

NEVADA DEPARTMENT OF WILDLIFE STATEWIDE FISHERIES MANAGEMENT



FEDERAL AID JOB PROGRESS REPORTS

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2014

CHIMNEY RESERVOIR
WESTERN REGION



**NEVADA DEPARTMENT OF WILDLIFE, FISHERIES DIVISION
JOB PROGRESS REPORT**

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JOB PROGRESS REPORT**

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**NEVADA DEPARTMENT OF WILDLIFE, FISHERIES DIVISION
ANNUAL PROGRESS REPORT**

State: *Nevada*
Project Title: *Statewide Fisheries Program*
Job Title: *Chimney Reservoir*
Period Covered: *January 1, 2014 through December 31, 2014*

SUMMARY

Chimney Reservoir is managed as a general warmwater fishery. The reservoir was accessible to anglers and boaters throughout 2014. It reached maximum storage at 2,790 acre-ft on April 7, 2014 and a minimum storage of 315 acre-ft on November 5, 2014. Water releases from the reservoir occurred during April, May, and June for irrigation use. Anglers reported catching walleye and wipers in the spring and summer. Monitoring for quagga mussels was not completed in 2014.

A chemical treatment of Chimney Reservoir occurred in 2010 and 2011. The objective of the treatment was to drastically reduce the carp population in the reservoir. Fish restocking began in 2011 following chemical treatment and included walleye fry, channel catfish, wiper, crappie and largemouth bass. Carp are still present in low numbers in the reservoir. Stomach samples were taken from walleye and wiper to analyze if these predatory fish are using carp as forage.

BACKGROUND

Chimney Reservoir is located on the Little Humboldt River and is fed by the North Fork Little Humboldt River and the South Fork Little Humboldt River. The reservoir was built in 1974 to provide water storage for downstream irrigation. When full, Chimney Reservoir covers 2,150 SA and stores 35,000 acre-ft, with an average depth of 16 ft and a maximum depth of 55 ft.

Chimney Reservoir is managed as a general warmwater fishery. Currently walleye, wipers, crappie, channel catfish, and largemouth bass are the only warmwater game fish present in Chimney Reservoir. In the early 1990's, trout were stocked, but a fishery did not become established. Both forks of the Little Humboldt River support Lahontan cutthroat trout in the headwaters.

OBJECTIVES

General Management Objective

- Conduct a general fisheries assessment through opportunistic angler contacts and mail-in, angler questionnaire data.
- Analyze stream gauge data collected by the Department of Conservation and Natural Resources on the north and south forks of the Little Humboldt River (above the reservoir) and Little Humboldt River (below the reservoir).

- Augment the population with approximately 200,000 walleye fry, 2,000 channel catfish, and 2,000 wipers by utilizing source stock from other states, as well as purchasing fish from approved commercial/government suppliers.
- Augment the reservoir with 1,000 largemouth bass from a suitable nearby water.
- Monitor population of fish species by conducting two net-nights of gill netting, two net-nights of frame netting, five electrofishing transects, and three beach seining transects.
- Conduct quagga mussel veliger sampling through plankton tows at established transects at least twice per year.
- Monitor for the presence of quagga mussels by conducting substrate sampling around boat docks and reservoir substrates when on-site.

Study Specific Objectives

- Collect stomach samples from 25 wipers and 25 walleye that are over 16 inches using gastric lavage in order to assess the utilization of forage fish.
- Develop an Environmental Assessment to evaluate the impacts of tiger muskie (muskellunge x northern pike sterile hybrid) introduction to Chimney Reservoir.

PROCEDURES

General Management Objective

Conduct a general fisheries assessment through opportunistic angler contacts and mail-in angler questionnaire data. Mail-in, angler questionnaire data and angler success data for 2013 was summarized. Angler contacts were made when on-site conducting other work.

Analyze stream gauge data collected by the Department of Conservation and Natural Resources on the north and south forks of the Little Humboldt River (above the reservoir) and Little Humboldt River (below the reservoir). Nevada Division of Water Resources (NDWR) provided stream gauge data on water delivered to Chimney Reservoir in the South Fork Little Humboldt River and North Fork Little Humboldt River during 2014 along with reservoir capacity levels throughout 2014.

Augment the population with approximately 200,000 walleye fry, 2,000 channel catfish, and 2,000 wipers by utilizing source stock from other states, as well as purchasing fish from approved commercial/government suppliers. Stocking of purchased warm water fish was not completed in 2014 due to ongoing drought conditions throughout Nevada, which resulted in low water levels at most northern Nevada reservoirs.

Augment the largemouth bass population with 1,000 largemouth bass from a suitable nearby water. Chimney Reservoir was augmented with largemouth bass captured from Bilk Creek Reservoir on November 6 utilizing a Smith Root electrofishing boat.

Monitor population of fish species by conducting 2 net nights of gill netting, 2 net nights of frame netting, 5 electrofishing transects, and 3 beach seining transects. Fish species and populations were monitored through gill netting, frame netting, and beach seining in June. Electrofishing was not conducted in 2014.

Conduct quagga mussel veliger sampling through plankton tows at established transects at least twice per year. Veliger sampling was not conducted in 2014 due to extremely low water levels. Depths in the reservoir were not deep enough to use sampling protocol that was developed by the Bureau of Reclamation.

Monitor for the presence of quagga mussels by conducting tactile surveys around boat docks and reservoir substrates when on-site. Monitoring for adult quagga mussel was completed by conducting visual and tactile surveys around the dam and boat ramp in June.

Study Specific Objectives

Collect stomach samples from 25 wipers and 25 walleye that are over 16 inches using gastric lavage in order to assess the utilization of forage fish by wipers and walleye. Stomach samples were collected from wipers and walleye in 2014.

Develop an Environmental Assessment to evaluate the impacts of tiger muskie (muskellunge x northern pike sterile hybrid) introduction to Chimney Reservoir. An Environmental Assessment was developed to evaluate the impacts of introducing tiger muskie as a biological control of carp in Chimney Reservoir.

FINDINGS

General Management Objective

Conduct a general fisheries assessment through opportunistic angler contacts and mail-in angler questionnaire data. Twelve anglers were contacted while on site conducting other fisheries work at Chimney Reservoir in 2014. Anglers reported fishing a total of 26 hours and catching ten fish. Opportunistic survey results are summarized in Table1.

Mail-in questionnaire data for 2013 at Chimney Reservoir indicated that 46 anglers fished 61 days to catch 61 fish (Table 2).

Table 1. Length Frequency and Species Composition Data – Opportunistic Surveys.

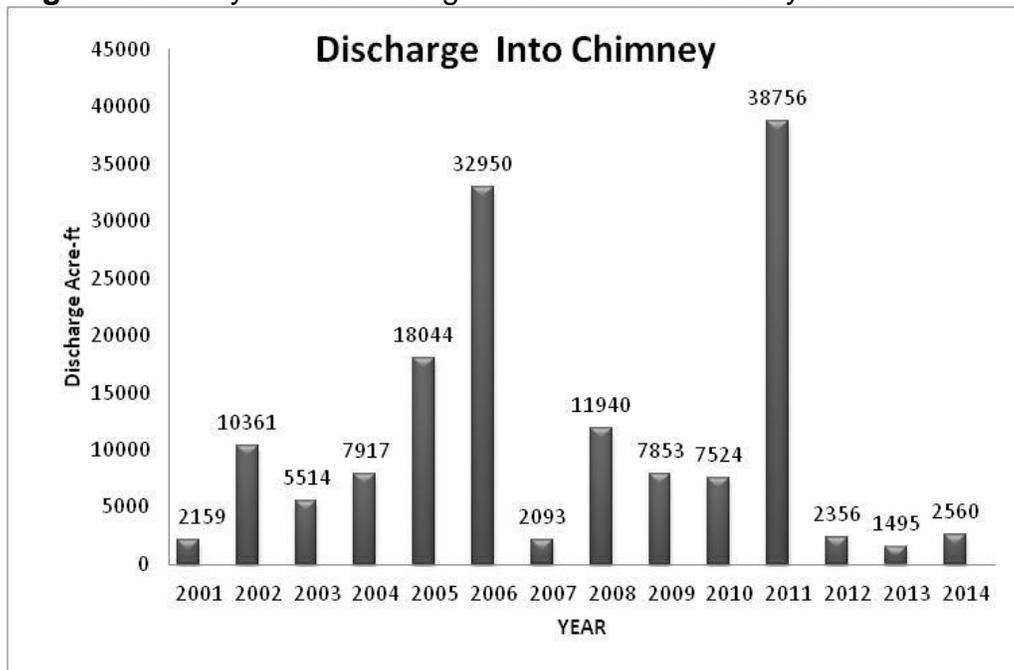
Species	# Caught	Size Class							
		<10"	10-11.9"	12-13.9"	14-15.9"	16-17.9"	18-19.9"	20-24.9"	>25"
Wiper	6	0	0	4	2	0	0	0	0
Walleye	4	1	0	2	1	0	0	0	0

Table 2. Chimney Reservoir Angler Questionnaire Results 2009-2013.

