

CITY COUNCIL STUDY SESSION

Note Change in Time and Location

TO: Mayor and City Council
FROM: Mari E. Macomber, City Manager
SESSION DATE: June 3, 2013
TIME: 4:00 p.m.
PLACE: North Boat Ramp Hazel Creek Lake (*see map on last page*)

If you would like to car pool to the lake, please be at City Hall by 3:30 pm

AGENDA:

- **TOUR OF HAZEL CREEK LAKE**
- **REVIEW NEWSLETTER – May 31, 2013**
- **REVIEW COUNCIL AGENDA**

TOUR OF HAZEL CREEK LAKE

Last Study Session the Council toured Forest Lake and had a chance to visit with the concessionaire Jeremy Kolb and Mike Anderson from Missouri Department of Conservation learning about the work that each does and the existing partnerships that help to make Forest Lake an attraction both locally and to visitors. The Council also discussed emergency rescue with both the Police and Fire Chiefs and discussed the water patrol services.

We will complete our lake tours on Monday with a tour of Hazel Creek Lake.

This lake is located seven miles north of Kirksville and consists of 564 surface acres of water. Its watershed consists of 4,586 acres almost half of the size of the Forest Lake Watershed. Unlike Forest Lake, the City does own property surrounding much of the shoreline. This lake is used as a water source with limited recreational activities.

The lake was developed by the City in the early 1980s. Unlike Forest Lake, which is surrounded by public lands, Hazel Creek is surrounded by both publically and privately owned lands. The park consists of a little more than 3,200 acres. The central feature of the park is the lake which offers recreational opportunities of swimming, fishing, boating and skiing.

Monday's tour will be slightly different as we will have the chairman of the Watershed Management Commission, Clayton Dillavou and John Buckwalter who will discuss the work of the commission and the use of the lake as a water source. Mike Anderson with MDC will be with us again to talk about Conservation's efforts at this lake, especially the Muskie Fishing.

Recommendation: This is an opportunity to learn more about this important water source. If we have time once we get back to City Hall we will review the Newsletter.

NEWSLETTER REVIEW – May 31, 2013

REVIEW COUNCIL AGENDA

Staff Report – Water Rescue

Lake Ordinances

General Park Information

Map of the Park

KIRKSVILLE CITY COUNCIL STUDY SESSION ATTACHMENT

SUBJECT: Hazel Creek Lake

STUDY SESSION MEETING DATE: June 3, 2013

CITY DEPARTMENT: Public Works

PREPARED BY: John R. Buckwalter, Public Works Director

Hazel Creek Lake was constructed in 1982 as a water supply source for the City of Kirksville. It supplements Forest Lake, which was constructed in 1952. While Forest Lake is managed as a recreational facility as well as a water supply, Hazel Creek Lake is expressly designated as a water supply lake. Recreational use of Hazel Creek Lake is limited to fishing, and boating by sail or paddle only. Gasoline powered motors are prohibited on the Lake. The Missouri Department of Conservation manages Hazel Creek Lake as a fishery for Muskellunge. Under a Community Assistance Program Agreement the Department of Conservation provides public fishing access, parking at two boat ramps, restrooms, and a courtesy dock at the North boat ramp.

Hazel Creek Lake is impounded by a 65 foot high earthfill dam. The dam is currently rated as a hazard Class III dam (low risk). It was last inspected by the Missouri Dam Safety Program, Department of Natural Resources, in March 2013. No observed defects requiring correction were found, and the permit was renewed. The normal elevation of the lake is 848 feet above sea level; the crest of the dam is at 857 feet. The normal pool covers 515 acres and holds 9541 acre feet of water or roughly 3 billion gallons. The lake's watershed is 5151 acres. During normal conditions one inch of rain will result in an increase in lake level of 4 inches. When water is withdrawn from the lake at a rate of 3 million gallons a day, the lake level will decrease less than ¼ inch per day.

Hazel Creek Lake is included on the State's list of impaired waters (303(d) list). The lake was first listed as impaired in 2008 due to high levels of mercury found in fish samples. In 2010 it was again listed as impaired due to mercury, and also listed as impaired due to chlorophyll levels which exceeded state water quality standards. These impairments do not directly impact any beneficial use of the lake, but are listed as not in compliance with "General criteria pertaining to the protection of aquatic life." There is no impact on the use of the lake as a drinking water supply. The water quality worksheet prepared by the Department of Natural Resources for Hazel Creek Lake is attached.

The Watershed Management Commission appointed by the Council has been working on the Watershed Management Plan for Hazel Creek Lake for several years. The final plan is expected to be completed and approved by the Department of Natural Resources this summer. The Watershed Management Plan outlines best management practices to reduce non-point source pollution of the lake, and serves as a guide for improving water quality.



