**Reservoir Fisheries Habitat Partnership**

**Annual Meeting Minutes (October 11, 2017),**

**Days Inn Penn State, State College, PA**

**(Minutes are intended to complement reports in the 2016 Briefing Book (appended to this report)**

* Meeting called to order by RFHP Coordinator, Jeff Boxrucker at 0800 am EST.
* Call for Proxies:
  + Doug Nygren for Gary Martel (NEAFWA)
  + Mark Porath for Ken Kurzawski (AFS)
  + Rick Ott for Dave Terre (SEAFWA)
  + Jeff Krause for Jeremy Crossland (USACE)
  + Jeff Lucero for Gene Gilliland (BASS)
  + Don Wiley for Craig Walker (WAFWA)
* Board members present: Doug Nygren, Brad Tribby, Reed Green (via conference line), Jeff

Lucero, Kevin Pope; 11 Board members present (including proxies);

quorum established.

* Welcome and Introductions of attendees:
  + Jeff Lucero, US Bureau of Reclamation
  + Kevin Pope, US Geological Survey
  + Jeff Boxrucker, RFHP Coordinator
  + Mark Porath, Nebraska Game and Parks Commission
  + Doug Nygren, Kansas Department of Wildlife Parks and Tourism, MWFWA
  + Ben Page, PA Fish and Boat Commission
  + Don Wiley, Utah Division of Wildlife
  + Reed Green, NALMS (via conference line)
  + Amberle Jones, Arizona Game and Fish
  + Sandra Clark-Kolaks, Indiana DNR
  + Jeff Krause, USACE
  + Jeremy Shifflet, KY Dept. of Fish & Wildlife
  + Pat Sollberger, NV Dept. of Wildlife
  + Rick Ott, TX Parks and Wildlife
  + Dave Wellman, WV DNR
  + Brad Tribby, BLM

**Old Business:**

* Meeting minutes from 2016 Annual Meeting minutes (Ridgedale, MO) were provided to Executive Committee and Working Group members prior to the meeting.
  + Motion to accept minutes by Pope; Second by Nygren. Motion passed unanimously.
* Financial Report given by Boxrucker, details in Briefing Book.
  + Motion to accept by Porath; Second by Tribby. Motion passed unanimously.

**MSCG Updates:**

* Final Report on the 2013 MSCG (BMP development and outreach) is provided in the Briefing Book. A discussion on the distribution of the BMP manual ensued:
  + approximately 200 hard copies have been distributed to partners and select universities
    - no charge for hard copy due to “program income” designation due to USWFW funding via MSCG
  + approximately 20 hard copies remain
  + .pdf is hosted on [www.friendsofreservoirs.com](http://www.friendsofreservoirs.com)
  + Discussion of need to reprint ensued
    - As per Pope, manual would be valuable at the graduate-level fisheries program curriculum but likely would be limited to the .pdf version
      * BMP manual is meant to be living document so updates to .pdf would be hosted on the website
    - As per Nygren, Porath, state agency staff would prefer a hard copy
      * Cost of reprinting would need to covered with non-federal funds
        + Coordinator suggested $60 (value put on book at 2017 SDAFS silent auction)
    - Coordinator was given the task of following up on reprint costs; decision on reprinting was postponed to upcoming Executive Committee conference call
      * Follow-up by Coordinator on costs:
        + Numbers are for 200 books for hardcover like the first printing and softcover:
        + price/book, total printing cost, shipping, production time
        + Hardcover: 30.96, 6191.86, 250.10, 17 days
        + Softcover: 23.45, 4689.96, 205.94, 8 day
* Coordinator submitted proposal as part of a NFHP MSCG proposal for 2018 funding
  + RFHP to receive $20,000 to be used to develop a project-related Story Map, website upgrades and other outreach activities
  + Anticipate receiving funds in spring, early summer, 2018

**Accomplishments under FY2017 Work Plan**

* See report in Briefing Book
  + Progress on Strategic Plan update was discussed and need for Committee to work on specific goals and objectives was established
    - Pat Sollberger to lead draft of climate change objectives
    - Reed Green to lead draft of water quality objectives
      * Coordinator will provide existing text
      * Need to ensure that objectives are practical given limited funding
    - Coordinator to rework existing objectives where appropriate and seek additional help to provide a draft to Executive Committee for review

**FY2018 Work Plan**

* See report in Briefing Book

**FY2018 Budget**

* See Budget in Briefing Book
  + Motion to accept by Pope; Second by Porath; Motion passed unanimously
* Discussion followed re: the problem with timing the Operations Grant from FWS ($75,000) and fitting that in to the budget cycle
  + Current Operations grant closes 9/30; as per rule, cannot submit documents for FY2017 Operations Grant until FY2016 grant is closed out (9/30); upon submission of FY2017 Operations Grant documents likely to take 3-4 months before funds become available (FWS processing time); Coordinator is willing to work without salary for the interim until funds become available but likely will not be the case with new Coordinator upon current Coordinator’s retirement (anticipated October 2019)
    - Possible solutions
      * Change dates of grant cycle; if Operations grant ends June 30, Operations Grant funding would more readily align with RFHP budget cycle (October-September)
        + Problem is that it would be difficult to close out (spend $75k) grant within a shortened budget cycle (October-June)
      * Obtain non-federal funds to help fund RFHP Operations
        + Difficult to find NGO grants that will fund Operations (most are project related with little available for administration of grant)
        + Corporate sponsorship is largely limited to specific projects (typically within the corporations home area)
        + Suggested that RFHP ask State Fish and Wildlife Agencies to pay an annual member fee

$500 suggested

Member agency staff will have registration waived for annual meeting

Nygren will draft letter to determine willingness of agencies to pay membership fee

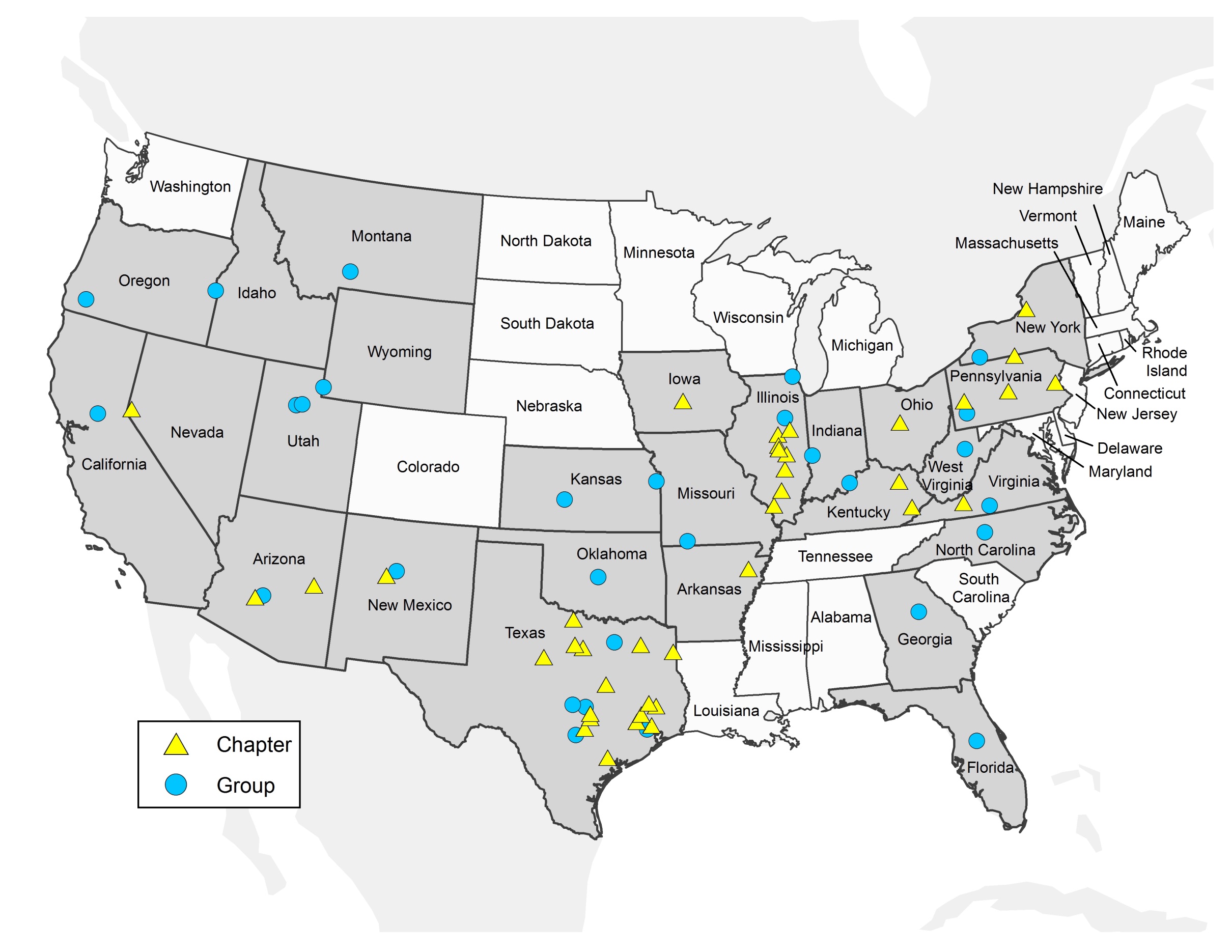
Wait until website is launched to better demonstrate what RFHP has to offer agency programs

Charge registration fee for annual meeting to help offset meeting costs ($200 suggested)

**FOR Updates: These updates constituted the FOR Executive Committee Meeting (called**

**to order at 1015; members present were Rick Ott for Dave Terre, Jeff Lucero for Gene Gilliland, Amberle Jones for Rebecca Krogman, Doug Nygren)**

