker, Kristine J. \(DFG\)](#)
Subject: APPENDIX G
Date: Tuesday, August 19, 2014 4:36:01 PM

Hello,

My name is Rob Massengill and I am a fisheries biologist with the Alaska Department of Fish and Game (ADFG) Division of Sport Fish in Soldotna. This is a courtesy notice to update stakeholders about ADFG plans to remove invasive northern pike from the Soldotna Creek drainage. Invasive northern pike have long been a problem in this drainage and they have eliminated native rainbow trout and other fish species from several of the drainage's lakes. Northern pike from the Soldotna Creek Drainage are known to enter the Kenai River where they could potentially damage native fish populations elsewhere should they become established in places like the Moose River where pike habitat is ideal. ADFG developed a restoration plan for the Soldotna Creek drainage following careful evaluation of different control and eradication strategies using a public participation process.

ADFG's restoration plan involves systematically treating the majority of the Soldotna Creek drainage with rotenone over a four-year period beginning with a treatment of Union Lake, East and West Mackey Lake and Derks Lake in early October of 2014. Lakeside residents at those four lakes are currently being notified of the project's status. Rotenone is a plant-based chemical that is toxic to fish and commonly used for fish management. Rotenone has been used successfully by ADFG to remove northern pike from several Kenai Peninsula lakes. When applied at the low concentrations used for fish management, rotenone is not harmful to people, mammals, birds or plants and breaks down naturally from sunlight and warm temperatures. Rotenone does not travel more than 1-3 inches through soil so groundwater should not be affected. If the pike eradication project is successful, treated lakes will be restocked with native fish (i.e. rainbow trout, Dolly Varden, etc.) collected from other areas in the Soldotna Creek drainage.

Currently, ADFG is involved in the permitting process for this project. As part of this process, public notices for an Alaska Department of Environmental Conservation (ADEC) Permit to Apply Pesticides and an Environmental Assessment (EA) were posted in the Peninsula Clarion on April 20 and 21, 2014. If interested, you can contact Diedra Anliker of ADEC for specific information regarding the Application for Permit to Apply Pesticides via email diedra.anliker@alaska.gov, or by phone (907-376-2846). Written comments may be submitted to the following addresses and received no later than 4:00 p.m. Alaska Standard Time on May 21, 2014.

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Rob Massengill
Alaska Dept. of Fish and Game
Fisheries Biologist
Sport Fish Div.
43961 K-Beach Rd., Suite B
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(907) 260-2928
robert.massengill@alaska.gov

Appendix H



THE STATE
of **ALASKA**
GOVERNOR SEAN PARNELL

**Department of
Fish and Game**

DIVISION OF SPORT FISH
Soldotna

43961 Kalifornsky Beach Road, Suite B
Soldotna, Alaska 99669-8276
Main: 907.262.9368
Fax 907.262.4709

8/11/2014

To Waterfront Resident:

This notice is to update waterfront residents of Union Lake, East and West Mackey Lakes and Derks Lake about Department plans to remove northern pike populations from these lakes by applying a piscicide (pesticide used to kill fish) called rotenone. As you are likely aware, northern pike are an invasive, non-native, highly predatory fish that have eliminated native fish populations historically present in these lakes. Northern pike from the Soldotna Creek drainage have been documented entering the Kenai River. They have the potential to impact native fish in tributaries like the Moose River that currently support large overwintering juvenile coho salmon populations along with robust rainbow trout and Dolly Varden populations.

To date, the Department has completed all permit applications related to this project. Other preparations have been ongoing in anticipation of treating each lake with rotenone in early October, 2014. Some examples of these preparations are:

- Installing temporary fish passage barriers near the outlets of each lake.
- Netting to remove over 2,000 northern pike (mostly adults) in the winter and spring of 2014 with the goal of reducing spawning success and juvenile pike production. Juvenile pike are more apt to inhabit adjacent wetland areas that are more challenging to treat with rotenone.
- Acquiring application equipment and supplies.
- Collecting data on water quality and aquatic invertebrates.

The rotenone applications are planned to occur over October 6-10, 2014. This time was chosen because a fall application will hopefully cause fewer disturbances to water recreationists. Also, cold water delays the breakdown of rotenone which will provide a longer exposure period to the pike. Recent Department experience with fall rotenone applications suggests the rotenone may stay active for months under the ice before it naturally deactivates. This is especially important when applying rotenone to wetland areas that are more challenging to treat. Early October is also a period when the lakes are still ice-free allowing us to operate the boats needed for the application. The Department will periodically monitor the rotenone concentration in each lake with water tests and will announce when it has fully deactivated.