Missouri Dept. of Natural Resources
Hazel Creek Lake - WBID 7152
Missouri Dept. of Conservation Fish Tissue Data, 2006

Org	Site Name	Year	Species	# in Sample	Preparation	Length, in.	Weight, lbs.	Fat, %	Hg, mg/kg
MDC	Hazel Creek Lake	2006	largemouth bass	5	fillet	17.6	3	1.1	0.426
MDC	Hazel Creek Lake	2006	largemouth bass	5	fillet	17.6	2.9	0.8	0.447
MDC	Hazel Creek Lake	2006	largemouth bass	5	fillet	15.4	1.8	0.6	0.304
Average:									0.393

The EPA guideline for mercury in fish tissue is 0.3 mg/kg ("Water Quality Criterion for Protection of Human Health: Methylmercury", EPA-823-R-01-001, Jan. 2001). The guidance document states that this is a concentration that "should not be exceeded" based on a total consumption of 17.5 grams of fish per person per day. The 0.3 mg/kg criterion is also based on the assumption that the fish diet is composed of a mixture of fish from different trophic levels. This document also encourages states to consider other relevant data while adopting or modifying the 0.3 mg/kg criterion value, such as regional differences in the species consumed and the amount of fish consumed.

McKee, 2002 ("Sport-Caught Fish Consumption in Missouri--2002 Mail Survey", Dept. of Conservation, Columbia, Mo.), found that Missourians that eat sport-caught fish do eat a mixture of species from different trophic levels. This study found that the most commonly consumed sport-caught fish were crappie, catfish, bluegill and other sunfish, bass (largemouth, smallmouth, and spotted), trout, and walleye. This survey also found that the median level of fish consumption was 50 grams per day, or 2.8 times the amount used to develop EPA's criterion value of 0.3 mg/kg. If the information on consumption rates in Missouri is accurate, a criterion value significantly less than 0.3 mg/kg would be necessary to protect fish consumers from mercury poisoning.

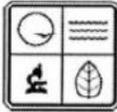
The mean level of mercury in fish fillets in Hazel Creek Lake is 0.393 mg/kg. The 60 percent lower confidence limit is 0.382. This value exceeds the federal criterion value of 0.3 mg/kg.

Additionally, the fish consumption rate for Missourians that eat sport-caught fish is much greater than the fish consumption estimate used for the federal criterion. Therefore, this water body is judged to be **impaired** by mercury in fish tissue.

The Missouri Department of Health and Senior Services (MDHSS) has issued a general advisory for mercury in fish tissue, stating that members of sensitive populations (pregnant women, women of childbearing age, nursing mothers, and children under 13 years old) should limit their consumption of all fish caught in Missouri to one meal per week, due to the widespread presence of mercury. It also states that those same populations should limit their consumption of largemouth, smallmouth, or spotted bass over 12 inches in length to one meal per month. This advisory does not affect those who are not members of the sensitive populations.

Missouri Department of Natural Resources, Water Protection Program
 573/751-1300
www.dnr.mo.gov

4/7/2011 jf



Missouri Dept. of Natural Resources
Hazel Creek Lake - WBID 7152
 Nutrient data by Univ. of Missouri, 2003-2007

Org	Site	Site Name	Yr	Mo	Dy	Secchi	TN	TP	TChl
SLAP	7152/0.1	Hazel Creek Lk. nr Dam	2003	6	4	1	0.57	0.023	4.4
SLAP	7152/0.1	Hazel Creek Lk. nr Dam	2003	6	24	0.96	0.49	0.024	5.6
SLAP	7152/0.1	Hazel Creek Lk. nr Dam	2003	7	22	1.03	0.46	0.025	8.5
SLAP	7152/0.1	Hazel Creek Lk. nr Dam	2003	8	12	0.98	0.4	0.025	8.5
LMVP	7152/0.1	Hazel Creek Lk. nr Dam	2005	5	1	0.74	0.67	0.038	9.4
LMVP	7152/0.1	Hazel Creek Lk. nr Dam	2005	6	1	1.14	0.67	0.025	10
LMVP	7152/0.1	Hazel Creek Lk. nr Dam	2005	6	22	2.84	0.57	0.016	1.6
LMVP	7152/0.1	Hazel Creek Lk. nr Dam	2005	7	13	1.35	0.59	0.023	4.9
LMVP	7152/0.1	Hazel Creek Lk. nr Dam	2005	8	3	1.47	0.59	0.02	5.2
LMVP	7152/0.1	Hazel Creek Lk. nr Dam	2005	8	25	1.73	0.41	0.017	7.8
LMVP	7152/0.1	Hazel Creek Lk. nr Dam	2006	5	19	0.79	0.61	0.02	7.2
SLAP	7152/0.1	Hazel Creek Lk. nr Dam	2006	5	31	1.5	0.52	0.018	6.4
LMVP	7152/0.1	Hazel Creek Lk. nr Dam	2006	6	16	1.3	0.4	0.016	6.9
SLAP	7152/0.1	Hazel Creek Lk. nr Dam	2006	6	20	1.17	0.42	0.022	5.4
LMVP	7152/0.1	Hazel Creek Lk. nr Dam	2006	7	3	1.52	0.57	0.02	5.8
SLAP	7152/0.1	Hazel Creek Lk. nr Dam	2006	7	19	1.46	0.42	0.02	4
LMVP	7152/0.1	Hazel Creek Lk. nr Dam	2006	7	28	1.8	0.47	0.015	11.3
SLAP	7152/0.1	Hazel Creek Lk. nr Dam	2006	8	8	1.06	0.58	0.024	22.6
SLAP	7152/0.1	Hazel Creek Lk. nr Dam	2007	5	21	1.3	0.54	0.024	7
LMVP	7152/0.1	Hazel Creek Lk. nr Dam	2007	6	8	0.7	0.59	0.034	12.4
SLAP	7152/0.1	Hazel Creek Lk. nr Dam	2007	6	11	0.7	0.5	0.031	13.7
SLAP	7152/0.1	Hazel Creek Lk. nr Dam	2007	7	9	1.1	0.51	0.023	6.3
LMVP	7152/0.1	Hazel Creek Lk. nr Dam	2007	7	12	1.4	0.53	0.021	8.4
SLAP	7152/0.1	Hazel Creek Lk. nr Dam	2007	7	30	1	0.48	0.028	14.6
LMVP	7152/0.1	Hazel Creek Lk. nr Dam	2007	8	28	1.5	0.41	0.018	9
LMVP	7152/0.1	Hazel Creek Lk. nr Dam	2008	5	21	1.63	0.78	0.036	8.9
LMVP	7152/0.1	Hazel Creek Lk. nr Dam	2008	6	5	1.73	0.6	0.021	4.5
LMVP	7152/0.1	Hazel Creek Lk. nr Dam	2008	6	23	1.42	0.6	0.022	8.8
LMVP	7152/0.1	Hazel Creek Lk. nr Dam	2008	7	17	1.63	0.55	0.025	8.4
LMVP	7152/0.1	Hazel Creek Lk. nr Dam	2008	8	12	1.22	0.64	0.031	17
LMVP	7152/0.1	Hazel Creek Lk. nr Dam	2008	8	28	1.07	0.63	0.032	22.3
Geometric Mean							0.53	0.023	7.8
Nutrient Criteria							0.616	0.027	6.9