* Boxrucker provided update on FOR progress. Twelve new FOR Chapters and 6 Group Members joined in 2017
  + As of Sept 30, 2017 FOR has 43 Chapter and 30 Group Members (73 total in 26 states)
    - Texas-21 members
    - Illinois-12 members
    - Pennsylvania-6 members
    - B.A.S.S. Nation-14 State Conservation Affiliates
  + Grant programs are the single most effective recruiting tool
    - Numerous organizations have joined in the past few years to either get bonus points for the large grant program (FWS-funded) or the to become eligible for the FOR Small Grants Program and the Mossback Grant



* Partner Workshop was attended by 29 people. Technical presentations (18) covered projects in Pennsylvania (7) and several statewide habitat programs (NE, IN, TX, VA)
  + The program is appended to these minutes
  + Annual Meeting Sponsors:
    - B.A.S.S. Conservation, Shell, Bass Pro Shops-$1,000 each
    - Esten Lumber, Inc.-$300
    - Pennsylvania Lake Management Society-$100
* URL for new website: [www.friendsofreservoirs.com](http://www.friendsofreservoirs.com)
  + Amberle Jones gave presentation on the beta version of the site
  + Launch date should be prior to Nov 30
    - Content still needed
      * Assessment and Metric database
      * Complete on-line project proposal and scoring system
      * Continue to add projects to the “Projects” page
* FOR meeting was adjourned at 1100

**2018 Annual Meeting**

* Texas (location and date to be determined)
* NFHP Board meeting in Texas in October

**Project Updates**

* See Briefing Book

**Project Selection** (Proposals in Briefing Book)

* 11 proposals submitted
* Project funding for FY2017 was $107,169 (Level 2)
* Anticipate a Level 2 funding for FY2018
  + Total funding at Level 2 anticipated to be less than at FY2017 level due to proposed $1 million reduction in NFHP funding
  + Project selection should be based on anticipated $100,000 of project funding
* Boxrucker recommended funding Proposals ranked 1 - 3 for $90,000 total and to fully fund FOR Operations at $75,000.
* Lake Wichita funding (FY2016) was pulled due to delay in receiving 404 permit; project was resubmitted for funding in FY2018 (ranked 4)
  + Executive Committee decided to fund Lake Wichita only after excavation was initiated
  + Project would be ranked 1 the year following initiation of excavation
* Further discussion followed on whether or not projects that were not shovel ready (all appropriate permits issued) should be considered for funding
  + Delays in project completion have resulted in RFHP receiving a lower score in FWS Allocation Report
  + Lower Bois d’Arc Reservoir project (ranked 6) falls into this category
  + Further discussion of such revisions will occur on a conference call in 2018
* Discussion of whether or not previously funded projects should be considered for refunding given limited project funds available
  + Further discussion and decision delayed until 2018 conference call
    - Possible approach would be to deduct certain amount of points (25?) for projects that have already received funding
* Discussion on whether it is appropriate to adjust rankings based on location, i.e., is it better to spread the projects out than fund multiple projects within a state or region (Lucero proponent of this approach)
  + Has been done in the past
  + Members of Working Groups (Shifflet, Clark-Kolaks)spoke in favor of keeping to the rankings
  + Also suggested that RFHP consider funding at a level less than the request to fund additional projects
    - This was also done in the past but was discouraged by FWS
* Motion (Nygren) was made to fund projects ranked 1-3 (Shelbyville, IL, Minsi, PA; Glendale, PA) at fully funded level ($30,000 each) and to fund Elephant Butte (ranked 5) with remaining project funds available from FWS Allocation (Clark-Kolaks second); Motion passed on 8-3 vote

**Small Projects Grant**

* Project summaries and rankings in Briefing Book (8 proposals submitted)
* Coordinator pointed out that the RFHP and FOR grant programs are serving as our best membership recruiting tool
  + Given the increasing number of FOR members and the largest number of submissions for the Small Grants Program to date (8) the need exists to spread the funds around
* Executive Committee discussion led to decision to not give funds from multiple grant sources (Large Project Grant, Small Projects Grant, Mossback Grant) to a project in the same fiscal year
  + Shelbyville, Harden, JP Landing, Poinsett, Flaming Gorge applied for grants from more than one source
  + Livingston has received 2 Large Project Grants and 2 Small Project Grants previously and given the number of proposals (8) and limited funds the decision was made to not provide Small Projects funds to Livingston even though the project ranked #1
* Motion (Pope) was made to fund Cochiti, NM; JP Landing, TX; Carr Creek, KY; Poinsett, AR at $1000 each; Wiley second; Motion passed unanimously

**Mossback Grant**

* Rankings in the Briefing Book (6 proposals received)
* Coordinator provided Mossback with copies of all proposals and ranking and asked for their input on which projects to fund prior to the meeting; none received
* Motion (Porath) to fund Harden, IN; Banner Creek, KS; Flaming Gorge, WY; Nygren second; Motion passed unanimously

Meeting adjourned at 1200

**EXECUTIVE COMMITTEE BRIEFING BOOK**

**2017 RESERVOIR FISHERIES HABITAT PARTNERSHIP**

Days Inn-Penn State

State College, PA

11 October 2017



**Tuesday, October 10**

8:00-17:00 Technical Presentations

**Wednesday, October 11**

0800-0815 Welcome/Introductions

0815-0830 Report on FOR Partner Workshop

0830-0845 \*Approval of Minutes/Financial Statement1

(Pages 2-6)

0845-0900 \*2013 MSCG Final Report (Pages 7-9)

0900-1000 \*Coordinator Work Plan/FY2018 Budget1

(Pages 10-16)

1000-1015 Break

Friends of Reservoirs Business Meeting

1015-1030 \*FOR Membership Updates

(Page 17)

1030-1045 \*Project Updates (Page 18)

1045-1200 \*FY2017 Project Selection1 (Pages 19-34)

Adjourn

**Proxies**

Doug Nygren for Gary Martel (NEAFWA) \*Briefing Book

Mark Porath for Ken Kurzawski (AFS) 1Action Items

Rick Ott for Dave Terre (SEAFWA)

Jeff Krause for Jeremy Crossland (USACE)

Jeff Lucero for Gene Gilliland (BASS)

Don Wiley for Craig Walker (WAFWA)

Call-In Number: 1-866-560-0760 **(Please mute your phones when not talking to facilitate** **ease of hearing the conversation)**

Pass Code: 2832957# (this will only be available for the Executive Committee Meeting on Wednesday morning).

**Reservoir Fisheries Habitat Partnership**

**Annual Meeting Minutes (November 8, 2016),**

**Big Cedar Lodge, Ridgedale, MO**

**(Minutes are intended to complement reports in the 2016 Briefing Book (appended to this report)**

* Meeting called to order by RFHP Coordinator, Jeff Boxrucker at 1:00 pm CDT.
* Call for Proxies:
  + Doug Nygren for Gary Martel (NEAFWA)
  + Tom Lang for Ken Kurzawski (AFS)
  + Jeff Lucero for Jeremy Crossland (USACE)
* Board members present: Doug Nygren, Dave Terre, Brad Tribby, Reed Green, Jeff

Lucero, Kevin Pope, Gene Gilliland; 10 Board members present (including proxies);

quorum established.

* Welcome and Introductions of attendees:
  + Dave Terre, Texas Parks and Wildlife Department
  + Tom Lang, Texas Parks and Wildlife Department
  + Scott Robinson, GA DNR
  + Andy Austin, MO Dept. of Conservation
  + Jeff Lucero, US Bureau of Reclamation
  + Gene Gilliland, B.A.S.S. Conservation
  + Kevin Pope, US Geological Survey
  + Rebecca Krogman, Iowa Department of Natural Resources
  + Jeff Boxrucker, RFHP Coordinator
  + Mark Porath, Nebraska Game and Parks Commission
  + Doug Nygren, Kansas Department of Wildlife Parks and Tourism, MWFWA
  + Ben Page, PA Fish and Boat Commission
  + Don Wiley, Utah Division of Wildlife
  + Reed Green, NALMS
  + Amberle Jones, Arizona Game and Fish
  + Sandra Clark-Kolaks, Indiana DNR
  + Karin Eldridge, FWS

**Old Business:**

* Meeting minutes from 2015 Annual Meeting minutes (Ogden, UT) were provided to all

members prior to the meeting.

* Motion to accept minutes by Green. Second by Lang. Motion passed.
* Financial Report given by Boxrucker, details in Briefing Book. Motion to accept Gilliland;

Second by Terre.

**MSCG Updates:**

* Updates on the 2013 MSCG (BMP development and outreach) and the 2015 NFHP MSCG

(funding metric database update) were provided in the Briefing Book and a presentation on

the BMP effort was given at the technical sessions. Updates on both grants were accepted

as presented in the Briefing Book. Lucero suggested including a disk (electronic copy) with

each printed version of the BMP manual.

**FOR Updates: These updates constituted the FOR Executive Committee Meeting (called**

**to order at 3:00 pm; members present were Dave Terre, Gene Gilliland, Rebecca**

**Krogman, Doug Nygren)**

* Boxrucker provided update on FOR progress. Eight new FOR Chapters joined in 2016 now

totaling 53 chapters & organizations, with goal of 50 by June of 2016. Texas continues to

lead the way (17 members) thanks to emphasis from administration and dedication from

field staff. New members are listed in the Briefing Book (Page 6).

* Partner Workshop was attended by 50 people. Technical presentations (23) covered the

1.5-day meeting (program appended to these minutes). Highlights included:

* + an address from Bass Pro Shops Conservation Director regarding BPS’s conservation programs,
  + NFHP Board Chair addressing recent NFHP activities
  + a number of presentations on partnering efforts and project-specific talks.
* The new Friends of Reservoirs marketing/communication plan and website design were presented.
* The Youth Ambassador Program (YAP) was discussed and recommendations made

by attendees on ways to implement the program (High School Youth Bass Clubs,

Project WET, Project Learning Tree, Boy Scout Merit Badges, Discover Nature

Curriculum, National Environmental Education Foundation, Center for Aquatic

Invasive Plants).

