



ENVIRONMENTAL ASSESSMENT

Lake Yankton Fish Population Renovation Project

Yankton County, South Dakota and Cedar County, Nebraska

**U.S. Army Corps of Engineers
Northwestern Division
Omaha District**

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Section 1. Project Information

1.1. Introduction

The U.S. Army Corps of Engineers (USACE), Northwestern Division, Omaha District (NWD-NWO), has prepared this Environmental Assessment (EA) to evaluate the potential impacts of the proposed Lake Yankton Fish Population Renovation Project. This EA has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969 and the Council on Environmental Quality's Regulations (40 CFR 1500-1508), as reflected in the USACE Engineering Regulation ER 200-2-2. This EA provides sufficient information on the potential adverse and beneficial environmental effects to allow the USACE District Commander to make an informed decision on the appropriateness of an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI). If the EA indicates that no significant impact is likely, then the agency can release a FONSI, completing the NEPA process.

1.2. Proposed Action

The Nebraska Game and Parks Commission (NGPC) and the South Dakota Department of Game Fish and Parks (SDGFP) are proposing a fish population renovation project at Lake Yankton (Figure 1-1) to increase sport fishing opportunities and to improve water quality through the eradication of undesirable fish populations from Lake Yankton. This is proposed to be accomplished by application of a chemical toxicant, rotenone, and subsequent restocking of desirable game species.

1.3. Project Location

Lake Yankton is located near Gavins Point Dam in Yankton County, South Dakota approximately 5 miles west of Yankton, South Dakota. The project vicinity consists of the grounds surrounding the Gavins Point Dam National Fish Hatchery and Aquarium including Lake Yankton, with the exception of the island area located within the water area. The SDGFP has fee title to the White Crane campground on the east side of Lake Yankton and has a lease agreement with USACE for management of the Pierson Ranch campground on the northwest corner of the Lake. Gavins Point Dam, Lewis and Clark Lake, and the remaining park area are owned by the USACE, while fisheries in the lake are managed by the U.S. Fish and Wildlife Service (USFWS).

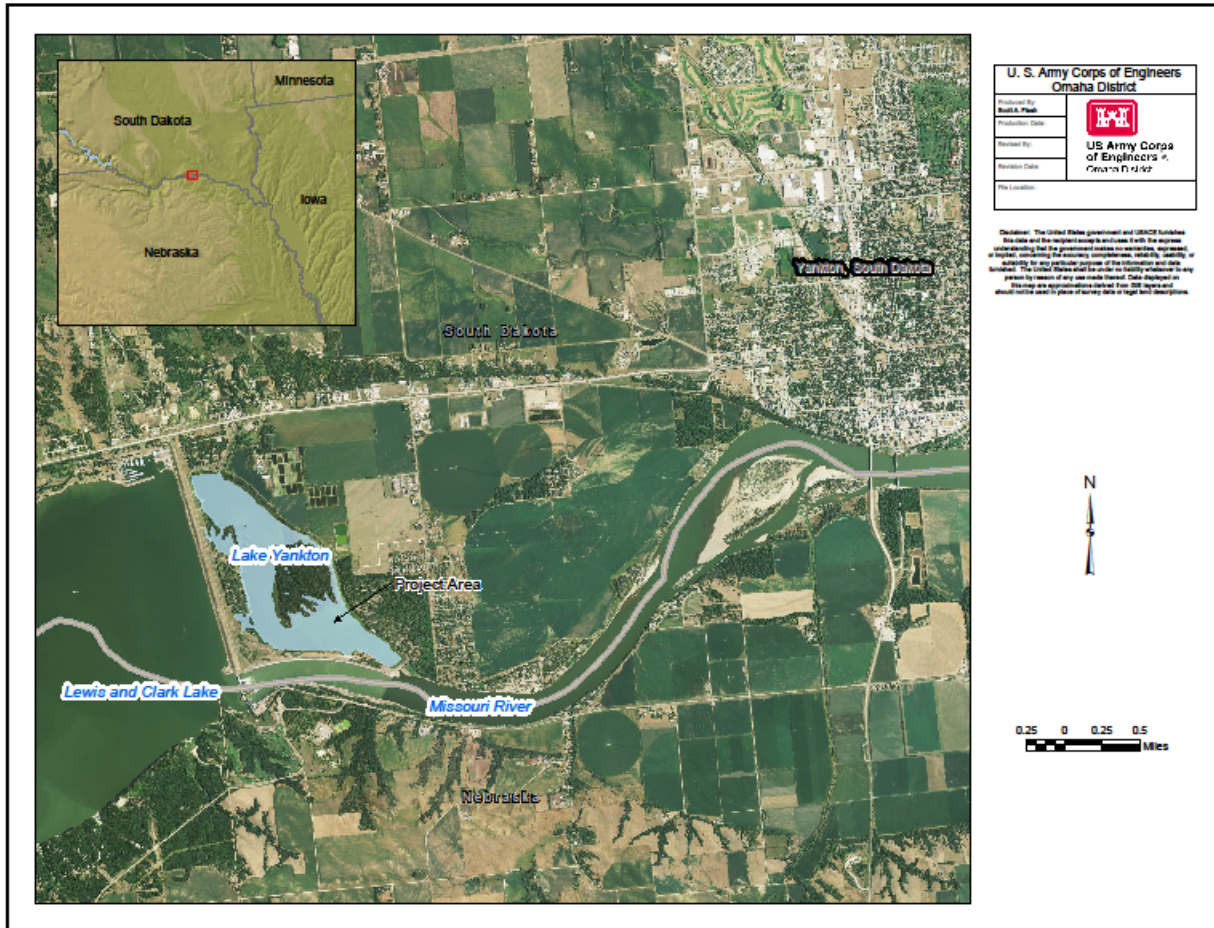


Figure 1-1: Project Location Map

1.4. Project Background

On November 02, 1956, the USFWS was granted a permit to use approximately 230 acres of land within the Gavins Point Dam and Reservoir Project Area, South Dakota, for the purpose of constructing, operating and maintaining a fish hatchery and other fish culture improvements. This land is part of the Gavins Point Dam and Reservoir Project. An amendment to this permit dated June 28, 1966, added 351.0 acres of water area commonly known as "Cottonwood Lake", now named Lake Yankton, for fish culture management purposes.

Lake Yankton is currently a shallow, 305 acre eutrophic lake on the Nebraska-South Dakota boundary in southeastern South Dakota. The lake is a popular fishing site, and contains several popular game fish species, including black crappie (*Pomoxis nigromaculatus*), bluegill (*Lepomis macrochirus*), channel catfish (*Ictalurus punctatus*), largemouth bass (*Micropterus salmoides*), northern pike (*Esox lucius*), smallmouth bass (*Micropterus dolomieu*), walleye (*Sander vireum*), and yellow perch (*Perca flavescens*).

Since the lake was renovated in 1980, the primary goal for fish management biologists has been to maintain quality panfish populations within the lake. Subsequently, state and hatchery biologists sample the lake biennially by electro-fishing and trap or gill netting to monitor black crappie, bluegill, channel catfish, largemouth bass, smallmouth bass and walleye, along with other fish populations. Lake Yankton is also treated for aquatic vegetation around some of the boat ramp areas.

1.5. Project Goals, Purpose and Need

The project is needed because Lake Yankton has become dominated by “rough” fish that are considered detrimental to the recreational sport fishery. The balance of desirable sport fish to undesirable rough fish has shifted toward an increase in rough fish species. Sixty-one percent of the fish collected during the 2013 electrofishing were undesirable. The primary purpose of the proposed action is to restore populations of sport fish at Lake Yankton.

The overall goal of the Lake Yankton Fish Renovation Project is to provide a more-desirable recreational fishing opportunity. The objectives are to remove all the undesirable species in Lake Yankton and establish fish species that enhance recreational fishing opportunities. The proposed project would achieve these objectives by using the piscicide rotenone to remove undesirable fish species and then re-stocking the lake with hatchery-produced sport species.

1.6. Existing and Future without Project Conditions

Following the 1980 fish renovation, the fishery objective for Lake Yankton was to create a panfish fishery for young anglers and campers to enjoy. This was to be accomplished by stocking and managing for largemouth bass, bluegill, black crappie, walleye and channel catfish. Water clarity and aquatic vegetation improved greatly following the 1980 fish renovation and aided the establishment of quality panfish populations. While undesirable species had gained access to the lake over the years, their numbers remained relatively low and densities never reached the level where water clarity and aquatic vegetation was negatively affected. This scenario changed with the 2011 Missouri River flooding when the lake was connected to the mainstem Missouri River allowing new undesirable species to enter the lake and increase the numbers of those undesirables already present. As a result, water clarity has diminished along with the submerged aquatic vegetation, and sport fish species have declined. Little or no aquatic vegetation was present in Lake Yankton in 2012 or 2013. Daytime electro-fishing in July of 2013 verified the presence of high numbers of buffalo fish, common carp and asian carp. Numerous asian carp were observed but were difficult to collect with shocking gear. Lake Yankton water conductivity is relatively high making it even more difficult to collect these species that are difficult to shock.