The total chlorophyll criterion is exceeded in Hazel Creek Lake.

The Listing Methodology document requires a lake to be listed if the lower 60 percent confidence limit (LCL) of the data exceeds the criterion value. The 60 percent LCL is calculated as:

LCL (60) = the antilog of (log mean) - [(0.253)(log standard deviation)/square root of sample size]

Log LCL(60) =	((2.057)-((0.253)*(0.532)/5568)) =	2.033	TChl LCL(60) =	7.636
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Since the calculated LCL 60 (7.636 ug/L) is greater than the criterion value of 6.9, this lake is judged to be **impaired** by chlorophyll.

Sec. 19-101. Adoption and enforcement of state statutes.

The City of Kirksville hereby adopts and agrees to enforce, with noted exceptions, all boating and equipment regulations as defined by the Revised Statutes of the State of Missouri on Hazel Creek Lake.

(1) Any person violating any rule or regulation adopted by the city shall be subject to prosecution under the provision of the Code and other laws of the city and state; and provided further, that boating violation may at the discretion of the city result in cancellation of the registration and use on the lake of boats involved for the calendar year in which violation occurs, and any person convicted of a violation of any of the provisions of this article, upon conviction, shall be subject to punishment as provided in this Code.

(2) Hearings for violations of the provision of this article shall be in the Adair County Circuit Court, Municipal Division, and such court shall be entitled to receive complaints and issue process of violations of the provision of this article. Duly authorized personnel of the city shall enforce all violations of this article to the office of the city attorney, who in turn upon the information so furnished shall initiate and prosecute such violations in the same manner as is provided by law for prosecution of other violations of the code and other city ordinances.

(Ord. No. 11295, 6-2-97)

Sec. 19-102. Enforcement of article.

(a) Peace officers are empowered to enforce any violation of the law on Hazel Creek Lake. Each peace officer may also enforce the littering law on the banks or upon public land. The peace officer may arrest on land subject to hot pursuit.

(b) Each peace officer may board any boat for the purpose of making any inspection necessary to determine compliance with boating laws.

(c) Penalties are provided for the violation of any boating laws.

(Ord. No. 11295, § 24, 6-2-97)

Sec. 19-103. Fishing regulations.

All fishing regulations for Hazel Creek Lake are governed by the Missouri Department of Conservation and their agents. Enforcement of those regulations is the sole responsibility of the Missouri Department of Conservation.

(Ord. No. 11295, § 25, 6-2-97)

Sec. 19-104. Tournaments and special events.

(a) Any person who manages, sponsors, conducts or otherwise directs any bass tournament, fishing tournament or special event upon the waters of Hazel Creek Lake shall, one (1) month prior to the beginning of the tournament or contest, apply for and secure from the city director of community services or his designee, a fishing contest permit. The application for the permit shall include the following information:

(1) The date of the activity;

- (2)The sponsoring person or organization;
- (3)The rules and regulations of the contest; and
- (4)The anticipated number of entries.

(b)After the completion of the tournament or contest, the person or persons who managed, sponsored, conducted or otherwise directed the contest or tournament, shall report to the city director of community services or his designee, the information specified on the bass tournament or contest report form prepared by the Missouri Department of Conservation.

(Ord. No. 11295, § 26, 6-2-97; Ord. No. 11783, § 1, 1-17-2007)

Sec. 19-105. Disorderly conduct, indecent exposure, etc.