* + YAP was the recommendation of Arment Dietrich, marketing firm approved by EC

to develop marketing strategies (YAP in Briefing Book).

* Restructuring of website was contracted to Wood Street (as voted on and contract approved

by EC by email vote). Presentation on design was presented at the technical meeting. EC

and FOR Board discussion was favorable of the design. Content was discussed and

assurances made as per the ability of the site to be easily updated by members of the

Communication Committee to modify content as needed.

* FOR meeting was adjourned at 4:00 pm

**Committee Reports:**

* Part of the Arment Dietrich workshop with the Communication Committee (May 2016)

included revising Mission and Vision statements for both RFHP and FOR (Briefing Book).

Goals and strategies were suggested under each. Coordinator stated that he would flesh out

and circulate to EC under the FY2017 Work Plan.

* Coordinator Work Plan was discussed by Boxrucker. Accomplishments under the FY2016 plan

were reviewed and the FY2017 plan was approved with little discussion (Briefing Book).

* FY2017 Budget: Boxrucker explained FY2017 budget proposal (in Briefing Book).
  + Budget approved with little discussion

**2017 Annual Meeting**

* Pennsylvania working with Ben Page.

**Project Updates**

* See Briefing Book

**Project Selection** (Proposals in Briefing Book)

* Boxrucker said submissions continued to be low 2015 (7), 2016 (9) and 2017 (5) compared

to 2013 (15) and 2014 (21), probably due to frustration on how slow grantees received

funds from FWS and difficulties in getting compliance clearances. Maximum grant request

was increased to $40,000 for the FY2017 funding cycle yet proposals submitted continued

to decline. Reports from other FHPs indicate a similar decline in submissions.

* Boxrucker recommended funding Proposals ranked 1 - 5 for $153,000 and to fully fund FOR Operations at $75,000.
* Total funds available dependent on FWS Allocation Methods that is to be submitted to FWS in early January with notification to FHPs likely in April and May.
* FY2016 funding was Level 2 ($215,474); FY2017 allocation level anticipated alsoto be a Level 2 but actual funding amount is based on ratings of other FHP’s
* If Level 2 funding does not meet total project request of 5 approved projects, all projects will be reduced by same percentage needed to meet funds available. Terre/Green
* If Level 1 funding will have to eliminate lower ranked projects to meet available funds. Coordinator will contact all project leaders to explain allocation process.
* All three Small Grant Projects were funded. Nygren/Pope

Meeting adjourned at 5:00 p.m.



**Financial Report**

**(1 Oct 2016- 30 Sept 2017)**

**Friends of Reservoirs** (Bank of America)

Beginning Balance (1 October 2016) **$** **69,740.57**

Deposits

Grants **$** **79,740.73**

MS State MSCG Grant (BMP website) 4,740.73

RFHP Operations (FWS) 75,000.00

FOR membership **$** **1,675.00**

Sponsorship **$** **7,400.00**

Midwest Lake Mgmt (2016 Annual Meeting) 500.00

B.A.S.S. (2016 Annual Meeting) 1,000.00

Pond King 1,000.00

Bass Pro Shops 2,500.00

Bass Pro Shops 1,000.00

B.A.S.S. (2017 Annual Meeting) 1,000.00 Esten Lumber (2017 Annual Meeting) 300.00

PALMS (2017 Annual Meeting) 100.00

Donations **$** **284.26**

Possum Kingdom project 165.00

Elephant Butte Project 100.00

Barbara Boyle 19.26

**TOTAL $ 89,099.99**

Expenses

Coordinator Salary **$ 60,000.00** Bank Fees **$** **30.00**

Travel **$** **4,722.05**

Postage **$ 274.98**

2016 Annual Meeting **$ 18,021.74**

2016 Tax Return **$ 275.00**

Website (Wood Street; ½ payment; URL name) **$ 7,400.00**

Legal (CMP; 501(c)(3) renewal) **$ 188.45** Office Expense (Adobe Acrobat; Photoshop) **$ 453.45**

Grant Distribution **$ 46,115.39**

Elephant Butte Donation 100.00

FY2016 Small Projects Grants 3,000.00

Shell Grant 1,080.89

Shell Grant 8,458.12

Shell Grant 3,797.78

Shell Grant 4,577.50

Shell Grant 577.50

Shell Grant 22,023.60

Possum Kingdom donation 2,500.00

**TOTAL** **$ 137,481.06**

**Ending Balance (30 September 2016) $ 21,359.50**

|  |  |
| --- | --- |
| ANNUAL MEETING INCOME/EXPENSE | |
| 2016 Big Cedar Lodge, Ridgedale, MO; 8-9 November | |
| Income |  |
| Donations | $ 2,700.00 |
| Bass Pro Shops paid for banquet (amt unknown) |  |
| **Total Income** | **$ 2,700.00** |
|  |  |
| Expenses |  |
| Big Cedar Lodge | $ 16,969.73 |
| Awards | $ 461.65 |
| Copies | $ 378.89 |
| Name Tags | $ 68.50 |
| **Total Expenses** | **$ 17,878.77** |
|  |  |
| **Net** | **$ 15,178.77** |

**ARKANSAS GAME AND FISH COMMISSION**

**RESERVOIR FISHERIES HABITAT PARTNERSHIP**

Final Report 1/1/2013 to 12/31/2016

Multistate Conservation Grant No. F13AP00148

**Objective 1: *Compile and design Best Management Practices suitable for addressing regional differences in fisheries habitat impairments afflicting U.S. reservoirs.***

* A MS-student was hired to work with Principle Investigator;
* Reservoir habitat restoration Best Management Practices were compiled from known sources and internet searches;
* Material was organized into 13 Chapters, based largely on a habitat impairment survey funded, in part, by F12AP00092
* Drafts of Chapters were sent out for peer-review (a minimum of two reviews per Chapter) and suggested edits were incorporated into the draft;
* A professional copy editor was hired for final editing;
* Hard copies (210) were produced and distributed (free of charge) to state fish and wildlife management agencies, federal fisheries agencies, select universities and Reservoir Fisheries Habitat Partnership cooperators;
* A .pdf version is attached as an addendum to this report.

**Objective 2: *Develop a national BMP monitoring system appropriate for evaluating and refining BMPs applied within an adaptive management context.***

* An on-line version of the BMP manual will be posted on www.friendsofreservoirs.com;
* Updates to reservoir habitat restoration techniques will be incorporated into the on-line version as new information becomes available.

**Objective 3: *Strengthen and diversify RFHP strategic capability to implement the National Fish Habitat Partnership Action Plan by recruiting, preparing and supporting an expanded and active chapter membership in its affiliated Friends of Reservoirs Foundation and to recruit sponsoring companies and organizations to solidify funding for RFHP habitat enhancement efforts.***

* Thirteen months of Coordinator contract were paid during the grant period;
* Set up booth at trade shows at the 2014 ICAST, 2014 SW Native American Fish and Wildlife Conference and 2014 Bassmaster Expo to recruit FOR members;
  + Friends of Reservoirs membership
    - 44 Chapter and Group Friends of Reservoirs memberships were added during the grant period;
    - Current Chapter/Group memberships total 55 (Figure 1);
* Annual sponsorships were secured from Mossback ($1000), Fishiding ($1000), and Bass Pro Shops ($2500); Sponsorships are pending from Pond King and American Fishing Tree;
* Annual Meeting sponsorships were secured from B.A.S.S., Midwest Lakes Management and United Phosphorous, Inc.;
* The Outreach Committee worked with Arment Dietrich to develop a Comprehensive Marketing and Outreach Plan for Friends of Reservoirs;
  + Goals and Objectives for Friends of Reservoirs were developed during the planning process and are currently being added to the RFHP Strategic Plan, 2nd Edition (2017-2021);
* Attended American Fisheries Society Annual Meetings, including the Fisheries Administration Section, Fisheries Management Section, and Fisheries Habitat Section Meetings in 2013, 2015 and 2016;
  + Organized Reservoir Habitat Restoration symposia at the 2013 and 2016 meetings;
  + Organized and made one of four RFHP presentations at the NFHP-sponsored symposium at the 2015 Annual Meeting;
* Attended and made presentations at the 2014 and 2016 B.A.S.S. Conservation Summits;
* Attended the 2014 SEAWA Conference and presented at the Reservoir Symposium;
* Made presentation on importance of reservoirs in the Gulf Coastal Prairie LCC at the June, 2014 Steering Committee meeting;
* Completed annual activity reports for the MWAFWA Directors’ meetings, SEAFWA Fish Chiefs meetings and the WAFWA Fish Chiefs meetings;
* Drafted agendas for and coordinate bi-monthly RFHP conference calls;
* Participated in NFHP bimonthly FHP conference calls;
* Participated in NFHP Science and Data Committee conference calls;
* Participated in NFHP Partnership Committee calls;
* Attended NFHP Board Meetings in June, 2013; March, 2014; November, 2014;
* Attended FHP Workshops in November, 2013 and November, 2014
* Reviewed and provided edits to NFHP of proposed National Conservation Needs for the Multistate Conservation Grant program
* Updated RFHP and FOR websites
  + Worked with subcommittee of Outreach Committee to hire a contractor (Wood Street, Inc.) for merging and updating websites;
  + New site is [www.friendsofreservoirs.com](http://www.friendsofreservoirs.com)
* Secured funding from AFWA for RFHP share of NFHP 2015 MSCG
  + Worked with USGS to develop and obtain a signed Cooperative Agreement detailing work on updating the reservoir metric database
  + Database has been completed and final report submitted to NFHP
  + Database will be published as a USGS Technical Series and has been submitted to the NFHP Science and Data Committee for incorporation into the National Assessment
* Held webinar with USACE project leaders to discuss RFHP goals, objectives and grant opportunities;
* Coordinated the annual RFHP grant process;
  + RFP was distributed to state agency Fish Chiefs and FOR partners;
  + Responded to questions concerning RFP for project funding;
  + Distributed to Working Groups for scoring and summarized scores for selection at RFHP Annual Meeting;
  + Project Proposals submitted during grant period-66
  + Projects funded during grant period-33
    - $502,470 awarded was leveraged with $3,016,930 in partner funds;
    - Locations of RFHP-co-funded projects are shown in Figure 2;
* Developed FY2014 through FY2017 FHP Accomplishment Reports to receive FWS funding;
* Submitted *Ten Waters to Watch* application on behalf of Lake Conroe, TX; Lake Bloomington, IL, Lake Livingston, TX; and Lake Wichita, TX;
  + All nominees were selected to be part of the respective years’ *Ten Waters to Watch* program;
* Made local arrangements, developed agendas and prepared Briefing Books for 2013 through 2016 RFHP Annual Meetings;
  + 2013-Erie, PA
  + 2014-Athens, TX
  + 2015-Ogden, UT
  + 2016-Ridgedale, MO
    - FOR workshops were held at the 2014-2016 Annual Meetings attendance;
    - Technical presentations on projects and restoration techniques were held;
    - More than 150 professional and lay partners attended the three meetings;
* Compiled FOR financial information and sent to accountant for preparation of annual tax returns.

