

PLAZA 1 ROOM

TUESDAY

ROOM: Plaza1

TIME: Tuesday 8:00 AM

TITLE: Extensive aquatic vegetation introduction in Lake Paradise - Coles Co - Illinois

AUTHOR(S):

Michael Mounce -- Illinois Department of Natural Resources, 1660 W Polk Avenue, Charleston, IL 61920. Phone: (217) 345-2420 Email: mike.mounce@illinois.gov

ABSTRACT: In late spring 2008, four species of submersed macrophytes and *Chara* spp. were planted in Lake Paradise (176 a.). These plantings were protected from depredation in PVC coated wire mesh exclosures of two sizes: 3.05 m circumference (0.98 m diam.) and 6.10 m circ. (1.92 m diam.). In addition, three species of emergent macrophytes were planted in Lake Paradise. Emergent plantings were not protected by any structure. In 2009, many exclosures with no or low plant densities were replanted with wild celery and American pondweed. The results varied among species, both initially and through time, and between the different sized exclosures. Initially, American pondweed, wild celery, three-square bulrush, and wild iris performed very well. Subsequently, iris survival was poor. Submersed species appeared to grow more dense and robust in the larger exclosures, although some smaller exclosures also had dense and robust populations of plants as well. Larger exclosures maximized the use of materials by providing a 4X greater area of protection, 0.74 m² and 2.96 m², for the 3.05 m circ. and the 6.10 m circ. exclosures, respectively. Additional results and recommendations will be discussed.

KEYWORDS: macrophytes, plantings, exclosures

ROOM: Plaza1

TIME: Tuesday 8:20 AM

TITLE: Linking walleye recruitment with future adult abundance across northern Wisconsin

AUTHOR(S):

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ABSTRACT: Walleyes (*Sander vitreus*) are a tremendously popular sport fish in northern Wisconsin and throughout North America. Accordingly, a wealth of literature exists on walleye population dynamics. Often these studies have focused on how adult spawners and environmental variables influence recruitment, frequently on a relatively small spatial scale (i.e. one lake). Understanding how recruitment affects later adult populations across a region has not been thoroughly examined yet has immediate implications for stocking rates and may provide insight into walleye carrying capacity. We attempted to elucidate this relationship and apply it to all of northern Wisconsin by using a spatially and temporally broad dataset developed from a unique state and tribal management program in northern Wisconsin. We examined over 125 lakes sampled over an 18 year time period and fit stock-recruitment curves to relationships between the densities of age-0 fish in the fall to the subsequent densities of age-4 fish in the spring. Preliminary analyses suggest that a Ricker type curve fits the data for naturally reproducing populations, indicating a distinct influence of density dependence and additionally providing an estimate of walleye carrying capacity. Populations which rely on some level of stocking seem to follow a Beverton-Holt type of relationship which provides guidance for stocking fall fingerlings to maximize future production while minimizing cost.

KEYWORDS: walleye

ROOM: Plaza1

TIME: Tuesday 8:40 AM

TITLE: The influence of variable prey abundance on walleye growth and condition in a large Missouri River reservoir

AUTHOR(S):

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ABSTRACT: Prey dynamics vary in large reservoirs, dictating food habits of many predatory fish. Lake Oahe, a large Missouri River reservoir, is one of South Dakota's most popular walleye *Sander vitreus* fishing destinations. Variable recruitment and dam entrainment in the late 1990s and early 2000s resulted in massive rainbow smelt *Osmerus mordax* declines. This, combined with high abundance of adult walleye, resulted in reduced growth and increased mortality of walleye. Recently, gizzard shad *Dorosoma cepedianum* have become established in Lake Oahe and numbers have increased substantially. Our objective was to determine the energetic importance of gizzard shad to walleye growth and condition in Lake Oahe and compare present consumption and growth rates to the mid 1990s when smelt abundance was high, and early 2000s when smelt and shad abundance was low. Gizzard shad were an important diet source during most of the growing season in 2008, resulting in increased growth and condition of walleyes. However, in 2009 the shad population declined likely due to prolonged ice cover and lowered spring water temperatures. During this time, increased abundance of alternative prey fish (age-0 white bass *Morone chrysops*, yellow perch *Perca flavescens*, and cyprinid spp.) became important diet items for walleye in the absence of smelt and shad. Growth rates were reduced compared to 2008 but still greater than times of decreased smelt, shad and alternative prey species abundance. In conclusion, during years of high shad or smelt abundance, biologists should expect to see increased growth and condition of walleye in Lake Oahe.