Persons who render themselves obnoxious by disorderly conduct, bad behavior or indecent exposure shall be subject to penalties prescribed by law, and in addition thereto, or in lieu thereof, may be summarily removed from the area by a peace officer or his designated representative.

(Ord. No. 11295, § 26, 6-2-97)

Sec. 19-106. Littering.

No person shall throw or place any glass, glass bottles, cans, garbage, trash, refuse or rubbish of any kind on the navigable waters of Hazel Creek Lake or on the banks of any navigable stream or on any land or water owned, operated or leased by the city or upon public land.

(Ord. No. 11295, § 27, 6-2-97)

Sec. 19-107. Firecrackers or fireworks.

Firecrackers or fireworks are absolutely prohibited at all times on the waters of Hazel Creek Lake, and the property surrounding Hazel Creek Lake.

(Ord. No. 11295, § 28, 6-2-97)

Sec. 19-108. Controlling boats while intoxicated.

It shall be unlawful for any person who is under the influence of intoxicating liquor or narcotic drugs or barbitol to operate, propel or be in actual physical control of any boat on Hazel Creek Lake.

(Ord. No. 11295, § 29, 6-2-97)

Sec. 19-109. Age limit for operators.

No person under fourteen (14) years of age shall operate any watercraft upon the waters of Hazel Creek Lake unless such person is under the direct (on board) visual and audible supervision of a parent, guardian or other person sixteen (16) years of age or older, or unless the motorboat is moored. Parents and guardians are responsible for the actions of underage operators.

(Ord. No. 11295, § 30, 6-2-97; Ord. No. 11377, § 4, 3-15-99)

Sec. 19-110. Tampering with boats or motors.

(a) No person shall operate, use or tamper with any boat or outboard motor affixed to a boat without the permission of the owner thereof.

(b) Any person who violates the provisions of this section shall be deemed guilty of a misdemeanor, and upon conviction thereof, shall be punished as provided by law.

(c) If the value is over one-hundred fifty dollars (\$150.00) the charge may be a felony.

(Ord. No. 11295, § 31, 6-2-97)

Sec. 19-111. Marine sewage disposal.

All marine toilets on any boat operated upon waters of Hazel Creek Lake shall be constructed and operated as to contain all sewage aboard the boat and not to discharge any sewage into the waters directly or indirectly. No boat shall be equipped to permit discharge from or through any marine toilet, or in any other manner, any sewage at any time into waters of Hazel Creek Lake, and all sewage when removed from any boat shall immediately be placed in the sanitary dump tank. It is also illegal to allow any gray water to be discharged into the waters of Hazel Creek Lake. Gray water is defined as shower, bath, dishwasher or water tainted with a cleaning solution.

(Ord. No. 11295, § 32, 6-2-97)

Sec. 19-112. Maximum boat length and width.

The maximum length of watercraft allowed on Hazel Creek Lake shall be thirty-three (33) feet. The maximum width shall be nine (9) feet. (Coast Guard Standards).

(Ord. No. 11295, § 33, 6-2-97)

Sec. 19-113. Swimming.

Swimming is not permitted in Hazel Creek Lake.

(Ord. No. 11295, § 34, 6-2-97)

Sec. 19-114. Scuba diving.

Scuba diving, snorkeling, or any other such activity shall be prohibited; however, this section shall not apply to members of the city police department or the city fire department or any agency acting directly under their control performing any official function, to include rescue, investigation, training or maintenance.

(Ord. No. 11295, § 35, 6-2-97)

Sec. 19-115. Fishing and frogging.

Fish may be taken from the waters of Hazel Creek Lake subject to the limits, methods, of the Missouri Department of Conservation Wildlife Code. No troutline, jug, block line, seining, snaring, or snagging will be permitted at any time. Upon the recommendation of the Missouri Department of Conservation, special size limits may be imposed from time to time by the city.

(Ord. No. 11295, § 36, 6-2-97)

Sec. 19-116. Firearms.

Only shotguns, muzzle loaders and archery equipment may be used for hunting in or upon Hazel Creek Lake or the surrounding lands owned or leased by the city. The possession or use of other types of firearms on Hazel Creek Lake or on adjacent city owned land shall be prohibited.

(Ord. No. 11295, § 37, 6-2-97)

Sec. 19-117. Storage of private property; water fowl blinds.

It shall be unlawful for any person to store private property upon Hazel Creek Lake or the lands owned or leased by the city surrounding Hazel Creek Lake, except that waterfowl blinds and items such as decoys, etc., are permissible. Waterfowl blinds may be constructed up to thirty (30) days prior to the opening of waterfowl season. Blinds must be labeled with the owner's full name, address and phone number. Blinds must be removed within thirty (30) days of the close of waterfowl season. Waterfowl decoys may be placed on the waters of Hazel Creek Lake seven (7) days prior to the waterfowl hunting season and must be removed within seven (7) days after the close of the waterfowl hunting season. A small boat used exclusively for the retrieval of game or placement of decoys may be left at the blind area during this period; however, when not in use, it shall be covered as to blend into the environment. The city reserves the right to regulate the placement or removal of any waterfowl blind, waterfowl decoys, or watercraft on properties owned or leased by the city. The lakes, parks and recreation commission shall be the advisory committee to the city manager in reference to complaints regarding unsightly or unmaintained blinds.

