

PLAZA 1 ROOM

WEDNESDAY MORNING

ROOM: Plaza 1

TIME: Wednesday 8:00 AM

TITLE: Evaluation of an exploitation management benchmark in a mixed harvest walleye fishery in northern Wisconsin

AUTHOR(S):

Thomas Cichosz -- UW Stevens Point and Wisconsin DNR, 101 S Webster Street, , Madison, WI 53707. Phone: (608)266-8170 Email: Thomas.Cichosz@wisconsin.gov

ABSTRACT: A mixed walleye (*Sander vitreus*) fishery involving both angling and Chippewa spearing harvest exists in northern Wisconsin. To keep maximum adult walleye exploitation from exceeding 35% on more than 1 in 40 occasions, the State uses a sliding bag limit system to reduce angler harvest in response to tribal spear harvest declarations. During 1990-2007 an average of 16 lakes (range 11-24) were randomly sampled each year to estimate walleye abundance and angling harvest. All fish harvested via tribal spearing are counted each night on each lake. This information was used to estimate angling and spearing exploitation rates which were summed to estimate total walleye exploitation rates. Based on individual lake data from 1990-2007, 1.4% (4 of 296) of total exploitation rate estimates exceeded 35%. Total exploitation rates of walleye averaged 12.50% with angling and spearing exploitation averaging 8.13% and 4.36%, respectively. Monte Carlo simulations were used to determine how measurement error affected the likelihood of exceeding 35% total exploitation, since multiple components (angler harvest, walleye abundance and proportions of marked fish observed in creel surveys) used in estimating exploitation were measured independently and with error. Based on Monte Carlo simulations the overall probability of exceeding 35% exploitation was 2.4%. Variations in Monte Carlo simulation results across year, bag limit, recruitment source, and fishing regulations will be discussed.

KEYWORDS: walleye, exploitation, spearing

ROOM: Plaza 1

TIME: Wednesday 8:20 AM

TITLE: Using radio telemetry to investigate seasonal movements of walleye and increase walleye angling interest in Monroe Lake Indiana

AUTHOR(S):

Sandra Clark Kolaks -- Indiana DNR, PO Box 16, , Avoca, IN 47420. Phone: (812) 279-1215

Email: sclark-kolaks@dnr.in.gov

ABSTRACT: In spite of a long-term stocking effort at Monroe Lake, Indiana, a 2007 creel revealed low catches of walleye (*Sander vitreus*). In order to evaluate seasonal movements of walleye and increase walleye angling interest at Monroe Lake, walleye were implanted in spring 2008 and fall of 2009 with radio transmitters. Walleye were relocated weekly during spring, summer, and fall for 2008 and 2009. A webpage was created to inform the anglers about the project and maps containing walleye locations were posted to the website for angler viewing. Walleye movement varied greatly with some fish moving from one end of the lake to the other during the spring and summer while others maintained greater site fidelity. Spawning site fidelity was documented with several new spawning locations being identified. Lakes levels during the spring and summer were several feet above summer pool and walleye were found to use flooded standing timber about half the time when available. During the fall period walleye tended to use old secondary channels and open flats. Tagged walleye used the same areas over the two years with individuals having strong site fidelity. Angler response has been positive with dialogue being generated between anglers and biologists.

KEYWORDS: walleye, telemetry, reservoir

ROOM: Plaza 1

TIME: Wednesday 8:40 AM

TITLE: Comparison of extensive walleye fingerling culture in lined and earthen substrate ponds

AUTHOR(S):

Matthew Ward -- South Dakota Department of Game Fish and Parks, 44437 139A Street, , Waubay, SD 57273. Phone: (605)947-4657 Email: matthew.ward@state.sd.us