Section 2. ALTERNATIVES

This chapter details the alternatives considered for the fisheries rehabilitation of Lake Yankton. Two (2) alternatives were considered in detail for this project. These alternatives include; 1) No Action Alternative, 2) Rotenone Treatment of Lake Yankton (Preferred Alternative). These alternatives were evaluated against their ability to fulfill the goals and objectives as previously defined in Section 1.5. 1.5This chapter includes a description of each alternative and a comparison of the alternatives.

2.1. Alternative 1: No Action

Under the No Action alternative, current operation and maintenance activities would continue to occur without implementation of the proposed project.

If undesirable fish species are allowed to persist in the lake, their feeding habits could prevent the successful establishment of healthy littoral wetlands and shallow water habitat. For example, carp could continue to uproot the vegetation and stir up the bottom sediments that would adversely impact the plants that are not uprooted. Increased turbidity is expected to result in slower growth rates for sight feeding fish such as bluegill, crappie and bass. These species are not as successful spawning in excessively turbid water.

Under the no action alternative, fishing and other water-based recreational opportunities would remain low and could potentially decrease.

While the No Action Alternative does not meet the project purpose, goal, or objectives it was carried forward to provide a baseline of comparison between the Action and No Action Alternative.

2.2. Alternative 2: Lake Rehabilitation (Preferred Alternative)

The preferred alternative is the product of a planning process coordinated by the NGPC Fisheries Division. The final determination was to address the lake fisheries renovation using a toxicant application approach. The approved fish toxicant, rotenone, will be used to eliminate existing fish populations in Lake Yankton that are determined to be out of balance based on survey information and cannot be effectively improved by any other management techniques. Rotenone is usually applied using both gas driven and hand pumps to mix the chemical thoroughly throughout the water column.

This alternative involves approximately a 4 to 6 foot lake drawdown (Figure 2-1) from full pool (Figure 2-2) to remove 300 acre feet of water storage and then treat the remaining pool with a 3 part-per-million (ppm) treatment of 5% liquid rotenone (Table 2-1). In addition, water entering the lake from toe drains, hatchery effluent and a small stream will be treated with drip station to maintain a 3 ppm rotenone treatment for 12-24 hours. Prior to applying rotenone, the lake outlet valve will be closed to prevent any treated water from reaching the Missouri River. The removal of 300 acre feet of water from Lake Yankton will require 21 to 28 days to refill. That time frame will allow the rotenone to detoxify prior to any treated water returning to the Missouri River via

the Lake Yankton overflow. After detoxification the lake will be restocked with desirable fish species including largemouth bass, bluegill, black crappie, walleye and channel catfish.

The recreation area and campgrounds will not be closed during the project; however the lake will be closed during chemical application to last approximately one day. The day after chemical application the lake will re-open for use.

The renovation will be conducted during the driest months of the year, late summer to early fall. To the extent possible, water levels will be lowered to reduce the required amount of rotenone applied. All personnel applying rotenone must have a current Nebraska Certified Aquatic Pesticide Applicator License. Sources of potential rough fish reintroductions from the watershed will be investigated prior to the renovation. Following the detoxification of the chemical, a restocking program will be initiated with the fish species introductions based on an approved lake management plan.

Figure 2-1: Lake Yankton volume and Rotenone quantities based on feet of drawdown

2014 Lake Yankton volume estimates based on BioBase mapping				
Drawdown	Surface Area (acres)	Volume in Acre Feet	Gallons of rotenone	Estimated chemical cost (\$55/gallon)
0 (full pool)	332.6	1,840	1,840	\$101,200.00
4 ft	202	705	705	\$38,775.00
4.5 ft	175	598	598	\$32,890.00
5 ft	155.5	504	504	\$27,720.00
5.5 ft	123.7	419	419	\$23,045.00
6.0 ft	102.2	349	349	\$19,195.00

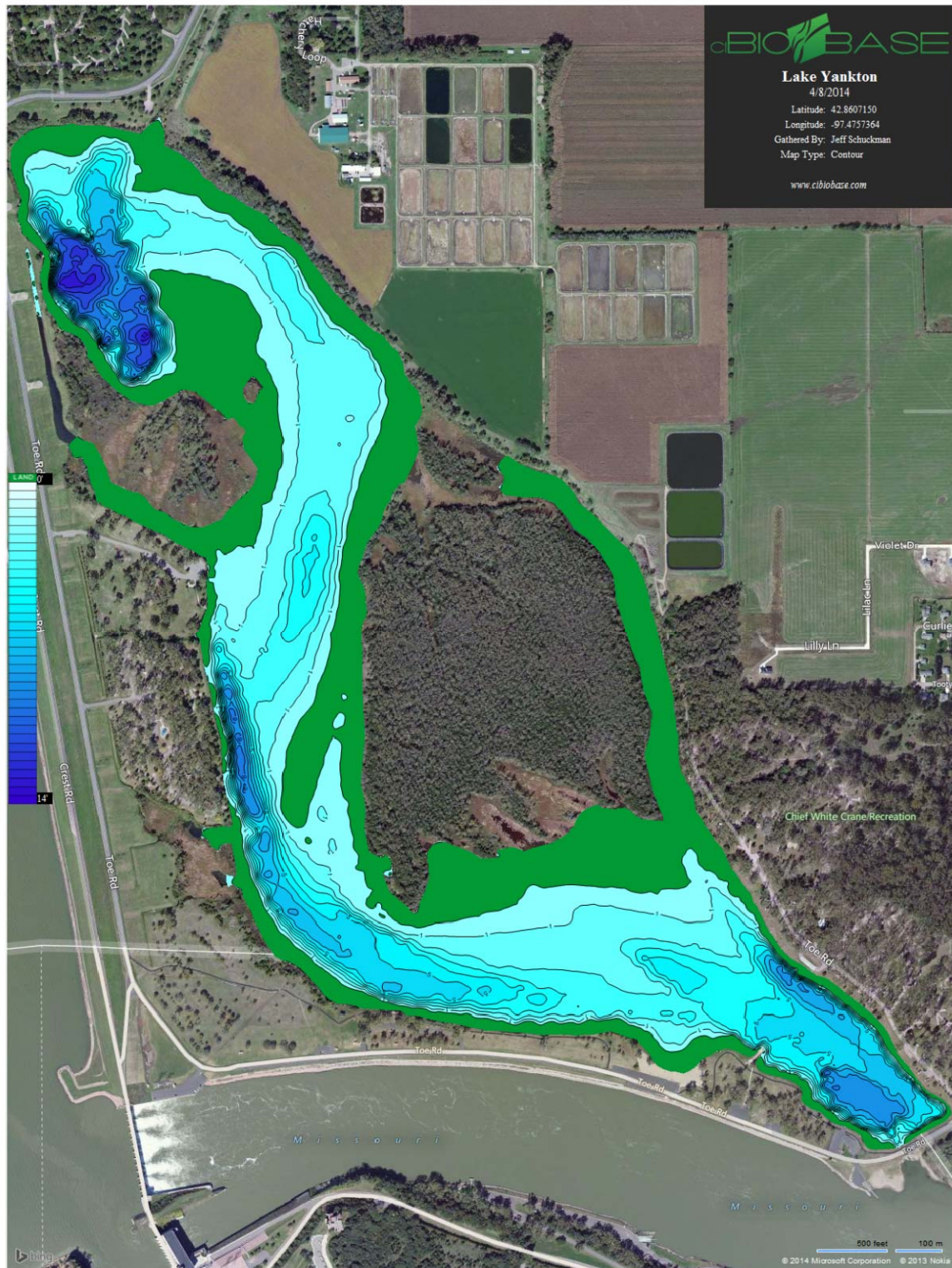
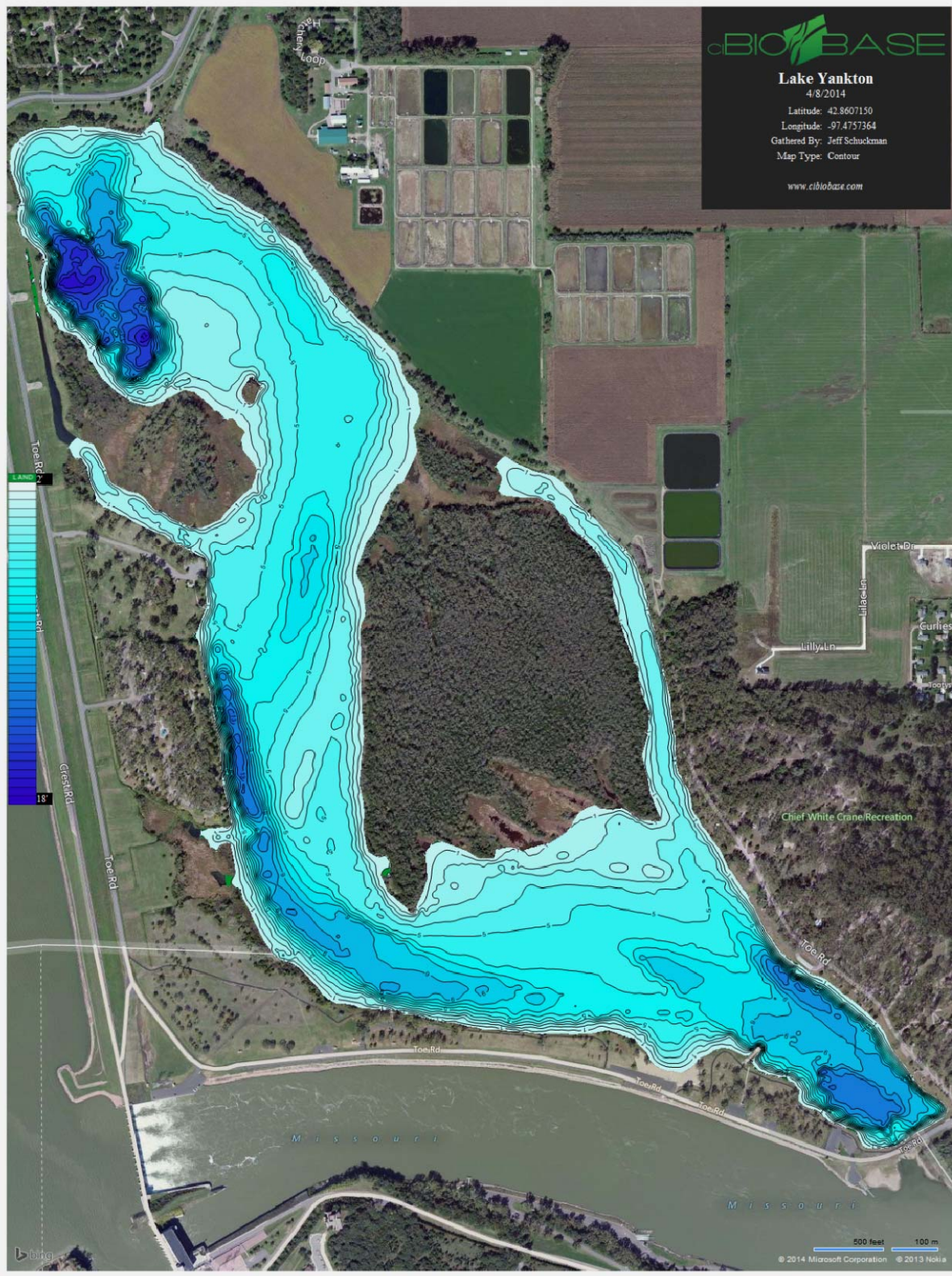


