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IOWA CHAPTER OF THE AMERICAN FISHERIES SOCIETY

LATERAL LINES

DECEMBER 20, 2013

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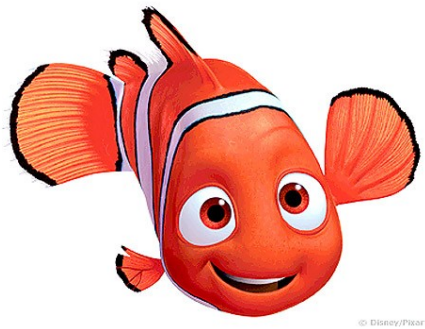

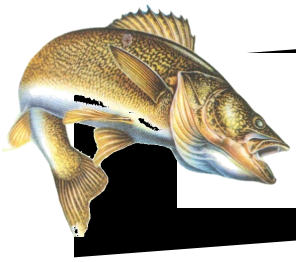

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AMERICAN FISHERIES SOCIETY

IOWA AFS CHAPTER
American Fisheries Society

Our Missions: To improve the conservation and sustainability of fishery resources and aquatic ecosystems by advancing fisheries and aquatic science and promoting the development of fisheries professionals.

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President's Corner

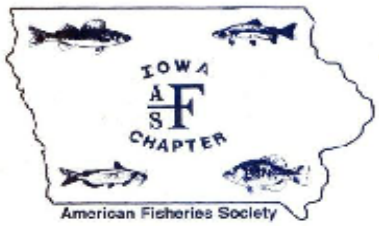
Ben Wallace

This is my first article as president of the Iowa Chapter of the AFS so I'd like to begin by thanking you all for the opportunity to serve the Chapter and a special thanks to Kim Bogenschutz for her past work and continual guidance as I adjust to the position. I'm quickly learning all of the tedious work and time that all of the past officers and chairpersons have put into organizing the annual chapter meeting. It's been several years since we've had a joint meeting with another state so we thought it was about time we did another. For our upcoming annual meeting we will be getting together with the Nebraska Chapter of the AFS. They face many of the same challenges we deal with in Iowa and work on similar projects. Watershed and lake restoration projects have become a big part of what fishery managers spend their time on these days and Nebraska is in the same boat. Creel surveys are conducted all over the state of Iowa by the DNR and Nebraska is in the process of conducting a large study to improve survey methodology and find more accurate ways to track when and where people fish. The flooding of the Missouri River in 2011 has caused major changes - some good, some bad – to the river channel and surrounding habitat in both states, and there is much information to be shared that can help us do some positive work in the wake of the flood. I encourage you all to mark your calendars for February 18th – 20th, 2014 for the joint meeting, which will be held in Council Bluffs, IA. Please see the formal announcement located later on in this newsletter. This will be a great opportunity to get together as a chapter and also spend some time getting to know our counterparts in Nebraska. Also, please consider sharing your work with an oral or poster presentation. We plan to have a fun social with an auction and raffle and there will be plenty of time for folks to explore the surrounding attractions like Bass Pro Shops and the nearby Casino.

So much of our work these days is focused on water quality, and watersheds play a pivotal role in achieving that clean water. Many lake and stream restoration projects rely on components of the Farm Bill to set aside erodible land, install water control structures, and carry out other best management practices. There is a lot of uncertainty as to how the new Farm Bill will play a role in shaping the future of our landscape… if or when it's signed. A few months ago the Iowa Chapter of the AFS signed a letter of support along with 277 other conservation organizations across the nation emphasizing the importance of coupling conservation compliance with crop insurance subsidies and a nationwide sodsaver program. The letter was sent to the Farm Bill Coordinators in Washington, D.C. in hopes that they'll take our concerns into consideration.

As I write this letter it's about 4 degrees outside. As you sit bundled up at your computer analyzing data and sifting through emails consider getting away from the office for a few days this winter and attend the IA – NE Joint AFS meeting in Council Bluffs!

Ben Wallace



2014 IA - NE Joint AFS Meeting

February 18th – 20th
Council Bluffs, Iowa

Please join the Iowa and Nebraska Chapters of the American Fisheries Society for a joint meeting in Council Bluffs. This is a great opportunity to share information and ideas between states and expand our knowledge of fisheries management and research!

Registration

Professionals/Grad Students: $75 + Chapter Dues
Undergraduate Students/AmeriCorps: $35
Includes dinner and social/beverages (18th), lunch (19th), and snacks and beverages during all breaks all days.

Please Pre-Register by January 17th, 2014:

Iowa: Ben.Wallace@dnr.iowa.gov
Nebraska: mhamel2@unl.edu
Payment accepted at the door

Tentative Schedule:

February 18th
12 – 1 PM: Registration
1 – 4 PM: Welcome, presentations
4 PM: Chapter business meeting
5:30 PM: Social
6:30 PM: Dinner
7:30 PM: Auction, raffle, social
February 19th
8 AM – Noon: Presentations
Noon – 1 PM: Lunch
1 PM – 5 PM: Presentations
February 20th
8 AM – Noon: Presentations

Meeting Location and Lodging Information

The Joint AFS Meeting will be held at the Hilton Garden Inn in Council Bluffs, IA. Presentations, business meetings, social, auction, raffle, and all meals that are included in the registration will be held in the River City Ballroom and the Wabash Ballroom of the Hilton. A block of rooms has been reserved at both the Hilton Garden Inn and the Country Inn and Suites (across the street from the Hilton). Room rates are $110 for a room with two queen beds. Please reserve by January 17th, 2014 to receive the special room rates.

Hilton Garden Inn

2702 Mid America Drive

Council Bluffs, IA 51501

712-309-9000

Country Inn & Suites

17 Arena Way

Council Bluffs, IA 51501

712-322-8282

Call For Papers

Please email the abstracts for your presentations to your respective chapter president.

Iowa AFS: Ben.Wallace@dnr.iowa.gov

Nebraska AFS: mhamel2@unl.edu

When submitting abstracts please include the following…

Presentation Type: Oral or Poster

Title

Author(s)

Abstract: 250 to 500 words

Any special A/V requirements

LATE SEASON RABBIT HUNTING

~ BOB BENEDICT, HATCHERIES, IOWA DNR

It's January 11th and pheasant season is closed for another year. Time to clean the guns and store them away until next fall, right? Well, let's not get hasty. Cottontail rabbits can be hunted through the 28th of February. There's a lot of good hunting yet to be had and some excellent eating as well. You probably already have everything you need to hunt rabbits and the regulations for rabbits are liberal. As a bonus, now that pheasant season is over you can even hunt public land on the weekend and you will most likely have the area all to yourself.

When hunting cottontails, you are required to have a hunting license and wildlife habitat stamp. The season runs from September 1 through February 28. Shooting hours are sunrise to sunset and the daily bag limit is 10 with a possession limit of 20. If you hunt public land in northwest Iowa with a shotgun you are required to use steel or other non-toxic shot. Another option is to hunt with a .22 cal. Rifle.

Finding rabbits to hunt this time of year is fairly simple. Snow and cold weather concentrates rabbits in brushy areas where they can get out of the wind, hide from and escape predators, and browse on twigs and bark. Brush piles, windfalls, and abandoned animal burrows all increase the number of rabbits able to survive in a given area. While cottontails can and will eat almost any type of woody vegetation they are especially fond of raspberry, plum, sumac, dogwood, willow and maple. Farm groves, shrub plantings on wildlife areas, and willow and plum thickets all hold rabbits in the winter. Hunting in milder weather and on sunny afternoons will increase the number of rabbits you see as they will hole up in burrows and brush piles when it is extremely cold or windy. Look for areas with lots of tracks, droppings, and chewed bark.

Hunting rabbits can be done in a variety of ways. If you know someone who hunts rabbits with beagles or other hounds, ask to go along. The dogs trail the rabbit, which instinctively circles or loops while you wait on stand for the chase to return giving you a shot. If you can't or don't wish to hunt with dogs there are other productive ways to bag cottontails. Hunting with one or more partners you can drive rabbits much like shotgun deer hunters often do with deer. Rabbits sit very tight at times so the hunter(s) doing the driving should kick brush piles and windfalls as they move through the cover. If you hunt alone and have fresh snow you can track rabbits to where they sit and flush them for a shot. Spotting sitting rabbits and bagging them with a .22 cal. rifle is another productive method. The number of rabbits you spot hunting this way will improve if you hunt sunny afternoons on the downwind side of cover. Scan the cover thoroughly looking not just for whole animals but parts of animals. Often the rabbit is mostly hidden but its large brown eyes or the light edge of an ear will let you spot it.