ABSTRACT: Water quality parameters, invertebrate densities, and walleye *Sander vitreus* food habits and production measures were compared between artificially-lined and earthen-substrate ponds. In general, very few differences in water quality parameters and invertebrate densities were detected between pond types. Mean walleye total length estimates were greater in lined ponds for three of the four collection dates during 2008 and five of the five collection dates during 2009. A composite numerical analysis of walleye food habits during 2009 indicated there was no difference in the number of zooplankton per walleye gastrointestinal tract (lined mean 20.8 zooplankton / walleye, SE 5.2, earthen mean 13.5 zooplankton / walleye, SE 2.9, df 18, p 0.24) or number of larval chironomids per walleye gastrointestinal tract (lined mean 1.1 chironomids / walleye, SE 0.3, earthen mean 0.9 chironomids / walleye, SE 0.4, df 18, p 0.77). There was no difference in percent survival of young walleye during 2008 (lined mean 67 %, SE 2, earthen mean 64 %, SE 6, df 8, p 0.70) or during 2009 (lined mean 49 %, SE 8, earthen mean 31%, SE 4, df 2, p 0.16). However, total biomass harvested was greater in lined ponds during 2008 (lined mean 60 kg/pond, SE 4, earthen mean 26 kg/pond, SE 4, df 8, p < 0.01) and 2009 (lined mean 42 kg/pond, SE 3, earthen mean 17 kg/pond, SE 4, df 2, p 0.04). Under an organic fertilization regime with a standard walleye fry stocking density and culture duration, artificially-lined ponds provided a means to increase walleye fingerling size at harvest while not sacrificing survival during 2008 and 2009 at Blue Dog Lake State Fish Hatchery.

KEYWORDS: walleye, production, culture

ROOM: Plaza 1

TIME: Wednesday 9:00 AM

TITLE: Sex Ratios of angler-harvested black crappies during spring fisheries: are males in the majority?

AUTHOR(S):

Daniel Isermann -- University of Wisconsin Stevens Point, College of Natural Resources, 800 Reserve Street, Stevens Point, WI 54481. Phone: (715) 295-8878 Email: dan.isermann@uwsp.edu

ABSTRACT: Conventional wisdom suggests that harvest of black crappies during spring periods will be dominated by male fish due to differences in habitat use and spawning behavior between sexes. We examined the potential for male-dominated harvest within spring (late April to mid June) recreational fisheries for black crappies occurring on two Minnesota lakes. In the three spring fisheries we examined males represented between 45 to 57% of all black crappies harvested by anglers during spring, but sex ratios did not significantly deviate from 1:1. However, a temporal pattern in sex ratios was observed on Lake Hubert, where female black crappies dominated angler harvest before 19 May in both 2005 and 2006 (41-42% male), while harvest on or after 19 May was dominated by males (69-75% male), a shift that appeared to coincide with peak black crappie nesting periods. Our evaluation indicates that sex ratios of black crappies harvested by anglers during spring fisheries can vary within and among lakes and will not always be skewed towards male fish. Some of the trends in sex ratios we observed likely resulted from temporal patterns in black crappie behavior (i.e., nesting) and patterns in angler behavior and fishing effort that occurred during spring (e.g., walleye opener).

KEYWORDS: crappies, harvest, sex

ROOM: Plaza 1

TIME: Wednesday 9:20 AM

TITLE: Oxytetracycline Marking of Northern Pike

AUTHOR(S):

Jason Rhoten -- Minnesota State University Mankato Graduate, 410 West Main St Apt 1,
New Prague, MN 56071. Phone: (507)259-8847 Email: jason.rhoten@mnsu.edu

ABSTRACT: Northern pike (*Esox lucius*) has the widest range of any game fish in Minnesota and provides recreational opportunities for anglers. Cultural eutrophication and habitat loss over the past half century has significantly affected northern pike production. To compensate for the low recruitment, stocking fry is a common practice. To determine stocking success, it is often necessary to distinguish hatchery stocked from naturally reproduced fish.

Oxytetracycline (OTC) immersion has successfully and efficiently been used to mark various fish species. Documentation of OTC marking efficacy and techniques for northern pike has been limited. Research was conducted investigating different OTC application methods, resulting mark efficacy, and mark intensities on northern pike otoliths. Otoliths have been identified as a structure that readily absorbs OTC while calcifying. All OTC solution concentrations were 700mg/L, but life stages and osmotic induction prior to immersion were varied between trials. Data suggest mark efficacy was greatest when fish were immersed in OTC within 24 hours of hatch rather than immersion 7 days after hatch. Furthermore, OTC efficacy did not increase through osmotic induction efforts for either 24 hr or 7 day post hatch fry. Osmotic induction, however, did increase mark intensities for fry treated within 24 hrs of hatch.