Figure 2-2: Lake Yankton at 4 foot drawdown



2.3. Alternatives Comparison

The No Action alternative would not provide any improvement to Lake Yankton, and does not fulfill the purpose and need of the proposed project. Also, given its recreation potential, a continued degradation of the sport-fishery would be a negative socioeconomic affect.

Under the preferred alternative, implementation of the project would achieve the stated objective as listed in Section 1, including the overall objective of establishing a fishery that provides improved recreational fishing opportunities. Water clarity would likely improve with a decrease in benthic fish that disturb bottom sediments. Improved water clarity would result in better quality habitat for an increased diversity of aquatic plant life, vertebrates and invertebrates. The preferred alternative meets the purpose and need as stated in Section 1.5 Purpose and Need of the Project.

Table 2-1: Summary of Environmental Consequences by Alternative

RESOURCE	ALTERNATIVES	
	NO ACTION	ALTERNATIVE A
Soils	No negative long term effect.	Low impact from foot traffic associated with stream renovation
Water Resources	Continued levels of higher turbidity.	Short-term impact to surface waters from piscicide application. Temporary short term impact to periphery wetland areas due to change in hydrology from lake draw-down. However these areas are expected to recover with after lake fill and protection of these areas against non-native negative impacts.
Fish and Aquatic Wildlife	Continued negative impacts to all aquatic wildlife from non-natives. Potential for future invasion of additional nonnative species. Probably extirpation of desirable species and preclusion of their recovery in project area. Continued high risk from introduction and spread of non-natives.	Establishment of populations of desirable sport fish within Lake Yankton. Mortality of existing fish, amphibians, and turtles from piscicide use producing a negative short term impact. However populations are expected to recover with protection of these populations against non-native negative impacts.
Terrestrial Wildlife	No negative long term effect.	Minor disturbance during other activities. Possible loss of public access to water at during lake draw-down.
Vegetation	Continued negative impacts from non-native species such as common carp.	Long-term benefits to native vegetation at Lake due to the reduction of carp and buffalo species.
Threatened and Endangered Species	No negative long term effect.	No negative long term effect.
Recreation and Visual Resources	Continued negative impacts to recreation from dominance of non sport fish.	No negative long term effect.
Air Quality	No negative long term effect.	No negative effect.
Noise	No negative long term effect.	Minor disturbance of noise quality.
Cultural Resources	No negative long term effect.	No negative long term effect.

Section 3. AFFECTED ENVIRONMENT and ENVIRONMENTAL CONSEQUENCES

3.1. Geographic Resources

3.1.1. Physical Geography

Lake Yankton is located in Yankton County, South Dakota and lies entirely within the Northern Glaciated Plains ecoregion, which is characterized by a flat to gently rolling landscape composed of glacial drift.

Winters in the watershed are cold with precipitation mainly occurring as snowfall. Summers can be hot but with occasional cold spells. Average temperatures range from highs in the upper 80's during the summer to below 10 degrees during the winter. Humidity in the summer months ranges from 60-80%. Annual precipitation in the area is 23-35 inches. The sub-humid conditions foster a grassland transitional between the tall and shortgrass prairie. High concentrations of temporary and seasonal wetlands create favorable conditions for duck nesting and migration.

The soils are of the Forney Haynie Sarpy association and consist of deep and level, moderately drained to poorly drained, clay and sandy floodplain soils. Though the till soil is very fertile, agricultural success is subject to annual climatic fluctuations. The high agricultural productivity of the Western Corn Belt Plains ecoregion is due to its fertile soil, temperate climate, and adequate precipitation during the growing season. This ecoregion has a relatively homogeneous topography of level to gently rolling glacial till plains with areas of morainal hills and loess deposits. The original tallgrass prairie vegetation has been converted to intensive rowcrop agriculture of corn, soybeans, and feed grains to support livestock production.

No change in physical geography is expected due to either No-Action Alternative or Preferred Alternative.

3.1.2. Water Quality

Water quality conditions were monitored in Lake Yankton at the deepwater site during 2009 and 2013. Based on the criteria for the protection of warm water aquatic life, 36% of the observations did not meet the dissolved oxygen criterion. The dissolved oxygen measurements that were below the 5.0 mg/L criterion occurred near the lake bottom in the hypolimnion during the summer on occasions when the lake was thermally stratified. Nebraska's dissolved oxygen criteria are not applicable to the hypolimnion when lakes are thermally stratified.

Nutrient data collected by the district during 2009 and 2013 indicate Lake Yankton may be impaired for nutrients according to Nebraska's nutrient criteria for lakes and impounded waters. Samples for *chlorophyll a* exceeded the criteria for eastern impounded waters in 80% of the samples collected.

Based on the states of Nebraska and South Dakota impairment assessment methodologies, the water quality conditions monitored by the district in Lake Yankton during 2009 and 2013 indicate nutrients may be impairing Lake Yankton; however, Nebraska and South Dakota have not listed it as impaired on their latest 303(d) impaired waters list. Bacteria monitoring during the 5-year period 2009 through 2013 do not indicate impairment of any designated water quality dependent beneficial uses.

Under the Preferred Alternative water clarity would likely improve with a decrease in benthic fish that disturb bottom sediments. Improved water clarity would result in better quality habitat for an increased diversity of aquatic plant life, vertebrates and invertebrates.

3.2. Environmental Resources

3.2.1. Aquatic Resources

3.2.1.1. Wetlands

An evaluation of potential wetlands on the site was conducted through review of National Wetlands Inventory (NWI) maps and through on-site visits. Conditions observed during site visits were generally consistent with the NWI delineations at the site. The NWI depicts several different wetland types on the property including Freshwater Emergent Wetland, Freshwater Forested/Shrub Wetland and Freshwater Pond and Riverine (Figure 3-1).

Lake Yankton Wetland Inventory



Figure 3-1: National Wetlands Inventory

Within the shallow water along the shore (littoral zone), aquatic emergent (partly above water), aquatic submergent (underwater), and other littoral vegetation species are limited, and the shoreline supports some areas of woody vegetation. A few contributing factors include, (1) the destructive action of benthic feeding fish that continue to churn the bed material causing high turbidity and uprooting vegetation, (2) wave action against the shoreline causing the bottom sediments to be unstable and the water near the shore to be turbid preventing adequate light infiltration, and (3) a fairly constant water level that prevents the soils in the shallow water littoral zone from ever drying and being exposed to sunlight and oxygen.

The proposed rotenone treatments would not take place in wetlands located in the project area unless these areas are inundated at the time of treatment. The existing wetlands are generally confined to the periphery adjacent to Lake Yankton; therefore, because of the planned lake drawdown, it is anticipated most wetlands would not be inundated at the time of treatment. There would be no filling or obstruction of floodplains or wetlands during the proposed project. Rotenone does not affect aquatic or riparian vegetation. No physical loss of wetland habitat would occur. The Preferred Alternative may affect vegetation in littoral areas, as personnel may be required to walk on and disturb some plants. Potential impacts to wetlands, unrelated to rotenone application, could result from changes in hydrology due to water level drawdown prior to rotenone application. Emergent wetlands that are on the lake fringe would experience the largest changes in hydrology, and would likely exhibit the biggest impacts. However, these impacts would be temporary and plant species would reestablish as lake filling occurs. In comparison, forested and shrub wetlands would experience a smaller change in hydrology and are expected to experience only minor vegetation mortality.

