

STATE OF NEBRASKA

DEPARTMENT OF NATURAL RESOURCES

APPROVAL OF APPLICATION A-19580

WATER DIVISION 2-B

FINDINGS

- On December 22, 2017, the Lower Elkhorn Natural Resources District (Applicant) filed Application A-19580 for a permit to appropriate water for instream flows on a portion of the Elkhorn River for fish, wildlife and recreation. The specified reach is located on the Elkhorn River between United States Geological Survey (USGS) streamgage 06799000 near Norfolk, Nebraska, downstream to the measurement station at USGS streamgage 06800500 near Waterloo, Nebraska. The instream flow request is specific to certain bioperiods, for clarification the application is subdivided and identified in **Table 1** as follows:

Table 1

<u>TIME PERIOD</u>	<u>PURPOSE</u>	<u>STREAM REACH</u>	<u>CUBIC FEET PER SECOND (cfs) OF FLOW REQUESTED</u>
Jan 1- Feb 28 (29)	Maintain overwinter habitat native fish community and aquatic invertebrates. Provide foraging habitat for bald eagles and raptors. Maintain ice scour events which scour vegetation from islands/sand bars and forms and shapes channel.	Elkhorn River between United States Geological Survey (USGS) streamgage 06799000 near Norfolk, Nebraska, downstream to USGS streamgage 06800500	600
Mar 1- May 31	Scour islands/sand bars and form and shape channel. Support spring aquatic insects. Provide spawning habitat for fish and mussels. Support migration of whooping and sandhill cranes. Provide wetland habitat for migrating waterfowl, wading birds and shorebirds. Least tern and piping plover habitat.		2100
June 1- August 31	Provide nesting shorebirds and young with a degree of protection from terrestrial predators. Maintain adequate instream habitat for fish and invertebrates and food supply for terns. Protect native fish communities from losses due to high water temperatures. Maintain connectivity between upstream and downstream river segments. Augment flow to lower Platte River and sturgeon habitat. Maintain water quality.		1400
Sept 1- Dec 31	Maintain and prevent loss of native fish community and promote survival of fish young-of-year. Provide fall migration habitat for migratory bird species, including whooping and sandhill cranes. Maintain aquatic life (e.g. growth and survival of aquatic insects and young-of-year fish). Provide foraging habitat for bald eagles and raptors.		470

- The Applicant provided additional documentation in the "An Assessment of the Benefits to Fish and Wildlife of an Instream Flow Appropriation for the Elkhorn River, Nebraska Revised and Expanded, 15 November 2023", and "Economic Analysis of Alternative Uses of Unappropriated Flows in the

Lower Elkhorn Natural Resource District, Version February 26, 2024", filed on March 18, 2024.

3. Evaluation of whether the application is in the public interest and the economic, social, and environmental value of the instream use is outlined in Attachment A of the application.
4. Documentation of the person who testified at the Applicant's pre-filing public hearing held pursuant to *Neb. Rev. Stat. § 46-2,110* on December 21, 2017, is contained in Attachment B of the application.
5. A compilation of USGS topographic quadrangle map excerpts showing the location of the stream reach is included in Attachment C of the application.
6. Analysis of unappropriated water is contained in Attachment D of the application.
7. Evaluation of how the proposed appropriation would affect senior appropriations is found in Attachment E of the application.
8. Technical study reports as required by *Neb. Rev. Stat. § 46-2,109* submitted within Chapter 5 of the Elkhorn River Instream Flow Documents, which are a part of the application, include:
 - 1.) "Economic Analysis of Alternative Uses of Unappropriated Flows in the Lower Elkhorn Natural Resources District", Daniel J. Phaneuf (2017).
 - 2.) "An Assessment of the Benefits to Fish and Wildlife of an Instream Flow Appropriation for the Elkhorn River, Nebraska", J. David Allan (2017).
 - 3.) "Evaluation of Streamflow Frequency and Unappropriated Streamflow in the Lower Elkhorn River Basin", Flatwater Group Inc. (2017).
 - 4.) "Evaluation of Riverine Habitat as a function of Streamflow in the Lower Elkhorn River Basin" Justin C. Cermak, P.E., The Flatwater Group inc. (2017).
 - 5.) "Economic Analysis of Alternative Uses of Unappropriated Flows in the Lower Elkhorn Natural Resource District, Version February 26, 2024", Daniel J. Phaneuf.
 - 6.) "An Assessment of the Benefits to Fish and Wildlife of an Instream Flow Appropriation for the Elkhorn River, Nebraska Revised and Expanded, 15 November 2023", J. David Allan.
 - 7.) Applications A-19548 and A-19406, which are both part of the Department's files.
9. The Department, as provided in *Neb. Rev. Stat. § 37-807(3)*, consulted with the Commission to ensure that approval would not jeopardize the continued existence of endangered or threatened species or result in the destruction or modification of their critical habitat.
10. The Department published notice of the application on its website and in newspapers of general circulation in the area of the stream segment and in a newspaper of statewide circulation, as provided in *Neb. Rev. Stat. § 46-2,114*.