Year	Anglers	Days	Fish	Fish/Day	Fish/Angler	Days/Angler
2009	134	901	1,209	1.34	9.02	6.72
2010	151	312	203	0.65	1.34	2.07
2011	137	144	8	0.06	0.06	1.05
2012	128	249	15	0.06	0.12	1.95
2013	46	61	61	1.00	1.32	1.32
Average	119.2	333.4	299.2	0.62	2.37	2.62

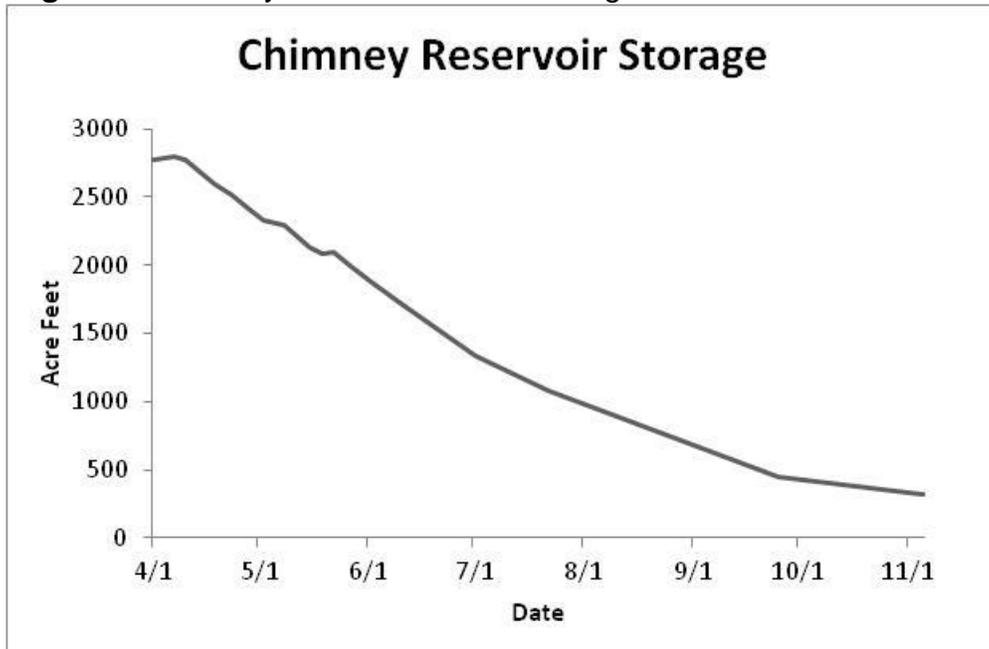
Analyze stream gauge data collected by the Department of Conservation and Natural Resources on the north and south forks of the Little Humboldt River (above the reservoir) and Little Humboldt River (below the reservoir). Upstream flow data for the South Fork and North Fork Little Humboldt rivers was received from the Nevada Department of Conservation and Natural Resources. The South Fork Little Humboldt River had no flowing water in 2014 at the gauge site above Chimney Reservoir and did not contribute any water to Chimney Reservoir. The North Fork Little Humboldt River had flowing water from April 1, 2014 through July 10, 2014, and provided 2,460 acre-ft of water to Chimney Reservoir. At total of 2,280 acre-ft of water was released from Chimney Reservoir in 2014. Figure 1 displays a history of annual water discharged into Chimney Reservoir from the South Fork and North Fork Little Humboldt rivers.

Figure 1. Yearly Total Discharge of Water into Chimney Reservoir.



During 2014, water storage was measured 18 times by Nevada Division of Water Resources. The maximum water stored was measured on April 7, 2014 at 2,790 acre-ft. However, by November 5, storage was at its lowest (315 acre-ft) (Figure 2).

Figure 2. Chimney Reservoir Water Storage for 2014.



Augment the population with approximately 200,000 walleye fry, 2,000 channel catfish, and 2,000 wipers by utilizing source stock from other states, as well as purchasing fish from approved commercial/government suppliers. No warm water fish were stocked into Chimney Reservoir in 2014 due to extreme low water levels.

Augment the largemouth bass population with 1,000 largemouth bass from a suitable nearby water. The reservoir was augmented with largemouth bass from Bilk Creek Reservoir in November 2014. A total of 213 largemouth bass was stocked into Chimney Reservoir. A sample of 100 was measured in total length that ranged from 147 to 295 mm and averaged 241 mm.

As a result of low water conditions, 1,878 white crappie from Willow Creek Reservoir were salvaged using a Smith Root electroshocking boat and stocked into Chimney Reservoir to augment the existing population on July 8 and 9. A sample of 100 was measured and ranged from 100 to 320 mm (TL) and averaged 150 mm (TL). The five-year stocking history is summarized in Table 3.

Monitor population of fish species by conducting two net-nights of gill netting, two net-nights of frame netting, five electrofishing transects, and three beach seining transects. Monitoring populations of fish species was conducted with two nights of gill netting, six nights of frame netting, and three beach seining transects on Chimney Reservoir in 2014. Crappie, walleye, wiper, channel catfish, and carp were all sampled. A total of 70 crappie were caught averaging 187.94 mm (TL), 63 walleye averaging 339.76 mm, eight wiper averaging 422 mm, 24 carp averaging 307.33 mm, and one channel catfish measuring 540 mm in total length. Results of gill netting, frame netting, and beach seining are summarized in Figures 3 through 6.

Table 3. Five-Year Chimney Reservoir Stocking History 2010-2014.

Year	Species	Source	Number of Fish	Pounds of Fish	Average Size (inches)
2010	—	—	—	—	—
2011	Walleye	Gavins Point NFH, SD	200,000	—	—
	Wiper	Colorado Catch	3,250	813	7-9
	Channel catfish	Colorado Catch	500	50	5
2012	Walleye	Gavins Point NFH, SD	600,000	—	—
	Largemouth Bass	Bilk Creek Reservoir	363	96	9.6
	Wiper	Colorado Catch	2,200	550	7.9
	Channel catfish	Colorado Catch	900	200	8.0
2013	Walleye	Gavins Point NFH, SD	200,000	—	—
	Wiper	Colorado Catch	10,000	—	4
	Channel Catfish	Colorado Catch	4,000	400	5
	Largemouth Bass	Bilk Creek Reservoir	639	—	9.6
	White Crappie	Willow Creek Reservoir	1,805	—	4.7
2014	Largemouth Bass	Bilk Creek Reservoir	213	—	9.5
	White Crappie	Willow Creek Reservoir	1,878	—	5.9