So hunting rabbits sounds like a good way to keep the hunting season going and avoid a serious case of cabin fever but you're not sure you want to eat them. Rabbits are excellent eating and can be prepared in a variety of ways. Bag a few rabbits and try some of the following recipes and I think you'll look at rabbits in a different way.

Rabbit Recipes

Fried Rabbit with Wine and Mushroom Sauce

2 rabbits

1 to 2 cups flour

salt and pepper to taste

3 Tbsp butter or margarine

1 cup sliced white button mushrooms

1 can cream of mushroom soup

1 cup white wine

Cut rabbits into pieces for frying. Dredge in flour. Melt butter (or margarine) in an electric skillet at 360°. Place rabbit in skillet and season with salt and pepper to taste. Brown one side then turn. Add sliced mushrooms and sauté while second side browns. When the second side has browned, add the wine and simmer. Let simmer for 30 to 45 minutes or until the meat becomes tender. Do not let liquid boil completely away. Add water if necessary. Add mushroom soup and turn up the heat until soup boils for a few minutes. Meat and sauce are now ready to eat. Sauce may be used over meat or as gravy over rice or potatoes.

Rabbit Salad Sandwiches

1 to 2 rabbits cut into sections (with bones)

1 medium onion – diced

3 stalks celery – diced

salt and pepper to taste

Miracle Whip or mayonnaise

Place sectioned rabbit, ½ the dice onion, ½ the diced celery, and salt and pepper to taste in a crock pot or slow cooker. Add just enough water to cover the meat. Slow cook meat until it can be easily pulled from the bones. Cool the meat and remove from the bones. Shred meat to canned tuna or chicken texture. Add remaining onion, celery and enough mayonnaise to make it spreadable for sandwiches.

Breakfast Sausage

7 lbs rabbit meat de-boned (approximately 10 rabbits)

3 lbs boston butts or other fatty pork

sausage seasoning for 10 lbs of meat (available at any grocer's meat counter)

Cut up pork and grind with rabbit. Try to feed pork and rabbit into grinder so that pork fat gets evenly distributed in the ground meat. Spread the ground meat out on a clean surface and sprinkle the sausage seasoning on top. Knead thoroughly to mix in seasonings. Put the sausage into a container, refrigerate, and let stand for 24 to 48 hours before freezing or cooking so that the spices work into the meat. Use as you would ground pork sausage.

LAKE DELHI DAM UPDATE

~GREG SIMMONS, FISHEREIES RESEARCH, IOWA DNR

It has been over 3 years since the Lake Delhi Dam, located on the Maquoketa River, failed during the July floods of 2010. Prior to the dam failure, the five mile long reach directly below the dam supported a popular catch and release fishery for smallmouth bass that has been intensively monitored over the last several decades. This un-planned dam removal, and availability of pre-failure data, provided an opportunity to monitor the impacts of a worst case scenario of sediment release on downstream river habitat and the local fish community.

River habitat was inventoried at two sites below the dam in 1998. One site was located directly below the dam. The other site was located further downstream, below the access at Retz County Park. Habitat samples have been repeated at these sites each fall since the dam failure (2010 – 2013) to assess its impacts on habitat conditions.

The habitat inventory conducted at both sites during October 2010 was used to assess the impacts of the July dam failure on habitat conditions. The initial release of sediment, that had collected above the dam over many years, had an immediate negative impact on downstream habitat. At the site directly below the dam, all of the deep areas that had previously provided important over head cover for fish were now filled with sand and silt. Mean depth decreased from 2.5 feet to 1.4 feet and width to depth ratio increased from 53.1 to 93.6 (the larger the number the wider and shallower the stream) (Table 1). Mean depth continued to decrease and width to depth ratio increased in each subsequent year. At the downstream site below Retz Park, the effects of the released sediment was not as immediate as directly below the dam. Mean depth and width to depth ratio were very similar before and right after the dam failure. But, mean depth decreased and width to depth ratio increased substantially in 2011 and 2012.

		Depth (feet)		Width to Depth Ratio	
Site	Period	Mean	SD	Mean	SD
Below Dam	Before - 1998	2.5	0.64	53.1	22.3
	After -2010	1.4	0.24	93.6	59.3
	After -2011	1.25	0.25	118.8	94.1
	After -2012	1	0.26	111.4	82.9
	After -2013	0.9	0.24	157.4	115.3
Below Retz Park	Before - 1998	2.5	0.42	45.5	27.6
	After -2010	2.6	0.49	50.4	38
	After -2011	1.4	0.26	157.9	314.9
	After -2012	0.8	0.19	278.1	635
	After -2013	1.2	0.17	94.9	44.6

Table 1. Mean depth and depth to width ratio at two sites on the Maquoketa River before and after the Delhi dam failed.

At the same time that the sediment from the former impoundment filled in the deep water areas downstream, these fine sediments also buried important rock and riffle habitats. Substrate composition changed dramatically at both sites (fig 1.). Prior to the dam failure, substrates below Delhi and at the Retz Park site were dominated by coarse substrates (gravel, cobble, boulder) and clean riffle habitats were common. Since the dam failed, both areas are now dominated by fine substrates and any rock habitat that remains is highly embedded by sand and silt.

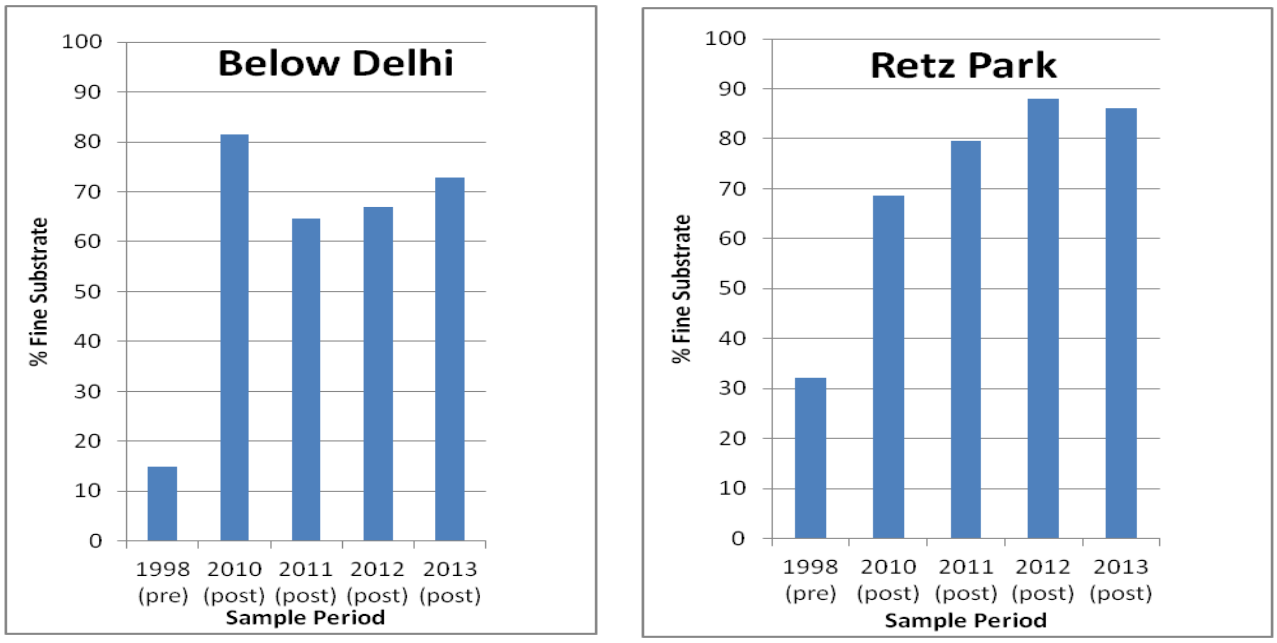


Figure 1. Percent fine substrate at two sites on the Maquoketa River before and after the Delhi dam failure.