To help answer some questions you might have about this project we have attached a Frequently Asked Questions (FAQ) handout. If you have additional questions, please feel free to contact the project biologist, Rob Massengill. The Department would like to take this opportunity to acknowledge how grateful we are to area residents for their tolerance, patience and understanding as we move forward with this long-awaited project and for the assistance many of you have provided in granting access and feedback. While it will take some time before we know whether this project succeeds in its goals, the Department is responding to address this significant challenge and threat to this area.

Sincerely, Rob Massengill

ADFG Sport Fish Division Fisheries Biologist
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Frequently Asked Questions

- **Q: How does rotenone kill fish?**
- **A:** Rotenone is an effective piscicide because it targets fish by impairing their ability to use oxygen in their body. Gilled organisms are particularly sensitive to low-dosages of rotenone as it is easily absorbed by the thin membranes of their gills. Non-gilled organisms do not provide this efficient absorption route.

- **Q: Will the rotenone-treated water be safe to drink or contact?**
- **A:** At the rotenone concentration used for this project (50 parts per billion), the Environmental Protection Agency (EPA) states that people can contact treated water (i.e. swim, wade) immediately after the application and there are no drinking water concerns for humans once the concentration drops to 40 parts per million – which is expected to occur anywhere from a few days to several weeks post-treatment depending on water temperature. To be as safe as possible and to eliminate all rotenone exposure, the Department advises people to avoid drinking or contacting treated water until the Department confirms the rotenone is fully deactivated. At the concentration used for this project, it is impossible for humans or pets (i.e. dogs, cats) to drink enough rotenone-treated lake water to ingest a lethal dose. For example, a 160 lb. person would have to drink thousands of gallons of treated water at once to achieve a lethal dose. Although the Department advises against people and their pets from drinking treated water or eating rotenone-killed fish, if either is consumed it is highly unlikely it will cause any sickness based on the EPA's dietary risk assessment of rotenone and the fact that mammals have enzymes in their digestive tract that neutralize rotenone.

- **Q: Will my well water be affected by the treatment?**
- **A:** Rotenone can only travel 1-3 inches through soil so ground water will not be affected. Regardless, the Department will test well water near the treated lakes to confirm rotenone is not present in the ground water.

- **Q: Will the rotenone treatment result in unpleasant odors?**
- **A:** Some people report a temporary chalky or earthy odor from the rotenone. Also, dead fish odors are possible although most dead fish tend to sink in cold water. Dead fish found floating or washed up along the shoreline will be removed.

- **Q: How long will the rotenone treatment take?**
- **A:** It will take 1-2 days to treat each lake.

- **Q: What should we expect to see happen during the rotenone treatment?**
- **A:** Expect anywhere from three to six boats on the lake applying the rotenone and conducting monitoring tasks. Orange buoys will be temporarily placed in each lake dividing them into treatment sections. Because workers will be handling the concentrated rotenone product, they will be wearing protective clothing and masks. In marshy areas applicators may use an airboat, all-terrain vehicle or be on foot. Signage will be posted near roadways closing public entry to each lake for 1-2 days while the treatment is occurring. Later, new signage will advise against drinking or contacting treated water until further notice. You may wish to remove your boat, aircraft, dock or other items from the lake, but if you choose to leave them on the lake, applicators will simply work around them.

- **Q: When will we know if the treatment was successful at removing all the northern pike?**
- **A:** ADFG will have evaluated the success of the project by late spring of 2015.

- **Q: Will the Department restore fish in the treated lakes?**
- **A:** Yes, if the Department confirms that all the northern pike are gone, wild native fish (i.e. rainbow trout, stickleback, Dolly Varden, juvenile coho salmon, etc.) will be collected from other parts of the Soldotna Creek drainage and released into the lakes. No public access will be developed as a result of this rehabilitation. From 2008 thru 2012 similar treatments have been very successful in eradicating northern pike to restore natural populations of fish at Stormy Lake as well as stocked lake fisheries at Arc and Scout lakes on the Kenai Peninsula.

- **Q: What about the pike still present in the remainder of the drainage?**
- **A:** The Department is pursuing funding to remove pike from the remainder of the drainage during 2016 and 2017. In the meantime, temporary fish passage barriers will prevent northern pike from reentering the lakes already treated.

- **Q: Will rotenone from this project eventually enter the Kenai River and cause harm to fish?**
- **A:** Dilution and natural degradation will result in the rotenone being undetectable in the Kenai River. As a precaution, the Department will hold caged test fish in Soldotna Creek and be prepared to neutralize rotenone if the test fish show signs of rotenone distress.