Figure 3. White Crappie Length Frequency - Chimney Reservoir 2014

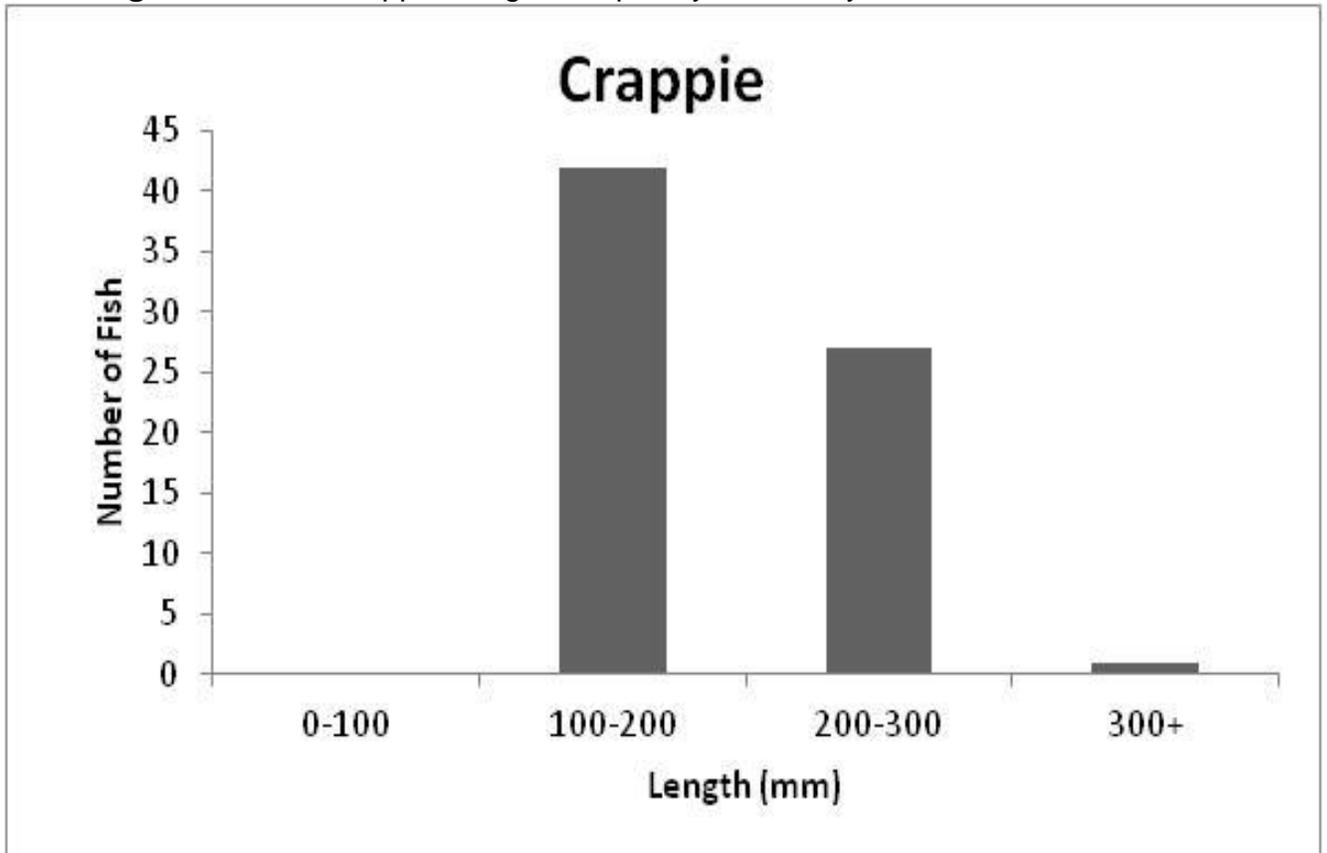


Figure 4. Walleye Length Frequency - Chimney Reservoir 2014

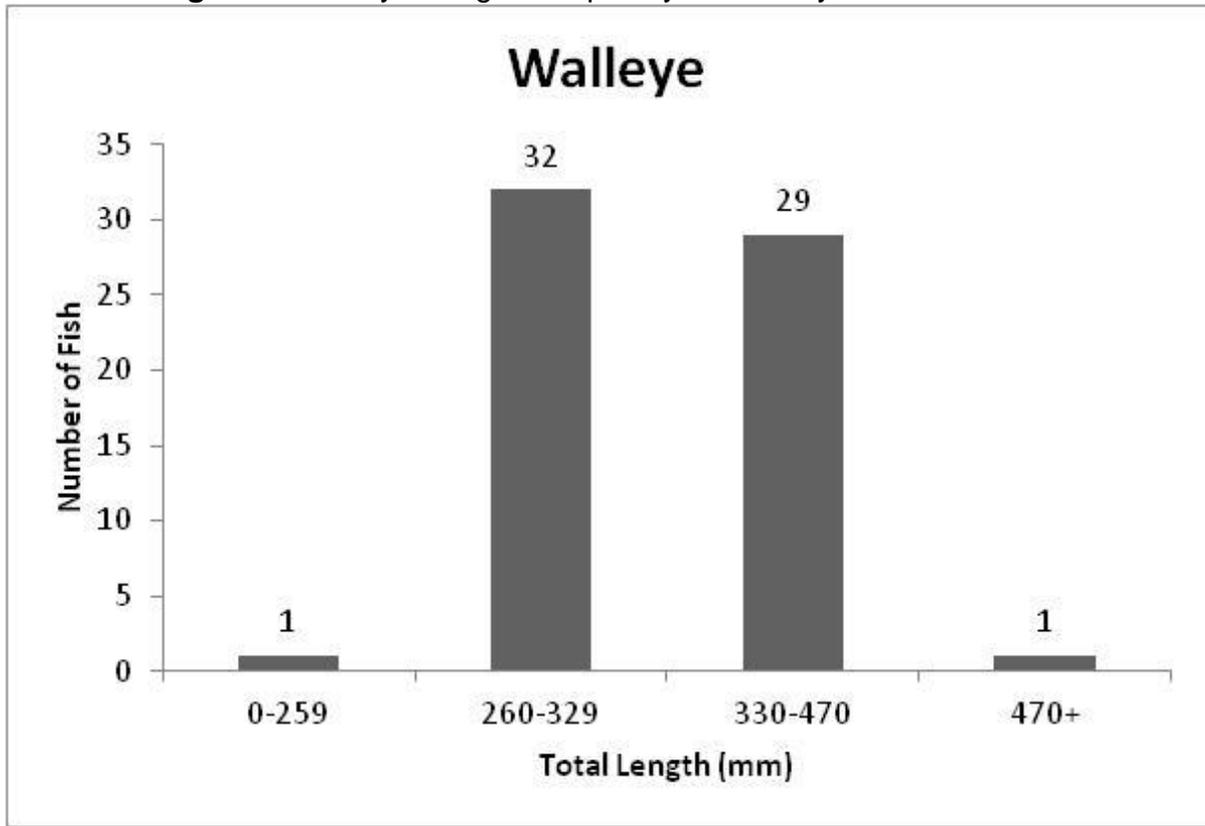


Figure 5. Wiper Length Frequency Chimney Reservoir 2014.

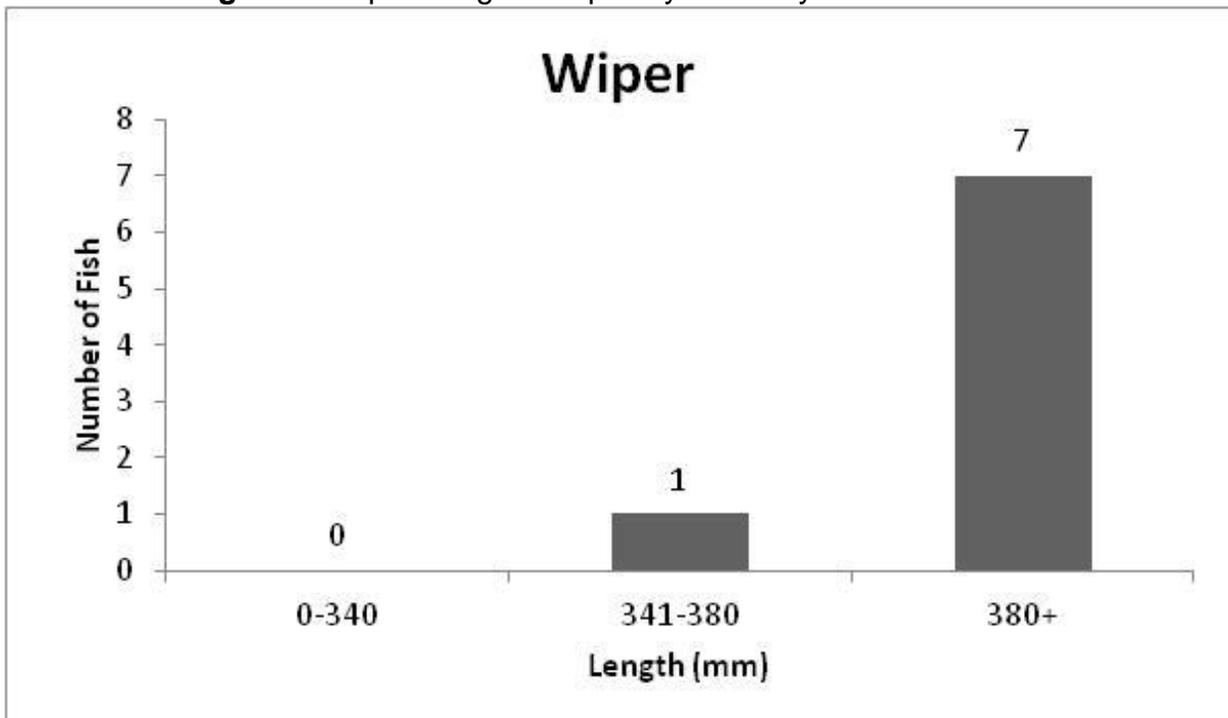
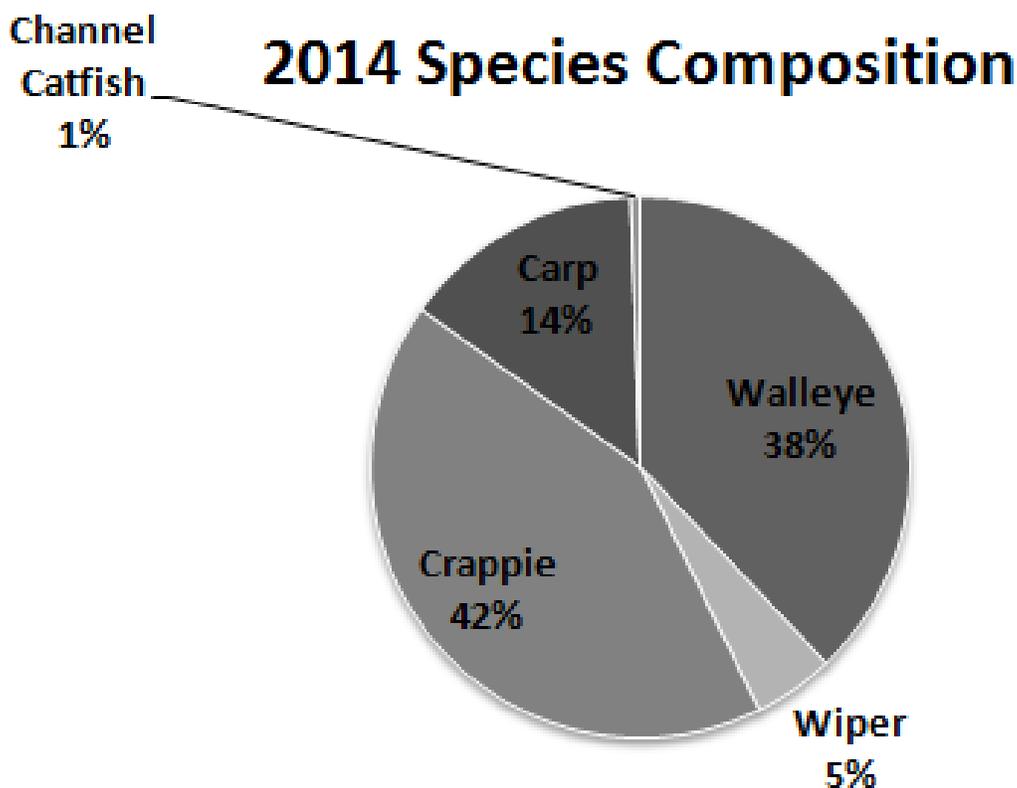


Figure 6. Fish Species Composition Chimney Reservoir 2014.



Conduct quagga mussel veliger sampling through plankton tows at established transects at least twice per year. Veliger sampling was not conducted 2014 due to extremely low water levels. Depths in the reservoir were not deep enough to carry out the sampling protocol that was developed by the Bureau of Reclamation.