So what effect did these drastic changes in habitat have on the fishery resource. We were fortunate to have fish community data from both sites that we collected in 2002, prior to the dam failure. We conducted a fish community survey in 2011, at both sites, to look at the differences in the fauna before and after the failure. The total number of species collected from the 2002 and 2011 samples was very similar. But, there was a dramatic change in the relative abundance of certain species (Table 2.). After the dam was breached there was an increase in the relative abundance of Channel catfish, Common carp and Carpsucker species and we saw a decrease in the relative abundance of Smallmouth bass, Shorthead redhorse and Northern hogsucker at both sample locations. This shift in the fishery makes sense when you look at the habitat requirements of the affected species in relation to the change in habitat. The loss of course substrates and riffle habitats resulted in a decrease in the number of Suckers and Smallmouth bass that require these habitats to thrive. These species were replaced by more generalist species that do well in shallow sandy stretches of river. The total number of fish collected and the catch per unit effort went down after the dam was breached at both sample locations.

Metric	Below Delhi 2002 (before dam failure)	Below Delhi 2011 (after dam failure)	Retz Park 2002 (before dam failure)	Retz Park 2011 (after dam failure)
Total Species (#)	25	23	19	22
Total Fish (#)	1070	551	628	316
CPUE (fish/hr.)	530	363	366	260
CPUE (fish/500')	131	75	99	56
Channel catfish (%)	0.6%	19.6%	0.8%	12.3%
Smallmouth bass (%)	9.3%	3.3%	14.8%	2.5%
Common carp (%)	1.2%	10.7%	1.7%	8.5%
Shorthead redhorse (%)	31.6%	8.5%	19.1%	10.8%
Northern hogsucker (%)	15.8%	3.4%	20.5%	2.5%
Carpsucker sp. (%)	2.1%	13.2%	4.1%	15.8%

Table 2. Fish community samples taken at two sites on the Maquoketa River before and after the Delhi dam failed

Since this section of the Maquoketa River has supported a very popular Smallmouth bass catch and release fishery, bass populations have historically been closely monitored. In fact, gamefish surveys have been conducted on a yearly basis from 1987 – 2013 (with the exception of 1990 and 2012). Surveys started directly below the Delhi dam and proceeded downstream to Retz County Park. Since the failure of the Delhi dam, there has been a dramatic decrease in the number of smallmouth bass collected during electro-fishing surveys. The 10 year average number of Smallmouth bass > 6" collected per hour, prior to the dam breach (2000 – 2009) was 93 and after the breach, was 34 (Fig 2.). The mean number of Smallmouth bass >12" collected before the dam breach was 26 fish/hr. and after the breach was 16 fish/hr (Fig 3.). There were only 5 Smallmouth bass > or = to 12 inches collected during the last survey conducted in the fall of 2013.

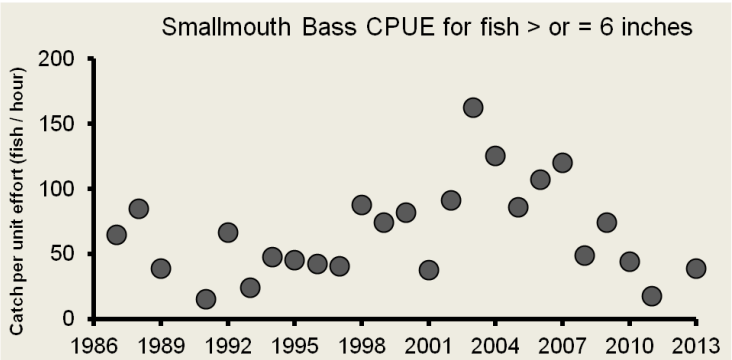


Figure 2. Catch per effort of smallmouth bass > or = 6 inches collected on the Maquoketa River below Delhi Dam.

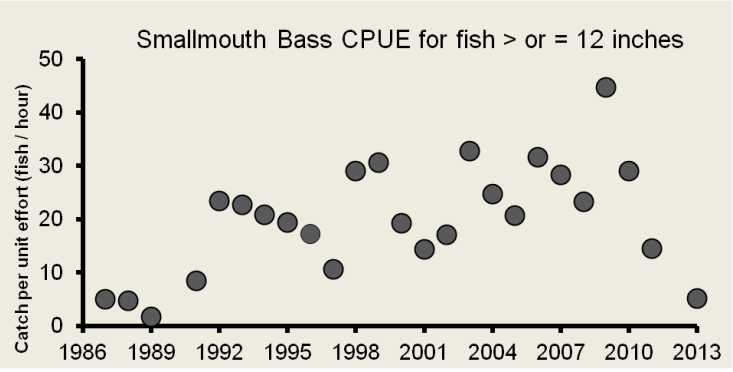


Figure 3. Catch per effort of smallmouth bass > or = 12 inches collected on the Maquoketa River below Delhi Dam.

DEEP WATER CATCH AND RELEASE MORTALITY OF SAUGER IN MISSISSIPPI RIVER TAILWATER FISHERIES

~KIRK HANSEN, FISHERIES RESEARCH, IOWA DNR

Deep water catch and release mortality has been identified as a potential detriment to Upper Mississippi River Sauger populations. Sauger congregate in fall through spring in deep scour holes below navigation locks and dams and are commonly caught from depths of >15-60 feet. Sauger are the most commonly caught fish in Pool 11 and 13 tailwater fisheries and high abundances of smaller fish leads to high release rates. Research conducted on Sauger hooking mortality is not extensive and results have varied considerably. In studies of Tennessee River Sauger fisheries, Bettoli et al. (2000) found low hooking mortality rates (4-12%) with no relationship between fate (alive or dead) and depth of capture, barotrauma, lure type, hooking location, or water temperature, while Kitterman and Bettoli (2011) found higher mortality rates (22-32%) with fate significantly related to total length. Studies on the tailwater fishery of UMR Pool 4 found average hooking mortality rates of 26% (range: 12.1-35.1%) with depth of capture significantly correlated with fate (Meerbeek and Hoxmeier 2011). These varying results and concerns from anglers and agency biologist prompted this study of Sauger hooking mortality at the Pool 11 and 13 tailwater fisheries.

Deep-water Sauger catch and release mortality was evaluated within the tailwater areas of Pool 11 and 13 from October-March 2010, 2011, and 2012 by holding angled Sauger in a vertical net pen (1.8 x 1.8 x 10 m) for 72-hrs with methods similar to Meerbeek and Hoxmeier (2011).

Sauger were captured using standard angling gear from areas being actively fished by anglers so as to collect a representative sample of fish size caught and of depths being fished.

Total length, depth of capture, time of capture, handling time, hook type, and presence/degree of barotrauma were recorded for each fish. After 72 hrs the net pen was raised, fish were removed, and their fate (alive or dead) was recorded. Recorded lengths and fin punch combinations allowed for identification of individual fish after the 72 hr holding period.

During 13 trials, 427 Sauger were angled in the tailwaters of Pool 11 and 13 from October-March 2010, 2011, and 2012. Fate was significantly related to depth of capture (logistic regression, df=1, $P < 0.0001$) with probability of mortality increasing with depth (Figure 1).

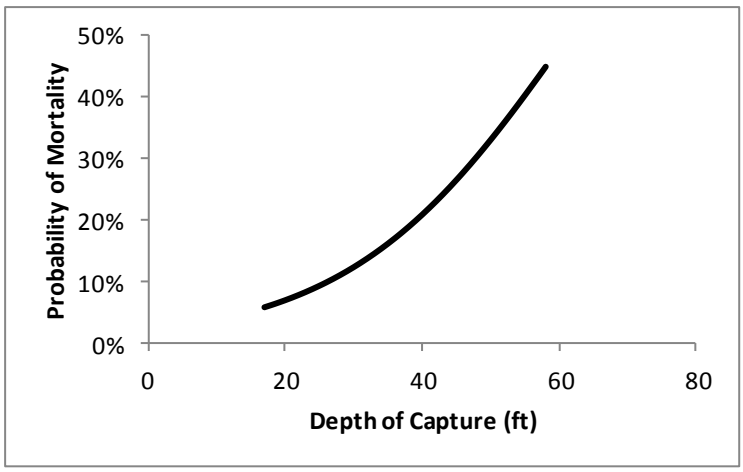


Figure 1. Probability of mortality vs. depth of Capture

No other variables examined were significantly related to fate ($P \geq 0.1327$). Mean catch and release mortality rate was 16.0% across all samples and was similar to previously published accounts from the Tennessee (4% 24-hr, 12% 12-d, Bettoli et al. 2000; mean: 28%, range: 22-32%, Kitterman and Bettoli 2011) and Mississippi rivers (mean: 26%, range: 12-35%, Meerbeek and Hoxmeier 2011). Depth of capture was the single most important variable predicting fate of angled Sauger in this study, just as Meerbeek and Hoxmeier (2011) observed. This is not surprising as their study area (Pool 4) was in relatively close geographic proximity, and we used similar angling and holding methods. Their higher observed average mortality rate (26.4%) is most likely due to the greater range of depth in their study. Our maximum depth of capture was 58 ft and less than 6% of our fish were capture from depths greater than 50 ft. Their maximum depth of capture was 76 feet and >21% of their fish were captured from depths over 60 ft.