3.2.1.2. Fisheries

As shown in the following tables, Lake Yankton had a very good largemouth bass, bluegill, and black crappie fishery over the years. The lake had become known as a good fishing destination and was especially targeted by bass anglers. Numerous tournaments have been held at the lake by local bass clubs. The proposed renovation is intended to re-establish a quality largemouth bass, bluegill, black crappie, and channel catfish fishery. A lake drawdown and complete fishery renovation, similar to that accomplished in 1980, will shift the fish community back to these desirable species.

Table 3-1: Lake Yankton electrofishing data 1994 to 2013 for largemouth bass only.

Year	Largemouth bass CPUE ¹ (Total no/hr)	PSD ²	RSD-P ³
1994	61	80	43
1995	61	49	9
1996	84	57	17
1997	59	95	15
1998	112	55	15
1999	114	51	22
2000	100	47	13
2001	128	48	11
2002	93	82	17
2003	145	81	15
2005	107	80	11
2007	91	81	34
2009	82	75	11
2013 ⁴	8	83	17

1 CPUE (catch per unit effort) - For example, the number of fish collected during one hour of electro-fishing.

2 PSD (proportional stock density) - also called the percentage size distribution is a calculation that can determine the proportion of quality-size bass or bluegill to stock-size bass or bluegill. Stock-size fish are those that are sexually mature. Bass are sexually mature at around 8 inches and bluegill at around 3 inches. The standard quality length for bass and bluegill is > 12 inches and > 6 inches, respectively. In balanced fish

populations, an accepted PSD for bass is 40-70 and 20-60 for bluegill. A PSD of 50-80 for bass is desirable for a pond manager with trophy bass goals.

3 RSD (relative stock density) - The relative stock density is the percentage of fish of any designated length-group in a sample of fish. Within that sample the RSD-P is the percentage of those fish that are of preferred size and larger.

4 Daytime electrofishing, all other years were nighttime electrofishing. In 2013, 81 fish were collected in 45 minutes of daytime electrofishing. Of those 50 out of 81 are undesirable species including buffalo fish (30), silver carp (1), bighead carp (1), grass carp (3), drum (3), shad (2), common carp (10).

Table 3-2: Lake Yankton frame net data from 1994-2013 for bluegill and black crappie only.

Year	Bluegill CPUE	PSD/RSD-P	Crappie CPUE	PSD/RSD-P
1994	73	5/0	23	19/9
1995	37	44/0	13	19/6
1996	9	53/1	22	81/10
1997	16	64/1	13	98/12
1998	80	33/1	10	48/19
1999	53	61/2	12	48/30
2000	68	15/0	10	41/12
2001	11	29/0	9	32/2
2002	14	34/2	11	67/23
2003	40	19/0	3	53/20
2005	26	36/0	15	61/8
2007	28	78/1	6	71/27
2009	23	51/0	.3	33/0
2013	2.6	69/31	0	0

Fish sampling was also conducted by NGPC in May of 2014 to gather data to further document the fish community following the 2011 flooding. Five standard nighttime electrofishing stations were sampled along with 8 frame net stations (Table 3-3). Largemouth bass, the main predator in the lake and the main sport fish in the lake, declined by 86% in 2014 from the 5 year sampling mean. The smallmouth bass population increased from previous years and were collected wherever rock habitat was found. Largemouth typically outcompete smallmouth in waters where they are found in combination, this is another piece of anecdotal information indicating the reduction of the largemouth bass population. Most of the smallmouth bass were young, small fish, likely age 1 to age 2. All but one walleye collected were age 1 which indicates a general lack of predator fish in the population (NGPC fishery biologist, personal communication).

Table 3-3: Eletrofishing total catch per five standard stations for Lake Yankton

Eletrofishing total catch per five standard stations for Lake Yankton									
Year	Largemouth Bass	Smallmouth Bass	Walleye	Carp	Drum	Silver Carp	Bighead Carp	Grass Carp	Bigmouth Buffalo
2000	126	7	9						
2001	159	12	2						
2002	117	2	15						
2003	181	1	7	4					
2005	133								
2007	113	1	21						
2009	103	2	28						
2014	18	121	35	6	8	5	2	1	1

Note: 6 smallmouth bass collected were over 200 mm and all collected were found on rock jetties or rocks

Note: Only one walleye collected was over 200 mm, meaning most all were age 1 most likely from the 2013 fry stocking.

Previous 5 year mean for Largemouth Bass 129.4

2014 is an 86% reduction in largemouth bass numbers

Nighttime shocking is not an effective method for collecting common carp or Asian carp. Included is data collected by the South Dakota Game, Fish and Parks (SDGFP) during a large frame net and gill net survey on Lake Yankton to collect fish for a scientific program. As indicated previously, asian carp and rough fish dominated the catch.

Table 3-4: Nighttime survey results conducted by the SDGFP

Large frame-net catches				4" gill net catches (multi-filament)			
<i>Nine overnight-set nets fished in the east channel</i>				<i>Two overnight-set nets fished in the east channel</i>			
Species	Total #			Species	Total #		
Walleye	4			Channel Catfish	2		
Channel Catfish	10			Bigmouth Buffalo	2		
Bluegill	4			Smallmouth Buffalo	1		
Black Crappie	2			Bighead Carp	1		
White Crappie	1			Silver Carp	1		
Largemouth Bass	3						
Rainbow Trout	1						
Bigmouth Buffalo	1						
White Sucker	1						
Bighead Carp	15						
Silver Carp	16						
Grass Carp	3						
Common Carp	4						
Snapping Turtle	4						
Painted Turtle	12						
False Map Turtle	2						

The following are observations provided by SDGFP fishery biologists:

- 1) Fyke nets captured 13 species of fish and 3 species of turtles.
- 2) 52% of the fish captured in the fyke nets were Asian Carp (mostly silver and bighead). Other than two bigheads in the 6-10 pound range, all of the Asian carp we caught were small (<20") and emaciated. On average, they appeared to be in worse shape than the fish we catch in the Missouri River. More areas would have liked to have been samples before a generalization was made, but the density of Bigheads and Silvers appears to be very high.

- 3) Most of the Common Carp we captured were suffering from a disease that left them with sunken eyes and quite emaciated.
- 4) Three of the four Walleye we captured were >20", with the largest possibly reaching 27".
- 5) The Rainbow Trout was about 6" long.
- 6) The channel catfish appeared to be in good shape and several were in the five pound range.

Lake mapping was conducted April 8-9, 2014 (Section 2-2) to build a current bathymetric map and a stage/volume table to facilitate chemical treatment planning. In addition, flow estimates will be obtained for the toe drains, Gavins Point Hatchery effluent, and the north stream. The outflow at the Lake Yankton outlet will be measured to determine any ground water influence. A water budget will be developed to determine water input sources and allow refill calculations.

Consistent with rotenone's intended use as a piscicide, it is expected that the existing fish population will be eradicated; it is the primary purpose of the project. Fisheries managers carefully plan treatments to use the minimum amount of rotenone necessary to reduce or eliminate the targeted species. Lake Yankton will be restocked with desirable species by the NGPC after sufficient time for rotenone to be degraded and Lake Yankton to reach the desired lake level.

3.2.1.3. Amphibians

Several native amphibians are known to be present in Yankton County (Table 3-1). There is the potential for these species to exist at or within the vicinity of Lake Yankton.

Table 3-1 – Amphibians Occurring in the Project Area

Common Name	Species Name
Northern Leopard Frog	<i>Rana pipiens</i>
Bullfrog	<i>Rana catesbeiana</i>
Plains Leopard Frog	<i>Rana blairi</i>
Great Plains Toad	<i>Bufo cognatus</i>
American Toad	<i>Bufo americanus</i>
Canadian (Dakota) Toad	<i>Bufo hemiophrys</i>
Woodhouse's (Rocky Mountain) Toad	<i>Bufo woodhousei</i>
Eastern Gray Treefrog	<i>Hyla versicolor</i>
Chorus Frog (Western and Boreal)	<i>Pseudacris triseriata triseriata and P.t. maculate</i>
Blanchard's Cricket Frog	<i>Acris crepitans blanchardi</i>
Plains Spadefoot	<i>Scaphiopus bombifrons</i>
Tiger Salamander	<i>Ambystoma tigrinum</i>

Rotenone has the potential to inhibit cellular respiration in fish, mammals, birds, insects, reptiles, amphibians, and plants. However, at concentrations used in fisheries management, rotenone is only toxic to gill-breathing organisms such as fish, and some forms of amphibians and aquatic invertebrates. Adult forms of amphibians would not impacted by rotenone at levels to be used

by the NGPC; however, larval forms may be killed. Because rotenone is more toxic to gilled larva than to adult amphibians, rotenone treatment should have little effect to no effect on these populations when conducted in the fall, after larva have morphed into adults, or in the spring, prior to egg-laying of frogs, toads, and salamanders.