(Ord. No. 11295, § 38, 6-2-97; Ord. No. 11983, § 3, 12-5-2011)

Sec. 19-118. Boats, vessels and watercraft.

Gasoline-powered boats, vessels and watercraft are prohibited on Hazel Creek Lake. Electric trolling motors shall be the only machinery used to propel boats, vessels or watercraft on the lake. Boats, vessels and watercraft propelled by sail alone are permitted on Hazel Creek Lake. Any boat, vessel or watercraft utilizing the waters of Hazel Creek Lake shall be in conformance with the state watercraft regulations; provided however, that this section shall not apply to members of the city police department, city fire department, city public works department, Missouri Department of Conservation or any agency acting directly under their control performing an official function, to include rescue, investigation, training or maintenance.

(Ord. No. 11295, § 39, 6-2-97)

Sec. 19-119. Equipment; water safety.

(a) Equipment.

(1)Lights.

a. All vessels shall display from sunset to sunrise the following lights when underway, and during such time no other lights which may be mistaken for those prescribed shall be exhibited:

1. A bright white light aft to show all around the horizon.

2. A combined light in the forepart of the vessel and lower than the white light aft, showing green to starboard and red to port, so fixed as to throw the light from right ahead to two (2) points (22½ degrees) abaft the beam on the respective sides.

b. All vessels, between the hours of sunset and sunrise, that are not underway, moored at permanent dockage or attached to an immovable object on shore so that they do not extend more than fifty (50) feet from the shore, shall display one (1) three hundred sixty (360) degree white light visible three hundred sixty (360) degrees around the horizon.

(2) Flotation devices.

a. Every vessel shall have on board at least one (1) wearable personal flotation device of type I, II or III for each person on board. Every such vessel shall also have on board at least one (1) type IV throwable personal flotation device.

b. All lifesaving devices required by subsections (a)(2)a and b of this section shall be United States Coast Guard approved, in serviceable condition and so placed as to be readily accessible.

c. Each person under the age of seven (7) who is on board any watercraft which is on the waters of this state shall wear a personal flotation device which is approved by the United States Coast Guard. Any person who allows a person under the age of seven (7) to be on board any watercraft which is on the waters of this state without wearing a personal flotation device shall be deemed guilty of a class C misdemeanor. This section does not apply when the person under the age of seven (7) is in a part of a watercraft which is fully enclosed, where such enclosure will prevent such person from falling out of or being thrown from the watercraft.

(3) Ventilation system. Every vessel which is carrying or using inflammable or toxic fluid in any enclosure for any purpose, and which is not an entirely open vessel, shall have an efficient natural or mechanical ventilation system which must be capable of removing resulting gases prior to and during the time the vessel is occupied by any person.

(4) Fire extinguishers. Motorboats shall carry on board at least the following United States Coast Guard approved fire extinguishers; every motorboat with an enclosed gasoline storage tank, a gasoline tank with a capacity of at least twelve (12) gallons or a permanently installed gasoline tank, one (1) B1 type fire extinguisher.

(5) Sounding device. All motorboats shall have a sounding device.

(6) Operation without required equipment prohibited. No person shall operate any watercraft which is not equipped as required by this section.

(7) Launching, docking, mooring, and landing shall be accomplished only in such places and by such means that are approved by the city.

(8) The operator of a motorboat shall not allow any person to ride or sit on the gunwales, or decking over the bow, railing, top of seat back or decking over the back of the motorboat while under way, unless such person is inboard of adequate guards or railing provided on the motorboat to prevent a passenger from being lost overboard. As used in this section, the term "adequate guards or railing" means guards or railings having a height parameter of at least six (6) inches but not more than eighteen (18) inches. Nothing in this section shall be construed to mean that passengers or other persons aboard a motorboat cannot occupy the decking over the bow of the boat to moor it to a mooring buoy or to cast off from such a buoy, or for any other necessary purpose. The provisions of this section shall not apply to vessels propelled by sail.

(9) Whenever any person leaves any watercraft, other than a personal watercraft, on the waters of Missouri between the hours of 11:00 a.m. and sunset, the operator of such watercraft shall display on the watercraft a red or orange flag measuring not less than twelve inches by twelve inches. The provisions of this subsection shall not apply to watercraft that is moored or anchored. The flag required by this subsection shall be visible for three hundred sixty degrees around the horizon when displayed and shall be displayed only when an occupant of the watercraft has left the confines of the watercraft and entered the water. The flag required by this subsection shall not be displayed when the watercraft is engaged in towing any person, but shall be displayed when such person has ceased being towed and had reentered the water.

(10) No operator shall knowingly operate any watercraft within fifty (50) yards of a flag required by subsection 9 of this section at a speed in excess of a slow-no wake speed.