Based on estimates of Sauger released in past creel surveys from the tailwaters of Pools 11 and 13, an average of 1,996 (range: 557-10,106 fish/yr) Sauger were lost annually to catch-and-release angling at a hooking mortality rate of 16%. Catch-and-release mortality comprised 23.7% of total annual harvest. These are lower than levels observed by Meerbeek and Hoxmeier (2011) who concluded that annual losses of 5-7,000 fish/yr contributing 30.5-33% of annual harvest was not detrimental to Sauger populations in Pool 4, UMR. Years with highest numbers of fish harvested and highest percent of total harvest attributed to catch-and-release angling in Pool 11 and 13 corresponded to years with large numbers of small Sauger in the fishery and creel. It thus appears that year class strength and river stage are important and dynamic, drivers of fish loss to hooking mortality. Given this, along with the knowledge that catch-and-release mortality is not a new phenomenon in winter tailwater fishing, it does not appear that hooking mortality is having a major impact on Sauger populations. However, the fact that most of the effects are on one year class may warrant further investigation and modeling.

Bettoli, P. W., C. S. Vandergoot, and P. T. Horner. 2000. Hooking mortality of Saugers in the Tennessee River. North American Journal of Fisheries Management 20:833-837.

Kitterman, C. L. and P. W. Bettoli. 2011. Survival of angled sauger in the Lower Tennessee River. North American Journal of Fisheries Management 31:567-573.

Meerbeek, J. R. and R. J. H. Hoxmeier. 2011. Winter catch-and-release hooking mortality of Saugers below Lock and Dam 3 of the Mississippi River. North American Journal of Fisheries Management 31:197-202.

HIGGINS EYE RESTORATION PROJECT UPDATE

~SCOTT GRITTERS, FISHERIES MANAGEMENT, IOWA DNR

Since 2005, I have been using volunteers to help us search for Higgins-eye pearly mussels in the states first of its kind mussel restoration project. We all know the challenges of using volunteers. I doubt there is one unit of the Iowa DNR that has not utilized a volunteer group at one time or another. Skill sets and sometimes ambition vary but volunteers always come with smiles and an interest in what we do. We call them volunteers but maybe a more accurate term for them is "our bosses". Volunteers are simply a subset of the people we work for. They buy the licenses or pay the taxes that we use for conservation across Iowa. They can expand our work force and better yet they can then bring this information back to the board rooms (i.e. coffee shops) across Iowa.

For the 2013 survey, I applied for and received an Iowa AFS grant for $350 to buy some safety and sampling equipment. Thank you AFS for supplying that money. Mussel sampling is very tactile work. It requires being in the water, basically on hands and knees feeling for mussels. Dangerous items such as wire and glass unfortunately are common place in our rivers. With the AFS money I was able to buy items to better protect our bosses in their exploits. As I said earlier, the use of volunteers allows a conduit to the rest of our public as they disseminate information back to our other two million or so bosses. To illustrate, I will cheat on this AFS article and submit a newsletter article one of my volunteer bosses David Kesler wrote for a for Iowa Water Trails.

The Higgins-eye pearly mussel search, by David Kesler

This year's Mussel Blitz was held August 19-22 on the Wapsipinicon River between Central City and Waubeek. The "base of operations" was at Wakpicada Park, just south of Central City, where there is a boat ramp and even camping.

Scott Gritters of the Iowa DNR coordinated people from the Iowa DNR, Army Corps of Engineers, Minnesota DNR, U.S. Fish and Wildlife, Linn County Conservation Board and a motley crew of volunteers from the region in an effort he described as, "herding cats." The objective of the mussel blitz was to quantitatively sample the mussel fauna (using quadrat sampling and timed searches), looking especially for the Higgins-eye pearly mussel (*Lampsilis higginsii*), which is a federally endangered species.

In 2002 the Wapsipinicon River was one of 10 sites chosen for introduction of Higgins-eye mussels. Besides being

part of this mussel's native distribution, the "Wapsi" was free of zebra mussels, whose devastating effects were being seen in the Mississippi River. (Note: If your equipment has been in the Mississippi or other area with zebra mussels, you must completely de-contaminate your things with bleach!) Between 2002 and 2008 juvenile Higgins eye larvae were stocked in the "Wapsi" from host fish releases.

So what did this year's mussel blitz find on the Wapsi and how are the Higgins-eye mussels doing? Gritters and his crew found almost 2000 mussels from 11 species. Of these, there were 14 Higgins eyes! This is the second highest number of Higgins eyes collected on the Wapsi from this study! More importantly, for the first time ever, the finding of three very young Higgins eyes (albeit freshly dead) which shows reproduction by this endangered species in the Wapsi. It looks like, after a decade from its inception, the program to save the Higgins-eye pearly mussel from extinction may be working.

David H. Kesler
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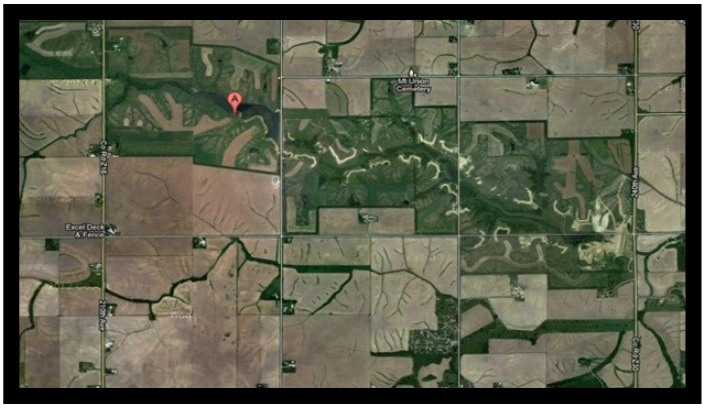
IN THE NEWS
~IOWA OUTDOORS

LOST GROVE LAKE NEARING COMPLETION



A site about half way between Eldridge and Princeton in northern Scott County was selected in 1987 from about a dozen other potential locations to become a lake on Iowa's eastern border, and after 26 years, the project is nearing completion.

For anxious anglers, the wait to fish Lost Grove Lake is almost over.

"I'm excited about this lake," said Chad Dolan, fisheries management biologist for southeast Iowa. "I fail to see how this lake won't produce fish with all this habitat. You're talking about a panfish and bass mecca."

Work on Lost Grove Lake began almost immediately after the site was selected.

The DNR began purchasing land in 1988 and by 1995 had nearly every piece, but it wasn't until 2003 when the final parcel was secured.

While the DNR was negotiating land purchases, homes began to appear in the area downstream from the lake. This turn of events required the dam to meet a higher design standard, changing it from a medium hazard dam to a high hazard dam.

"The dam had a few delays because of the redesign and having to allow the soil to dry out because of too much moisture," Dolan said. Construction began in July 2010 and the gate was officially closed on July 11, 2012.

Once the gate was closed, Lost Grove Lake almost immediately began impounding water as a series of heavy rains filled the lake to within 13 feet of full pool. What was supposed to take 2 to 3 years to fill based on its watershed size, took only a fraction of that.

"We didn't have the ramps in so we needed to open the gate to dewater the lake," Dolan said. Eventually, 16 feet of water was released before the gate was shut. An estimated 33 feet of water at the dam remained.

Construction crews are installing boat ramps and parking lots: the three lane main ramp near the dam, the two lane middle ramp almost half way up the lake on the south side, and the single lane west ramp on the north side near the causeway at the upper end of the lake, and adding rip-rap on the north and south side of the lake in close proximity to the dam. Restrooms will be added to all three boat ramps in coming years.