KEYWORDS: walleye

ROOM: Plaza 1

TIME: Tuesday 9:00 AM

TITLE: Replacing Fish meal in sunshine bass diets with biofuel byproducts to enhance sustainability

AUTHOR(S):

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ABSTRACT: Increasing demand and rising costs of fish meal (FM) coupled with static landings of reduction fisheries have made continued use of FM in aquafeeds environmentally and economically unsustainable. Observed limitations of traditional animal and plant-derived alternative proteins have led nutritionists to investigate new alternatives to FM. Yeast-based, proteinaceous fermentation biomass (PFB), a co-product of bio-ethanol production, is a promising novel alternative because of its composition and increasing availability. The objective of this study was to evaluate the extent to which PFB could replace FM in sunshine bass (*Morone chrysops* ♀ x *Morone saxatilis* ♂) feeds. Juveniles (~16 g) were stocked in a recirculation system (115 L glass aquaria, tanks as experimental units, N=5) and fed diets containing 0-51% PFB for 45 days prior to assessing production performance. Although complete FM replacement resulted in significantly reduced performance, partial substitution of FM with PFB resulted in equivalent, or in some cases, enhanced intake and growth. However, significantly reduced feed intake and specific growth rate in the 0% FM group suggests the palatability of PFB may be a limiting factor impacting production performance. Our data indicates that PFB can partially replace FM without negatively affecting production performance. However, performance may be negatively affected by diets in which PFB replaces all protein provided by FM. Further study with palatable enhanced feeds may provide evidence that complete replacement of FM is possible. Successful implementation of a terrestrial protein source, like PFB, in aquafeeds will not only benefit culturists but also regional agriculture and biofuel industries.

KEYWORDS: fishmeal, biofuels, bass

ROOM: Plaza1

TIME: Tuesday 9:20 AM

TITLE: The occurrence and habitat relationships of eight Iowa stream fish species of greatest conservation need

AUTHOR(S):

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ABSTRACT: Stream fishes are among Iowa's most imperiled animals, and a realistic and effective approach to conservation is needed. In 2001, the Iowa Wildlife Action Plan identified 68 fish species of greatest conservation need (SGCN). Little is known about the distribution and occurrence of these species in Iowa streams. The purpose of this study is to gain a better understanding of the occurrence and habitat relationships of several priority fish SGCN. Prior to field sampling, fish SGCN were prioritized using all available information and input from fishery professionals. Using the prioritized SGCN list and Iowa Aquatic Gap Analysis Project predictive models, a sub-set of species that would maximize a gain in information were selected for intensive sampling. These focal species included black redhorse (*Moxostoma duquisneui*), redbelly darter (*Lythrurus umbratilis*), tadpole madtom (*Noturus gyrinus*), slenderhead darter (*Percina phoxocephala*), blackside darter (*Percina maculata*), banded darter (*Etheostoma zonale*), southern redbelly dace (*Phoxinus erythrogaster*), and Ozark minnow (*Notropis nubilus*). Fish species occurring in stream reaches were sampled by backpack or barge electrofishing in separate macrohabitats (i.e., pool, run, riffle). In-stream habitat variables were measured for each macrohabitat to relate to species occurrence. Approximately 50 stream reaches were sampled in 2009. Sixty-four species were sampled, including 18 SGCN and 7 focal SGCN. These data will increase our understanding of the distribution and habitat relationships of the rare fishes in Midwestern stream systems.