Bullfrog young may over-winter as juveniles. As adults, bullfrogs are serious predators on native amphibians, fish, and other wildlife. A potential added benefit to rotenone treatments is the impacts to and elimination of bullfrog tadpoles, reducing their numbers the following spring.

3.2.1.4. Aquatic Vegetation

Currently, wetland vegetation along the shoreline is limited at Lake Yankton. Very little vegetation grows within the pool of the reservoir. Instead, it grows at or above the water surface on accreted sediment. It is anticipated that aquatic vegetation that is present would sustain some damage near the waterline due to water drawdown. No direct, immediate, or long-term impacts to vegetation are anticipated from the rotenone itself because rotenone does not negatively affect plants at concentrations necessary to kill fish.

3.2.2. Terrestrial Resources

3.2.2.1. Wildlife

The habitat found in this project area supports wildlife game species such as whitetail deer, waterfowl, turkey, squirrel, and rabbit. Bald eagles, golden eagles, osprey, owls, and other raptors pass through the Lake Yankton Area and prey upon fish, rodents, and small game. Lake Yankton supports many species of fish, reptiles, and amphibians.

The Preferred Alternative is not expected to have long term negative impacts on terrestrial wildlife resources.

Absorption of rotenone in the stomach and intestines in mammals is relatively slow and incomplete. Rotenone is not anticipated to bio-accumulate in increasing concentrations through food web consumption of exposed animals. Even when fish are available for consumption by mammals scavenging along the shoreline for dead or dying fish, it is not likely that mammals would be able to consume sufficient quantities of rotenone to result in acute toxicity. At the concentrations of rotenone allowed in fish management projects, no effects are expected to domestic or wild mammals from swimming in or drinking treated waters, nor by feeding on fish killed by rotenone.

Rotenone has a very low toxicity to avian species and birds are extremely unlikely to be affected by standard rotenone usage in fisheries management practices. However, availability of small prey fishes is crucial for successful recruitment of some birds both during the breeding and migration timeframes. There is the potential for short-term impacts during those times in response to recruitment of prey-sized young fishes. At the concentrations of rotenone allowed in fish management projects, no negative impacts are expected to birds from contacting treated waters, nor by feeding on fish killed by rotenone.

3.2.3. Threatened and Endangered Species for Yankton County

Interior Least Tern (*Sternula antillarum athalassos*) and Piping Plover (*Charadrius melodus*)

No Affect. The least tern and piping plover nest on un-vegetated or sparsely vegetated sandbars in river channels and occasionally along the shorelines of sandpits. The nesting season for the least tern and piping plover is from April 15 through September 15. Channel constrictions and obstructions that disrupt natural flows in the river and influence sandbar complexes in the river limit potential habitat for these birds. Human activity near feeding and nesting habitats can disturb least terns and piping plovers. No Interior Least Terns or Piping Plover are known to nest in or near Lake Yankton. However, nesting has occurred downstream of the project area on sandbars in the Missouri River. There is the potential for these species to be in the area; however it is highly unlikely due to the lack of suitable habitat, distance from known nesting sites, and substantial human use of Lake Yankton. Further, rotenone has a very low toxicity to avian species and birds are extremely unlikely to be affected by standard rotenone usage in fisheries management practices.

Pallid Sturgeon (*Scaphirhynchus albus*)

May Affect, Not Likely to Adversely Affect. The pallid sturgeon is native to the Missouri and Mississippi rivers and adapted to the pre-development habitat conditions that historically existed in these rivers. These conditions generally can be described as large, free flowing, warm-water, and turbid rivers with a diverse assemblage of dynamic physical habitats. They have a flattened shovel-shaped snout; a long, slender, and completely armored caudal peduncle and lack of small openings found on each side of the head. As with other sturgeon, the mouth is toothless, protrusible, and ventrally positioned under the head. This species is a bottom dweller, found in areas of strong current and firm sand bottom in the main channel of large turbid rivers such as the Missouri River. Lake Yankton does not provide the types of habitats associated with pallid sturgeon. Further, there are no records of pallid sturgeon in Lake Yankton from before or after the 2011 flood.

Pallid sturgeon are found in the mainstem Missouri River near the proposed project area; however, except for the 2011 flood, there has been no surface connection between Lake Yankton and the Mainstem Missouri River since Gavins Point Dam was completed in 1957. Frame net and electrofishing surveys in 2013 and 2014 did not capture any pallid sturgeon; however some species typically found only in the mainstem such as silver carp and bighead carp were captured. The presence of some mainstem species in Lake Yankton since 2011 opens the possibility that some pallid sturgeon could have been stranded in Lake Yankton during the flood of 2011 and could be affected by the proposed lake renovation.

Very few pallid sturgeon are captured in the Missouri River below Gavins Point Dam (personal communication, NGPC fisheries biologists). Given the lack of pallid sturgeon in the post 2011 monitoring data and the relative rarity of pallid sturgeon in the mainstem it is unlikely that any pallid sturgeon are in Lake Yankton. Given the small possibility; however, the USACE determined the proposed project *may affect, but is not likely to adversely affect* pallid sturgeon. If some pallid sturgeon were stranded in Lake Yankton as a result of the 2011 flood, they would be isolated from the mainstem and would therefore not contribute to the mainstem population.

Consequences to the population of pallid sturgeon in the mainstem are the same with or without the proposed project. Flow to the mainstem will be stopped during treatment; however, if some rotenone does reach the mainstem it would be neutralized with potassium permanganate drip. A freshwater basin will be kept on-board during treatment in the unlikely event pallid sturgeon are seen during treatment. Any pallids seen during treatment would be kept alive in the freshwater basin until they can be re-located.

Shiner, Topeka (*Notropis topeka*)

No Affect. Species listing classification is Federal and State Threatened. The Topeka shiner is a small pool dwelling minnow that is found in prairie streams of the lower Missouri River Basin and upper Mississippi River Basin. The range of this fish covers eastern South Dakota. In South Dakota the Topeka shiner has been found in about 40 streams in the James River, Big Sioux River, and Vermillion River Watersheds. Lake Yankton and the adjacent mainstem Missouri River do not provide the type of prairie stream habitat associated with Topeka shiners. No Topeka shiners are known to exist in Lake Yankton.

Sturgeon Chub (*Macrhybopsis gelida*)

May affect, not likely to adversely affect. Sturgeon chub are associated with fast flowing water and a gravel riverbed. The species has been collected in side backwaters and backwaters. It is thought these kinds of areas provide spawning habitat to the fish. Sturgeon chub feed on invertebrates. Similar to lake and pallid sturgeons, alterations to the natural hydrograph, depletions, and river channelization have caused the decline of the sturgeon chub. Lake Yankton does not provide the types of habitats associated with sturgeon chubs. No sturgeon chubs have been recorded before or after the 2011 floods; however, following the reasoning provided above for pallid sturgeon, the connection between Lake Yankton and the mainstem Missouri River during the 2011 flood opens the possibility of stranding in Lake Yankton. The USACE therefore determined that the proposed project *may affect but is not likely to adversely affect sturgeon chubs.*

Scaleshell Mussel (*Leptodea leptodon*)

No Affect. The scaleshell occurs in medium to large rivers with low to medium gradients. It primarily inhabits stable riffles and runs with gravel or mud substrate and moderate current velocity. The scaleshell requires good water quality, and is usually found where a diversity of other mussel species are concentrated. More specific habitat requirements of the scaleshell are unknown, particularly of the juvenile stage. Water quality degradation, sedimentation, channel destabilization, and habitat destruction are contributing to the decline of the scaleshell throughout its range. No Scaleshell mussels are known to exist in Lake Yankton.

Western Prairie Fringed Orchid (*Platanthera praeclara*)

No Affect. The western prairie fringed orchid is a species of the North American tallgrass prairie community. Western prairie fringed orchid populations have declined significantly throughout their range due to conversion of most of their habitats to cropland, overgrazing, intensive hay mowing, and drainage. Potential habitat typical of the project's eco-region includes high quality, unbroken prairie with transition zones between sedge meadows and tall grass prairie. No potential orchid habitat is known to occur near Lake Yankton.

3.3. Cultural Resources

A cultural resources search by the USACE District Archeologist was conducted April 18th and confirmed that no historic properties are recorded in the project Area of Potential Effect (APE).

As the work will be staged from an artificially created area and there are no recorded properties within the APE, it has been determined that the project will have no potential to affect historic properties. Should any unanticipated cultural resources be uncovered by the draining of the lake, work will cease until a qualified archeologist can examine the discovery.

3.4. Socioeconomics

The Lake Yankton project area is located in Yankton County, South Dakota. The population of Yankton County was 22,438 in 2010; however, 65% of that population is within the City of Yankton the seventh largest city in South Dakota. In 2012, 92.1 percent of Yankton County residents reported their race as Caucasian alone, while the remaining 7.9 percent consisted of other races or a mixture of races.