Monitor for the presence of quagga mussels by conducting tactile surveys around boat docks and reservoir substrates when on-site. Monitoring for adult quagga mussel occurred visually around the dam and boat ramp areas when on-site at Chimney Reservoir in 2014. All visual surveys for adult quagga mussels around the dam, boat ramp, shoreline, and other areas were all negative.

Study Specific Objectives

Collect stomach samples from 25 wipers and 25 walleye that are over 16 inches using gastric lavage in order to assess the utilization of forage fish by wipers and walleye. Stomach samples were collect from 25 walleye and five wipers in 2014. Stomach samples contents are summarized in Table 4.

Develop an Environmental Assessment to evaluate the impacts of tiger muskie (muskellunge x northern pike sterile hybrid) introduction to Chimney Reservoir. In 2014, an Environmental Assessment (EA) was developed assessing the

consequences of introducing tiger muskie as a biological control for carp in Chimney Reservoir. The complete EA is provided in Appendix A.

Table 4. Wiper and walleye stomach samples Chimney Reservoir 2014.

Fish Species/Total Length	Stomach Contents
Wiper/421 mm	Crayfish
Wiper/420 mm	Crayfish
Wiper/415 mm	Crayfish
Wiper/420 mm	Empty
Wiper/433 mm	Empty
Walleye/376 mm	Crappie/92 mm
Walleye/365 mm	Crappie/ 95mm
Walleye/360 mm	2 Crappie/ 84 & 96mm
Walleye/365 mm	Carp/105mm
Walleye/405 mm	Carp/120mm
Walleye/320 mm	Unidentified fish spp.
Walleye/340 mm	Unidentified fish spp
Walleye/350 mm	Midges
Walleye/375mm	Midges
Walleye/370 mm	Midges
Walleye/370 mm	Empty
Walleye/370 mm	Empty
Walleye/350 mm	Empty
Walleye/320 mm	Empty
Walleye/375 mm	Empty
Walleye/383 mm	Empty
Walleye/420 mm	Empty
Walleye/440 mm	Empty
Walleye/400 mm	Empty
Walleye/405 mm	Empty
Walleye/300 mm	Empty
Walleye/320 mm	Empty
Walleye/340 mm	Empty
Walleye/405 mm	Empty
Walleye/285 mm	Empty

GENERAL MANAGEMENT REVIEW

In 2014, angler utilization at Chimney Reservoir was still low but has consistently shown an increase over the last few years. Angler success in 2014 also improved. This is a sign the fishery is beginning to rebound from the 2011 chemical treatment and anglers are beginning to have success catching mostly wipers and walleye. Chimney Reservoir has been stocked with walleye, wiper, white crappie, channel catfish and largemouth bass over a four year period since the chemical treatment. Angler questionnaire data from 2013 indicate that anglers are starting to have improved success post-eradication, but overall angler use is still low. Water levels in 2014 were

some of the lowest water levels record. Tactile monitoring results for adult quagga mussels along the shoreline and boat ramp were all negative in 2014. Ongoing monitoring and boater education should help prevent establishment of aquatic invasive species into Chimney Reservoir and the Little Humboldt River.

An Environmental Assessment (EA) was developed in 2014 to evaluate the effects of introducing tiger muskie as a biological control of the carp population in Chimney Reservoir. During the EA process, the public had several opportunities to comment on any concerns with the introduction of tiger muskie into the reservoir. All comments received on tiger muskie introduction were positive and supported the introduction of tiger muskie to this water.

STUDY REVIEW

Stomach samples were obtained from 25 walleye and five wipers. Stomach samples obtained in 2014 indicate that walleye are utilizing crappie and carp as forage fish species. The crappie and carp that walleye are foraging on are small individuals less than 100 mm in total length. This indicates that walleye do not prefer to forage on larger carp or that the walleye stocked in Chimney Reservoir since 2011 are not large enough to forage on larger carp. Only a small sample of wiper stomach contents was analyzed, and, at the time of sampling, only crayfish was present in the stomachs of wipers.

RECOMMENDATIONS

General Management Objective

- Conduct a general fisheries assessment through opportunistic angler contacts and mail-in, angler questionnaire data.
- Analyze stream gauge data collected by the Department of Conservation and Natural Resources on the north and south forks of the Little Humboldt River (above the reservoir) and Little Humboldt River (below the reservoir).
- Augment the population with approximately 200,000 walleye fry, 2,000 channel catfish and 2,000 wipers by utilizing source stock from other states, as well as purchasing fish from approved commercial/government suppliers.
- Augment the largemouth bass population with 1,000 largemouth bass from a suitable nearby water.
- Monitor fish species by conducting two net-nights of gill netting, two net-nights of frame netting, five electrofishing transects, and beach seining transects.
- Conduct quagga mussel veliger sampling through plankton tows at established transects at least twice per year.
- Monitor for the presence of quagga mussels by conducting substrate sampling around boat docks and reservoir substrates when on-site.

Study Specific Objectives:

- Collect stomach samples from 25 wipers and 25 walleye that are over 16 inches using gastric lavage in order to assess the utilization of forage fish by wipers and walleye.
- Introduce sterile tiger muskie into Chimney Reservoir as a biological control of carp.

Prepared by: Brad Bauman
Fisheries Biologist III
Western Region

Date: March 10, 2015

Appendix A

**Introduction of Sterile Tiger Muskie into
Chimney Reservoir as a Biological
Control of Carp
FINAL
Environmental Assessment**



Prepared by:

**Nevada Department of Wildlife
Fisheries Division
Reno, Nevada**

May 6, 2015



Nevada Department of Wildlife
Introduction of Sterile Tiger Muskie into Chimney Reservoir as
A Biological Control of Carp
FINAL Environmental Assessment

Introduction

The Nevada Department of Wildlife proposes to introduce sterile tiger muskies into Chimney Reservoir to reduce the abundance of carp with the objective of sustaining and improving the sport fishery for walleye, wiper, channel catfish, crappie, and black bass, along with providing a fishery for tiger muskie in Nevada.

Project Location

Chimney Reservoir is a 2,150 surface-acre impoundment at full pool elevation and stores up to 35,000 acre-feet, with an average depth of 16 feet and a maximum depth of 55 feet (Figure 1). It is located in Humboldt County, Nevada (T 41 N, R 42 E, Sections 13, 24, 25, 36 and T 41 N, R 43 E, Sections 7, 8, 9, 16, 17, 18, 19, 20, 21, 29, 30). Chimney Reservoir stores water from the Little Humboldt River and is fed by the North Fork Little Humboldt River and the South Fork Little Humboldt River. The reservoir was built in 1974 to provide storage for downstream irrigation. The reservoir has a designated minimum pool of 3,500 acre feet of water for recreational use which is held by Humboldt County, Nevada. The Nevada Division of Water Resources controls water levels in Chimney Reservoir during the irrigation season. Water from the North Fork and the South Fork of Little Humboldt River is fed into and stored in Chimney Reservoir. During the irrigation season, stored water is released downstream as needed to meet irrigation demands. These irrigation releases result in continually fluctuating water levels in Chimney Reservoir during the irrigation season. Chimney Reservoir is managed as a general warmwater fishery. Currently walleye, wipers, white crappie, channel catfish, and largemouth bass are the only warm water game fish present in Chimney Reservoir. Both forks of the Little Humboldt River support Lahontan cutthroat trout in the headwaters.

Project Size (acres affected)

1. Developed/residential – 0 acres
2. Industrial – 0 acres
3. Open space/Woodlands/Recreation – 0 acres
4. Wetland and Riparian – Chimney Reservoir is 2,150 surfaces acres at full pool.
5. Floodplain – 0 acres
6. Irrigated Croplands – 0 acres
7. Dry Cropland – 0 acres
8. Forestry - 0 acres
9. Rangeland – 0 acres