KEYWORDS: oxytetracycline, pike, mark

ROOM: Plaza 1

TIME: Wednesday 9:40 AM

TITLE: Development of urban and community based largemouth bass fisheries in South Dakota

AUTHOR(S):

Michael J. Greiner -- South Dakota State University, Wildlife and Fisheries Science, Box 2140B, Brookings, SD 57007. Phone: (605) 688-4518 Email: michael.greiner@sdstate.edu

ABSTRACT: Angler participation rates have been declining across the United States, particularly for younger generations. Urban fisheries may be vital, yet underused resources for recruiting and retaining new anglers. We developed a study to identify the use, status, and angler satisfaction with community based fisheries on 5 lakes, 0.6 - 29 acres in South Dakota. Our objectives were to develop a management program that increases angler use and satisfaction, particularly for younger age groups. We electrofished each lake in late May to assess the fish communities present as well as the population dynamics of largemouth bass (*Micropterus salmoides*), a popular sport fish in many community-based fisheries. We conducted creel surveys to assess angler use, harvest, satisfaction, and preferences. Largemouth bass population estimates ranged from 53 (SE 2.0) to 416 (SE 6.48). Angler surveys revealed high use (114 hrs./acre) relative to non-urban fisheries within close proximity (12 hrs./acre). Trip satisfaction was also high (55- 95%) for urban anglers. Additionally, anglers commonly cited close proximity and knowledge of stocking events as reasons for choosing to fish urban fisheries rather than other lakes. Therefore, management aimed at increasing catch rates may be an appropriate method for increasing use and satisfaction with urban fisheries.

KEYWORDS: Bass, Management, Urban

ROOM: Plaza 1

TIME: Wednesday 10:20 AM

TITLE: Size and age at maturity of bluegill *Lepomis macrochirus* in southeastern South Dakota impoundments

AUTHOR(S):

Nick Peterson -- South Dakota State University, Department of Wildlife and Fisheries Sciences, NPB Lab 138 Box 2140B, Brookings, SD 57007. Phone: (515)351-9683 Email: nrpeterson2585@jacks.sdstate.edu

ABSTRACT: Bluegill *Lepomis macrochirus* can be a popular sport fish in small South Dakota impoundments. However, angler interest may be minimal when 20-cm and longer bluegills are not present for harvest. The objectives of this project were to 1) compare length and age at maturity of bluegills in two populations with high size structure (i.e., small and large fish both well-represented) and two with low size structure (i.e., many small but few large fish), and 2) relate size and age structure with bluegill growth patterns. Bluegill were collected in 2008 from four southeastern South Dakota impoundments and again in 2009 from two of the same impoundments. Mean length at age-2 was positively correlated with the percent of mature age-2 fish (r^2 of 0.81). Males from three of four populations were 100% mature by age three (Lake Mitchell was 89% mature). Similar to previous research, mean total length at 100% maturity was reduced in the low size structure populations. Contrarily, at least 95% of fish in all populations were mature by age-3 (mean of 99%) despite large differences in size structure indices and maximum observed total lengths. Bluegills in the low size structure populations matured at a smaller length than in the high size structure populations, however, within-lake growth of males and females was consistently similar. Our results indicate that future research should focus on the role of competition, natural mortality and density dependence in determining size structure in these systems and then relate these trends to bluegill behavioral ecology (i.e., length at maturation).