In 2008-2012, Yankton County had a per capita income of \$ 25,570 and had a median household income of \$ 49,091; this is compared to \$ 26,835 and \$ 53,589 respectively for the State of South Dakota. For the state of South Dakota the percent persons below poverty level was 10.9 while Yankton County it is 13.8%. The major sources of employment in Yankton County in 2005-2009 were: Educational services, and health care and social assistance, 19.8%; Manufacturing, 16.7%, Retail trade, 12.6% and Arts, entertainment, and recreation, and accommodation and food services, 10.2%. The unemployment rate for Yankton County was 4.3% compared to the statewide unemployment rate of 2.6% (U.S. Census Bureau 2012). No significant socioeconomic effects are anticipated from the proposed project.

3.4.1. Recreation

The recreational, aesthetic, economic, and environmental values of the lake will become increasingly important in the future. The lake had become known as a good fishing destination and was especially targeted by bass anglers. Numerous tournaments have been held at the lake by local bass clubs; however, there are no estimates for income produced. Recreational activities include boating (electric motor only), swimming, picnicking and fishing. A majority of water recreational use is angling and swimming. Fishing opportunities include largemouth bass, walleye, channel catfish, crappie, and bluegill. These species have begun to decrease in size and number due to the increase of undesirable species. The proposed project is anticipated to increase the recreational value of Lake Yankton, while under the No Action Alternative; recreational opportunities would be expected to decrease.

The recreation area and campgrounds are not anticipated to be closed during the life of the project. The lake will be closed during chemical application which will be last approximately one day. Before and after chemical application the lake will re-open for use by recreationist. After lake drawn down, boat ramps will not be useable and any water craft used by the public will likely be small boats, canoes or kayaks.

3.4.2. Prime Farmland

The USDA considers prime farmland to be land that has the best combination of physical and chemical characteristics that is readily available for producing crops. Prime farmland has the soil quality, growing season, and moisture supply needed to economically produce sustained high yields of crops when treated and managed according to acceptable farming methods. These lands are not excessively erodible or saturated with water for a long period, and they either do not flood frequently or are protected from flooding. Prime farmland soils are not located in the project vicinity.

3.5. Air Quality

Sources of suspended particulate matter and air pollutants in the project area include agricultural, industrial, and recreational boating activities near the renovation site. Yankton County complies with the National Ambient Air Quality Standards (NAAQS) and is not listed on the EPA's Currently Designated Nonattainment Areas for All Criteria Pollutants website (<http://epa.gov/oaqps001/greenbk/ancl3.html>). No impacts to air quality are anticipated from the proposed project.

3.6. Noise

Sources of noise in the project area result from recreational boating, hunting, and agricultural activities. These activities are seasonal. Motorized boats will be utilized for application of rotenone and as such noise may increase temporarily.

3.7. Cumulative Impacts

In compliance with the National Environmental Policy Act (NEPA) and the Council on Environmental Quality (CEQ) regulations, potential cumulative effects on the environment are required to be assessed for the preferred alternative. A cumulative effect is an effect on the environment that results from the incremental impact of the resulting action when added to other past, present and reasonably foreseen future actions. While actions may be insignificant independently and locally, cumulative impacts accumulate over time and can result in larger scope of impacts.

The NGPC is anticipating treating 12 lakes or reservoirs in Fiscal Year 14 through their Federal Aid Grant # F-84-D-25. Both the annual increment and collective total treated during the timeframe of this grant are relatively small in comparison to the total waters managed by the NGPC.

Potential cumulative effects of rotenone use are limited by the small number of managed waters treated in any given year. Also by the explicit timing and methods being used, such as the renovation being conducted during the driest months of the year, July through September and water levels will be lowered to reduce the required amount of rotenone applied.

Fishery management is dynamic and can be reactive to the condition of fisheries population and public perception of recreation area quality. These perceptions however have to be balanced with a variety of biological and regulatory constraints. The use of rotenone is in response to Lake Yankton's fish community change in dynamic resulting from the natural disturbances creating overpopulation of undesirable fish and the stunting and loss of desirable fish species.

While NGPC will treat a small number of ponds and lakes this year to restore high quality angling opportunities, fish community changes are constantly occurring in the rest of the managed untreated waters. Some of those may develop conditions that warrant rotenone application, as the NGPC conducts yearly fish sampling. In the overarching view, rotenone application benefits fisheries management in the treated waters, but most other waters are not treated due to funding and time constraints.

No major adverse cumulative impacts to the natural or human environment are expected from the Preferred Alternative. Though there will be temporary effects to recreation, fish, vegetation, and wetlands, they do not represent impacts to the health of the environment in the project area. The eradication of undesirable fish species at Lake Yankton is considered a positive effect, because they are an invasive species and have negatively-impacted desirable fish population, water quality and recreation benefits.

In addition there are no discernible cumulative effects to public health and safety under the Preferred Alternative because of the short-lived toxicity of rotenone.

Section 4. PUBLIC AND AGENCY INVOLVEMENT

4.1. Public Involvement

A notice was published in the Lincoln Journal Star in November, 2013, for 30 days, describing the proposed activities and inviting public comments before any of the activities associated with rotenone treatments take place.

Section 5. COMPLIANCE WITH ENVIRONMENTAL LAWS AND REGULATIONS

Environmental compliance for the proposed action included: coordination of this EA and draft FONSI with appropriate agencies, organizations, and individuals for their review and comments; coordination with the USFWS seeking confirmation that the proposed action would not be likely to adversely affect any endangered or threatened species. The draft FONSI will not be signed until the proposed action achieves environmental compliance with applicable laws and regulations, as described below.

5.1. Environmental Policy

National Environmental Policy Act (NEPA), as amended, 42 U.S.C. 4321, et seq. *In compliance.* In accordance with the National Environmental Policy Act and implementing regulations this EA and Finding of No Significant Impact has been prepared for the proposed action. A FONSI has been prepared for the proposed action. An EIS is not required.

5.2. Water Resources

National Pollutant Discharge Elimination System (NPDES)

Federal limits on the amounts of specific pollutants that could be discharged to surface waters in order to restore and maintain the chemical, physical, and biological integrity of the water are governed by CWA [33 USC 1251 et seq., as amended], National Pollutant Discharge Elimination System (NPDES).

Discharge of storm water resulting from activities that would disturb more than one acre of surface area requires an NPDES permit under Section 402 of the CWA. The NDEQ authorize NPDES permits in the state of Nebraska.

Executive Order 11990, Protection of Wetlands.

Wetlands are likely to exist around the shoreline of Lake Yankton as described in this EA. The activities associated with the project will not alter, disrupt or cause significant impacts to any wetland values. One of the goals of the NGPC Aquatic Habitat Program and this project is to improve and enhance shoreline wetland values. The planting of wetland vegetation will be one technique used to reduce shoreline erosion and improve lake water quality. All of the activities associated with project will occur within the shorelines of the Lake Yankton. This equipment will be located in existing developed areas in order to use existing utilities, roads and parking lots and will in no case impact any wetland values. The activities associated with this project objective may result in stand-alone Federal Aid development grants in which wetland issues will be addressed for this specific grant. All required federal, state and county permits will be acquired before project commences.

Section 401 and 404 of the Clean Water Act, as amended. (Federal Water Pollution Control Act) 33 U.S.C. 1251, et seq. *In compliance pending 401 water quality certification.* The objective of this Act is to restore and maintain the chemical, physical, and biological integrity of the nation's waters (33 U.S.C. 1251). The USACE regulates the discharges of

dredge or fill material into waters of the United States pursuant to Section 404 of the Clean Water Act. This permitting authority applies to all waters of the U.S., including navigable waters and wetlands. General permits are a type of authorization that is issued on a nationwide or regional basis for a category of activities. Activities that are authorized under general permits must be substantially similar in nature and cause only minimal individual or cumulative adverse effects on the aquatic environment. Nationwide permits are a type of general permit that authorize certain specified activities nationwide that have been authorized after meeting requirements of NEPA and extensive coordination with the EPA and other federal agencies. No significant impacts to water quality are expected.

Regulatory requirements for a permit system governing the placement of dredged or fill material into waters of the United States are also mandated by CWA under Section 404. The USACE authorizes this permit. For the proposed project, no dredged or fill material is being proposed. Section 401 of the CWA requires state agencies to certify that a project requiring a Federal permit to discharge complies with specific provision of the CWA. Section 401 water quality certification would be obtained from the NDEQ prior to initiation of project activities.

5.3. Threatened and Endangered Species

Federal agencies are required to determine the effects of their actions on federally listed endangered or threatened species and their critical habitats under ESA [16 USC 1531 et seq.]. Steps must be taken by the Federal agency to conserve and protect these species and their habitat, and to avoid or mitigate any potentially adverse impacts resulting from the implementation of the proposed project.

Endangered Species Act, as amended. 16 U.S.C. 1531, et seq. *In compliance.* Section 7 (16 U.S.C. 1536) states that all Federal agencies shall, in consultation with the Secretary of the Interior, ensure that any action authorized, funded, or otherwise carried out by them do not jeopardize the continued existence of any threatened or endangered species, or result in the destruction or adverse modification of critical habitat. The USACE has determined that the proposed project would have “No Effect” or “May Affect, but is not Likely to Adversely Affect” any listed threatened or endangered species, as none are within the proposed project area. Concurrence with these affect determinations has been coordinated with the USFWS and the NGPC.