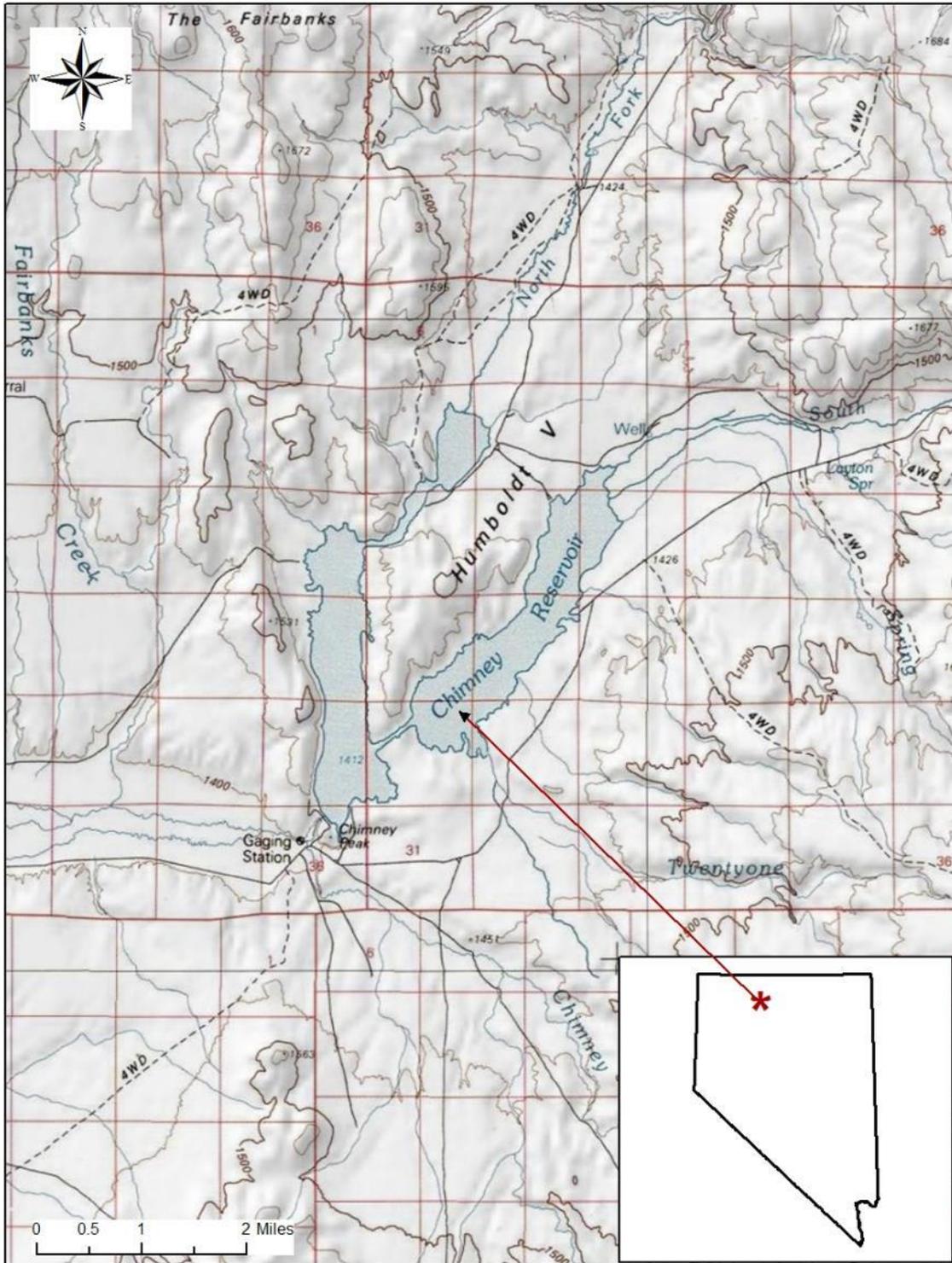


Figure 1. Location of Project Area; Chimney Reservoir, Humboldt County, Nevada

Purpose and Need

Chimney Reservoir is managed as a general warmwater fishery. Currently walleye, wipers, white crappie, channel catfish, and largemouth bass are the only warm water game fish present in Chimney Reservoir. Trout were historically stocked, but a fishery did not become established. Both forks of the Little Humboldt River support Lahontan cutthroat trout in the headwaters, which may contribute to a very limited trout fishery in Chimney Reservoir. The 2015 Biological Opinion from the USFWS states that stocking of nonnatives will have “No Effect” on the headwater LCT populations.

In the early 2000s it became apparent that there was an overabundance of carp in Chimney Reservoir. Commercial fishing operations on Chimney Reservoir targeting carp have been unsuccessful in controlling the population. On October 19 and 20, 2010, the South Fork Little Humboldt River and North Fork Little Humboldt River were chemically treated with rotenone to reduce the carp population. Drip stations and sand-spray crews applied the rotenone. Drip stations were placed approximately every 0.5 miles or closer depending on flow conditions. Only sand-spray crews applied rotenone to the South Fork Little Humboldt River because only stagnant pools of water were present. A temporary wire mesh barrier was constructed on the North Fork Little Humboldt River to prevent fish moving upstream from Chimney Reservoir into the North Fork Little Humboldt River after the stream had been chemically treated.

On January 11 and 12, 2011 Chimney Reservoir was treated again with rotenone to reduce the carp population. A total of 210 gallons of liquid rotenone and approximately 200 pounds of powdered rotenone-sand mixture were pumped underneath the ice-covered reservoir. During the treatment the reservoir storage was approximately 600 acre-feet. Holes were drilled into the ice to lower a garden hose which pumped in rotenone via a two horsepower water pump which was then mixed with the reservoir water by the pumping action. The holes were drilled in a grid pattern to cover the reservoir and 5 or 10 gallons of rotenone was pumped into each hole depending on water volume in that grid section. All the liquid rotenone was delivered into Chimney Reservoir on January 12, 2011.

Fish restocking began in 2011 following the rotenone treatment of the reservoir and included walleye fry, channel catfish, and largemouth bass. In 2012, walleye fry, wipers, channel catfish, and largemouth bass were stocked. Stocking continued in 2013 with walleye fry, wipers, channel catfish, largemouth bass, and white crappie. In 2014 largemouth bass and white crappie were stocked in the reservoir.

Angling use on Chimney Reservoir has averaged 976 angler days since 1980 with peak use of 4,902 days occurring in 1989. Before the chemical treatment of Chimney Reservoir, angler use had been declining and below the average of 976 days since 2003 due to the overabundance of carp. Post chemical treatment angling use is still low, but has increased every year with the rebuilding of the sport fishery.

Recent sampling in Chimney Reservoir has indicated that the fishery is dominated by sport fish (walleye, crappie, wiper, channel catfish), but carp are present in the reservoir (Figures 2 and 3). Carp are represented in low numbers and small size classes in Chimney Reservoir at the present time, but their population and size classes are expected to grow every year based on past history of Chimney Reservoir.

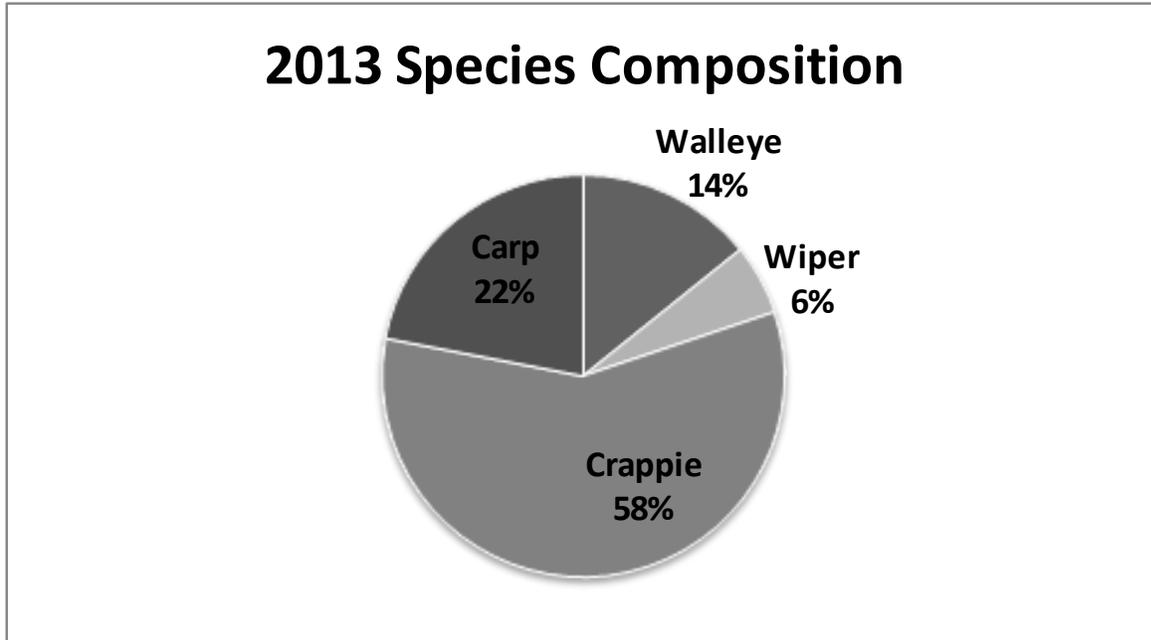


Figure 2. Chimney Reservoir fish species composition from sampling conducted in 2013.

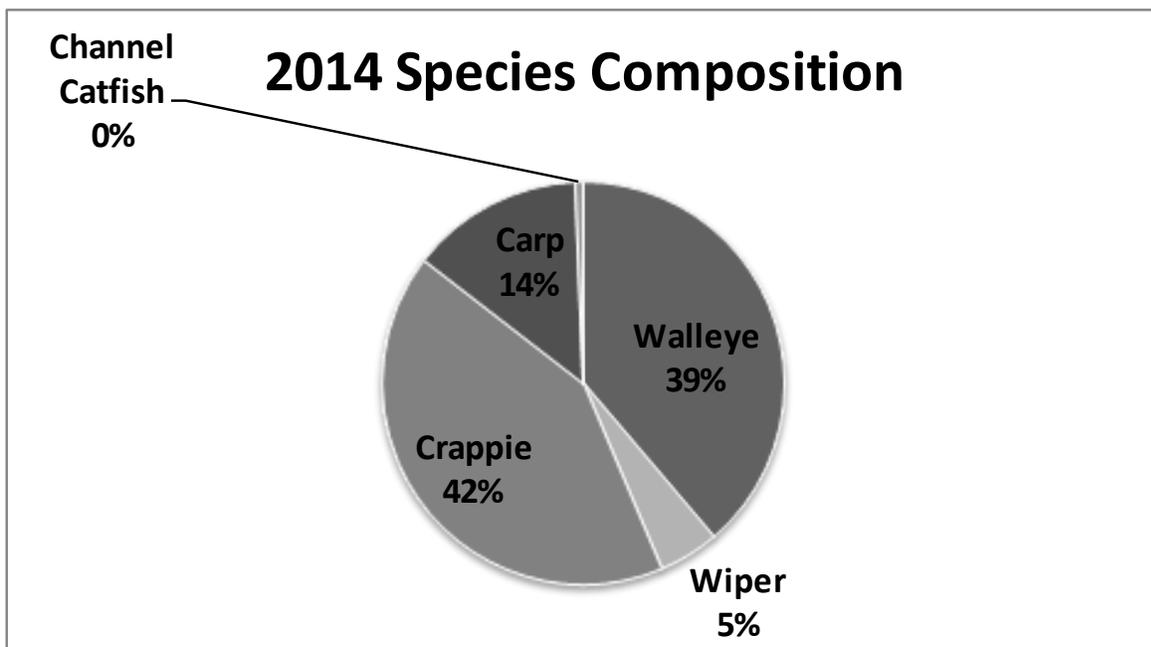


Figure 3. Chimney Reservoir fish species composition from sampling conducted in 2014.

