Robust Redhorse (*Moxostoma robustum*) Conservation Committee Meeting 14 – 16 Sep 09

Held at the South Carolina Wildlife Refuge near Garnett, SC, owned and operated by the South Carolina Department of Natural Resources. Facility occupies land from a Land Grant in 1752 – Owned and operated as a dove hunting preserve by the Belmont family from NY. Acquired by the SC DNR in the 1940s appears to be used mostly for boar and deer hunts. DNR has meetings at the conference center. The refuge is 5700 acres in size. There is an additional 7 +15K acres adjoining parcels also used as a hunting preserve. Borders on the Savannah River just NW of the SC Route 119 bridge. The SC Route 119 crossing is the second (after the Route 301) crossing of the Savannah River below Vogtle. Twenty – seven people signed in, approximately 35 attended. From State and Federal agencies power companies and academic institutions. Sign in sheet available.

Tuesday, 14 September 2009

Announcement at beginning of meeting: Ross Self (DNR – SC) - Robust Redhorse MOU due to expire in December of 2009. There is general agreement that it be renewed. I did not suggest we (NRC) participate in any formal way.

1. Alice Lawrence (USFWS): Development of the Management Plan for Oconee River Robust redhorse Population 0848 hrs

Final draft couple months ago – got comments, not incorporated in current version of plan.

Oconee River represents a genetically diverse population that is self sustaining

6 self sustaining pop throughout range – the goal of the Robust Redhorse Conservation Committee (RRCC)

In Oconee goal 400-600 adults

Goals of the Oconee management plan

- Improve knowledge of biological requirements
  - Subtasks
- Monitor the status of the Oconee River Population and compare with other pops
  - Subtask
- Conserve and enhance the Oconee River Population
  - Subtasks
  - Talked about harvest by substance fishermen
- Maintain refugium for populations
- Create a schedule for revisiting Oconee management plan

2. Joey Slaughter (Southern Co). IT question and Ocmulgee River Recruitment Study 0855 hrs

Joey wants to develop a data base. Wants to be really able pull data out and do an analysis. Get a Data Base expert and use first on the Ocmulgee River data then maybe expanded. FTP site setup so data can

be shared. General agreement that it would be a good idea but people hesitant and really there is no money for development.

Ocmulgee River Population

Phase 1: 14K fingerlings stocked through 2008/from hatchery production of Oconee brood stock - suspended in 2008 due to low brood fish collection rates in 2007

Phase 2: Stocking success and adult pop monitoring/sampling for stocking success has been ongoing/adult pop monitoring began in 2007, but sampling is challenging in the Ocmulgee

Phase one is on hold wanted to stock 20K fingerlings. They could not get enough brood fish. There is a confound in the sampling - seems here were some ponds containing juvenile fish that overflowed and additional up to age I fish were added to the Ocmulgee River.

Phase II was monitoring

Only a short stretch of river was sampled in River. Upper Ocmulgee River no meanders, not very deep few robust redhorses taken. Not much suitable habitat for species in area sampled. The samplers had access problems. Not a good effort. In 2009 sampled 320 min with electroshocking

They collected 5 fish in 2009. Possible Coty Wire Tag problems – maybe tag loss or problem with size.

Based on the returns seems that there is an existing population in the Ocmulgee river that was supplemented by the stocked fish.

Population estimates difficult given low sample size. Not sure fish with lost pit tags or is it a native pop that is untagged.

Before stocking two adults 650 mm size found in Ocmulgee River well down river 1999. No more down there were ever found again

Habitat characterization using side scanning radar discussed. Georgia Power will do for Oconee and Ocmulgee River. The technique can, with proper ground truthing identify woody debris, pools and riffles.

3. <u>Jimmy Evans Georgia DNR presentation on gravel augmentation Project on Oconee River</u>

Avant Kaolin Mine, and downstream in the Milledgeville to Dublin reach in Oconee River
0930 hrs
In 1994 determined there was little or no recruitment – most fish 15 to 25 years old. Very limited recruitment

There was general concern over insufficient spawning areas.

CPU electofishing has had a steep decline - concern that might loose species

First course of action was to hatchery rear fish and stock to insure the propagation of the species.

Found the Avant gravel bar. The gravel bar is the only significant spawning site on Oconee River. The breeding effort at the gravel bar was declining as well. The gravel bar was changing as well due to siltation and change in river course upstream of the bar resulting in a change (elimination) in the gravel source for the spawning bar.

Plan is to deposit gravel in river upstream of the bar and have the normal flow of the river move it to the spawning gravel bar. The bar had a Kaolin base with gravel on top.

State people mixed painted rocks in pile. Problem algae grew on rocks, could not see paint. The gravel pile eroded from the downstream side in middle, turbulence moved the gravel pile downstream. About 50-75% of the pile eroded away.

The State of Georgia began a Phase II gravel augmentation effort downstream of Central Georgia Railroad trestle. Found a good site with currently marginal spawning activity. Has a good current, velocity, snags that look promising. Fish have never been seen spawning here. 1400 tons of gravel purchased from Alabama and deposited on the riverbank. Placed 100 tons a day by blasting gravel off a small barge

Permitting: needed corps of eng permit, needed NOAA permission – issue with SNS.