(b) *Enforcement.*

(1) A city peace officer may direct the operator of any watercraft being operated without sufficient personal flotation devices, firefighting devices or in an overloaded or otherwise unsafe condition or manner to take whatever immediate and reasonable steps are necessary for the safety of those aboard when, in the judgement of the officer, such operation creates a hazardous condition. The officer may direct the operator to return the watercraft to the nearest safe mooring and to remain there until the situation creating the hazardous condition is corrected.

(2) Removal of unmanned watercraft. A city peace officer may remove any unmanned or unattended watercraft from the water when, in the judgement of the officer, the watercraft creates a hazardous condition.

(Ord. No. 11377, § 5, 3-15-99)

Sec. 19-120. Water emergencies.

Should a state of emergency arise that would impair the present water quality standards of the water supply at Hazel Creek Lake, the city manager or the public works director of the city will have the authority to declare a state of emergency and will notify the Missouri Department of Conservation, Missouri Department of Natural Resources, Water Quality Division, and the chief of police. All boating and recreation on Hazel Creek Lake shall

cease until such time as the emergency situation is corrected and, if appropriate, until approved by the Missouri Department of Natural Resources.

(Ord. No. 11295, § 41, 6-2-97)

Sec. 19-121. Grazing animals, mineral exploration prohibited.

(a) It shall be unlawful for any person to allow any animal to graze upon lands owned or leased by the city surrounding Hazel Creek Lake. Each animal found to be grazing on the lands shall constitute a separate violation and the owner of the animal(s) shall be charged accordingly.

(b) It shall be unlawful for any person to drill, dig, or in any way explore for any minerals upon the land owned or leased by the city surrounding Hazel Creek Lake.

(Ord. No. 11295, § 42, 6-2-97)

Sec. 19-122. Gates on adjoining property.

Owners of property that adjoins the land surrounding Hazel Creek Lake which is owned or leased by the city may, upon approval by the public works director, install a gate in the city fence line. The gate shall remain secured, except when in use. The gate shall be used exclusively for access to Hazel Creek by the property owner, his or her immediate family or guests that are in the immediate accompaniment of the property owner or a member of his or her immediate family.

(Ord. No. 11295, § 44, 6-2-97)

Sec. 19-123. Vehicles.

Vehicles are prohibited on the lands surrounding Hazel Creek Lake except on roadways designed and designated for usage by vehicles, except that the city or its authorized agents may use vehicles on any lands for the necessary upkeep, maintenance, enforcement or protection of the public.

(Ord. No. 11295, § 45, 6-2-97)

Sec. 19-124. Camping.

Camping is prohibited on any off-road property surrounding Hazel Creek Lake. In accordance with Missouri Department of Natural Resources definitions, any overnight parking on gravel or paved roads or parking areas is considered camping and is prohibited.

(Ord. No. 11295, § 46, 6-2-97)

Sec. 19-125. Permanent mooring or docking of boats.

Permanent mooring or docking of boats on Hazel Creek Lake is prohibited. Permanent mooring or docking is a period over seventy-two (72) hours in duration, except as exempted for water fowl hunting.

(Ord. No. 11295, § 47, 6-2-97)

Sec. 19-126. Cutting of vegetation.

Cutting or removal of vegetation is prohibited except where specifically authorized in or upon Hazel Creek Lake or the surrounding lands owned or leased by the city.

(Ord. No. 11295, § 48, 6-2-97)

Sec. 19-127. Trespass on dam.

It shall be unlawful for any person, other than an employee or agent of the Missouri Department of Conservation, to enter or remain upon that part of Hazel Creek Lake Dam depicted in Exhibit A, (to Ordinance No. 10761), a copy of which is incorporated herein by reference.

(Ord. No. 11295, § 49, 6-2-97)

Sec. 19-128. Use of Hazel Creek Lake and surrounding property; penalties.

Persons who violate the provisions of this article, upon conviction, shall be deemed guilty of a misdemeanor and for the first offense shall be fined not less than twenty-five dollars (\$25.00), or imprisoned in the county jail for a period not to exceed ninety (90) days or both fined and imprisoned. Upon conviction of a second and subsequent offense, persons may be fined not less than fifty dollars (\$50.00) nor more than two hundred dollars (\$200.00) or imprisoned in the county jail for a period not to exceed ninety (90) days or both fined and imprisoned.

(Ord. No. 11295, 6-2-97)

Sec. 19-129. Inspections of boats, refusal of or interference with; penalty.

Any person who refuses or interferes with the inspections of any boat or vessel located upon the waters of this state, when such inspection is conducted for the purpose of determining compliance with the provisions of this chapter, shall be guilty of a class B misdemeanor.

(Ord. No. 11377, § 6, 3-15-99)

KIRKSVILLE CITY COUNCIL STUDY SESSION ATTACHMENT

SUBJECT: Hazel Creek Lake

STUDY SESSION MEETING DATE: June 3, 2013

CITY DEPARTMENT: Public Works

PREPARED BY: John R. Buckwalter, Public Works Director

Hazel Creek Lake was constructed in 1982 as a water supply source for the City of Kirksville. It supplements Forest Lake, which was constructed in 1952. While Forest Lake is managed as a recreational facility as well as a water supply, Hazel Creek Lake is expressly designated as a water supply lake. Recreational use of Hazel Creek Lake is limited to fishing, and boating by sail or paddle only. Gasoline powered motors are prohibited on the Lake. The Missouri Department of Conservation manages Hazel Creek Lake as a fishery for Muskellunge. Under a Community Assistance Program Agreement the Department of Conservation provides public fishing access, parking at two boat ramps, restrooms, and a courtesy dock at the North boat ramp.