Work progressed in stages and during the late summer 2011, contractors were busy placing riprap along the shoreline and installing fish habitat.

The following July as the dam was nearing completion, two four-foot risers were added to culverts under Utica Ridge Road that will slow down and filter sediment, nutrients, and chemicals from runoff before the water enters the lake.

The DNR partnered with Scott County Secondary Roads who designed the structures and expedited the construction. One riser will back up water 1,600 feet and the other about 3,000 feet.

"This was probably the best $90,000 we spent on the whole project," Dolan said. "And Scott County Secondary Roads has been an excellent partner."

The project took less than a month to complete.

"These protections will keep silt from entering the lake and as they do their job and fill up with silt themselves, it will be easy and cost effective to dig out the sediment and get them back in working condition," Dolan said.

For now, anxious onlookers drive by checking on the progress as heavy machinery is preparing the final touches before the parking lots, ramps and access roads are paved.

Fishing is available in the 22-acre causeway at the upper end of the lake. Once the work is finished, all that remains is for the main lake to fill. Dolan expects fishing will be good for some species in 2014, but excellent for most in the summer of 2015.

Special Features

Lost Grove Lake has three ADA compliant fishing trails accessible by wheelchair. One trail follows the lake shore from the middle ramp parking lot 2,000 feet to a significant pine tree covered point developed for boat and shore angling, a second from the main fishing access about mid lake on the north side 1,000 feet to the east and west, and the third on the south side at 230th Ave. that runs 350 feet to the west. Fish attracting habitat has been placed within casting distance of the trails.

Three, 50-foot parallel fishing structures extending 12 feet from shore are located around the lake providing access to deeper water. The structures are built with sheet pilings driven in to the ground, filled with dirt and topped with gravel. These structures are also ADA compliant.

Special canoe and kayak accesses are located along the shore fishing accesses.

A 12 foot by 9 foot cement culvert will serve as a boat passage allowing anglers access to the lake north of 220th Avenue. The boat passage will have about three feet of water in it for boats to pass under the road.

A Community-wide Project

The construction of Lost Grove Lake involved many local partners,

including the Hawkeye Fly Fishers and other local fishing clubs, local quarries that donated rock, local haulers that donated rock hauling, the Scott County Waste Commission for assistance with tire removal, local landowners for various assistance, Scott County Secondary Roads and more.

"A lot of people have a stake in the final outcome of this lake," said Dolan. "Their efforts have played an important role in making this a successful project."

Fish Stocking

July/October 2012: Bluegills

Fall 2012: Redear Sunfish, 5-inch largemouth bass

Spring 2013: 11-inch muskies, channel catfish, walleyes and largemouth bass

Crappies were previously stocked in the pool above the causeway and passed through to the main lake when conditions allowed.

Adult crappies will be added in 2014 to allow the fishery time to mature.

Fall 2013: 7-inch channel catfish.

Size

Lost Grove Lake is three miles long and covers 400 acres. It collects runoff from a 5,000-acre watershed. The lake at maximum depth is 62 feet, with most of the area in front of the dam at least 50 feet deep. The average depth is 24 feet.

Cost

The cost to purchase the land and build Lost Grove Lake will be $12.5 million.

Economic Impact

Iowa State University Center for Agriculture and Rural Development research indicates that a lake of this size with good water quality will annually provide for 350,000 visits and create about $20 million in local spending, supporting 175 jobs.

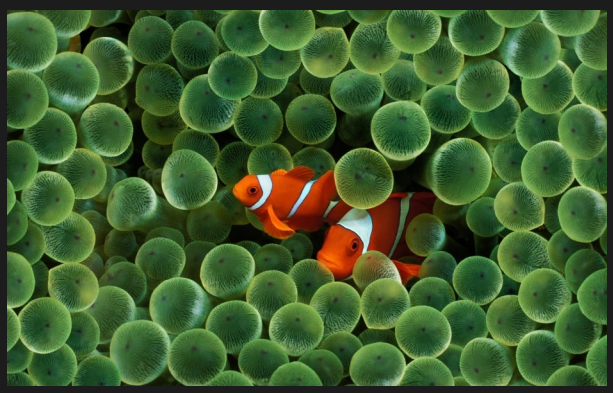
MEDIA CONTACT: Chad Dolan, Fisheries Biologist, Iowa Department of Natural Resources, 319-694-2430.

IN THE NEWS

Finding Nemo lied to your kids, and they will do it again in the sequel: Finding Dory!

By Patrick Cooney

The Disney film, Finding Nemo, lied to your kids! Disney would simply argue that they altered reality to create a more entertaining storyline, but read below for the true story, and you tell me which you think is more entertaining.



How Finding Nemo started:

Father and mother clownfish are tending to their clutch of eggs at their sea anemone when the mother is eaten by a barracuda. Nemo is the only surviving egg and he grows up in his father's anemone before getting lost on a crazy adventure!

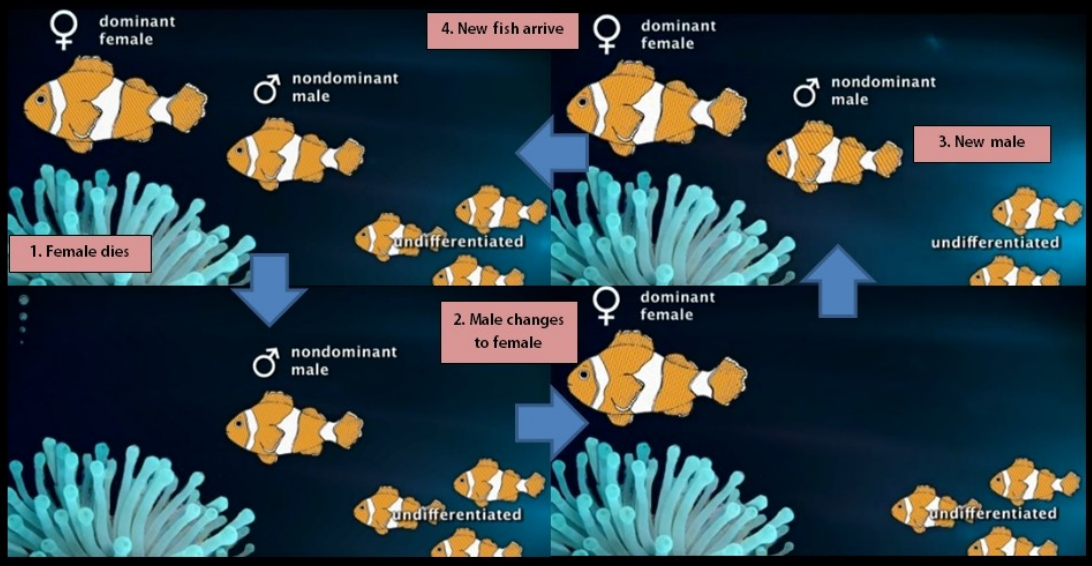
How Finding Nemo should have started if it were biologically accurate:

Father and mother clownfish are tending to their clutch of eggs at their sea anemone when the mother is eaten by a barracuda. Nemo hatches as an undifferentiated hermaphrodite (as all clownfish are born) while his father transforms into a female now that his female mate is dead. Since Nemo is the only other clownfish around, he becomes a male and mates with his father (who is now a female). Should his father die, Nemo would change into a female and mate with another male. Although a much different storyline, it still sounds like a crazy adventure!

As you can see in the first minute of Finding Nemo, outside of the talking fish part, is the only biologically accurate part of the movie. Considering that they demonstrate reproduction and the killing of the mother in the first minute of the movie, how did they decide that a natural sex change is outside the bubble of viewable material?

Fish reproduction is complicated, and it is especially complicated in cases like the clownfish where species are sequential hermaphrodites. These fish are born as hermaphrodites that develop as one gender before changing to the other gender at some point in their life.

Unlike clownfish that start life as males and transform into females, there are other species like the California Sheephead, that start as females and transform into males. These opposing forms of sequential hermaphrodites are called protandrous hermaphrodites for male to female changing species, and prothynous hermaphrodites for those that change from female to male.