KEYWORDS: occurrence, habitat, stream

ROOM: Plaza1

TIME: Tuesday 9:40 AM

TITLE: Irrigation and year-class strength of fishes -- the importance of a species spawning period

AUTHOR(S):

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ABSTRACT: The five reservoirs of the Republican River basin in Southwest Nebraska were constructed for irrigation, however, they also provide recreational fishing for anglers in the region. Generally, the annual irrigation cycle in this region creates substantial low-water periods in these reservoirs, which can displace juvenile fish from nursery habitat during mid- to late summer. Juveniles of fishes that spawn earlier in the year (i.e., walleye) may have greater survival rates as compared to juveniles of species that spawn later in the year (i.e., white bass) in irrigation reservoirs because refugia provided by nursery habitat becomes less critical for larger, more developed juvenile fishes. The degree to which water levels fluctuate, and thus displace juvenile fishes from nursery habitat, varies among years and reservoirs. Hence, variability of recruitment of fishes within irrigation reservoirs should be related to the size of juveniles at the initiation of the irrigation season, which should be a function of relative spawning time. If true, then strength of year-classes of white bass in these reservoirs should be more erratic than strength of year-classes of walleye because walleye spawn a month before white bass. In this presentation we explore this hypothesis.

KEYWORDS: walleye, whitebass, irrigation

ROOM: Plaza1

TIME: Tuesday 10:20 AM

TITLE: Isotope analysis of a designated trout stream in south-central Minnesota

AUTHOR(S):

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ABSTRACT: Small stream interspecific resource competition can create various overlapping niches. Creating a food web provides a detailed view of resource competition, resource allocations, and trophic level status of each fish species. Conventional methods use stomach contents to construct a food web. However, diet analysis alone only reveals what has been consumed in the near past. A more holistic approach is to assess stable isotope concentrations, as well as stomach contents. Measuring the change in ^{13}C ^{12}C and ^{15}N ^{14}N isotopes provide more detailed representation of items being consumed. Isotopes assimilate into muscle tissue after consumption and absorption of prey items. The objective of this study was to identify the food resources brook trout *Salmo trutta* and creek chubs *Semotilus atromaculatus* utilize in Seven Mile Creek (Nicolet County, MN) and determine if these species compete for similar food resources. Brook trout and creek chubs were assumed to occupy similar feeding niches in Seven Mile Creek. Isotope analysis revealed brown trout and creek chubs did not compete for food resources and neither species was a top predator. Stomach analysis is currently being conducted to support or reject the isotope results.

KEYWORDS: isotope, trout,

ROOM: Plaza1

TIME: Tuesday 10:40 AM

TITLE: Impact of urbanization on the recruitment patterns of three riverine fishes in the Kansas River

AUTHOR(S):

Joseph Gerken -- Kansas State University, Kansas Cooperative Fisheries Unit, 207 Leasure Hall, Manhattan, KS 66506. Phone: 785-532-1818 Email: gerkenje@ksu.edu

ABSTRACT: We used residuals of weighted catch curves to identify patterns in recruitment of river carpsucker, freshwater drum, and flathead catfish among three reaches of the Kansas River with varying degrees of urbanization. Fishes were collected using electrofishing and benthic trawls in the summer of 2008 and all fish were aged using otoliths or pectoral spines. We found that age explained 22-67% of variation in abundance for flathead catfish, 62-87% for freshwater drum, and 30-67% for river carpsucker. Recruitment was variable among species but was most consistent among river reaches for freshwater drum (r^2 : 0.62-0.87) and most variable for flathead catfish (r^2 : 0.22-0.67). Recruitment also varied with respect to the urbanization gradient with the most consistent recruitment at our most downstream and most urbanized site near Kansas City, Kansas (r^2 : 0.56-0.87, depending on species) and the most variable recruitment at our most upstream and least urbanized site near Manhattan, Kansas (r^2 : 0.22-0.61, depending on species). Adding mean spring discharge values to our analyses only explained an additional 2-13% of year class variation. In contrast to adult fishes, juvenile fishes were generally more abundant in our most upstream and most undisturbed reach indicating that downstream populations may rely on immigration of juveniles from upstream nursery habitats. Our results indicate that many environmental variables may impact the recruitment of these species. As such, conservation and management efforts should consider protecting a diverse array of spawning and nursery habitats for large river obligate species.