Report submitted by:



Coordinator, Reservoir Fisheries Habitat Partnership

**RESERVOIR FISHERIES HABITAT COORDINATOR**

**2016-2017 Work Plan**

**Note: text in red is actual FY2016 accomplishments**

* Update RFHP Strategic Plan (original 2009)
  + Use Objectives developed at Communication Workshop to complete draft of Strategic Plan
    - Revised Mission Statements for RFHP and FOR incorporated into draft SP
    - Initiated reporting of accomplishments under original SP
    - Began working on incorporating Climate Change objectives/strategies into SP update
* Work with Communication Committee to promote/market FOR/RFHP (Coordinator spent a great deal of time on migrating content from old sites and creating new content for new website; www.friendsofreservoirs.com)
  + Develop template for and distribute online newsletter via MailChimp
    - Will be workable with new website
  + Develop annual report of RFHP/FOR activities to distribute to partners
    - Annual reports to be housed on website but no progress made on prior years annual reports
  + Provide 1-page project summaries to project partners
    - * Expanded project information is on [www.friendsofreservoirs.com](http://www.friendsofreservoirs.com)
      * 2018 NFHP MSCG ($20,000) was received to fund Project Story Map development hosted by ESRI and posted on website
  + Attend scientific meetings
    - Southern Division of AFS
      * Present at habitat workshop sponsored by the SDAFS Reservoir Committee
    - Midwest Fish and Wildlife Conference
      * Keynote speaker at Reservoir Symposium at MWFWC
  + Provide regular updates for website to webmaster
* Work with Mississippi State researchers to compile and disseminate reservoir restoration BMPs as part of the 2013 MSCG (project completion date: 12/31/16
  + Final Report submitted to AGFC and FWS (February 2017)
  + Hard copies (210) of the BMP manual were produced and distributed
  + .pdf versions sent to State Fisheries Chiefs and other partners
    - Posted on website
* Solicit projects for funding
  + Refine project selection criteria (as needed)
    - Coordinate with RWG to incorporate priority species (as determined by assessment) into scoring criteria
      * Revisions were made as recommended by RWG
    - Explore feasibility of developing on-line proposal submission
      * Beta version developed (Rebecca Krogman) and posted on website for use in the FY2019 proposal submission process
  + Distribute RFP (late June-early July)
    - Proposal deadline (1 September)
      * RFP sent out in May; 15 August submission deadline
      * Coordinator worked with Project Leaders throughout submission process to ensure proposals met criteria
    - Distribute project proposals to Regional Working Groups for scoring
    - Summarize projects and scores for 2017 RFHP Annual Meeting
      * 11 proposals received and scored
      * Summaries are in the Briefing Book
    - Provide information to FWS
      * To be done when Executive Committee selects projects for funding
  + Explore opportunities for joint funding of projects with other FHP’s (SARP, Fishers and Farmers, WNTI, Desert Fishes, Great Plains)
    - Discussions held with WNTI and Desert Fishes but no proposals were put forward
    - Foundation grants available for water quality improvement
      * Apply for grants for watershed restoration projects in systems with reservoirs with water quality issues (as identified in the assessment)
        + Worked with Bass Pro Shops, Arkansas Game and Fish, Missouri Department of Conservation and local watershed groups to develop a White River Reservoir Habitat Initiative

Held planning meeting in January, 2017 at Table Rock

Developed work plan for submission to Bass Pro Shops

Project currently on hold for agencies and BPS to work out ideological differences on directions of funding (BPS did not want to fund personnel and agencies could not accomplish objectives without additional personnel).

* + Ensure timely reporting and accounting of funded projects
    - Worked with project leaders to ensure all reports to FWS were submitted as scheduled
    - Worked with FY2017 project leaders to produce compliance documents for submission to FWS
      * Wrote Statements of Work for 3 projects
    - Coordinated transfer of funds ($29,224) from the Lake Wichita project (delays in issuing 404 permit put funding in danger) to 4 FY2016 approved USACE projects (Richard B. Russell, Rend, Delaware and Dale Hollow).
      * Lake Wichita project resubmitted for FY2018 funding
    - Develop template for RFHP Project Tracking Database
      * Populate database with 2010-2012 projects
* Disseminate assessment results
  + Work with Principle Investigator to house assessment summaries on web
    - Coordinator completed state by state assessment summaries and state specific results from the metric database
    - Posting on the website is ongoing
    - Provided results of assessment and metric database to NFHP Science and Data Committee
      * SDC compared reservoir habitat scores from RFHP assessment to watershed scores developed by SDC
        + Agreement of scores varied by system
* Liaise with other NFHAP Partnerships
  + Advance goals of NFHAP
    - Attend NFHP Board Meetings (either in person or via webinar)
      * Participated in bimonthly FHP conference calls
        + Leader on the September conference call
    - Serve on Partnership Committee
      * Work with PC to develop the 2017 Work Plan
      * Serve on subcommittee to revise NFHP Board FHP Evaluation
      * Chair FHP Workshop Working Group
        + Workshop to be held at October 2018 NFHP Board Meeting
    - Provide RFHP accomplishments to FWS/NFHP for funding allocation
      * Allocation package was submitted by deadline
      * RFHP received funding at Level 2 (Total: $182,169; Operations: $75,000; Projects: $107,169)
* Serve as Business Manager for RFHP
  + Work with Executive Committee to:
    - Establish budget for operations of RFHP (excluding project funding)
      * See Briefing Book
    - Produce financial report for annual meeting
      * See Briefing Book
    - Compile income/expense statement and provide to accountant for completion of FOR tax return
      * 2016 income tax statement filed by deadline
  + Continue bi-monthly Executive Committee conference calls
    - Agenda developed for and calls conducted in Feb., April, June and August 2017
  + Complete FWS Allocation packet
    - * Allocation package was submitted by deadline
      * RFHP received funding at Level 2 (Total: $182,169; Operations: $75,000; Projects: $107,169)
        + Amount of funding at each level varies depending on the number of FHPs at each funding level

Total funding available: $3,171,875

18 FHPs received $75k for Operations ($1,350,000)

$1,821,875 remaining for projects

Level 1 (3 FHPs): $35,723

Level 2 (11 FHPs): $107,169

Level 3 (3 FHPs): $178,615

* + Work with local arrangements to schedule/arrange accommodations for RFHP meetings
    - Produce and distribute minutes of Annual Meeting
      * See Briefing Book
    - 2017 meeting in Northeast
      * Worked with local arrangements to host 2017 meeting in State College, PA
        + Solicit presentations for technical program
        + Produce agenda and Briefing Book for Business Meeting
      * Solicited sponsorships
        + $1,000 each: B.A.S.S. Conservation, Bass Pro Shops, Shell Oil
        + $300: Esten Lumber Co.
        + $100: PA Lake Management Society