Cycle of Clownfish Changing Sex

A sequential hermaphrodite life history strategy can be extremely detrimental if harvest of fish is allowed prior to male or female reproductive sizes. Should all males be harvested before turning into females at a certain size (or vice versa), a rapid decline would occur in the population. Understanding the triggers and sizes at which fish shift from one sex to the other greatly enhances the ability of fisheries managers to set proper length limits for long term fish population health.

In the end, the storyline for Finding Nemo was obviously entertaining for children, but as a fisheries scientist, I must admit, I find the biologically accurate storyline a bit more entertaining. With the announcement of a sequel called 'Finding Dory' coming in 2015, Disney still has a chance to redeem themselves, but I am not keeping my small 'lucky' fin crossed. Which storyline do you think Disney should show in the sequel?

IN THE NEWS
~FISHERIES ~ VOL 38 NO 12 DECEMBER 2013
WWW.FIHERIES.ORG

Fish Drug Questions Answered by the FDA

Jim Bowker

Fish Culture Section Past-President, Western Division Vice President, American Fisheries Society

Jesse Trushenski

Fish Culture Section President, Resource Policy Committee Chair, American Fisheries Society

The American Fisheries Society (AFS), the Fish Culture Section's Working Group on Aquaculture Drugs, Chemicals, and Biologics, and the Food and Drug Administration Center for Veterinary Medicine (CVM) are engaged in an ongoing dialogue to ensure fisheries professionals have access to the best information available regarding the use of fish drugs. CVM drafted the article below following a meeting with AFS leaders to discuss the AFS Policy Statement on the Need for an Immediate-Release Anesthetic/Sedative for Use in the Fisheries Disciplines. There is considerable confusion and misinformation among fisheries professionals regarding the legal use of fish drugs, particularly sedatives, and how these tools are applied in the field, hatchery, or lab setting. Many fisheries professionals use clove oil (85–95% eugenol) and MS-222 as immediate-release sedatives, thinking that products that are Generally Recognized as Safe or are approved fish drugs must be okay to use in the field. Clove oil is not approved for any use in fish, and fish treated with MS-222 cannot be immediately returned to the wild. In short, it is not legal to sedate fish in the field with either product. Misinformation and misuse of sedatives also extends to the many lay-people who may administer them in the field (e.g., participants in catch-and-release fishing tournaments). AQUI-S20E (10% eugenol) is a fish sedative that can be used under the U.S. Fish and Wildlife Service's Investigational New Animal Drug exemption, but relatively few people are aware that this option exists. This is one of many complex issues related to fish drugs fish professionals may encounter. The article below lays the groundwork for a better understanding of fish drugs and their use. We commend the many individuals within CVM who prepared this article, having worked hard to address fisheries professionals' concerns in an accessible way while maintaining legal accuracy. Working together, we are committed to reaching out to the fisheries and fish culture communities, and we hope this article provides fisheries professionals and others with valuable information regarding fish drugs.

Meet FDA's Center for Veterinary Medicine

FDA's Center for Veterinary Medicine (CVM) is responsible for ensuring that available drugs are safe and effective for their intended use in animals. Several offices at CVM are directly involved in reviewing and monitoring the safety and effectiveness of fish drugs:

The Office of New Animal Drug Evaluation is the lead office for reviewing information about animal drugs and determining if the information meets the approval requirements.

The Office of Minor Use and Minor Species Animal Drug Development manages programs and incentives that help the drug industry develop drugs for minor species, including fish, and make them legally available.

The Office of Surveillance and Compliance is the lead office for monitoring safety and effectiveness information about animal drugs after they are approved and on the market and also about marketed unapproved animal drugs. The office also recommends corrective or regulatory action when FDA identifies problems with an animal drug or regulatory violations.

The Office of Research develops methods and models to help FDA better ensure that food made from animals treated with an animal drug is safe for people to eat.

What's a drug?

Federal law (the Federal Food, Drug, and Cosmetic Act)

defines the term "drug" to include "articles intended for usein the diagnosis, cure, mitigation, treatment, or prevention of disease in man or other animals" and "articles (other than food) intended to affect the structure or any function of the body of man or other animals."

Let's take a more practical look at the definition from an aquaculture perspective. A drug (the "article") can, for example, be something that is intended to treat a fish disease or intended to affect the structure or function of a fish's body. A product's intended use determines whether it's a drug or not.

When the intended use of formalin—a solution of formaldehyde—is to fix a biopsy sample from a fish, it isn't a drug because the intended use is to preserve the tissue for future study. But when the intended use of formalin is to kill external parasites on finfish, it's a drug because the intended use is to treat parasitism. Because, in this case, the intended use of formalin is to treat a disease, it's a drug under federal law.

Now, let's look at the other part of the definition about a drug affecting the structure or function of a fish's body. When the intended use of tricaine methanesulfonate, or MS-222, is to immobilize fish, it's a drug because the intended use is to change how the fishes' bodies function. When the intended use of oxytetracycline hydrochloride is to mark the otoliths of finfish fry and fingerlings for future identification, it's a drug because the intended use is to affect the structure of the fishes' bodies (their otoliths, in this case).

What's an approved new animal drug?

Several drugs are FDA-approved for use in fish, but what does that mean?

Approved new animal drugs have gone through the New Animal Drug Application (NADA) process, or for generic animal drugs, the Abbreviated New Animal Drug Application (ANADA) process. In a nutshell, the process involves the drug sponsor—typically a drug company—collecting safety, effectiveness, and other information on the intended use of an animal drug. The sponsor then submits this information to FDA in the NADA or ANADA application. If the application meets the approval requirements, the agency approves the new animal drug. FDA approves the drug only for the specific intended uses listed on the drug's label.

The aquaculture industry, drug companies, and government agencies created public partnerships to support research on fish drugs with the hope that this research will lead to the availability of more legally marketed fish drugs. The public partners conduct studies on the safety and effectiveness of a fish drug. The information goes into a Public Master File (PMF) that, as the name suggests, is available to the public. Rather than conduct all its own studies, a drug company can use the information in a PMF to help satisfy FDA's approval requirements, thereby reducing both the time and cost of completing the NADA process. This gives companies more incentive to pursue approval of a fish drug, especially when the market for that drug is small.

FDA maintains an online searchable database, called "Animal Drugs @ FDA," that lists approved new animal drugs, including fish drugs (www.accessdata.fda.gov/scripts/animaldrugsatfda).

What does FDA's approval provide?

FDA's approval of an animal drug ensures that:

- The drug is safe and effective when used according to the label;
- The drug's strength, quality, and purity are consistent from batch to batch; and
- The drug's labeling is truthful and complete. If the drug is for food-producing animals, such as fish intended for human consumption, FDA's approval also ensures that food made from treated animals is safe for people to eat. FDA continues to monitor an approved animal drug after it's on the market to make sure that:
- The drug remains safe and effective. Sometimes, the agency's post-approval monitoring uncovers safety and effectiveness issues that were unknown at the time of approval;
- The quality and consistency of the manufacturing process are maintained; and
- The labeling remains truthful and complete.

What's a conditionally approved new animal drug?

Did you use AQUAFLOR-CA1 when it was "conditionally approved"? Were you unsure what that meant? It meant thatAQUAFLOR-CA1 went through the Conditional New Animal Drug Application (CNADA) process. This process has the same approval requirements as the NADA process except FDA conditionally approves the drug before the effectiveness requirement is complete. FDA's conditional approval ensures the drug is safe and that there's a reasonable expectation of effectiveness when used according to the label.

The drug company's conditional approval is effective for one year, and can be renewed annually for up to four additional years. During this time, the company can legally market the drug while collecting the remaining effectiveness data. When the company completes the effectiveness requirement, FDA can finish its review and, if appropriate, approve the application for full approval. Conditional ap-

proval is available only for drugs for minor species or minor uses in a major species.

AQUAFLOR-CA1 was the first ever conditional approval of a drug. FDA conditionally approved AQUAFLOR-CA1 for the control of mortality in catfish due to columnaris disease associated with Flavobacterium columnare. [The "CA1" after the name indicated that the drug was conditionally approved (CA) and that it was the first (1) conditionally approved application for this product.] In April 2012, FDA fully approved AQUAFLOR to control mortality due to columnaris disease associated with Flavobacterium columnare in all freshwater finfish, including catfish. (Note the lack of "CA1" after the drug name now that it's fully approved for this use.)

Currently, there are no conditionally approved fish drugs.

Is the approval/conditional approval process the only legal pathway to the marketplace for a new animal drug?