Hazel Creek Lake is impounded by a 65 foot high earthfill dam. The dam is currently rated as a hazard Class III dam (low risk). It was last inspected by the Missouri Dam Safety Program, Department of Natural Resources, in March 2013. No observed defects requiring correction were found, and the permit was renewed. The normal elevation of the lake is 848 feet above sea level; the crest of the dam is at 857 feet. The normal pool covers 515 acres and holds 9541 acre feet of water or roughly 3 billion gallons. The lake's watershed is 5151 acres. During normal conditions one inch of rain will result in an increase in lake level of 4 inches. When water is withdrawn from the lake at a rate of 3 million gallons a day, the lake level will decrease less than ¼ inch per day.

Hazel Creek Lake is included on the State's list of impaired waters (303(d) list). The lake was first listed as impaired in 2008 due to high levels of mercury found in fish samples. In 2010 it was again listed as impaired due to mercury, and also listed as impaired due to chlorophyll levels which exceeded state water quality standards. These impairments do not directly impact any beneficial use of the lake, but are listed as not in compliance with "General criteria pertaining to the protection of aquatic life." There is no impact on the use of the lake as a drinking water supply. The water quality worksheet prepared by the Department of Natural Resources for Hazel Creek Lake is attached.

The Watershed Management Commission appointed by the Council has been working on the Watershed Management Plan for Hazel Creek Lake for several years. The final plan is expected to be completed and approved by the Department of Natural Resources this summer. The Watershed Management Plan outlines best management practices to reduce non-point source pollution of the lake, and serves as a guide for improving water quality.

About This Lake

Hazel Creek Lake is one of two municipal water supply lakes owned by the City of Kirksville. The dam on 530-acre Hazel Creek Lake was completed in the summer of 1981, and the impoundment filled to full pool in the spring of 1984. The reservoir is surrounded by city-owned property which provides a good setting for fishing, hunting, and bird watching.

Since enrollment in the Missouri Department of Conservation's Community Assistance Program, The Department of Conservation has constructed one courtesy dock, two parking lots, two boat ramps and two privies.

Hazel Creek Lake provides fishing opportunities for largemouth bass, bluegill, crappie and channel and blue catfish. Hazel Creek Lake also contains muskellunge. The large size and sharp teeth can make these trophies difficult to handle safely. We recommend that you carry gloves and pliers with wire cutters for safe hook removal. We highly recommend measuring and releasing these fish in the water at boat side, ensuring your safety and increasing chances that these valuable fish will live to fight again. Channel catfish and muskellunge are periodically stocked by the Department of Conservation.

Things to Do

- Fishing
- Hunting (The City of Kirksville allows restricted hunting on the lake and adjacent property excluding the dam. Contact Kirksville City Hall at (660) 627-1225 for further information).
- Frogging
- Picnicking
- Outdoor Photography
- Nature Study and Bird Watching

Rules and Regulations

Area hours – Hazel Creek Lake is closed to the public from 10:00 p.m. to 4:00 a.m. daily, however, hunting, fishing, launching boats, and landing boats are permitted at any time. The dam and overflow channel are closed to the public.

Fishing

Species	Daily Limit	Protected Length
Black Bass	6	Less than 15"
Muskellunge	1	Less than 36"
Crappie	15	
Channel and Blue Catfish (combined)	4	
All other fish combined	20	

- Only pole and line fishing (3 per person), except that carp may be taken by atlatl, gig, bow, or cross-bow during statewide seasons.
- Seining or trapping of live bait is prohibited
- Bullfrogs and green frogs may be taken during the statewide season by hand, handnet, gig, longbow, and hook and line
- Electric boat motors only
- No swimming

The Community Assistance Program sponsored by the Missouri Conservation Department provides fisheries management and assistance to local communities for developing or upgrading facilities. In return, local communities maintain the area and facilities and open their lakes to the public. This program provides fishing and improved facilities at lakes close to home. Everyone benefits.