KEYWORDS: recruitment, urbanization, aging

ROOM: Plaza1

TIME: Tuesday 11:00 AM

TITLE: Muskellunge spawning habitat evaluation in Green Bay

AUTHOR(S):

Kyle Battige -- University of Michigan School of Natural Resources, 440 Church St, Ann Arbor, MI 48109. Phone: (231)878-3098 Email: battikyl@umich.edu

ABSTRACT: The identification, and ultimately the protection, of critical spawning habitat for muskellunge *Esox masquinongy* in Green Bay is vital for re-establishing reproductive success in the Green Bay system. This study was designed to document the extent of natural reproduction by completing 5 objectives: 1. to identify muskellunge spawning locations in Green Bay and tributary systems, 2. to verify egg deposition and quantify physical habitat at each spawning location, 3. to identify potential causes of egg mortality, 4. to determine if spawning locations also act as nursery habitat for age 0 muskellunge, and 5. to identify relationships between young-of-year muskellunge and fish communities. Spawning locations were identified by insertion of radio transmitters into the oviducts of mature females prior to spawning and were located using radio telemetry. In 2009, transmitters were implanted in fish collected from lower Green Bay, a historic spawning area but one with considerable habitat degradation. Of 20 implanted transmitters, 13 were confirmed as deposited. While numerous seine samples were conducted for YOY fish, none were collected from near the spawning areas. In 2010, we intend to implant 20 additional fish in areas of upper Green Bay. The data collected this year and in 2010 will help to determine the levels of natural recruitment and causes of poor reproductive success in the Green Bay muskellunge population. Management implications of this project could potentially include critical habitat designation in order to protect important spawning locations, as well as to target areas for projects designed to rehabilitate muskellunge spawning habitat.

KEYWORDS: muskellunge, spawning, Wisconsin

ROOM: Plaza1

TIME: Tuesday 11:20 AM

TITLE: Food web effects of supplemental predator stocking: effects of lake trophic status and prey community composition

AUTHOR(S):

Corey DeBoom -- Illinois Natural History Survey, 304 West Vine Street, Champaign, IL 61820. Phone: (217)954-1583 Email: deboom@illinois.edu

ABSTRACT: We examined the food web responses of 8 Illinois lakes to supplemental predator stocking over an 8-year period from 1998 to 2005. Our objectives were to: (i) conduct a fully replicated whole-lake experiment to test trophic cascade theory in midwestern eutrophic lakes, (ii) to examine the influence of prey species composition (bluegill vs gizzard shad) on cascading responses in these lakes, and (iii) to assess the extent to which supplemental predator stocking alone may be useful in biomanipulation efforts. Juvenile prey fish density was reduced in non-shad lakes after supplemental stocking relative to controls however there were no changes in density or average size of cladoceran zooplankton. Despite the effects on juvenile planktivorous fish no change was detected in algal biomass (measured as chlorophyll a) or water transparency. Shad dominated lakes showed no significant food web responses to predator stockings. Our results support the findings of previous unreplicated experiments, which reported limited cascading responses in eutrophic lakes in response to predator stocking. In addition, our results support the theory that gizzard shad may negate cascading food web effects and that supplemental stocking of predatory fish alone may not be an effective biomanipulation tool in midwestern eutrophic lakes.

KEYWORDS: biomanipulation, stocking, cascade

ROOM: Plaza1

TIME: Tuesday 11:40 AM

TITLE: Hybrid nest site locations in a sympatric sunfish population

AUTHOR(S):

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ABSTRACT: Hybrid sunfish (*Lepomis gibbosus* x *macrochirus*) occur naturally in Lake Opinicon, likely due to matings between pumpkinseed females (*L. gibbosus*) and sneaker bluegill males (*L. macrochirus*). Hybrid males do not display nest site preference: similar proportions were observed nesting (i) within bluegill colonies, (ii) near pumpkinseed males, and (iii) solitarily. On average, hybrid males were longer than nesting bluegills and pumpkinseeds and their mean age was intermediate. Though lower than bluegill mating success, mating success was identical for both hybrid and pumpkinseed males. These results indicate that hybrids do not pose a threat to the genetic health of Lake Opinicon via the formation of an introgressed population.

KEYWORDS: bluegills, pumpkinseeds, hybrids

ROOM: Plaza1

TIME: Tuesday 1:00 PM

TITLE: Helicopter parents and dead-beat dads: Why is parental care variable across north temperate lakes?