Managers have three viable methods to control carp abundance in Chimney Reservoir: mechanical removal, piscicide treatment, or use of biological control. The mechanical removal of carp from Chimney Reservoir had been attempted in the past using a commercial fishing operation. The success of mechanical removal of carp using a commercial fishing operation had very limited success and only provided a short term improvement. Treating Chimney Reservoir with a piscicide (rotenone) was completed in 2010 and 2011. The treatment was successful at drastically reducing the carp population, but the treatment did not totally eliminate carp from the reservoir. More treatments of Chimney reservoir with a piscicide is not an option because piscicides affect all fish, and would impact sport fish populations in the reservoir.

The most effective of the three alternatives for controlling the abundance of carp in Chimney Reservoir is to introduce a predator fish that could effectively prey on carp. Introduction of a new fish species can present risks because it can result in a self-sustaining population. Tiger muskies are a sterile hybrid between a true muskellunge (*Esox masquinongy*) and northern pike (*Esox lucius*); they cannot reproduce making them an ideal predator fish to consider for this project proposal. A literature review into the reproductive potential of the tiger muskie revealed no documentation of reproduction in the wild (Satterfield et al. 1994). Tiger muskie numbers can easily be managed by adjusting stocking numbers and angler limits, or by mechanical removal with nets.

Tiger muskies have been commonly used as a biological control for undesirable fish species to improve sport and recreational fisheries. Tiger muskies are an opportunistic predatory fish that feed on other fish. Tiger muskies are a bottom oriented fish that tend to select benthic fish rather than prey on fish that suspend in the water column (Engstrom-Heg et al.1986). The State of Colorado has used tiger muskies successfully to control populations of common carp and white suckers (Satterfield and Elmblad 1995). Montana has used tiger muskies to control white suckers in several recreational fisheries. Idaho has used tiger muskie in high mountain lakes to control brook trout populations and improve native cutthroat trout populations (Cassinelli Pers Com 2014). Several other western states such as Utah and New Mexico have used tiger muskies and various applications to control undesirable fish species in many sport and recreational fisheries.

The main purpose for introducing tiger muskies into Chimney Reservoir is to provide a large predator that will prey primarily on the large carp in Chimney Reservoir. The chemical treatment of Chimney Reservoir on 2010 and 2011 drastically reduced the number of carp in the reservoir. Recent netting from 2013 and 2014 revealed that most of the carp population was of the smaller size class, but show indications of the size class of carp increasing. Stomach samples taken in 2013 and 2014 indicated that walleye and wipers are foraging on small carp in Chimney Reservoir, but walleye and wipers will not grow large enough to prey on large carp.

This proposal is also designed to provide sport fishing benefits to Chimney Reservoir with very little potential negative impacts. Chimney Reservoir contains populations of white and black crappie, walleye, wipers, channel catfish and largemouth

bass. Introduction of tiger muskies will provide a secondary benefit to the anglers of Nevada in that it will provide an opportunity to develop a trophy fishery in that tiger muskies grow quickly and attain large sizes that become very attractive to anglers. Montana has developed several trophy tiger muskie fisheries in waters that they have introduced tiger muskie into. A restrictive harvest would be applied to tiger muskie in Chimney Reservoir. This restrictive harvest would allow for the biological control of the carp population while providing the opportunity to develop a trophy fishery.

The Nevada Department of Wildlife's plan is to stock tiger muskie for two consecutive years into Chimney Reservoir. Netting, electrofishing, and stomach sampling surveys will be conducted on Chimney Reservoir to closely monitor the tiger muskie population as well as the carp and the other sport fish population. Stomach samples will be obtained from tiger muskie to determine their utilization of carp as a forage fish. The number of tiger muskies planted in the future years will be dependent upon the results of the netting and electrofishing surveys.

Potential Impacts and Limitations

Reproduction

As stated earlier, many of the potential impacts of this proposal are greatly reduced by using a sterile hybrid as a biological control. Using tiger muskies allows the number of large predators in the system to be closely controlled by adjusting the number of fish stocked and, if necessary, by adjusting regulations to increase harvest on fish already planted. Using a sterile fish makes it relatively easy to reverse the management alternative, if it proved to be undesirable in Chimney Reservoir. By discontinuing stocking and, if appropriate, increasing harvest of established tiger muskie these fish could be removed from the system in a relatively short period of time. Because tiger muskies will not reproduce, continued stocking would be required to maintain this fishery once it became established.

Initial plans would be to establish a tiger muskie density of about one to two tiger muskie per acre in Chimney Reservoir. Future population levels could be controlled fairly closely based on management needs.

Illegal Transplants

Using a sterile hybrid removes another major concern associated with stocking other predatory fish like northern pike. Even if tiger muskies were captured from Chimney Reservoir and illegally moved to other waters, they would not establish reproducing populations that could destroy existing fisheries in these waters.

Predation on Stocked Gamefish

It is likely there would be some predation on game species in Chimney Reservoir, primarily crappie, but impacts would be minimal. Once tiger muskies grow

large enough to prey on the carp population it is anticipated their primary food base would be carp. Based on the use of tiger muskie in Montana for control of undesirable fish species, tiger muskies would grow fast enough to start preying on larger undesirable fish species by their second summer, and the size of fish being preyed upon would continue to increase as the tiger muskies grow.

Escapement

If tiger muskies are established in Chimney Reservoir, some of these fish may attempt to move up stream in the South and North Forks of the Little Humboldt River. On the North Fork of the Little Humboldt there is a water diversion at T42N R43E Section 33 that creates a fish movement barrier upstream. There is also a fish movement barrier that is planned to be constructed to protect the headwater LCT populations in the North Fork Little Humboldt River. There are also several major beaver dam complexes along that North Fork of the Little Humboldt River that will obstruct fish movement upstream of Chimney Reservoir. On the South Fork of the Little Humboldt there are three water diversions that will obstruct fish movement upstream at T41N R43E Sections 10 and 11, and T42N R44E Section 35. There are also several beaver dam complexes along the South Fork Little Humboldt River that will obstruct fish movement upstream. Walleye have been present in Chimney Reservoir since the 1970s and have not moved upstream in the South and North Fork Little Humboldt River to present a risk to LCT populations in the headwaters. Typically the South and North Forks Little Humboldt River have large sections of channel above Chimney Reservoir that goes dry during the summer months and flows that have been recorded of less than 1 CFS. The volume of water and flows of the South and North Fork Little Humboldt River also present a fish movement obstacle for fish moving upstream from Chimney Reservoir.

Evaluation of the impacts of the Proposed Action including secondary and cumulative impacts on the Physical and Human Environment

Tables 1 through 13 below describe the identified possible impacts from introduction of tiger muskie to Chimney Reservoir.

A. PHYSICAL ENVIRONMENT

1. <u>LAND RESOURCES</u> Will the proposed action result in:	IMPACT				Can Impact Be Mitigated	Comment Index
	Unknown	None	Minor	Potentially Significant		
a. Soil instability or changes in geologic substructure?		X				
b. Disruption, displacement, erosion, compaction, moisture loss, or over-covering of soil which would reduce productivity or fertility?		X				
c. Destruction, covering or modification of any unique		X				

geologic or physical features?						
d. Changes in siltation, deposition or erosion patterns that may modify the channel of a river or stream or the bed or shore of a lake?		X				
e. Exposure of people or property to earthquakes, landslides, ground failure, or other natural hazard?		X				
f. Other:		X				

2. <u>AIR</u> Will the proposed action result in:	IMPACT				Can Impact Be Mitigated	Comment Index
	Unknown	None	Minor	Potentially Significant		
a. Emission of air pollutants or deterioration of ambient air quality? (also see 13 (c))		X				
b. Creation of objectionable odors?		X				
c. Alteration of air movement, moisture, or temperature patterns or any change in climate, either locally or regionally?		X				
d. Adverse effects on vegetation, including crops, due to increased emissions of pollutants?		X				
e. Will the project result in any discharge, which will conflict with federal or state air quality regs? (Also see 2a)		X				
f. Other:		X				

3. <u>WATER</u> Will the proposed action result in:	IMPACT				Can Impact Be Mitigated	Comment Index
	Unknown	None	Minor	Potentially Significant		
a. Discharge into surface water or any alteration of surface water quality including but not limited to temperature, dissolved oxygen or turbidity?		X				
b. Changes in drainage patterns or the rate and amount of surface runoff?		X				

c. Alteration of the course or magnitude of floodwater or other flows?		X				
d. Changes in the amount of surface water in any water body or creation of a new water body?		X				
e. Exposure of people or property to water related hazards such as flooding?		X				
f. Changes in the quality of groundwater?		X				
g. Changes in the quantity of groundwater?		X				
h. Increase in risk of contamination of surface or groundwater?		X				
i. Effects on any existing water right or reservation?		X				
j. Effects on other water users as a result of any alteration in surface or groundwater quality?		X				
k. Effects on other users as a result of any alteration in surface or groundwater quantity?		X				
l. Will the project affect a designated floodplain? (Also see 3c)		X				
m. Will the project result in any discharge that will affect federal or state water quality regulations? (Also see 3a)		X				
n. Other:		X				