11. An application for instream flows shall be approved only if the Director finds that the application meets the criteria set forth in *Neb. Rev. Stat.* § 46-2,115, namely:
 - (1) In order to allow for future beneficial uses, there is unappropriated water available to provide the approved instream flow rate at least twenty percent of the time during the period requested;
 - (2) The appropriation is necessary to maintain the existing recreational uses or needs of existing fish and wildlife species;
 - (3) The appropriation will not interfere with any senior surface water appropriation;
 - (4) The rate and timing of the flow is the minimum necessary to maintain the existing recreational uses or needs of existing fish and wildlife species; and
 - (5) The application is in the public interest.
12. In determining whether an application is in the public interest, *Neb. Rev. Stat.* § 46-2,116 requires consideration of:
 - (1) The economic, social, and environmental value of the instream use or uses including, but not limited to, recreation, fish and wildlife, induced recharge for municipal water systems, and water quality maintenance; and
 - (2) The economic, social, and environmental value of reasonably foreseeable alternative out-of-stream uses of water that will be foregone or accorded junior status if the appropriation is granted.

CONCLUSIONS

1. The Applicant fulfilled all procedural requirements in presenting its application.
2. Following consultation with the Nebraska Game and Parks Commission under *Neb. Rev. Stat.* § 37-807 (3), the Department has determined that approval of A-19580 would not jeopardize any endangered or threatened species or result in destruction or modification of their critical habitat.
3. The Department's published notice of the application as provided in *Neb. Rev. Stat.* § 46-2,114 required that a person submit information to the Department using either Option 1 or Option 2. Option 1 provides the opportunity for any interested party to file supportive or negative comments without requesting a hearing. Option 2 provides an opportunity to request a formal hearing as an objector. The Department received one supportive comment letter under Option 1 from the United States Department of Interior, Fish and Wildlife Service. They indicated that granting this application has potential to provide year round benefits to fish and wildlife. The Department did not receive any Option 2 objectors requesting a formal hearing.

4. **Unappropriated Water**

In order to allow for future beneficial uses, *Neb. Rev. Stat. § 46-2,115 (1)* requires that the requested instream flow rate be available at least 20 percent of the time during the period requested.

The Applicant provided a hydrologic analysis of unappropriated water in the report "Evaluation of Streamflow Frequency and Unappropriated Streamflow in the Lower Elkhorn River Basin", (2017). The methodology and results as shown on table 3, page 7, of the report, indicates that there is unappropriated water available to provide for the instream appropriation at the Waterloo gage. All flows were available at least twenty percent of the time during the analysis period relied upon (1929-2016).

Flows requested, and rates available at least 20 percent of the time at the Waterloo gage (06800500) for the different time periods of the year are listed in Table 2 below.

Table 2

Time Period	Gage	Flow (cfs) Requested	Amount Available 20%
Jan 1 - Feb 28	Waterloo	600	1250
March 1 - May 31	Waterloo	2100	2990
June 1 - August 31	Waterloo	1400	2380
Sept 1 - Dec 31	Waterloo	470	1120

It is concluded there is unappropriated water available in the amounts requested for each bioperiod at least 20% of the time.

5. **The Appropriation is Necessary to Maintain the Instream Use or Uses for Which it has been Requested.**

Application A-19580 requests an instream flow appropriation to maintain habitat for the current fish community, migratory birds, and recreation. *Neb. Rev. Stat. § 46-2,115(2)* requires a finding of a sufficient causal link between maintaining the flow and maintaining the use for which the flow is requested.

Studies provided in the supplemental record relate, and the Commission corroborated, that species assemblages show there is considerable overlap of documented fish species in the Elkhorn watershed and the Niobrara watershed. Further analysis of flows requested in the LENRD application compared to what was reported in the Niobrara findings demonstrate the minimum habitat parameters required for the species present would be met; and that studies of the Niobrara River provide a suitable surrogate model for assessing the instream flows needed to support fish and wildlife in the Elkhorn River.