Plan to watch for spawning in 2010 spawning season

4. Ryan Heise (NC WRC North Carolina Wildlife Resources Commission) Yadkin-Pee Dee Technical Work Group Activities 1305 hrs

6 shocker boats

93 adults 3 juveniles total taken since 2000
61 fish, rest recaptures. 39 females 21 males

Ranged from none to 24 for each year

RRH Captures 375 to 793 mm in size with the largest 728mm 8450 gr

Appears to be some limited recruitment for the Pee Dee

Almost al collected at the NC/SC border

16 to 22 degrees C when Pee Dee fish are on the spawning site.

Spawn from late-April to early May – appears that there is spawning shoal fidelity

Use radio transmitter with mortality signal. The system also turns off at night.

Mortality to robust redhorses due to river otters

Recommendation fro the group, make an estimate of population size from mark recapture data

5. Mike Fisk /Tom Kwak (North Carolina State University) Reproductive Ecology and Habitat Relations of the Robust Redhorse 1344 hrs

Spawning habitat suitability
Quantify spawning habitat
Look at river flows v spawning

Radiotagged fish, 26 tagged fish
Aug 2008 to Jul 2009

2009 Apr –May river flow 1200 cfs

98 Km 894 relocations (identified signals) NC/SC border

Important conclusion: higher flows prolong occupancy of the spawning site. Higher flows are a definite asset.

Habitat Use
Have some numbers for velocity preferences, bottom tops, mostly no cover correlations

Also looked at low water effects on spawning sites – effects on eggs and larvae

Lab study, dewatered jars of fertilized eggs, 6 hrs up to 48hrs
Jars dewatered in 20 to 25 min

Problem with experimental design – fry got below filter media.

Egg desiccation in 24 and 48 hrs experiments
Vulnerability to fry once hatched – all treatments

Loss of adhesiveness after dewatered eggs may result in eggs floating downstream and high mortality.

Loss of eggs in control – only got 37% recovery

Dewatering seems to stimulate early emergence of larvae

Lot of unanswered questions related to egg mobility and early larval behavior. I suggested additional studies in this area. We know a lot about adults and adult behavior but almost nothing about eggs, larvae, and juveniles. There was general consensus that additional work is needed. This work would be helpful to us in assessing impacts due to entrainment. Impingement is not an issue with these fish.

6. Patrick Ely (University of Georgia) Seasonal movements of adult robust redhorses in the Oconee River 1500 hrs

Used radiotagged guide fish to see where they hang out.

33 radiotagged fish averaged about 4 lbs all about 20 inches long

Got Ogeechee River fish and put into Oconee River

Movement metrics – absolute distance moved – sum of all moves and displacement - added absolute movement downstream (+)to upstream movement (–).

Almost all fish traveled upstream

April 15-16 2009 tracked for 24 hrs

Moved only during the day

Adults found in woody debris on outside bends

Went to known spawning grounds (Avant Kaolin Mine site) despite coming from another drainage

Fish also went downstream crossed over into Ocmulgee River

Maybe the fish could detect pheromones from the Oconee fish that is why they went to the Avant Mine spawning site, additionally these radio tagged fish where spawned and stocked in Ogeechee River from Oconee parents.

7. Dave Coughlan (Duke Energy) Robust Redhorse Collections in the Wateree River – 2009 1530 hrs

Dave started with a short history of the rediscovery of the robust redhorse.

Savannah River 1980s first large sucker

Oct 1997 RRH at Vogtle

Augusta Shoals 1998 4 fish captured

May 1999 Savannah River below lock and dam got 23 individuals. Fish below the lock and dam where easy to get

Grabowski and Isly 2002 radiotagged fish, resulted in publications Grabowski and Isley 2005 and 2006

SCDNR Ross Shelf and Val Nash stock robust redhorses into Broad and Wateree River in 2004 and 2005 respectively
Broad R coated tags 2000 pit tags

May 25, 2006 shocked up a 43 mm? robust redhorse that was stocked

2009 collected a bunch (15)

Wednesday 16 September 2009

8. Scott Lamprecht (SC DNR) South Carolina Update 0830 hrs

Santee Cooper

Broad River stocked 44,537 fingerlings, above and below Parr shoals 2004 to present

Savannah River brood stock from the lock and dam gravel bar

Stocked 6 separate year classes 33 females and 3 males/female

Fish in Broad River
Neal Shoals Dam and Parr Dam and Columbia Dam

Also used radiotagged fish

Got fish from Lake Monticello stocked into Parr Reservoir in the reservoir

Picture of RRH viewing window in Columbia Dam turned out to be RRH.

Stocked above and below Parr Reservoir

SC DNR caught two specimens by electrofishing for smallmouth in Monticello Reservoir in 2008

9. Jimmy Evans– (Georgia DNR) Georgia Update 0912 hrs

Monitoring the Oconee population

Broad River (GA)

Ogeechee and Ocmulgee

Plant Washington 850 MW(e) planned coal plant intake just upstream of the Avent site

Broad River GA status
No evidence of recruitment

10. Jaclyn Zelko USFWS Warm Springs Hatchery at 0955 hrs

31 adults that need home all Oconee Fish
Bunch of small fish –go for a host fish mussel study,

Catfish Symposium next summer, St Louis, Mo, if interested see Tom Kawk -Catfish 2010

11. Final Wrap-up – open forum 1100 hrs

Research needs

a. Population estimates
b. End hatchery rearing and stocking effort
c. More life history work – particularly early life history

d. Renew the MOU
e. More radiotagging