No, some animal drugs can take a different pathway called indexing. Indexed animal drugs are technically unapproved but still legally marketed for some minor species.

You may know about, or have even used, the two indexed drugs for ornamental fish: OVAPRIM (salmon gonadotropin releasing hormone analog + domperidone) and AQUACALM (metomidate hydrochloride). Both drugs are currently on FDA's Index of Legally Marketed Unapproved New Animal Drugs for Minor Species, referred to simply as "the index" (www.fda.gov/ AnimalVeterinary/DevelopmentApprovalProcess/ MinorUseMinorSpecies/ucm125452.htm). A drug listed on the index can be legally marketed for a specific use in certain minor species. Indexing is allowed for drugs for:

- Non-food-producing minor species, such as ornamental fish. These animals don't produce food for people to eat; and
- Early life stages of a food-producing minor species, such as oyster spat (immature oysters). Because people don't generally eat oyster spat, a drug to treat a disease in spat can be indexed, but a drug to treat a disease in adult oysters, which people commonly eat, cannot be indexed.

Indexing a drug is a three-step process that includes a review of the drug's safety and effectiveness by a panel of qualified experts outside FDA. All members of the expert panel must agree that, when used according to the label, the drug's benefits outweigh the risks to the treated animal. If FDA agrees with the panel, the drug is added to the Index. CVM's Office of Minor Use and Minor Species Animal Drug Development maintains the Index.

How can I find out if an animal drug is legally marketed?

To find out if an animal drug is legally marketed, look at the drug's label for a specific number and statement. FDA assigns a unique, six-digit number to every approved, conditionally approved, and indexed animal drug. Examples include:

You should not confuse these numbers with a National Drug Code (NDC) number, which are also sometimes listed on a drug's label. FDA assigns a unique, 10-digit NDC number to a drug to serve as its universal identifier. The presence of an NDC number on a drug's label does *not* mean the drug is FD Aapproved or legally marketed.

What's the difference between a finished drug product and an active ingredient?

You may wonder why 35% PEROX-AID, an approved fish drug with hydrogen peroxide as the active ingredient, is different than another source of hydrogen peroxide.

Type of animal drug	Type of number	Labeling statements
Approved	New Animal Drug Application (NADA)	"NADA XXX-XXX, Approved by FDA" typically on the label
Approved Generic	Abbreviated New Animal Drug Application (ANADA)	"ANADA XXX-XXX, Approved by FDA" typically on the label
Conditionally Approved	Conditionaly New Animal Drug Application (CNADA)	"Conditionally approved by FDA pending a full demonstration of effectiveness under application number XXX-XXX" required on the label
Indexed	MIF (Minor species Index File)	"NOT APPROVED BY FDA-Legally marketed as an FDA Indexed Product under MIF XXX-XXX. Note—In order to be legally marketed, an animal drug product intended for a minor species must be Approved, Conditionally Approved, or Indexed by the FDA. THIS PRODUCT IS INDEXED" required on the label

In the context of an approval, conditional approval, or index listing, the term "drug" refers to the final drug product. The final drug product includes both active and inactive ingredients.
An active ingredient is the pharmacologically-active component responsible for achieving the drug's intended purpose— for example, to treat a disease or to change the structure or function of the body. A drug may have one or more active ingredients. Inactive ingredients are all other components of the final drug product, such as coloring and flavoring substances, preservatives, and binding agents.

When FDA approves a drug, the agency is approving the final drug product, not the active ingredient alone.

Now let's take another look at 35% PEROX-AID. This approved final drug product, which contains a specific concentration of hydrogen peroxide, was shown to be consistently manufactured to ensure its strength, quality, and purity. The final drug product was also shown to be safe and effective to control mortality due to certain fungal and bacterial fish diseases. Another hydrogen peroxide product, even at the same concentration, isn't the same as 35% PEROX-AID. Unapproved hydrogen peroxide products may not be safe or effective to treat fish diseases, and the quality and consistency of the manufacturing process cannot be assured.

What's the difference between an approved new animal drug and a drug that has an INAD exemption?

You've probably heard that the U.S. Fish and Wildlife Service's Aquatic Animal Drug Approval Partnership (AADAP) Program is the sponsor of an INAD for the fish sedative AQUIS ® 20E (eugenol), and several other drugs, but you may be confused by what that means.
First, let's define "INAD." The acronym stands for Investigational New Animal Drug. An "INAD exemption" allows a drug sponsor to ship the investigational drug for research purposes.
For administrative purposes, CVM assigns an INAD file number in the beginning of the approval process. The sponsor then uses the INAD file as a way to correspond with CVM. For example, the sponsor uses the file to communicate with CVM before treating fish. Before treated fish can enter the food supply, the sponsor must ask CVM for permission and have the center grant a "food use authorization." Before granting the food use authorization, CVM makes sure that treated fish are safe for people to eat.
When conducting studies under the INAD exemption, researchers follow a specific study protocol as well as certain procedures for reporting results, problems, and other information to the sponsor. All information is submitted to CVM as part of the INAD file. For any study done under the INAD exemption, the drug is for investigational use only—it's not approved, or if the drug is approved for other intended uses, it's not yet approved for the intended use under investigation.

In the case of AQUI-S® 20E, fishery professionals can legally obtain the drug by working with AADAP under the program's INAD exemption. Fishery professionals who cooperate with AADAP and comply with all investigational procedures, food use authorization conditions, and reporting requirements can legally use the fish sedative for research purposes.

Let's revisit the question about the difference between a drug and an active ingredient. The active ingredient in AQUIS ® 20E is eugenol, but the food use authorization granted under AADAP's INAD exemption has a very narrow and specific scope and doesn't cover all eugenol-containing products. Although clove oil contains eugenol, clove oil isn't the same as AQUI-S® 20E. Clove oil is not part of the food use authorization nor is it approved. CVM has concerns about the potential of some components of clove oil to cause cancer (see Guidance for Industry 150 for more information: www.fda.gov/downloads/AnimalVeterinary/GuidanceComplianceEnforcement/GuidanceforIndustry/UCM052520.pdf).

What should I do if I experience a problem with a fish drug?

Problems with any drug, approved or not, include adverse drug events and product defects. Adverse drug events are undesired side effects associated with a drug or a lack of effect (the drug doesn't do what it's supposed to do). Adverse drug events also include unfavorable reactions in people who handle the drug. Product defects are problems such as defective packaging or abnormal appearance of the drug.
CVM encourages veterinarians, fish health specialists, fishery biologists, hatchery managers, researchers, and animal owners to report adverse drug events and product defects with approved animal drugs to the drug company. The Federal Food, Drug, and Cosmetic Act requires drug companies to submit all reports of problems that they receive to FDA. The required reporting of adverse drug events and product defects allows CVM's Office of Surveillance and Compliance to more easily identify and correct problems with approved animal drugs.

For unapproved animal drugs, you can voluntarily report adverse drug events and product defects to FDA. Information for fisheries on how to report adverse drug events is available on CVM's website (http://www.fda.gov/AnimalVeterinary/ResourcesforYouAnimalHealthLiteracy/ucm256588.htm).

What are FDA's concerns about unapproved animal drugs? Why should I care?

The term "unapproved animal drugs" means animal drugs illegally marketed in the U.S. that haven't been approved, conditionally approved, or indexed by FDA. The agency has serious concerns about unapproved animal drugs because they potentially put the health of animals and people at risk. These drugs are not reviewed by FDA and may not meet the agency's strict standards for safety, effectiveness, and quality. Unapproved animal drugs also may not be labeled or advertised appropriately or truthfully.

With no FDA review of an animal drug, there's no way for veterinarians, fishery biologists, animal owners and others to know if a drug is safe and effective or if its manufacturing process is adequate to maintain the drug's quality and consistency from batch to batch. Also, because there are no requirements to report adverse drug events and product defects for unapproved animal drugs, CVM's Office of Surveillance and Compliance may not be able to easily identify and correct problems with these drugs.

What about products I hear referred to as "low regulatory priority"?

CVM has identified a number of unapproved products used in aquaculture that have been called "low regulatory priority" when used in fish intended for human consumption. These products should more appropriately be considered low-risk products. These products are not approved. However, CVM has determined that exposure of fish to these products, as outlined in FDA's Fish and Fishery Products Hazards and Controls Guidance, are unlikely to result in a risk to human health if people consume the fish.