In the report "An Assessment of the Benefits to Fish and Wildlife of an Instream Flow Appropriation for the Elkhorn River, Nebraska Revised and Expanded, 15 November 2023", the following information was provided:

Specifically, the Elkhorn River fish assemblage is broadly similar to the Niobrara assemblage, and its common species occupy the same five guilds identified in the Niobrara, including lobate margin, run, riffle, slackwater, and habitat generalist. It is therefore evident that the Elkhorn River harbors the same or very similar habitat units as the Niobrara.

This transferability provides the opportunity to estimate the flow threshold in the Elkhorn River at which habitat loss becomes stressful to the fish community. In fact, detailed studies in the Niobrara identified various thresholds depending on river segment, bioperiod, and guild. Following the precautionary principle, Parasiewicz et al. (2014) selected the highest values, which were based on segment 1 of the Niobrara. Depending on bioperiod, the threshold value on which instream flows eventually were based, ranged from 0.15 to 0.20 cfs. Applying those values to the drainage area at the Waterloo gage (6,900 sq mi), Elkhorn River recommended flows would fall between 1035 and 1380 cfs at that location, remarkably close to the original Elkhorn instream flow request of 1,000 cfs on an annual average, calculated from water availability.

The portions of the Niobrara River where previous instream flow studies were conducted and the portion of the Elkhorn River where the LENRD is pursuing an instream flow appropriation are similar. The requested instream flow amounts follow a comparable pattern of seasonal variation and the annual average discharge, based on drainage area, conforms to cfs threshold values already established in the Niobrara studies. One could expect flows of similar proportions in each system would result in similar habitats for aquatic species.

It is concluded that a causal link exists and granting this application will establish an appropriation that can provide flows that maintain the fish community and recreation.

6. Instream Appropriation will not Interfere with Senior Surface Water Appropriations

The Applicant stated that granting the requested instream flow would have no effect on other senior appropriations. *Nebraska Revised Statutes* § 46-2,119 provides that instream flow appropriations are subject to the prior appropriation doctrine. If approved, Application A-19580 would have a December 22, 2017, priority date and be junior in priority to nearly all other appropriations in Water Division 2-B. Therefore, it is concluded that granting the applications will not interfere with senior water appropriations.

7. **Studies to Identify Specific Stream Reaches**

Neb. Rev. Stat. § 46-2,109 requires an applicant to conduct studies to identify specific stream segments which the applicant considers to have a need for instream flows. Such studies are required to quantify the instream flow needs in the identified stream segments. As referenced above, LENRD submitted documents to the Department, in fulfillment of this requirement.

8. **Rate and Timing is Minimum Necessary for the Uses.**

Neb. Rev. Stat. § 46-2,115(4) requires the applicant to demonstrate that the "rate and timing of the flow is the minimum necessary to maintain the existing recreational uses or needs of existing fish and wildlife species."

The Department agrees that studies and analysis done in support of instream flow appropriation A-19406 on the Niobrara River are applicable to the reach of the Elkhorn River subject to Application A-19580. The Applicant and the Commission have asserted that flows of similar proportions in each system result in similar habitats for aquatic species. Data has also been shown that fish species and assemblages are broadly similar between these two river segments.

The report in Application A-19406, "Developing Environmental Flows for Fish and Wildlife: A Mesohabitat Study on the Niobrara River," Parasiewicz et al. (2014), details the process which was used for determining instream flows on the Niobrara River and is plausible to apply the scientific basis for determining the instream flows requested in Application A-19580. The report describes how the requested instream flows protects common habitat for the fish community and are within a reasonable range to those identified for the Elkhorn River as the minimum necessary to maintain the integrity of the riverine environment for fish and recreation.

Application A-19580 requests different flow amounts at different times of the year to maintain the needs of the existing fish community. These are called "bioperiods." Using the annual hydrograph, four bioperiods that generally cover annual life history of the various fish guilds were identified and the minimum necessary flow corresponding to each bioperiod was determined. Application A-19580, subdivided by bioperiods, is identified as follows:

- A. **A-19580A.** The purpose is to maintain overwinter habitat and promote winter survival for the existing fish community from January 1 through February 28 (29).

600 cfs is the minimum flow necessary to be appropriated to maintain habitat for the fish community and support recreation.

- B. **A-19580B.** The purpose is to provide instream flows to support spawning and to maintain habitat for the existing fish community during the period from March 1 through May 31.

2,100 cfs is the minimum flow necessary to be appropriated to maintain habitat for the fish community and support recreation.

- C. **A-19580C.** The purpose is to provide instream flows to maintain habitat for the existing fish community and support recreation during the period from June 1 through August 31.