**RESERVOIR FISHERIES HABITAT COORDINATOR**

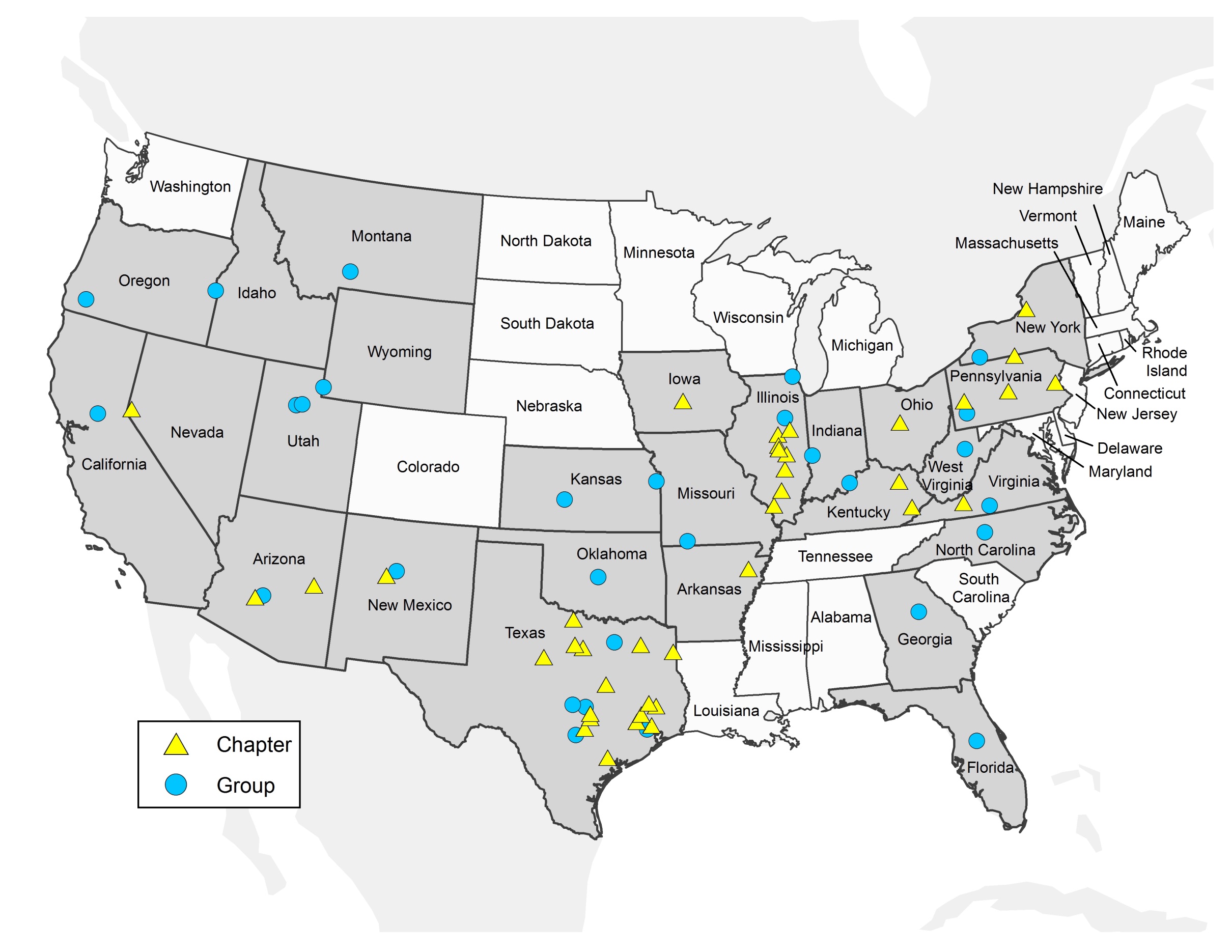
**2017-2018 Work Plan**

* Update RFHP Strategic Plan (original 2009)
  + This had been taking the Coordinator much too long
  + Need to form a Committee to share/motivate to accomplish this in FY2018
* Work with Communication Committee to promote/market FOR/RFHP
  + Develop template for and distribute online newsletter via MailChimp
  + Develop annual report of RFHP/FOR activities to host on website for distribution to partners
  + Attend scientific meetings
    - Southern Division of AFS
    - AFS (Atlantic City, NJ)
  + Continue populating/updating website
* Solicit projects for funding
  + Refine project selection criteria (as needed)
    - Complete development of on-line proposal submission in time for FY2019 RFHP (May 2018)
  + Distribute RFP (late May)
    - Proposal deadline (1 September)
    - Distribute project proposals to Regional Working Groups for scoring
    - Summarize projects and scores for 2018 RFHP Annual Meeting
    - Provide information to FWS
  + Ensure timely reporting and accounting of funded projects
  + Complete populating RFHP and NFHP Project Databases
* Disseminate assessment results
  + Work with Principle Investigator to house assessment summaries on web
  + Continue to work with NFHP Science and Data Committee to incorporate reservoir assessment data into the national assessment
* Liaise with other NFHAP Partnerships
  + Advance goals of NFHAP
    - Attend NFHP Board Meetings (either in person or via webinar)
    - Serve on Partnership Committee
      * Serve on subcommittee to refine FHP Performance Evaluation
      * Chair Working Group to develop agenda for 2018 FHP Workshop (October NFHP Board Meeting)
    - Provide RFHP accomplishments to FWS/NFHP for funding allocation
* Serve as Business Manager for RFHP
  + Work with Executive Committee to:
    - Establish budget for operations of RFHP (excluding project funding)
    - Produce financial report for annual meeting
    - Compile income/expense statement and provide to accountant for completion of FOR tax return
  + Continue bi-monthly Executive Committee conference calls
  + Complete FWS Allocation packet
  + Work with local arrangements to schedule/arrange accommodations for RFHP meetings
    - Produce and distribute minutes of Annual Meeting
    - 2018 meeting in Southeast
      * 2018 NFHP meeting is in Texas; may be a good idea to piggyback on top of that meeting

|  |  |
| --- | --- |
| **Reservoir Fisheries Habitat Partnership-Budget (2017-2018)** | |
| **Beginning Balance of FOR Account** | **$ 21,359.50** |
|  |  |
| **2016-2017 Revenue Sources** |  |
| * FY2017 FWS Project Award Operations (expected 2/18) | $ 75,000.00 |
| * NFHP MSCG | $ 20,000.00 |
| * FOR memberships | $ 1,000.00 |
| * Sponsorships | $ 2,500.00 |
| * Donations | $ 500.00 |
| **TOTAL** | **$ 99,000.00** |
|  |  |
| **2016-2017 Expenses (anticipated)** |  |
| * Coordinator Salary | $ 60,000.00 |
| * Travel | $ 5,500.00 |
| * SDAFS ($1200) |  |
| * AFS ($2,000) |  |
| * Mileage ($1,000) |  |
| * Travel payments to members ($1,300) |  |
| * CT Corp (501 c 3 registration) | $ 195.00 |
| * Annual Meeting (SE; Texas?) | $ 4,000.00 |
| * Office Expense | $ 200.00 |
| * Small Projects Grants | $ 3,000.00 |
| * Website | $ 10,720.00 |
| * Hosting Wood Street ($720) |  |
| * Project Posting (ESRI-$7,500) |  |
| * Upgrades ($2,500) |  |
| **TOTAL** | **$ 83,615.00** |
| **INCOME-EXPENSES** | **$ 15,385.00** |
|  |  |
|  |  |
| **ANTICIPATED ACCOUNT BALANCE (Oct 2018)** | **$ 36,744.50** |
|  |  |
|  |  |
|  |  |

**Friends of Reservoirs Membership Update**

* Chapter (43) and Group (30) membership totals 73 in 26 states
  + Texas-21
  + Illinois-12
  + Pennsylvania-6
  + B.A.S.S. State Conservation Affiliates-14
* Chapters (12) and Group (6) members added in FY2017
* Project grant applications single most reason for added membership



**PROJECT UPDATES:**

**2014**

*Elephant Butte Reservoir* *Habitat Project, NM*

Final Report due to FWS on 12/22/2016

*Possum Kingdom Lake Enhancement Project*

Final Report submitted to FWS on 3/29/2017

*Rockport Reservoir Fish Habitat Improvement*

Final Report due to FWS on 9/30/2017

**2015**

*Reservoir Fisheries Habitat Partnership Coordination and Operational Support*

Final Report submitted to FWS on 11/11/2016

*Cave Run Lake Large Scale Habitat Project*

Final Report due to FWS on 3/30/2018; project completed on 9/1/2017

*Smithville Lake Habitat Enhancement Partnership*

Final Report submitted to FWS on 12/12/2017

**2016**

*Lake Livingston Reservoir Fisheries and Riparian Habitat Enhancement Project*

Final Report due to FWS on 3/30/2018

*Reservoir Fisheries Habitat Partnership Coordination and Operational Support*

NOA was issued on 2/22/2017 with a project end date of 9/30/2017; final report will be submitted in October 2017

*Establishing ground cover in reservoir mudflats**to foster fish assemblages*

Covered under IAA between FWS and USGS (signed and scheduled to start on 10/1/1016); no cost extension granted through 11/30/2018

**All 5 of these USACE projects were covered under a single IAA that has recently been signed; FWS funds for all 5 projects ($52,025) will be given to USACE and distributed to projects accordingly. Amount amended to $81,249 (from Lake Wichita); project end date is 3/30/2018**

*Lake Russell Shoreline and Deepwater Habitat Enhancement*

*Underwater Structure Enhancement for West Point Project*

*Rend Lake Fishery Habitat Enhancement Project*

*Delaware Lake Fish Habitat Structure and Monitoring*

*Dale Hollow Lake- Trooper Island Improvement Project*

*Lake Austin Aquatic Habitat Restoration*

NOA issued on 3/10/2017; Project end date: 8/31/2017; final report due 11/30/2017

*Lake Wichita Habitat Enhancement*

Due to delays in issuing 404 permit, the project was withdrawn. Project funds ($29,224 were transferred to 4 of the 5 USACE projects above. 404 permit has since been issued and project was resubmitted for FY2018 funding.

**2017**

*Easter Lake Restoration Project*

NOA issued on July 27, 2017; Project end date is December 31, 2018

*Carlyle Lake Habitat Improvement*

IAA issued

*Roosevelt Lake Habitat Enhancement Project*

NOA not yet issued

*Reservoir Fisheries Habitat Partnership Coordination and Operational Support*

Project documents cannot be submitted until after the 2016 final report has been accepted

**RESERVOIR FISHERIES HABITAT PARTNERSHIP**

**Project Proposal Summary-FY2018**

**Lake Shelbyville Fish Habitat Development and Restoration Project-submitted by USACE (multiple FOR Partners)\***

Lake Shelbyville is located in Shelby and Moultrie Counties of east-central Illinois. The dam site is located on the Kaskaskia River about one-half mile east of Shelbyville, Illinois. Much of the land in the Lake Shelbyville watershed is flat or gently sloping. However, the many small tributaries entering the river above the dam site have created ravines and valleys to form a very irregular shoreline. Many coves, both large and small, can be found as a result. Shoreline erosion at Lake Shelbyville is caused by a combination of factors: fluctuating lake level, waves created by wind and boat actions, and the soil surrounding Lake Shelbyville being predominately glacial sandy clay with little resistance to erosion. Erosion was considered during project design to have minimal impact on pool storage in early years. However, because the last full sedimentation survey was conducted in 1984, there is no way of knowing exactly what that impact is today. The 1984 survey concluded that although the lake was estimated to lose 6.8% of its storage capacity in 50 years (by 2034), that rate of deposition was 2.5 times higher than original estimates. Due to the standard aging process, Lake Shelbyville which has been impounded for 46+ years, has lost a significant portion of its’ woody habitat to natural forces. Very little dead standing timber remains in coves as most have decayed over the last 40 years. Long-duration floods, on occasion in excess of 12’, have further stranded woody habitat in uplands resulting in additional habitat loss. These floods have made conditions difficult for aquatic macrophytes to establish without help. This lack of habitat and associated erosion and reduced water quality are affecting the quality of the fishery significantly and efforts to replenish and develop habi- tat have not kept up with losses. Standard management practices help maintain the quality of the fishery, but the standard reduction in quality with reservoir age continues with rippling economic effects throughout the community and region.