4. <u>VEGETATION</u> Will the proposed action result in:	IMPACT				Can Impact Be Mitigated	Comment Index
	Unknown	None	Minor	Potentially Significant		
a. Changes in the diversity, productivity or abundance of plant species (including trees, shrubs, grass, crops, and aquatic plants)?		X				
b. Alteration of a plant community?		X				

c. Adverse effects on any unique, rare, threatened, or endangered species?		X				
d. Reduction in acreage or productivity of any agricultural land?		X				
e. Establishment or spread of noxious weeds?		X				
f. Will the project affect wetlands, or prime and unique farmland?		X				
g. Other:		X				

5. FISH/WILDLIFE Will the proposed action result in:	IMPACT				Can Impact Be Mitigated	Comment Index
	Unknown	None	Minor	Potentially Significant		
a. Deterioration of critical fish or wildlife habitat?		X				
b. Changes in the diversity or abundance of game animals or bird species?		X				
c. Changes in the diversity or abundance of nongame species?			X			5c
d. Introduction of new species into an area?				X	YES	5d
e. Creation of a barrier to the migration or movement of animals?			X		YES	5e
f. Adverse effects on any unique, rare, threatened, or endangered species?		X				
g. Increase in conditions that stress wildlife populations or limit abundance (including harassment, legal or illegal harvest or other human activity)?			X			5g
h. Will the project be performed in any area in which T&E species are present, and will the project affect any T&E species or their habitat?		X				5h
i. Will the project introduce or export any species not presently or historically occurring in the receiving location? (Also see 5d)				X	Yes	5i

j. Other:						
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- 5c** It is possible that stocked tiger muskies could occasionally prey on waterfowl or other nongame species in Chimney Reservoir.
- 5d.** The goal of this project is to introduce a new fish species into Chimney Reservoir. Because tiger muskies are sterile hybrids, it would be possible to eventually remove this species.
- 5e** A fish movement barrier is planned to be constructed on the North Fork Little Humboldt River to protect headwater LCT populations
- 5g.** If this proposal is successful in improving the fisheries in Chimney Reservoir it will likely increase angling pressure on the reservoir.
- 5h.** LCT are present in the headwaters of the North and South Fork. There are several obstacles that will prevent fish from moving upstream including barriers, diversions, beaver dam complexes and the channel going dry.
- 5i.** See 5d.

B. HUMAN ENVIRONMENT

6. <u>NOISE/ELECTRICAL EFFECTS</u> Will the proposed action result in:	IMPACT				Can Impact Be Mitigated	Comment Index
	Unknown	None	Minor	Potentially Significant		
a. Increases in existing noise levels?		X				
b. Exposure of people to serve or nuisance noise levels?		X				
c. Creation of electrostatic or electromagnetic effects that could be detrimental to human health or property?		X				
d. Interference with radio or television reception and operation?		X				
e. Other:		X				

7. <u>LAND USE</u> Will the proposed action result in:	IMPACT				Can Impact Be Mitigated	Comment Index
	Unknown	None	Minor	Potentially Significant		
a. Alteration of or interference with the productivity or profitability of the existing land use of an area?		X				
b. Conflicted with a designated natural area or area of unusual scientific or educational importance?		X				

c. Conflict with any existing land use whose presence would constrain or potentially prohibit the proposed action?		X				
d. Adverse effects on or relocation of residences?		X				
e. Other:		X				

8. RISK/HEALTH HAZARDS Will the proposed action result in:	IMPACT				Can Impact Be Mitigated	Comment Index
	Unknown	None	Minor	Potentially Significant		
a. Risk of an explosion or release of hazardous substances (including, but not limited to oil, pesticides, chemicals, or radiation) in the event of an accident or other forms of disruption?		X				
b. Affect an existing emergency response or emergency evacuation plan or create a need for a new plan?		X				
c. Creation of any human health hazard or potential hazard?		X				
d. Will any chemical toxicants be used? (Also see 8a)		X				
e. Other:		X				

9. COMMUNITY IMPACT Will the proposed action result in:	IMPACT				Can Impact Be Mitigated	Comment Index
	Unknown	None	Minor	Potentially Significant		
a. Alteration of the location, distribution, density, or growth rate of the human population of an area?		X				
b. Alteration of the social structure of a community?		X				
c. Alteration of the level or distribution of employment or community or personal income?		X				
d. Changes in industrial or commercial activity?		X				

e. Increased traffic hazards or effects on existing transportation facilities or patterns of movement of people and goods?		X				
f. Other:		X				

10. PUBLIC SERVICES/TAXES/UTILITIES Will the proposed action result in:	IMPACT				Can Impact Be Mitigated	Comment Index
	Unknown	None	Minor	Potentially Significant		
a. Will the proposed action have an effect upon or result in a need for new or altered governmental services in any of the following areas: fire or police protection, schools, parks/recreational facilities, roads or other public maintenance, water supply, sewer or septic systems, solid waste disposal, health, or other governmental services? If any, specify:			X			10a
b. Will the proposed action have an effect upon the local or state tax base and revenues?		X				
c. Will the proposed action result in a need for new facilities or substantial alterations of any of the following utilities: electric power, natural gas, other fuel supply or distribution systems, or communications?		X				
d. Will the proposed action result in increased used of any energy source?		X				
e. Define projected revenue sources		X				
f. Define projected maintenance costs.			X			10f
g. Other:		X				

10a, 10f: Success of this proposal would likely result in increased use Chimney Reservoir, and could put additional demands on Humboldt County for maintenance of the park and camping facilities at Chimney Reservoir.

11. AESTHETICS/RECREATION Will the proposed action result in:	IMPACT				Can Impact Be Mitigated	Comment Index
	Unknown	None	Minor	Potentially Significant		
a. Alteration of any scenic vista or						

creation of an aesthetically offensive site or effect that is open to public view?		X				
b. Alteration of the aesthetic character of a community or neighborhood?		X				
c. Alteration of the quality or quantity of recreational/tourism opportunities and settings? (Attach Tourism Report)			X			11c
d. Will any designated or proposed wild or scenic rivers, trails or wilderness areas be impacted? (Also see 11a, 11c)		X				
e. Other:		X				

11c. A goal of this proposal is to increase and improve angling opportunities at Chimney Reservoir. No tourism report is available for this type of activity.

12. CULTURAL/HISTORICAL RESOURCES Will the proposed action result in:	IMPACT				Can Impact Be Mitigated	Comment Index
	Unknown	None	Minor	Potentially Significant		
a. Destruction or alteration of any site, structure or object of prehistoric historic, or paleontological importance?		X				
b. Physical change that would affect unique cultural values?		X				
c. Effects on existing religious or sacred uses of a site or area?		X				
d. Will the project affect historic or cultural resources? Attach SHPO letter of clearance. (Also see 12.a)		X				
e. Other:		X				

SIGNIFICANCE CRITERIA

13. SUMMARY EVALUATION OF SIGNIFICANCE Will the proposed action, considered as a whole:	IMPACT				Can Impact Be Mitigated	Comment Index
	Unknown	None	Minor	Potentially Significant		

a. Have impacts that are individually limited, but cumulatively considerable? (A project or program may result in impacts on two or more separate resources that create a significant effect when considered together or in total.)		X				
b. Involve potential risks or adverse effects which are uncertain but extremely hazardous if they were to occur?		X				
c. Potentially conflict with the substantive requirements of any local, state, or federal law, regulation, standard or formal plan?		X				
d. Establish a precedent or likelihood that future actions with significant environmental impacts will be proposed?		X				
e. Generate substantial debate or controversy about the nature of the impacts that would be created?		X				
f. Is the project expected to have organized opposition or generate substantial public controversy? (Also see 13e)		X				
g. List any federal or state permits required.		X				

Alternatives Considered for this Project:

Alternative 1: No Action

Maintain the existing fish populations in Chimney Reservoir. This alternative would maintain the existing walleye, wiper, largemouth bass, crappie, channel catfish and carp populations and would limit the potential gamefish populations in Chimney Reservoir. This alternative would also not address the controlling of the carp population in Chimney Reservoir. This alternative would also eliminate an opportunity to increase the number of tiger muskie fisheries available to Nevada anglers.

Alternative 2: Stocking of sterile tiger muskie as biological control of carp - Preferred Alternative

Stock tiger muskies into Chimney Reservoir in the summer of 2015 at a rate of approximately one tiger muskie per acre to provide a biological control on carp. Monitor changes in the fisheries as these tiger muskie mature and adjust future tiger muskie plants to meet management needs.

Alternative 3: Mechanical Control to remove carp

Mechanical control of carp has been attempted in the past using a permitted commercial fishing operation. The mechanical control did not control carp populations in the long term and only demonstrated short term impacts on carp populations. This alternative would also eliminate the potential development of a trophy fishery for tiger muskies in Nevada.

Alternative 4: Piscicide Control to remove carp

Piscicide control of carp was used in 2010 and 2011 to drastically reduce the carp population in Chimney Reservoir. This control measure was successful in reducing the carp population at the time. Piscicide control of carp would not be appropriate at this time, because it affects all fish species. Piscicide control methods are also very costly financially, and require a significant labor investment to be successful. This alternative would also eliminate the potential development of a trophy fishery for tiger muskies in Nevada.