AUTHOR(S):

Geoffrey Steinhart -- Lake Superior State University, 650 West Easterday Avenue, Sault Sainte Marie, MI 49783. Phone: (906)635-2093 Email: gsteinhart@lssu.edu

ABSTRACT: There has been much debate around angling for nest-guarding black bass. It has been shown that even catch-and-release angling of nest-guarding bass can result in partial brood loss. In addition, the physiological effects of angling and fitness consequences of brood reduction may promote nest abandonment. Nevertheless, the effects of brood reduction on nest success have been variable. We explored variation in brood abandonment by conducting various levels of brood removal from smallmouth bass (*Micropterus dolomieu*) nests in two north temperate lakes. Nest success was not related to the percent of brood removal in either lake. However, nest failure was more common, but unrelated to brood size, in a lake with low growth rates, low fecundity, and high post-spawning mortality. Brood size after removal was positively related to nest success in the lake with high growth and survival. In both lakes, young males and young broods were abandoned more frequently, but percent brood removed had no effect on nest failure. Dynamic programming and logistic regression models had poor predictive power for nest failures, but worked best for the lake with selective pressures that theoretically favored abandonment (e.g., high post-spawning mortality). Both models identified male and brood ages as important factors. Understanding demographic characteristics like mortality, fecundity, and growth offer promise for improving the predictability of brood abandonment by smallmouth bass.

KEYWORDS: bass, angling, spawning

ROOM: Plaza1

TIME: Tuesday 1:20 PM

TITLE: Evolutionary impacts of angling nesting bass

AUTHOR(S):

David Philipp -- Illinois Natural History Survey INRS, University of Illinois, 1816 South Oak St, Champaign, IL 61820. Phone: 217-369-2952 Email: philipp@illinois.edu

ABSTRACT: The black basses all exhibit extended male parental care, a behavioral trait that is critical for survival of their young and, hence, for successful recruitment. Long-term studies of several populations of smallmouth and largemouth bass now demonstrate that recruitment (i.e., annual year-class strength) is directly related to the reproductive success of the population. In all populations of bass, however, there is great variation among individuals in their relative contribution to annual overall recruitment. A number of factors (e.g., mating success, male size and age, timing of spawning, etc) all contribute to that relative contribution level. In addition, it has been well documented that angling (both catch-and-harvest and catch-and-release) has negative impacts on the reproductive success for the captured individual. Unfortunately, the male bass that are the most capable of producing surviving young and having the greatest relative contribution to the year class, are also those individuals that are the most vulnerable to angling. As a result, angling for nesting bass results in selection against those males that are the most valuable for population level sustainability. Controlled, long-term selective breeding experiments over 20 years have documented the heritability of bass to angling. The long-term impacts of angling bass during the reproductive season is presented in the form of a conceptual model, which then serves as the basis for recommendations on what management changes are needed to assure long-term sustainability of wild populations of black basses in the future.

KEYWORDS: nesting, angling, evolution

ROOM: Plaza 1

TIME: Tuesday 1:40 PM

TITLE: Impacts of angling induced selection on behaviour and reproductive success of largemouth bass

AUTHOR(S):

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ABSTRACT: Few empirical studies have evaluated consequences of fisheries-induced evolution (FIE) for the fitness in fish. The present study examines possible impacts of recreational fisheries on behaviour and reproductive success. We used two lines of largemouth bass (LMB) (*Micropterus salmoides*) selected for high and low vulnerability (HVF, LVF) to angling. During nest guarding LMB are highly vulnerable to angling providing ample opportunities for FIE even without harvesting. Fitness of nest guarding males may simply be reduced because of nest predation during catch-and-release events.

We tested the hypotheses that HVF are more aggressive nest defenders showing higher relative reproductive success compared to LVF. To examine this hypothesis 48 similar sized males of both lines were evenly distributed amongst 6 treatment ponds (4 per line, total 8 per pond) together with unselected females (6 per pond) . We observed nesting behaviour, aggression towards artificial lures and reproductive success.

Supporting our hypothesis HVF seemed to provide more avid parental care during the egg stage compared to LVF. HVF were also significantly more aggressive towards lures.

Furthermore we found differences concerning the choice of nesting sites. Finally, while egg scores of HVF and LVF were similar, fry scores of HVF appeared to be larger.