This project is proposed to introduce long-lasting structural and biological habitat, inhibit shoreline erosion of key areas, inhibit mobilization of sediment and nutrients, and maintain connectivity of coves to the main lake. The benefits expected include increased complexity and diversity of habitat for fish and other wildlife, decreased turbidity, siltation, and nutrient loading for improved water quality. It is also expected to improve deep water refuge availability during summer stratification to provide increased density of priority game fishes and other desirable organisms for greater quality of experiences for anglers, hunters, ecotourists, and in- crease local business revenue for increased quality of life for all residents within the influence of the reservoir. The project will provide usables that include up to 500 Shelbyville cubes (20,000 ft3), up to 250 Georgia cubes (10,000 ft3), 30 artificial logs, 30 artificial stumps, 4,800ft2 of planting area, double the size of the aquatic plant nursery to six 8’-pools and stabilize approximately 5,000 feet of severely eroding shoreline. Success of the project will be gauged primarily by improved quality of the fishery, fish use of habitat structures, and secondarily by water quality improvements, bank stabilization, and reduced sedimentation.

**Funds requested: $30,000; total cost: $802,592; total score: 251; rank: 1**

**Minsi Lake Habitat Improvement Project-submitted by Northampton County Junior Conservation School (FOR Partner)\***

The objective of this project is to address two regional reservoir habitat impairments identified as issues effecting the ecological heath and function of reservoir systems by the Reservoir Fisheries Habitat Partnership (RFHP) reservoir habitat impairment assessment: 1) *limited littoral structure* due to lack of woody structure and shoreline erosion; and 2) *excessive shallowness* due to too little deep water refuge for fish and other aquatic organisms and communities. Northampton County Junior Conservation School (NCJCS) and Northampton County Parks & Recreation Division (NorCo Parks), in partnership with Friends of Minsi Lake (FOML) and the PA Fish & Boat Commission (PFBC), will resolve these impairments by implementing the Minsi Lake Cooperative Habitat Improvement Plan, which was developed by the PFBC Habitat Management Division in July 2017 for NorCo Parks to address the impairment issues at Minsi Lake. Minsi Lake has been a part of the Northampton County Park System since 1975. This project partnership will work together and follow PFBC’s habitat restoration plan for the Minsi Lake Habitat Improvement Project. The genesis for the habitat project is the Minsi Lake Dam Rehabilitation & Spillway Reconstruction Project, which is slated to begin in late 2017 and last into 2019-20. The lake was completely drawn down in May 2017 in preparation for the dam rehab project; offering a rare opportunity to readily address these reservoir impairment issues and complete and extensive fish habitat restoration project at Minsi Lake. PFBC’s field survey in June 2017 revealed that about 75 acres of the 117-acre Minsi Lake basin is lacking fish habitat. Per PFBC’s Habitat Improvement Plan to remedy this impairment, 644 large scale habitat structures will be built in place on the empty lakebed by PFBC staff using heavy equipment; 210 small scale habitat structures will be built outside the lake basin by volunteers using hand tools and later submerged in the lake, after its refilled with water; and seven shoreline stabilization/habitat structures will be built in place along the shore by PFBC staff using heavy equipment. Together, these artificial devices will resolve the habitat structure impairment at Minsi Lake, protect the shoreline from wind and wave erosion and, in the case of the rock shoreline structures, provide almost 200 linear feet of easily accessible shoreline fishing access for anglers. PFBC’s field survey also revealed excessive shallow water areas alongside the concrete bulkheads of both boat launches and around the two rock fishing jetties at Minsi Lake. The bulkheads and fishing jetties are among the most popular shoreline fishing areas for anglers at the lake. In addition to constructing rock and timber habitat structures off the bulkheads, jetties and other areas of the lake to address the habitat structure impairment, the shallowness impairment will be addressed by strategically excavating channels alongside the two fishing jetties and the boat launches and adjacent bulkheads at Minsi Lake. This limited excavation will provide nearly 1,000 linear feet of deep-water fish habitat immediately adjacent to the most popular shoreline fishing areas at the lake, which will result in increased angler success and outdoor recreation enjoyment for everyone who fishes from the shore at Minsi Lake.

*Please note that the Minsi Lake Habitat Improvement Project is the first step in a comprehensive rehabilitation plan for Minsi Lake Park that calls for improvements to picnic areas, boat launches, fishing jetties, trails, signage, restrooms, parking lots, maintenance facilities and the construction of ADA Accessible facilities and amenities at the park, where none presently exist. These accessible facilities and amenities will include restrooms, fishing piers, boat launches, picnic tables and trails.*

**Funds requested: $30,000; total cost: $94,370; total score: 248; rank: 2**

**Glendale Lake Habitat Improvement Project-submitted by Cambria County Conservation District (FOR Partner)\***

Glendale Lake is a 1635-acre lake located in DCNR Prince Gallitzin State Park. The facility was created in 1957 through monies gained from oil and natural gas leases. This park generates thousands of visitors a year and is a very popular bass tournament lake. The park is located just outside the town of Patton, PA. The park is a state owned public facility which has a beach, 2 marinas, and multiple walking trails and boat launches. The lakes age and high use have deteriorated habitat at the lake. The major issue at this lake like most other waters in the southern Appalachians is excess siltation, turbidity, and excess nutrients. This partnership was formed over 7 years ago to improve these conditions. The stream immediately below the dam was considered severely impaired because of these issues and was a key area for the Department of Environmental Protection (DEP). IDEP designated it one of the worst streams in the state. Several years of doing projects both downstream and at the lake have improved the stream enough to take it off the impaired list. Partners have already armored >6000 feet of eroded shoreline. Funding from this project will armor an additional 1300 feet at 3 sites. In addition, large woody structures are incorporated into the rock used to armor the sites. Additional woody structure will be added in the form of 300 brush bundles (invasive Russian Olive). The park has areas where this invasive plant has taken over. We will also build 40 short vertical plank structures, 20 turtle basking platforms, fell 40 plus trees, and 40 Porcupine cribs within this grant award cycle.

**Funds requested: $30,000; total cost: $260,000; total score: 241 rank: 3**

**Lake Wichita Habitat Enhancement Project-submitted by TX Parks and Wildlife (FOR Partner)\***.

Lake Wichita is the third oldest reservoir in the State of Texas, completed in 1901. Having surpassed its expected 100-year life span, in its present state, Lake Wichita is no longer able to provide significant social, economic, ecological, or recreational benefits to the community. Having recently gone through a historic drought, we were able to see first-hand the fisheries habitat impairments that plague Lake Wichita. Impairments include lack of structural habitat, siltation, degraded shoreline areas, connectivity, excessive nutrients, and the water regime. The Lake Wichita project is a holistic project that addresses all of these issues and also community outreach, quality of life, and economic impacts. Lake Wichita is scheduled to undergo a complete rehabilitation from draining and dredging the lake bed to restoration of the watershed. Total cost of the restoration is estimated at $55-million and includes removal of 7-million cubic yards of sediment.Structural habitatis virtually non-existent in Lake Wichita and mainly consists of rip-rap rock along the dam and some docks and piers. This project proposes to add natural and artificial structure to four rip-rap jetties, four floating-fishing piers, a causeway of the circle trail with fishing piers, and a boardwalk that are all part of the master restoration plan. Depending on final bulk pricing and specific structure models purchased we anticipate being able to purchase and deploy 400-500 artificial structures at the proposed sites. **This project was funded in FY2016 but had to be withdrawn due to delays in receiving the 404 permit (which is now in hand). Project funds ($29,000) were transferred to other FY2016 projects.**

**Funds requested: $30,000; total cost: $55,000,000; total score: 238; rank: 4**

**Elephant Butte Adapt-a-Cove-submitted by NM B.A.S.S. Nation (FOR Partner)\***.

This project proposal is a component of a five-year project to improve fish habitat, enhance spawning and restore native vegetation at Elephant Butte Reservoir in New Mexico. The Elephant Butte Adapt-a-Cove objective is to bring together state and federal agencies with volunteer organizations to improve the shoreline and littoral zone environments. The 100-year old reservoir suffers from "old reservoir" syndrome with eroded shorelines and a lack of vegetation. The upper half of the reservoir also suffers from spring runoff turbidity in coves that were historically key spawning areas. While the project uses the proven approach of adoption by volunteer organizations, the name of the project emphasizes the need to bring innovation and an adaptive management philosophy to face the current water management practices and future challenges from climate change. The lake is an irrigation reservoir that drops about 30 feet between March and August for irrigation and municipal water releases, exposing approximately 114,000 acres of barren shoreline. Most littoral and shoreline aquatic and terrestrial vegetation is killed off during these fluctuations.

The project also focuses on involving a retirement community and local angler and student populations from a 200-mile radius. One final objective and the focus of this grant proposal is to solidify a long-term partnership between local volunteer organizations and agencies to continue a habitat program for the reservoir. This project transitions to more permanent artificial and juniper structures and increases the amount of native shoreline vegetation that will support local wildlife including improved habitat for fish, endangered willow flycatchers, and desert wildlife that have suffered from the recent drought. The project is in step with New Mexico State Parks initiative to include more year-round activities including hunting and establishing an off-road vehicle park. The Elephant Butte Adapt-a-Cove project strives to involve all park visitors and will enhance both fishing and hunting opportunities. The project also will develop and communicate best practices and inventions that could be used worldwide to make more sustainable and productive use of reservoir shorelines that are exposed either due to drought or annual fluctuations.