1,400 cfs is the minimum flow necessary to be appropriated to maintain habitat for the fish community and support recreation.

- D. **A-19580D.** The purpose is to provide instream flows to promote survival of fish young-of-the-year and maintain habitat for the existing fish community from September 1 through December 31.

470 cfs is the minimum flow necessary to be appropriated to maintain habitat for the fish community and support recreation.

It is concluded that the Applicant has requested flow rates that are reasonable amounts which are necessary to maintain the fish community in its present condition and support recreation.

The requirements under Neb. Rev. Stat. § 46-2,115(4) have been met for the purpose of supporting fish species and recreation. The Applicant has not met their burden of proof to support a finding that a specific streamflow supports avian species. The Applicant may present evidence that the requested flows support avian species at the first 15-year review pursuant to Neb. Rev. Stat. § 46-2,112.

9. **Public Interest**

The value of reasonably foreseeable out-of-stream uses is described in "Economic Analysis of Alternative Uses of Unappropriated Flows in the Lower Elkhorn Natural Resource District, Version February 26, 2024", Daniel J. Phaneuf. Using data published in "Annual Trends in Agriculture", Department of Agricultural Economics at the University of Nebraska-Lincoln (2023), it found that access to irrigation adds \$95 per acre/per year to farm profits within the Lower Elkhorn Natural Resources District. The report also explored the potential for irrigation development and estimated economic benefits over the next thirty years from allocating unappropriated surface water to irrigation uses of nearly \$245,000 annually.

Instream flow benefits documented by the Applicant include a range of public interest variables, including but not limited to: water quality, livestock watering, increased private land values, recreation, threatened and endangered species, drinking water, and groundwater aquifer recharge. The report acknowledges the primary value of instream flow is in its support of these largely nonmarket, environmental services and that recreation and conservation benefits from protecting instream flows likely exceeds \$700,000 per year.

Additionally, the supplemental record provided by the Applicant regarding the necessity, timing, and amount of flow requested for the instream uses of fish and recreation is sufficient to support a conclusion that approval of Application A-19580 is in the public interest.

ORDER

IT IS HEREBY ORDERED Application A-19580 is APPROVED with the following conditions:

1. The priority date of the appropriation is December 22, 2017.
2. The source of water is the Elkhorn River.
3. The instream flow will be administered for the stream reach between USGS streamgage 06799000 near Norfolk, Nebraska, downstream to Waterloo, Nebraska as measured at USGS streamgage 06800500. It shall be the responsibility of the appropriator to ensure the stream gage remains operational for the Department's administration.
4. Appropriation A-19580A shall not exceed 600 cfs. The water shall be beneficially used to maintain instream habitat for the fish community and support recreation from January 1 through February 28 (February 29 in "leap years").
5. Appropriation A-19580B shall not exceed 2,100 cfs. The water shall be beneficially used to maintain instream habitat for the fish community and support recreation from March 1 through May 31.
6. Appropriation A-19580C shall not exceed 1,400 cfs. The water shall be beneficially used to maintain instream habitat for the fish community and support recreation from June 1 through August 31.
7. Appropriation A-19580D shall not exceed 470 cfs. The water shall be beneficially used to maintain instream habitat for the fish community and support recreation from September 1 through December 31.
8. The appropriator may present evidence that the requested flows support avian species at the first 15-year review pursuant to Neb. Rev. Stat. § 46-2,112. The Department will review any provided evidence to determine whether avian species should be added as an approved beneficial use for the Appropriations.

ADDITIONAL INFORMATION

Failure to comply with all laws and regulations pertaining to surface water appropriations, any orders issued by the Director of the Department of Natural Resources, or the provisions of this Approval may result in the cancellation of the appropriation, temporary closing of the appropriation, administrative penalty, criminal prosecution, or any combination thereof.

Each appropriation will be administered by the Department in accordance with Neb. Rev. Stat. § 46-2,119. If water administration relative to these appropriations is frequent, the appropriator may be required to provide streamflow measuring gage enhancements, including telemetry as specified by the Department.

This appropriation is not a guarantee that water will be available. Nebraska law gives priority to senior appropriations. If in the future you are not receiving sufficient amounts of water to satisfy these appropriations, and if there are junior appropriations upstream, you may call for water by contacting your local field office.

DEPARTMENT OF NATURAL RESOURCES



August 2, 2024

Thomas E. Riley, P.E., Director

A copy of this Order was posted on the Department's website and provided to the Department's field office in Norfolk, Nebraska. A Copy of this Order was mailed to the following:

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