5.4. Fish and Wildlife

Fish and Wildlife Coordination Act. 16 U.S.C., 661 et seq. *In compliance.* The Fish and Wildlife Coordination Act (16 U.S.C. 661, et seq.) provides the basic authority for USFWS involvement in evaluating impacts to fish and wildlife from proposed water resource development projects. The FWCA requires governmental agencies, including the USACE, to coordinate activities so that adverse effects of fish and wildlife will be minimized when water bodies are proposed for modification. No modifications to any water bodies are proposed as part of this project. It also requires that Federal agencies that construct, license or permit water resource development projects must first consult with USFWS (and the National Marine Fisheries Service in some instances) and state fish and wildlife agency regarding the impacts on

fish and wildlife resources and measures to mitigate these impacts. In order to streamline coordination, the USFWS and the NGPC have a Programmatic Environmental Review Process for Proposed Activities by Nebraska Game and Park Commission On Public and Private Lands in place for the projects. Full consideration is to be given to USFWS recommendations.

Migratory Bird Treaty Act of 1918 (16 U.S.C. 703-712) as amended. *In compliance.* The MBTA of 1918 is the domestic law that affirms, or implements, the United States' commitment to four international conventions with Canada, Japan, Mexico, and Russia for the protection of shared migratory bird resources. The MBTA governs the taking, killing, possessing, transporting, and importing of migratory birds, their eggs, parts, and nests. The take of all migratory birds is governed by the MBTA's regulation of taking migratory birds for educational, scientific, and recreational purposes and requiring harvest to be limited to levels that prevent over-utilization. Executive Order 13186 (2001) directs executive agencies to take certain actions to implement the Act. Impacts to migratory birds are not expected given the scope of this project and the type and amounts of chemicals proposed.

Bald and Golden Eagle Protection Act, 16 U.S.C. Sec. 668, 668 note, 669a-668d. *In compliance.* This Act prohibits the taking or possession of and commerce in bald and golden eagles, with limited exceptions for the scientific or exhibition purposes, for religious purposes of Indian tribes, or for the protection of wildlife, agriculture or preservation of the species. The USACE has, and will continue, to coordinate with the Service and the appropriate state agencies to avoid taking the species during construction activities, and will follow USFWS guidelines regarding eagle nests. Impacts to eagles are not expected given the scope of this project and the type and amount of chemicals proposed.

5.5. Prime Farmlands

Farmland Protection Policy Act, 7 U.S.C. 4201. Et seq. *In Compliance.* The Farmland Protection Act [7 CFR 658] minimizes the extent to which actions contribute to the unnecessary conversion of prime farmlands to nonagricultural use. The NRCS takes steps to ensure that prime farmlands lost to development are documented and provided to congress in a yearly report. No impacts to farmland will occur as a result of the project.

The activities associated with this project will not impact any prime or unique farmland values as no soil disturbance on land that has been used as cropland will occur. All of the activities associated with project objective will occur within the shorelines of the lake water body. This equipment will be located in existing developed areas in order to use existing utilities, roads and parking lots and will in no case impact any prime or unique farmland values. The activities associated with grant amendment objective one may result in stand-alone Federal Aid development grants in which prime or unique farmland issues will be addressed for that specific grant. All required federal, state and county permits will be acquired before project commences.

5.6. Air and Noise Quality

Clean Air Act, as amended, 42 U.S.C. 185711-7. et seq. *In compliance.* The Federal policy to protect and enhance the quality of the air to protect human health and the environment is

established under the Clean Air Act [42 USC 7401 et seq., as amended]. The purpose of this Act is to protect public health and welfare by the control of air pollution at its source. Some temporary emission releases are expected during construction activities; however air quality is not expected to be impacted to any measurable degree. Impacts to air quality from the proposed project are considered insignificant. Therefore, no additional actions would be required for full compliance.

5.7. Cultural Resources

Section 106 of NHPA of 1966 (amended June 17, 1999) requires Federal agencies to take into account the effects of their undertakings on historic properties. By definition, historic properties are properties eligible for or listed on the National Register of Historic Places (NRHP). Federal undertakings refer to any Federal involvement including funding, permitting, licensing, or approval. Federal agencies are required to define and document the Area of Potential Effects (APE) for undertakings. The APE is defined as the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if such properties exist.

The Advisory Council on Historic Preservation (ACHP) issues regulations that implement Section 106 of NHPA at 36 CFR Part 800, Protection of the Historic Properties. Section 106 sets up the review process whereby a Federal agency consults with the SHPO, Native American tribes, and other interested parties including the public to identify, evaluate, assess effects, and mitigate adverse impacts on any historic properties affected by their undertaking.

In an email dated April 18, 2014, the District Archeologist has reviewed the work plans for the project. As the work will be staged from an artificially created area and there are no recorded properties within the APE, it has been determined that the project will have NO Potential to Affect Historic Properties. Should any unanticipated cultural resources be uncovered by the draining of the lake, work will cease until a qualified archeologist can examine the discovery.

National Historic Preservation Act, as amended, 16 U.S.C. 470a, et seq. *In compliance.* Federal agencies having direct or indirect jurisdiction over a proposed Federal or federally assisted undertaking shall take into account the effect of the undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the NRHP.

A cultural resources file search on April 18, 2014, revealed no presence of recorded historic properties or cultural sites in the project area. In the event of an unanticipated discovery of cultural resources, work would be halted immediately and a district archeologist would be notified. The work would not continue until the area is inspected by a staff archeologist. If he or she determines that the discovery requires further consultation, the appropriate State Historic Preservation Office (SHPO) would be notified.

The USACE has determined that the proposed project would have No Potential to Affect Historic Properties. The potential for recovering cultural resources in an undisturbed context is extremely low. Caution will be exercised during all phases of work in order to minimize any disturbance to deeply buried cultural resources. The contractor will be explicitly warned about

this possibility and instructed that if any resources are found, he or she shall stop work and contact the USACE immediately.

APPENDIX A – AGENCY COORDINATION



Nebraska Game and Parks Commission

2200 N. 33rd St. • P.O. Box 30370 • Lincoln, NE 68503-0370 • Phone: 402-471-0641 • Fax: 402-471-5528

January 6, 2014

Dave Tunink
Nebraska Game and Parks Commission
2200 N. 33rd St.
Lincoln, NE 68503

Re: Rotenone Chemical Fish Population Renovations, Federal Aid SFR Grant #F-84-D-25

Dear Mr. Tunink:

Please make reference to your letter dated November 4, 2013. This letter is in response to your request for a review of this project's potential impacts to endangered and threatened species in Nebraska. As we understand it, the project involves treating lakes, ponds, and reservoirs with rotenone in order to remove unwanted fish species from these water bodies. Rotenone will be contained within the treatment area and will not be allowed to affect species downstream or in any other bodies of water. We have completed our review of the proposed project under Neb. Rev. Stat. § 37-807 (3) of the Nongame and Endangered Species Conservation Act (NESCA) and we offer the following comments.

There are no records of and no habitat for endangered or threatened species within the project areas. Therefore, we have determined the proposed project will have "No Effect" on listed species. We made this determination based on a review of the material you sent, aerial photographs, topographic maps, and our Nebraska Natural Heritage Database.

Based upon the submitted information, we have no objection to the proposal as currently planned. If the proposed project is changed or new information regarding endangered or threatened species becomes available, then this determination is no longer valid and further consultation with the Nebraska Game and Parks Commission will be necessary.

Per the Programmatic Agreement between the Nebraska Game and Parks Commission (Commission) and the U.S. Fish and Wildlife Service (Service) (2008), the proposed project has complied with the Endangered Species Act (ESA) and a separate review by the Service is not necessary. If any other state or federal permits are needed for this project, please submit this letter with the application for such permits so the permitting agency is aware this project complies with ESA and NESCA and that no further consultation with the Service or the Commission is needed regarding endangered or threatened species.

Thank you for the opportunity to comment. If you have any questions or need additional information, please feel free to contact me at (402) 471-5438 or michelle.koch@nebraska.gov.

Sincerely,

A handwritten signature in cursive script that reads "Michelle R Koch".

Michelle R. Koch
Environmental Analyst Supervisor
Environmental Services Division

ec: NGPC (Tammy Snyder, Shaun Dunn)
USFWS (John Cochnar)

APPENDIX B – NGPC WORK PLAN FOR GRANT NUMBER F84D

OBJECTIVE DESCRIPTION

STATE: Nebraska

GRANT: F84D
SEGMENT: 25
OBJECTIVE: 2

STUDY TITLE: Intensive Fisheries Management of Selected Lentic Waters

OBJECTIVE TITLE: Fish Population Renovations

OBJECTIVE: To increase sportfishing opportunities, quality, and success through the eradication of undesirable fish populations from selected waterbodies by application of chemical toxicants and subsequent restocking of desirable game species.

PROCEDURES:

The approved fish toxicant, rotenone, will be used to eliminate existing fish populations in waterbodies that are determined to be out of balance based on survey information and can not be effectively improved by any other management techniques. Rotenone is usually applied using both gas driven and hand pumps to mix the chemical thoroughly throughout the water column to attain a concentration of 3 ppm. Time of application will vary between waterbodies. However, the bulk of the renovations will be conducted during the driest months of the year, July through September. Where and to whatever extent possible, water levels will be lowered to reduce the required amount of rotenone applied. All personnel who actually apply rotenone must have a current Nebraska Certified Pesticide Applicator License. All application sites will be reviewed to comply with the NEPA review process along with following all NPDES permitting requirements. Sources of potential rough fish reintroductions from the watershed will be investigated prior to the renovation. Prevention methods will be implemented as best possible. Some projects will involve the treatment of privately owned waterbodies in the watershed as long as permission from the landowner is granted.