Narrative Evaluation and Comment

This analysis did not reveal or find any significant impacts to the human or physical environment. After consideration of the list of alternatives, the desired objectives, and any limitations identified in the analysis, NDOW has made the determination that Alternative 2, as described in the draft EA, has the greatest potential of fulfilling the desired objectives while having the least environmental impact. Alternative 2 provides NDOW with the option to introduced tiger muskies as a biological control of carp.

Environmental Assessment Conclusions

1. Based on the significance criteria evaluated in the EA, is an EIS required (YES/NO)? If and EIS is not required, explain why the EA is the appropriate level of analysis for the proposed action.

No. The evaluation of the impacts to the physical and human environment reveals no significant impacts from the proposed action. Therefore, an EIS is not necessary and an environmental assessment is the appropriate level of analysis.

2. Describe the level of public involvement for this project if any, and, given the complexity and the seriousness of the environmental issues associated with the proposed action, is the level of public involvement appropriate under the circumstances?

The Nevada Department of Wildlife has initiated conversations with local anglers and citizens through the Humboldt County Commission and the Humboldt County Wildlife Advisory Board. Those conversations have generally been supportive of the proposed action. The draft EA was made available for public comment for 10 days beginning on April 13, 2015. An NDOW news release was posted on April 10, 2015 at http://www.ndow.org/Our_Agency/News/ announcing the public comment period with a link to the draft EA document. A public notice of the comment period and availability of the document was published in the local newspaper, the Humboldt Sun, on April 10, 2015 and the draft EA document was

made available for public viewing at the NDOW Winnemucca office, 815 E 4th Street, Winnemucca, Nevada 89445.

3. Duration of comment period, if any. Date when comments are due. Mail or email address to send comments.

The draft EA was open for public comment for 10 days beginning April 13, 2015 through April 22, 2015 and noticed through the NDOW web site www.ndow.org and through a public notice in the Winnemucca, Nevada newspaper. The public was requested to provide comments by mail, email or in person to:

Brad Bauman
Nevada Department of Wildlife
815 E 4th Street
Winnemucca, Nevada 89445
bbauman@ndow.org

Two comments were received at the NDOW Winnemucca office by email and are included as Attachment 1.

4. Name, title, address, and phone number of the person(s) responsible for preparing the EA.

Brad Bauman
Nevada Department of Wildlife
815 E 4th Street
Winnemucca, Nevada 89445
(775)623-6517
bbauman@ndow.org

Summary of input from public meetings for this Project:

Two public meeting were held regarding this project to solicit public input. The public meetings were the Humboldt County Commission meeting and the Humboldt County Wildlife Advisory Board meeting both held on February 2, 2015. Questions were received from the public and commissioners at these meetings and NDOW provided answers to the questions. Letters of support from both entities were received by NDOW and are included as Attachments 2 and 3. Questions received and NDOW responses are provided below.

Questions and answers from the Humboldt County Commission Meeting

2/2/2015:

Question 1: What are the concerns with tiger muskie moving upstream to Lahontan Cutthroat Trout occupied habitat and is the USFWS aware of this proposal?

Answer 1: There are fish movement barriers that exist on the North Fork and South Fork Little Humboldt River. NDOW has never observed any fish from Chimney Reservoir moving past these barriers. The USFWS Biological Opinion has stated that

stocking of non-native fish into Chimney will have no effect on the headwater populations of LCT. Introduction of tiger muskie has been identified in NDOW grant that is submitted to the USFWS for the last 3 years.

Question 2: Can a tiger muskie reproduce?

Answer 2: No. A tiger muskie is a sterile hybrid that cannot reproduce.

Questions and answers from the Humboldt County Commission Wildlife Advisory Board Meeting 2/2/2015:

Question 1: Are the federal agencies concerned about impacts on headwater Lahontan Cutthroat Trout populations?

Answer 1: The USFWS Biological Opinion states that stocking of non-native fish in Chimney will have no effect on headwater Lahontan Cutthroat Trout populations.

Question 2: Is NDOW concerned with populations being established in other nearby waters by people moving them?

Answer 2: No. Tiger Muskies are a sterile hybrid that cannot reproduce and establish a self-sustaining population. NDOW has never documented an issue with people moving fish from Chimney Reservoir.

References:

Cassinelli, J.D. 2014. Fisheries Biologist . Pers Comm. Idaho Department of Fish and Game.

Engstrom-Heg, R., R.T. Colesante, and G.A. Stillings. 1986. Prey selection of three esocid species and a hybrid esocid. Pages 189-194 in G. Hall, Edotpr, Managing Muskellunges. American Fisheries Society. Special Publication 15, Bethesda, Maryland.

Olsen, Grant. 2013. Record-breaking tiger muskie caught at Pineview Reservoir. <http://www.ksl.com/?sid=26386066>.

Satterfield, J. R. 1993. Tiger Muskie Sterility. State of Colorado Division of Wildlife, Department of Natural Resources.

Satterfield, J.R. and W.R. Emblad. 1995. Stocking proposal for tiger muskie in Harvey Gap Reservoir. Colorado Division of Wildlife, Denver, Colorado.

U.S. Fish and Wildlife Service. 2014. Concurrence and Biological Opinion for the Federal Funding of Aquatic Inventory, Survey and Monitoring Activities, and Conservation Activities for Aquatic Species by the Nevada Department of Wildlife, July 1, 2014-June 30, 2015 (Federal Fiscal Year 2014 Funds). File No. 2014-F-0261.

Attachment 1: Comments received by NDOW during public comment period April 13 – April 22, 2015

From: Cliff Ponsock, April 14, 2015

From: Cliff Ponsock [<mailto:pcliff333@gmail.com>]
Sent: Tuesday, April 14, 2015 1:48 PM
To: Brad Bauman
Subject: Tiger Muskies at Chimney Creek Reservoir

As a native Nevadan and fisherman, I support planting Tiger Muskies at Chimney Creek Reservoir. That body of water gets minimal usage by fisherman as there has not been a very viable resource there for as long as I can remember. Living in Winnemucca it is a chore to have to drive a couple of hundred miles to fish anything decent. This proposal definitely has my vote.

Thanks,

Cliff Ponsock
702 Camelot Way
Winnemucca, Nevada 89445
775-621-8337

From: Lou Varela, April 15, 2015

From: Lou Varela [<mailto:varelal@reno.gov>]
Sent: Wednesday, April 15, 2015 5:13 PM
To: Patrick Sollberger
Subject: tiger muskie

Saw the proposal would be cool to catch big Tiger Muskies! How big would they plant them at?

Lou.

Sign-up to receive updates about City news and events. Visit Reno.gov/RenoConnect
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Attachment 2: Letter of support from Humboldt County Board of Commissioners

County Commissioners

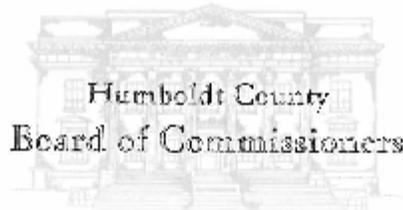
GARLEY AMOS, Chairman

MARLENE BRISSENDEN, Vice Chairman

MIKE BELL

RON CERRI

JIM FRENCH



County Administrator

DAVE MENDIOLA

COURTHOUSE, ROOM 205

50 W. FIFTH STREET

WINNEMUCCA,

NEVADA 89445

Phone: (775) 823-6300

Fax: (775) 823-6302

February 5, 2015

Mr. Brad Bauman
Fisheries Biologist
Nevada Department of Wildlife
815 E 4th Street
Winnemucca, Nevada 89445

Dear Mr. Bauman:

The Humboldt County Board of Commissioners', in their February 2, 2015 Commission meeting, unanimously agreed to support the effort of the NDOW to introduce Sterile Tiger Muskie into Chimney Reservoir to reduce the abundance of Carp with the objective of sustaining and improving the sport fishery for Walleye, Wiper, Channel Catfish, Crappie and Black Bass, along with providing a fishery for Tiger Muskie in Nevada.

If you have any questions regarding this decision or any other related matter, do not hesitate to contact me at the Commission office.

Respectfully,

A handwritten signature in black ink that reads "Garley Amos". The signature is written in a cursive style.

Garley Amos
Chairman
Humboldt County Board of Commissioners

Attachment 3: Letter of Support from Humboldt County Advisory Board to Manage Wildlife

To The Nevada Department of Wildlife,

I am a member of the Humboldt County Advisory Board to Manage Wildlife, and I am writing this letter to express my support for the proposed introduction of Tiger Muskie into Chimney Reservoir in Humboldt County. The Nevada Department of Wildlife proposed their project to the board during our February meeting and, after much discussion, the board voted to support this project.

Since that meeting, I have talked to several members in the community about this topic, and everyone I come across has nothing but positive things to say about it. I hear excited sportsman who are optimistic about the possibility of a new and much needed sport fishing opportunity in our county. People are excited to hear that the carp population will be restricted and that the Nevada Department of Wildlife is looking at a fresh and opportunistic way to do it. This project offers multiple benefits; a way to engage and potentially attract more fisherman as well as offer an alternative to chemical treatment (poisoning) of the carp population.

After reviewing the supporting material and listening to the Nevada Department of Wildlife's plan on how they intend to manage the Muskie population, I see little chance of any negative impact, and I believe the reservoir as well as the surrounding communities will benefit from this project. I am also comforted in the fact that similar programs involving this same sterile species of fish have been successfully implemented in other states. I believe the Department will be able to release and manage this species, and this will prove to be a successful endeavor that will bring value to the state.

Thank You,

Tony Gildone