Keep in mind that just because CVM has determined that these are low-risk products doesn't mean they are FDA-approved or that CVM has determined that they are safe and effective for fish. Also keep in mind that in the future, CVM can take a different position on the use of any low-risk product. CVM's primary goals are to protect public health and encourage sponsors to pursue approval of drugs that will meet the therapeutic and production needs of the aquaculture industry.

Conclusion

Hopefully, this article answers many of your questions about aquaculture and FDA. If you have more questions or would like more information, please contact CVM's Communications Staff at 240-276-9300 or AskCVM@fda.hhs.gov.

Resources for You

You may find these additional articles on the CVM website helpful:

- From an Idea to the Marketplace: The Journey of an Animal Drug through the Approval Process: www.fda.gov/AnimalVeterinary/ResourcesforYou/AnimalHealthLiteracy/ucm219207.htm
- Aquaculture and Aquaculture Drugs Basics: www.fda.gov/AnimalVeterinary/ResourcesforYou/AnimalHealthLiteracy/ucm213944.htm
- Letter to Aquaculture Professionals: www.fda.gov/AnimalVeterinary/SafetyHealth/ProductSafetyInformation/ucm324048.htm

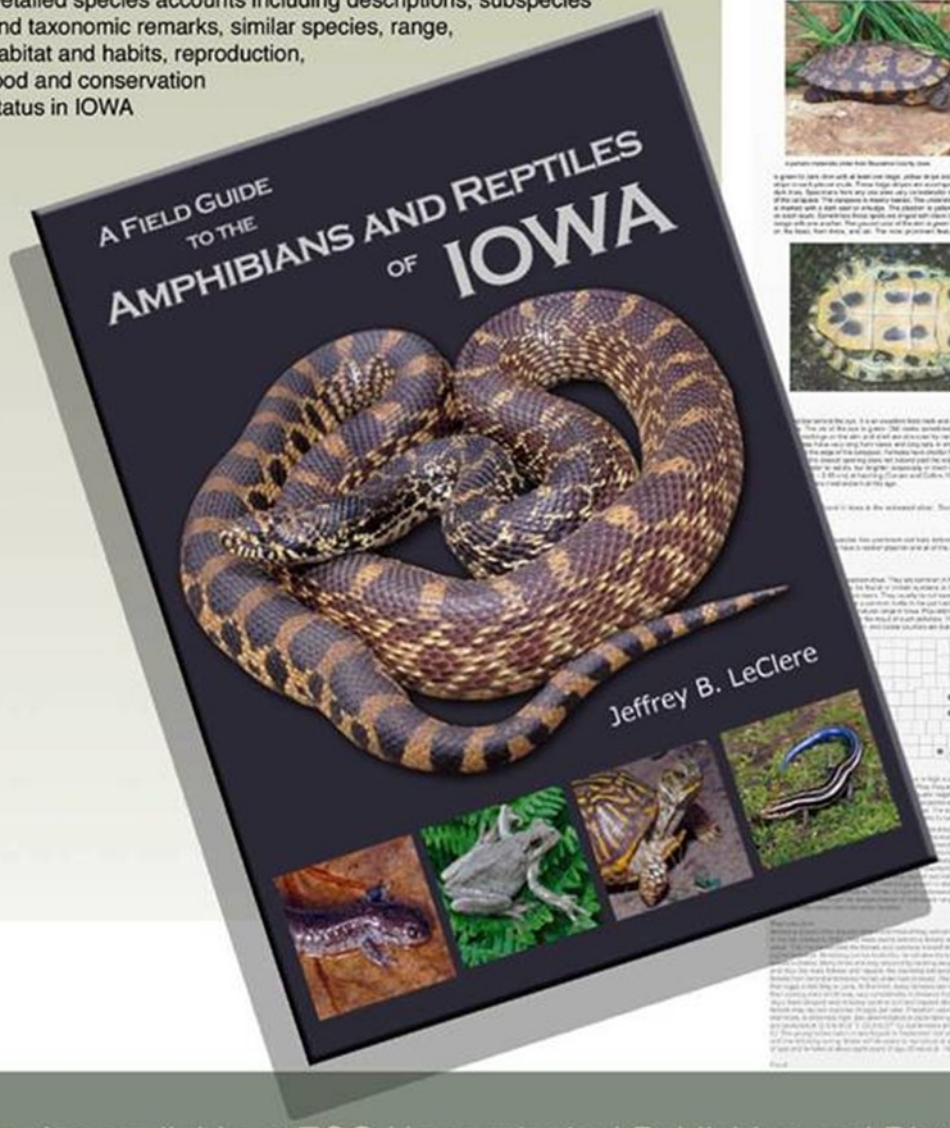
READING MATERIAL

Introducing the First Comprehensive Guide to the Amphibians and Reptiles of Iowa!

The only Iowa field guide to contain all the amphibian and reptile species together in one volume.

Full color photographs of all species. Dot county range maps

Detailed species accounts including descriptions, subspecies and taxonomic remarks, similar species, range, habitat and habits, reproduction, food and conservation status in IOWA



Copies available at ECO Herpetological Publishing and Distribution
http://www.ecouniverse.com/product/332/

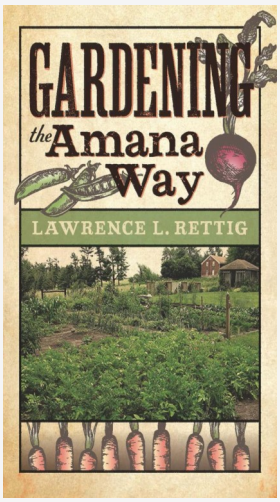
Season's Greetings,

Only two weeks left to find that perfect gift! The University of Iowa Press would love to help alleviate some of that stressful shopping. We've got great books covering a wide range of topics and interests for up to 65% off.

Here are just a few of the books that are on sale now...

Gardening the Amana Way

by Lawrence L. Rettig



As a child of parents who were part of the communal life of the Amana Society, Larry Rettig pays homage to the Amana gardening tradition and extends it into the twenty-first century--and into the kitchen! He shares family recipes for radish salad, dumpling soup, Amana pickled ham, apple bread, and more!

Regular Price: $27.50

Sale Price: $15.00

A Cook's Tour of Iowa

by Susan Puckett

"This book may shock the food snobs of America because Iowa's down-home cuisine is not dull after all."--*Des Moines Register*

"...a combination oral history and cookbook which should delight aficionados of America."--*Cookbook Digest*

"Puckett tapped into the culture of America's Middle West and the result is a book that will give Iowans cause for pride."--*World of Cookbooks*

Regular Price: $23.00

Sale Price: $5.00

Application form

Fisheries Project Grant

Iowa Chapter – American Fisheries Society

Project Name:_____

Project Description: _____.

_____

_____

_____

Attach map or supplementary information

Project Location:

Water Body:_____

Address:_____

_____County:_____

Start Date: _____ End Date:_____

Project Personnel:_____

_____

Fisheries Benefits:_____

_____

Iowa Chapter Representative: _____

Amount needed: $ _____._____ Total project cost: $_____._____

Money will be used for: _____

_____

_____

_____

Up to $1,000.00 per project.

Approved by Excom Committee Date:_____

The Iowa Chapter of the American Fisheries Society is offering to help finance worthwhile fisheries related projects. The completed application form needs to be transferred to the Iowa Chapter President by an Iowa Chapter Member.

Project Name – Give the project name.

Project Description – Give a brief review of the intended project. Include the work to be done, the methods and material that will be used in the project.

Attach a map and any supplementary information that you think will help the Excom Committee evaluate the project.

Project Location – Where will the work be done.

Start and End dates for the project. Month and calendar year will do.

Project Personnel – Include organizations and or individuals who will be directly involved in the work.

Fisheries Benefits – A very important part of the project should be direct benefits to Iowa's fishery. How does the project help and who is the beneficiary?

Iowa Chapter Representative – All projects need to have and Iowa Chapter member as a sponsor.

Amount needed – Tell us how much you need and the total project cost.

Money will be used for – Be as specific as you can. Will the money be used to hire people, buy, equipment, be seed money for a grant, etc.

There is a $1,000.00 limit for each project.

The Excom Committee of the Iowa Chapter will review the application and approve or reject the request.