**Funds requested: $25,000; total cost: $61,400; total score: 229; rank: 5**

**Lower Bois D’arc Creek Reservoir Pre-impoundment Habitat Development Project**

**-submitted by TX Parks and Wildlife (FOR Partner)\***

Lower Bois d’Arc Creek Reservoir is a planned 16,641-acre impoundment of Bois d’Arc Creek, a tributary of the Red River, approximately 15 miles northeast of Bonham, Texas in Fannin County, Texas (Figure 1). The reservoir will have a capacity for 367,609 acre-feet of water, and the primary use will be for municipal water supply in the Dallas-Fort Worth Metroplex. North Texas Municipal Water District (NTMWD) obtained water rights for the reservoir from the Texas Commission of Environmental Quality (TCEQ) and is currently awaiting a permit to begin construction from the U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Waters Act. A decision is expected in January 2018. Lower Bois d’Arc Creek Reservoir will be the largest reservoir constructed in Texas since 1991. It is important for fisheries managers to mitigate potential habitat losses within reservoirs by working to establish littoral aquatic vegetation and also establishing artificial structural habitats in deeper water. These types of habitats provide cover within shallow, littoral areas as well as deep water refuge for young fishes. Native aquatic vegetation introductions can significantly improve water quality throughout the reservoir by recycling excess nutrients, and serve to reduce sedimentation within wetland and littoral areas by reducing shoreline erosion from boat and wind action. Upper reservoir reaches, the areas most impacted by water level fluctuations, also typically demonstrate higher quality and quantity littoral habitats than lower reaches. This suggests habitat improvement efforts in the form of artificial structure are often more beneficial in downstream reaches in closer proximity to the dam. Objectives of the project include the establishment of native aquatic vegetation in designated wetland areas of the reservoir upon reservoir impoundment, and the placement of artificial habitat in deep water prior to impoundment. Artificial habitat will be in the form of large brush piles created from felled timber within clearing zones designated by NTMWD, along with six one to two acre “concrete reef” sites within the lower third of the reservoir where large concrete structures will be placed. Initiating habitat development prior to construction of the reservoir will provide a unique opportunity for fisheries managers to begin mitigation efforts to minimize habitat degradation prior to reservoir construction rather than attempt to correct existing problems down the road. The project also serves to maximize the quality of the fishery and highlight the importance of fisheries during the planning and construction phase of a reservoir. The project is expected to be of significant local and even national interest, and function as an example of what can be done to improve fisheries habitat during reservoir planning and construction.

**Funds requested: $26,221.55; total cost: $ 95,363.90; total score: 228; rank: 6**

**Lake Poinsett Lake Renovation Project - Habitat Restoration and Enhancement-submitted by AR Game and Fish Commission (FOR Partner)\***

Lake Poinsett is a watershed-type lake in Poinsett County, AR formed by an earthen dam constructed across Distress Creek in 1961. This 640 acre lake is owned and managed by the Arkansas Game and Fish Commission for the purpose of providing sport fishing opportunities. Located just 25 miles south of Jonesboro, the largest city in Northeast Arkansas, Lake Poinsett draws numerous visitors from this urban hub. The dam at Lake Poinsett is classified by the Arkansas Natural Resources Commission as a high risk dam, due to the height of the dam and amount of inundation area should a breach of the dam occur. Erosion is occurring around the outlet pipe and the face of the dam has also been flagged due to large amounts of brushy cover, sparse or absent riprap, and undercut concrete. Additionally, 1,184- linear feet of shoreline erosion was first documented in 2006. In 2014, the amount of shoreline erosion was re-estimated at over 12,000 linear feet (2.3 miles). Therefore, over one-third of the lake is affected by some degree of shoreline erosion. The majority of the erosion located on the eastern shoreline, although shoreline erosion is evident around all sides of the lake. Areas of erosion range from 50 foot to 1,200 feet in length and a height of 2 foot to 25 feet. Major reservoir impairments identified by Reservoir Fisheries Habitat Partnership (RFHP) for Coastal Plains Region that are negatively impacting Lake Poinsett include excessive siltation, loss of structural connectivity, turbidity, excessive nutrient loading, and deterioration of littoral structure. The overall lake renovation project plans to address these issues with the following objectives:

* + - Reduce siltation by stabilizing eroded shorelines.
    - Reduce nutrient loading through reconstruction of a natural littoral zone and promotion of native vegetative growth.
    - Restore littoral habitat, enhance existing structures, and create new habitat within the lake.
    - Improve habitat connectivity between deep water and littoral zones by supplementing structure along bathymetric features of the lake.

The requested $29,600 from RFHP will be used for the removal of trees along the shoreline erosion segments before work begins to stabilize and repair the shoreline erosion segments by the AGFC Operations Division.

**Funds requested: $29,600; total cost: $213,935; total score: 214; rank: 7**

**Buckeye Lake Fish Habitat Partnership-submitted by OH B.A.S.S. Nation (FOR Partner)\***

Buckeye Lake was built in the mid 19th Century by impounding the South Fork of the Licking River to provide a water source for the Ohio and Erie Canal system. After the canal system was decommissioned, ownership of Buckeye Lake shifted to the ODNR State Parks to provide recreational use opportunities, such as angling and boating. At 2,813 acres, Buckeye Lake is Ohio’s 10th largest reservoir, but, characteristic of canal reservoirs, is very shallow, with an average depth of 5.2ft and a maximum depth of 15.4ft. The quality of the physical and chemical habitats available for fish and other aquatic life at Buckeye Lake is poor, characteristic of a 177-year old reservoir. The bot-tom substrate is composed primarily of unstable, nutrient-rich organic muck that, combined with poor water clarity, provides little opportunity for beneficial rooted aquatic vegetation to become established. In addition, much of the shoreline is lined with sheet-piling to prevent shoreline erosion and has little value as littoral habitat to fishes. The high quality habitats necessary to promote the success of naturally-reproducing sport fishes, such as largemouth bass, are limited in Buckeye Lake. The work being proposed for this grant is part of a comprehensive management plan that is being conducted by the ODNR to improve both angler access and habitat of Buckeye Lake, to aid in the recovery of the lake and associated fishery as the dam construction project comes to a completion. Habitat work facilitated by the grant will focus on 1) improving water quality via direct removal of sediment-laden nutrients through dredging and 2) enhancing the quality of physical habitat to benefit all life stages of sportfishes in Buckeye Lake, including introducing hard stable substrate to support spawning habitat and new structure to create nearshore physical habitat that will be critical to meeting the needs of juvenile and adult sportfishes. The total nutrient load in Buckeye Lake will be reduced by dredging the nutrient-laden muck / silt from the bottom of the reservoir in select areas. Removing bottom sediment through dredging is an effective approach for removing nutrients. The ODNR Di-vision of Parks and Watercraft employ full time crews to dredge the lakes associated with state parks. The annual material removal target for dredging at Buckeye Lake is approximately 19,000 yd3 and will focus on removing sediment from select enhancement areas. Direct removal of sediments through dredging will address three of the impairments that have been identified for the Temperate Plains region. Dredging addresses the impairments related to 1) excessive nutrients / algae blooms, 2) siltation / turbidity, and 3) excessive mudflats / shallowness. Gravel flats will be created immediately adjacent to shore and extending into the lake by 100-300ft (21,350 yd3) at three state park-owned locations. Artificial structures will be placed in select areas throughout the lake in an effort to bolster the quantity of suitable habitat available for juvenile centrarchids. Spider blocks and porcupine cribs will be installed in groups in close proximity to likely spawning areas (gravel flats) to simulate the complexity of woody habitat to benefit juvenile fishes. This component of the habitat work address the limited littoral structure impairment identified for the Temperate Plains region. Spiny PVC “trees” type-structures will be placed in select areas to provide cover for adult fishes. RFHP funding will be used on the artificial structure and outreach aspects of this project.

**Funds requested: $30,000; total cost: $939,100; total score: 209; rank: 8**

**J. Strom Thurmond Lake Shoreline and Deepwater Habitat Enhancement-submitted by USACE (FOR Partner)\***

J. Strom Thurmond Lake is the oldest Corps of Engineers reservoir located on the Savannah River system in South Carolina and Georgia. The 71,000 acre reservoir was impounded in 1954 and serves multiple purposes including; hydropower, flood control, recreation, water supply, and fish and wildlife habitat. The aged reservoir suffers from a lack of woody debris and bank erosion primarily caused by fluctuating reservoir levels. *Hydrilla verticilata* was first discovered in the reservoir in 1995 and has expanded to approximately 3,600 acres. Annual water level fluctuations and relatively poor upland soils within the littoral zone have limited the establishment and expansion of most other native aquatic plants. Recent efforts to establish water willow on an upstream reservoir, Lake Russell, have been successful by employing a variety of planting techniques in a wide range of shoreline sites and substrate types. These techniques will be employed on J. Strom Thurmond Lake to establish founder colonies of water willow. Benefits will include increased abundance of nursery habitat for fish populations that occur in the reservoir and to some degree, offer shoreline stabilization and nutrient filtering. In addition, deepwater structures and felled trees along the shoreline will be placed adjacent to provide additional habitat for adult fish both pre and post spawning periods and foraging locations. Critical partnerships include Georgia Department of Natural Resources, South Carolina Department of Natural Resources, U.S. Forest Service, and the Georgia BASS Nation. Representatives of the COE, GADNR, SCDNR and the U.S. and the Forest Service will collectively select 16 habitat locations in J. Strom Thurmond Lake. The 16 selected sites will be planted with 300 potted water willow plants each. The plants will be introduced in 1-4 feet of water along the shoreline and will be spaced approximately 18” apart and cover a shoreline area of 1,350 ft2. (6’ wide x 225’ long). An additional 100 Southern watergrass plants will be planted at 4 of the sites. Littoral zone plantings will stabilize substrates, reduce resulting siltation, erosion, and nutrient input, and provide structural habitat for shoreline-spawning fish species (i.e. largemouth bass, black crappie, redear sunfish, bluegill, etc.). Plantings will also provide an immediate stable, protective nursery area for juvenile fish. Deepwater fish attractors will be placed adjacent to the established plant colonies in 15-20 feet of water. The deepwater structures will consist of 1 Mossback Safe Haven and 15 bamboo structures. A minimum of 30 shoreline trees will also be felled in the vicinity of the plant colonies to provide additional shoreline spawning and nursery cover and to provide “quiet water” areas adjacent to planted colonies for the expansion of the plant colonies.