Our findings underscore the notion that selective removal of HVF in wild populations might negatively impact the reproductive output of the population. From a management perspective, non-selective exploitation is encouraged to avoid evolutionary repercussions for the viability of wild LMB populations resulting from recreational fishing.

KEYWORDS: fisheries, evolution, behaviour

ROOM: Plaza 1

TIME: Tuesday 2:00 PM

TITLE: Exploring hypotheses about the effects of fishing on largemouth bass populations

AUTHOR(S):

Mike Allen -- University of Florida, 7922 NW 71st Street, Gainesville, FL 32653. Phone: 352-273-3624 Email: msal@ufl.edu

ABSTRACT: Fishing directly influences fish populations through removal of adults, incidental mortality, and truncation of age/size structure. Reduced size/age structure can limit total reproductive output and reduce recruitment to adulthood if fishing mortality is high. Nest building and parental care in black basses (*Micropterus spp.*) creates additional potential for fishing to influence reproductive output by increasing mortality on juveniles via removal of the protective males. I assessed a range of ponds studies, simulations, and field investigations to explore the hypotheses that 1) fishing mortality is currently expected to substantially truncate largemouth bass (*M. salmoides*) age/size structure, and 2) fishing is expected to reduce recruitment by reducing parental care. The evidence suggested that directed fishing mortality has declined by about half for largemouth bass fisheries in the past 25 years owing to voluntary release of fish by anglers. Lower fishing mortality would increase reproductive capacity via higher survival of adult fish. Density dependent mortality is common during summer for juvenile fish, suggesting that recruitment compensation is an important population regulation factor. Larval fish mortality via removal of males from spawning beds would thus presumably be offset by higher survival of juveniles during summer. This evidence suggests that largemouth bass populations are not likely to exhibit severe population limitations owing to current fishing practices across a broad portion of their range. However, effects could vary with latitudes and comparative studies are needed across a wide range of largemouth bass populations.

KEYWORDS: fishing, bass, recruitment

ROOM: Plaza 1

TIME: Tuesday 2:20 PM

TITLE: Largemouth bass in Minnesota: is exploitation still relevant in a catch-and-release world?

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:

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ABSTRACT: Voluntary rates of catch and release are relatively high within many black bass fisheries, suggesting that more stringent harvest regulations might not result in improved fishing. However, our evaluation of maximum length limits and mandatory catch-and release regulations indicated that angler harvest is still important in regulating size structure within some Minnesota largemouth bass populations. In response to these findings we examined trends in release rates for black bass fisheries occurring on more than 320 lakes within the state during 1984 to 2006. We also compared release rates among different regions within the state. Release rates averaged 75% among all lakes and years, but mean release rate before 1990 (70%) was lower than that observed in subsequent years (81%), suggesting that release rates have generally increased over time. Release rates varied among regions, with highest release rates observed in the Twin Cities metropolitan area (90%), followed by the southern (82%) and northern regions of the state (73%). Angler harvest of black bass appears to be more prevalent in northern Minnesota and may reflect a difference in angler motivations or regulation intensity among regions. Fisheries managers should be aware of regional variation in release rates when implementing harvest regulations.

KEYWORDS: bass, release, harvest

ROOM: Plaza 1

TIME: Tuesday 2:40 PM

TITLE: Factors dictating embryo survival in largemouth bass and smallmouth bass

AUTHOR(S):

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ABSTRACT: For many fish species, studies linking the characteristics of individual offspring and parents to year class strength have not been conducted. Due to protracted parental care and accessibility of offspring, black bass are an excellent model species for examining the relationship between environmental parameters, parental characteristics and offspring survival. The current study used populations of smallmouth bass and largemouth bass from Ontario, Canada, to relate temperature fluctuations and offspring characteristics to reproductive success in an effort to better understand recruitment for these species. Eggs, larvae and fry from the nests of smallmouth bass and largemouth bass were collected from the wild for two related experiments. One subset of eggs was sampled for characteristics such as size, weight, energetic content, and hormone concentration in an effort to elucidate patterns in parental abandonment and reproductive success. In a complimentary experiment, offspring in the laboratory were subjected to a series of temperature fluctuations that mimic changes in the wild that have been shown to cause termination of parental care and brood loss. Results showed that offspring survival was largely driven by cortisol concentration in eggs, which is likely a result of maternal inputs. In addition, while the sensitivity of offspring to thermal fluctuations increased with age, temperature variation observed in the wild were likely not sufficient to induce mortality of offspring, indicating that mortality of offspring due to temperature shock is likely not prominent in the wild. Results are further discussed in the context of recruitment and year class strength for bass.