MISSOURI DEPARTMENT OF CONSERVATION
660/785-2420
CITY OF KIRKSVILLE
660/627-1225

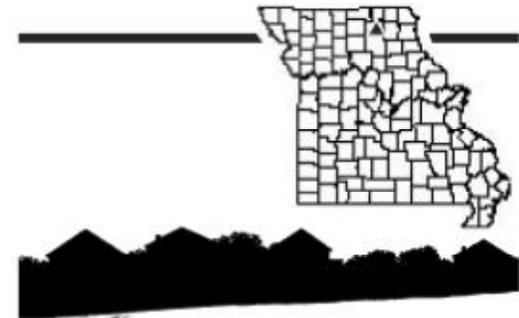


4/2013

(Regulations are from the Wildlife Code of Missouri and selected statutes of the State of Missouri. Special regulations for areas owned by other entities are in Chapter 12 of the Wildlife Code. A free printed copy of the Wildlife Code is available from the Conservation Department, Chapter 12 in its entirety is available at [www.mdc.mo.gov/land/wildlife/wildlife.htm](http://www.mdc.mo.gov/land/wildlife/wildlife/wildlife.htm)) Equal opportunity to participate in and benefit from programs of the Missouri Department of Conservation is available to all individuals without regard to their race, color, national origin, sex, age or disability. Questions should be directed to the Department of Conservation, P.O. Box 180, Jefferson City, MO 65102, (573) 751-4115 (voice) or 800-735-2966 (TTY), or to the U.S. Fish and Wildlife Service Districts of Federal Assistance, 4401 N. Fairfax Drive, Mail Stop: M850-0020, Arlington, VA 22203.

Hazel Creek Lake

Managed in cooperation with
City of Kirksville

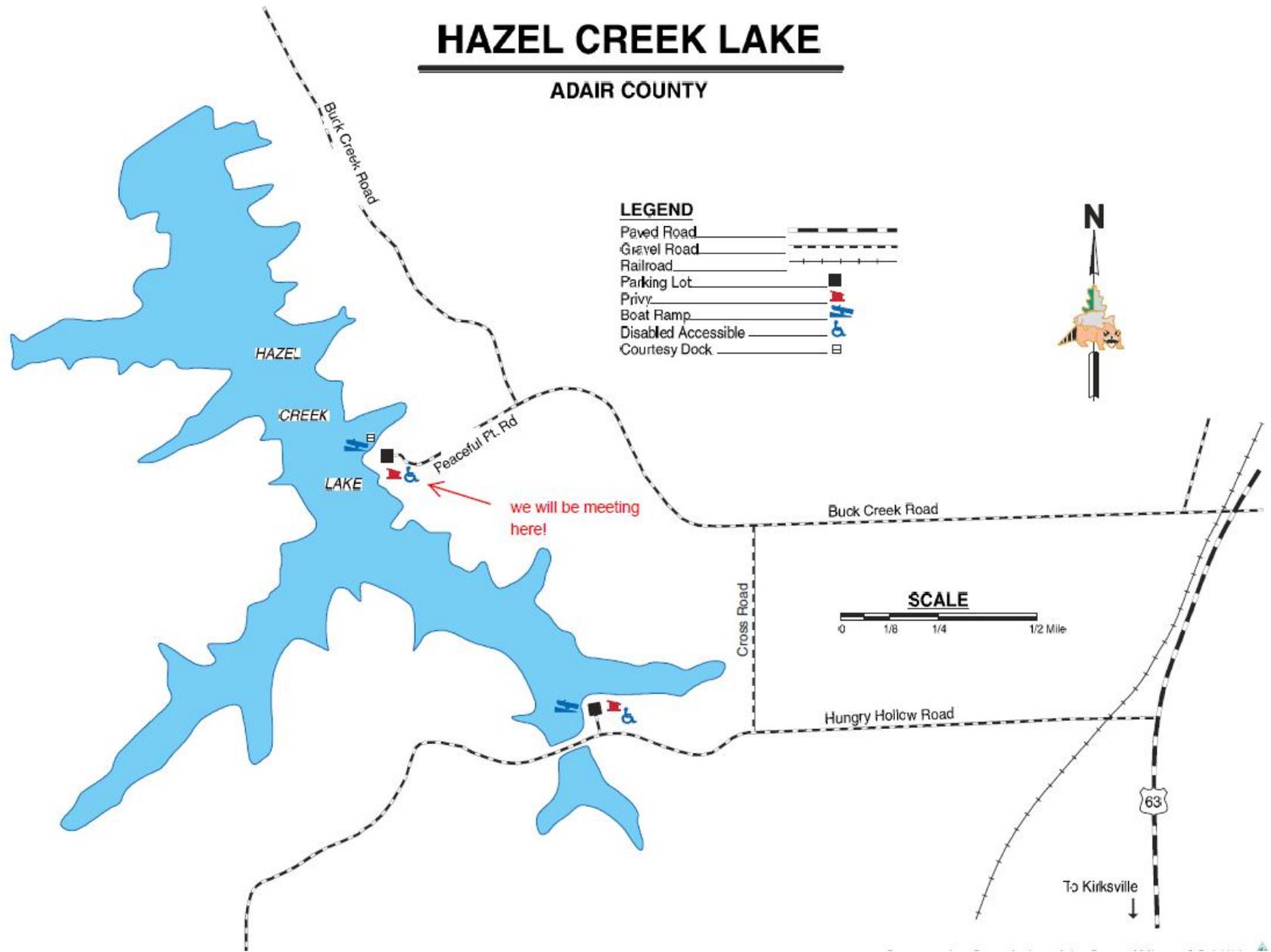


Missouri Department
of Conservation



HAZEL CREEK LAKE

ADAIR COUNTY



LEGEND

- Paved Road
- Gravel Road
- Railroad
- Parking Lot
- Privy
- Boat Ramp
- Disabled Accessible
- Courtesy Dock

SCALE

0 1/8 1/4 1/2 Mile



63

To Kirksville