Following the detoxification of the chemical, a restocking program will be initiated with the fish species introductions based on an approved lake management plan. The culture and stocking of these fish are presently covered under the Nebraska Federal Aid Grant F-86-D.

LOCATION OF WORK:

See the attached Scheduled Renovations for 2014 Table and Work Plans for information regarding water body locations.

NAMES OF TECHNICAL PERSONNEL AND MAN-DAYS REQUIRED:

Al Hanson, NW District Supervisor	5 man-days
Joe Rydell, Biologist II	5 man-days
Zach Brashears, Biologist II	10 man-days
Jeff Schuckman, NE District Supervisor	20 man-days
Phil Chvala, Biologist II	20 man-days
Andy Glidden, Biologist II	20 man-days
Darrol Eichner, Biologist II	2 man-days
Jared Lorensen, Biologist II	2 man-days
Caleb Huber, Biologist II	3 man-days
Mark Staab, Conservation Tech II	3 man-days
Jeff Jackson, SE District Supervisor	5 man-days
Aaron Blank, Conservation Tech II	5 man-days
Jordan Katt, Biologist II	5 man-days
Tony Barada, Biologist II	5 man-days
Brad Newcomb, SW District Supervisor	5 man-days
Brad Eifert, Biologist II	5 man-days
Mark Porath, Aquatic Habitat Program Mgr.	10 man-days
Dave Tunink, Asst. Administrator	5 man-days
TOTAL	135 man-days

OBJECTIVE DURATION: January 1, 2014 through December 31, 2014

COST:	<u>\$34,755.00</u>	<u>\$26,066.25</u>	<u>\$8,688.75</u>
	TOTAL	FEDERAL	STATE

MEMORANDUM

FISHERIES DIVISION



NEBRASKA GAME and PARKS COMMISSION

TO: Michelle Koch
Heritage Program Manager

FROM: Dave Tunink
Assist. Admin.
Fisheries Management Section

SUBJECT: Rotenone Chemical Fish Population Renovations
Federal Aid SFR Grant # F-84-D-25

DATE: Nov. 4, 2013

May this serve as our request for your review and written comments on the referenced subject, for impact on threatened and endangered species, or their critical habitats.

The following is the list of waterbodies scheduled for renovation next year. Please note that those waterbodies designated with an asterisk were reviewed for the last Grant Segment, but renovations were not completed during 2013. Several of these lakes are located on private land and are located in the watershed of a public lake that is either scheduled to be renovated or was renovated in prior year but due to high water condition is creating a concern. Permission from the landowner to conduct a fish renovation has been obtained. The Louisville Lake #1 and #2 renovations will be low dose treatments that target just the removal of gizzard shad population with limited negative impacts on the sport fish populations.

Waterbody	County	Legal Description
Bowman Lake*	Sherman	S13, T15N, R15W
Diamond Lake*	Brown	S18, T26N, R23W
Rossenbach Lake*	Brown	S17, T26N, R23W
Clear Lake*	Rock	S36, T27N, R17W
Rat and Beaver Lake*	Cherry	S30,31, T28W, R28W
Silver Creek City Lake*	Merrick	S36, T16N, R3W
Conestoga Reservoir	Lancaster	S10, T9N, R5E
Dogwood East	Dawson	S5, T8N, R20W
Lake Helen	Dawson	S3, T11N, R25W
Pioneer Trails Lake	Hamilton	S35, T11N, R6W
Lake Yankton (Cottonwood)	Cedar	S6, T33N, R1W
Columbus Hospital Pond	Platte	S12, T17N, R1W

If you should have any question regarding this request or need additional information please contact me at your convenience.

STATE: NEBRASKA

PROJECTED RENOVATIONS FOR 2014

SEGMENT: 25

Lake Name	Total Surface Acres	Estimated Acre Feet to Treat	Estimated Fishing Days	Personnel Costs, Vehicles, Food/Lodging, Equipment	Summary of Rotenone Costs			Total Estimated Costs of Renovation
					Liquid Rotenone Needs	Inventory or Purchase	Estimated Rotenone Costs	
Bowman Lake	3	20	1500	\$ 1,000	20	Inventory		\$ 1,000
Clear Lake (Rock Co)*	50.0	200		\$ 1,500	200.0	Inventory		\$ 1,500
Columbus Hospital Pond	10.0	50	3,000	\$ 550	50.0	Inventory		\$ 550
Conestoga Reservoir	230.0	100	13,500	\$ 1,000	120.0	Inventory		\$ 1,000
Diamond Lake*	120.0	240		\$ 1,500	240.0	NC		\$ 1,500
Dogwood East	7.0	21	1,000	\$ 800	21.0	Inventory		\$ 800
Lake Helen	20.0	10	2,000	\$ 500	10.0	Inventory		\$ 500
Pioneer Trails Lake	10.0	60	1,500	\$ 1,000	60.0	Inventory		\$ 1,000
Rat & Beaver Lake	450.0	1,400	6,500	\$ 3,000	1,400.0	Inventory		\$ 3,000
Rossenbach Lake*	30.0	120		\$ 1,000	110.0	NC		\$ 1,000
Silver Creek City Lake	4.0	25	2,500	\$ 1,000	25.0	Inventory		\$ 1,000
Lake Yankton	305.0	700	13,000	\$ 3,000	700.0	Inventory (363) Purchase (337)	\$ 21,905.00	\$ 24,905
TOTALS	1,239.0	2,946	44,500	\$ 15,850	2,956.0		\$ 21,905.00	\$ 37,755

Rotenone on hand 2269

*Private waters - renovate to eliminate carp from watershed

NC = Rotenone purchased by Sandhills Task Force

Estimated rotenone costs \$65/gallon



Nebraska Game and Parks Commission

2200 N. 33rd St. • P.O. Box 30370 • Lincoln, NE 68503-0370 • Phone: 402-471-0641 • Fax: 402-471-5528

Nov. 1, 2013

Classified Ads
Lincoln Journal Star
926 P Street
Lincoln, NE 68508

ATTENTION: Legal Advertising

Dear Editor:

Please publish the enclosed public notice once in either a weekly or weekend edition sometime during the month of November.

Following publication, please send the proof of publication and invoice for the public notice to me at the address below.

Sincerely,

A handwritten signature in cursive script, appearing to read "Dave Tunink".

Dave Tunink
Assist. Admin.
Fisheries Management Section
Nebraska Game and Parks Commission
2200 N 33rd Street
P.O. Box 30370
Lincoln, NE 68503

See You Out There

www.OutdoorNebraska.org

Public Notice

Pursuant to the National Environmental Policy Act, notice is hereby given by the Nebraska Game and Parks Commission of its intent to prepare a project that will provide for the chemical renovation of the existing fish population and restocking of the following lakes:

Clear Lake, Rock County
Diamond Lake, Brown County
Rossenbach Lake, Brown County
Silver Creek City Lake, Merrick County
Rat and Beaver Lake, Cherry County
Bowman Lake, Sherman County
Conestoga Reservoir, Lancaster County
Dogwood East, Dawson County
Lake Helen, Dawson County
Pioneer Trails Lake, Hamilton County
Lake Yankton (Cottonwood), Cedar County
Columbus Hospital Pond, Platte County

This project will utilize funds derived from the Federal Aid in the Sport Fish Restoration Act and the sale of Nebraska fishing permits. Comments regarding any of these projects should be sent by December 15, 2013 to Mr. Dave Tunink, Fisheries Division, Nebraska Game and Parks Commission, P.O. Box 30370, Lincoln, NE 68503-0370.

STATE: Nebraska

PROJECT: F-84-D

WORK PLANS

1. AREA:	1. Lake Yankton
2. COUNTY:	2. Cedar
3. DIRECTIONS:	3. 13 N of Crofton, below Gavins Pt. Dam
4. ACRES, NORMAL LEVEL:	4. 305
5. ACRES FEET TREATED:	5. 700 (estimated)
6. LAND CONTROL:	6. US Army COE, USFWS-Gavins Pt Hatchery
7. AGREEMENT DATES:	7. Pending
8. SCHEDULED TREATMENT DATE:	8. September 2014
9. PROBLEM SPECIES:	9. Common carp, Asian carp, buffalo, gar, shad
10. PLANNED STOCKING:	10. Bluegill, largemouth bass, walleye, channel catfish
11. EXPECTED ANNUAL FISHING DAYS:	11. 13,000+
12. LABOR COSTS:	12. \$3,000
13. GALLONS ROTENONE:	13 694
14. ROTENONE COST:	14. 343-Inventory; 351-Purchase
15. PESTICIDE PROPOSAL NEED STATUS:	15. No
16. POTABLE WATER SUPPLY (Y/N):	16. No
17. PUBLIC NOTICE-NEWSPAPER AND PUBLICATION DATES:	17. Lincoln Journal Star – November 2013