KEYWORDS: bass, recruitment, reproduction

ROOM: Plaza 1

TIME: Tuesday 3:40 PM

TITLE: Increasing habitat complexity in Bull Shoals Lake: implications for black bass recruitment

AUTHOR(S):

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ABSTRACT: Recruitment of black bass is a complicated process that is not thoroughly understood. Past research, however, has indicated that increased habitat complexity may improve survival of young-of-year (YOY) largemouth bass. Brush was placed in coves within Bull Shoals Lake, Missouri, to determine if increasing habitat complexity in coves would increase numbers of nesting adults and improve survival of YOY black bass compared to control coves containing no brush. Coves containing brush had higher numbers of nesting adults relative to coves without brush, however, brush did not increase first-summer abundance of YOY black bass.

KEYWORDS: bass, habitat, nesting

ROOM: Plaza 1

TIME: Tuesday 4:00 PM

TITLE: The largemouth and smallmouth bass population densities and age compositions in a large Indiana lake

AUTHOR(S):

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ABSTRACT: Largemouth bass (*Micropterus salmoides*) and smallmouth bass (*M. dolomieu*) were sampled by electrofishing and marked in Brookville Lake (5260 acres), Indiana. A mark and recapture design was used but due to the large size of the lake a stratified random sampling approach was used to only sample 52% of available shoreline (28.8 miles). The reservoir was divided into 2 strata which were separated by a causeway and were made up of 4 sampling stations each. The strata were sampled over two nights by four electrofishing crews. Collected bass greater than 7.0 in total length (TL) were fin clipped and returned. The target for each station was a minimum of three mark and recapture runs and a percent standard error for each station of 10% or less. Each stratum was calculated separately to estimate populations for largemouth and smallmouth bass individually per mile of shoreline. The two strata were then added to produce a total population estimate for Brookville Reservoir. The total largemouth bass population estimate was 13,906 fish, 7 in TL and greater. The total smallmouth bass population estimate was 6,900 fish, 7 in TL. Prior to and following population estimate sampling largemouth and smallmouth bass were collected for age and growth estimates. Largemouth bass reach the 14 in minimum size limit by age 3 and smallmouth by age 4. The stratified random sampling approach allows biologist to sample a variety of habitats and conduct population estimates on large reservoirs that would otherwise be too labor intensive.

KEYWORDS: largemouthbass, smallmouthbass, population

ROOM: Plaza 1

TIME: Tuesday 4:20 PM

TITLE: An enhanced bioenergetics model to predict growth in length and weight in juvenile largemouth bass

AUTHOR(S):

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ABSTRACT: An enhanced bioenergetics model was used to simulate changes in length and weight for two laboratory experiments using juvenile largemouth bass. Both experiments involved cross-classified feeding designs, 2 x 2 and 3 x 3 ration levels. Treatment groups of fish were assigned a pair of ration levels used in the first and second phases of each experiment, choices were High or Low ration for the 2 x 2 experiment with small juveniles (64 mm initial length), and High or Medium or Low ration for the 3 x 3 experiment with large juveniles (189 mm initial length). In both experiments, ration and water temperature were measured daily, whereas length (nearest 1 mm) and weight (nearest 0.01 g) were measured weekly. Largemouth bass parameters from the Wisconsin bioenergetics model did a good job of simulating growth in weight for fish fed Low or Medium rations, but the model overestimated growth in weight for fish fed High rations. The model could match High-ration growth if respiration rate was increased. Fish that were switched from Low to High rations began increasing in length before reaching standard weight. Modeling growth in length for changing rations can be done using indices of recent average ration and current condition or lipid level. Comparison of model simulations with measured lengths and weight suggests that certain bioenergetics parameters may differ among individual fish.

KEYWORDS: bioenergetics, largemouth, bass