KEYWORDS: bluegill, maturity, impoundments

ROOM: Plaza 1

TIME: Wednesday 10:40 AM

TITLE: Influence of a modified length and creel limit on the crappie population in a large Illinois reservoir

AUTHOR(S):

Mike Hooe -- Illinois Department of Natural Resources, 7133 Apple Ridge Road, Iuka, IL 62849. Phone: (618)393-6732 Email: mike.hooe@illinois.gov

ABSTRACT: In an effort to improve the quality of the crappie fishery, a combination length and creel regulation was implemented on 19,000 acre Rend Lake in April 2002. The initial regulation limited harvest to 25 crappie per day of which no more than 5 could be > 25 cm (10 inches) in length. The regulation was adjusted in 2004 to allow up to 10 crappie > 25 cm. Annual fall trapnet surveys and data from a 2004 creel survey were compared with pre-regulation creel and trapnet data to evaluate the influence of the regulations on the size structure, catch rate, and harvest of the white crappie in Rend Lake. The size structure of the crappie population improved noticeably following implementation of the regulation. Data from the fall 2002 trapnet survey showed a sharp rise in the percentage of the crappie population > 25 cm and this increase has remained relatively stable for eight years post-implementation. Creel data also showed a dramatic increase in catch rates and harvest of crappie > 25 cm. These preliminary observations suggest this type of regulation may improve and help stabilize the size structure of some crappie populations for an extended period of time.

KEYWORDS: crappie, regulations, reservoir

ROOM: Plaza 1

TIME: Wednesday 11:20 AM

TITLE: Stocking success of paddlefish in Lake Francis Case South Dakota: a reservoir lacking natural recruitment

AUTHOR(S):

Landon Pierce -- South Dakota State University, Box 2140B, Brookings, SD 57007. Phone: (402)570-0607 Email: landon.pierce@sdstate.edu

ABSTRACT: Lake Francis Case, South Dakota, a mainstem Missouri River reservoir, historically supported a sport fishery for paddlefish until a declining population size forced its closure in 1987. Poor recruitment, likely due to limited suitable spawning habitat and an altered flow regime, has been identified as a main cause of the population decline. Paddlefish have been stocked in Lake Francis Case since 1974 to maintain a broodstock source for the Mississippi River basin. The success of these stockings and the status of the population are uncertain as current sampling is limited to the biennial collection of a few ($n < 20$) mature fish for propagation. The objectives of this study are to (1) determine population characteristics and (2) evaluate stocking success of paddlefish in Lake Francis Case. We collected 244 paddlefish during 2008. Fish ranged in age from 4 to 45 years. Stockings accounted for 57 percent of the population (identified by coded wire tags), while the remaining fish were of unknown origin (e.g., natural reproduction, immigration, tag loss, etc.). Stocking rates were highly correlated with recapture rates for the 1995-2000 stocking years, whereas stocking rates and recaptures were not correlated for the 1991-1994 stocking years, due to downstream emigration. Although confounded by downstream movement, stockings have successfully maintained this population and show potential for creating sport fisheries.

KEYWORDS: paddlefish, stocking, reservoir

ROOM: Plaza 1

TIME: Wednesday 11:40 AM

TITLE: Effects of live retention and air exposure on physiology and behavior of common carp

AUTHOR(S):

Tobias Rapp -- South Dakota State University, Department of Wildlife and Fisheries Science, Box 2140B, Brookings, SD 57007. Phone: Email: Tobias_R@gmx.de

ABSTRACT: Specialized angling for trophy sized common carp (*Cyprinus carpio* L.) is often practiced as voluntary catch-and-release angling, and the overnight retention of carp prior to release is common. To evaluate the influence of common handling and retention methods on physiology and behavior of carp post-release, a field study was conducted. The study focused on the confinement in so-called carp sacks, the influence of air exposure and a combination of both stressors on carp. Confinement times in carp sacks, which are collapsible mesh bags made of synthetic fibre cloth, were varied up to 9 h. Some treatment groups also received an air exposure treatment of 10 minutes, which is typical when trophy sized carp are photographed prior to release. The examined blood parameters suggest that long-term carp sack confinement is chronic stress for carp. Physiological changes associated with the examined stressors were reflected in short-term changes in post-release behavior relative to control fish. However, post-release mortality was zero and post-release behavior appeared normal after 12 hours suggesting rapid recovery from retention and air exposure. Nevertheless, it is suggested to avoid retention of carp post-capture and minimize air exposure to minimize fish welfare impairments.

This project was completed at: Inland Fisheries Management Laboratory, Faculty of Agriculture and Horticulture, Humboldt-University of Berlin, Philippstrasse 13, Haus 7, 10115 Berlin, Germany

KEYWORDS: carp, physiology, behavior