**Funds requested: $18,000; total cost: $46,512; total score: 191; rank: 9**

**Improving Sportfish Populations in Small Impoundments Via Artificial Habitat Enhancement-submitted by IL Natural History Survey**

Habitat loss has been shown to be one of the principal threats to freshwater fisheries resources. Littoral habitat represents a critical need for larval and juvenile fish both as refuge from predators and providing access to food sources. Restoring habitat may be a more effective method than stock enhancement to increase natural recruitment of sport fish in Illinois lakes and may also provide better angling opportunities by concentrating fish around structure. In freshwater lake environments, a considerable amount of habitat research has focused on submerged aquatic vegetation due to the role of this habitat in producing fish prey organisms and a refuge from predation. Ongoing research has suggested that Illinois lakes where vegetation is lacking commonly have high proportions of watershed agricultural land use, water level fluctuations, and common carp abundance that may limit vegetation establishment. Further, direct planting of submerged aquatic vegetation in cages has had limited success. This may be due to the fact that planting of vegetation within cages prevents direct disturbance by common carp but does not prevent limitation of plant growth by low water clarity or desiccation due to water level changes. Ameliorating these problems is currently beyond the scope of control of fisheries managers in many lakes. Therefore, there is a need to investigate alternative approaches, such as addition of coarse woody habitat (CWH) or artificial habitat structures to enhance refuge and foraging habitat for sport fish in these ecosystems. The role of alternative habitat features in lake ecosystems has only recently begun to be investigated, highlighting a gap in the understanding of littoral habitat and its influence on lake productivity. Coarse woody habitat represents a unique habitat feature in lake ecosystems due to extremely slow addition rates, and long-term persistence in the ecosystem. Furthermore, while both CWH and submerged aquatic vegetation serve as substrates for colonization by invertebrates and a focal point for foraging activity of fishes, the persistent presence of CWH in the littoral zone may allow it to provide a source of food production and refuge in lakes where aquatic vegetation establishment may not be possible. A downside of CWH, however, is that this structure may degrade rapidly (4-7 years in some cases) when introduced into a waterbody and therefore may provide only short-term benefits. A number of manufacturers have developed artificial structures that may provide fishery benefits comparable to natural structure without degrading as rapidly. These, in addition to non-commercial structures made from PVC and other materials are gaining popularity and are commonly added to lakes as ‘fish habitat’. The efficacy of these artificial habitats has, however, not been evaluated. Therefore, there is a need to compare the ecological benefits of artificial and natural structures used in habitat enhancement measures. The objective of this project is to develop Best Management Practices for enhancing the health and quality of sportfish populations as well as recreational fishing success through the addition of artificial habitat structures in small impoundments that may lack littoral habitat (e.g., coarse woody debris and vegetation). The project will provide information on how fish populations and anglers respond to habitat additions and address the important issue of whether habitat additions enhance fish populations or mainly concentrate individuals by acting as fish attractors. The objective will be accomplished by:

* Surveying small reservoirs (~100 acres or less) for existing habitat, food resources, and sportfish populations
* Seeding the same reservoirs with either artificial or natural habitat structure that provides increased cover and food resources for sportfishes, prey fishes, and invertebrates
* Evaluating the post-habitat addition effects on angler success and fishery responses (e.g., changes in growth and abundance of sportfishes).

**Funds requested: $30,000; total cost: $99,580; total score: 155; rank: 10**

**Tims Ford Reservoir Shoreline Habitat Enhancement Project-submitted by TN Wildlife Resources Agency**

Tims Ford Reservoir is located on the Elk River in the southern portion of Middle Tennessee. The dam was constructed in 1970 primarily for water supply and flood control, and is operated by the Tennessee Valley Authority. The reservoir encompasses 10,600 acres at full pool elevation and has 265 miles of shoreline. The reservoir has a maximum depth of 150 feet and an average depth of 28 feet. The water level on Tims Ford fluctuates seasonally by an average of 15 feet during a normal year. Because of the age and fluctuation of the reservoir, there has been a marked decline in the abundance of natural fish habitat. Since its inception, Tims Ford Reservoir has grown in popularity as one of the better sport fishing reservoirs in the region, with several fishing tournaments held on the lake each year. Based on a 2016 creel survey anglers spent a total of 214,724 hours (20.25 hours / acre) fishing the reservoir. Angler expenditures totaled $941,740. As a result of reservoir aging and yearly fluctuations of water levels, abundance of critical fish habitat in Tims Ford Reservoir has declined steadily since the reservoir was impounded nearly forty-eight years ago. Much of the natural habitat, such as aquatic vegetation, standing timber, tree stumps, and felled trees, has deteriorated slowly over the decades. An operational plan, to meet the objectives of the TWRA’s “strategic plan” (TWRA 2014), outlines habitat restoration projects to improve angling on aging impoundments. The objective of this project is to enhance structural habitat in the middle portion of the reservoir using artificial habitat types, i.e. Georgia Cubes.

**Funds requested: $12,465; total cost: $27,172; total score: 145; rank: 11**

\*For Partner Involvement

**Total RFHP funds requested: $291,286.55**

**Total Project Costs: $57,640,024.90**

**SMALL PROJECTS GRANT PROPOSALS**

**Revegetation of Lake Livingston, TX using Water Willow: submitted by Texas Black Bass Unlimited and Lake Livingston Friends of Reservoirs**

This proposal is a request for continued funding of the Lake Livingston project funded in 2014 and 2016. This project received the 2015 NFHP Ten Waters to Watch award. Livingston received a Small Projects Grant in 2016.

**Funds requested: $1,000; total cost: $32,700; rank: 1**

**Lake Shelbyville Fish Habitat Development and Restoration Project, IL: submitted by multiple FOR groups (7)**

This proposal has the same objectives as the large projects grant. The funds will be used to purchase materials for the modified Georgia Cubes.

**Funds requested: $1,000; total cost: $61,846; rank: 2**

**Cochiti Spawning Habitat Enchancement Project, NM: submitted by Albuquerque Hawg Hunters and New Mexico B.A.S.S. Federation**

Spawning habitat for largemouth and smallmouth bass has been negatively impacted by massive wildfires and subsequent infiltration of sediments and debris from the nearby Rio Grande river drainage. Several miles of the reservoir inlet have silted in over the last five years, eliminating most of the prime largemouth bass spawning areas. This project is requesting $1000 to create spawning habitat southeast of the earthen dam using natural materials that are already in the lakebed.

**Funds requested: $1,000; total cost: $6,200; rank: 3**

**Harden Reservoir, IN Habitat Enhancement Plan: submitted b*y* Bass Unlimited Foundation**

A habitat enhancement plan was created by IDNR and partners that outlined timeline, budget, types of structures to be used, and placement locations. The proposed plan calls for around 200 Pennsylvania porcupine cribs and junior cribs, 7 rock pile complexes, 5 brushpiles, and a stake bed complex to be placed in the reservoir at depths 20 ft.

**Funds requested: $1,000; total cost: $37,010; rank: 4**

**John Paul’s Landing Reservoir, TX Fish Habitat Enhancement: submitted b*y* Magnolia West Bass Club**

Funds will be used to purchase Mossback structures to use as artificial cover. Magnolia West is a high school angling club.

**Funds requested: $1,000; total cost: $8,141.60; rank: 5**

**Little Carr Creek, KY Habitat Project: submitted by Friends of Carr Creek**

This project will help fund KY Dept. Wildlife Resources habitat enhancement program on Carr Creek. Structure types will be based on donations but will likely include MOSSBACK Fish Habitat structures, trees, wooden pallet structures, stake buckets, and plastic structures.

**Funds requested: $1,000; total cost: $20,500; rank: 6**

**Lake Poinsett, AR Habitat Mapping: submitted by Harrisburg Chamber of Commerce**

Project funds will be used to map existing and future habitat sites at Lake Poinsett. Area high school students will provide labor for the project.

**Funds requested: $1,000; total cost: $4,000; rank: 7**

**Flaming Gorge Smallmouth Bass Habitat Improvement: submitted by Wyoming BASS Nation**

Cowboy Bass (Wyoming BASS Nation) is doing habitat improvement projects on Flaming Gorge Reservoir in southwestern Wyoming. Cowboy Bass is doing these projects in phases and will begin structure construction and placement in the fall of 2017. The first stage will place a $1000 of Mossback Product in Flaming Gorge and will be done by an Eagle Scout Project.

**Funds requested: $1,000; total cost: $9,710; rank: 8**

**Small Projects ($1000) Proposal Rankings**

**FY2018 Friends of Reservoirs**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Ranking Individual | Livingston-TX | Shelbyville-IL | Cochiti-NM | Harden-IN | JP Landing-TX | Carr Creek-KY | Poinsett-AR | Flaming Gorge-WY |
|  | 2 | 1 | 6 | 4 | 5 | 8 | 3 | 7 |
|  | 4 | 1 | 3 | 6 | 2 | 5 | 8 | 7 |
|  | 2 | 1 | 6 | 3 | 5 | 4 | 8 | 7 |
|  | 2 | 1 | 5 | 3 | 8 | 4 | 7 | 6 |
|  | 1 | 8 | 3 | 7 | 6 | 5 | 2 | 4 |
| AVE. SCORE | 2.2 | 2.4 | 4.6 | 4.6 | 5.2 | 5.2 | 5.6 | 6.2 |

**Mossback Grant Proposal Rankings**

**FY2018 Friends of Reservoirs**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Ranking Individual | Shelbyville-IL | Harden-IN | J P Landing-TX | Poinsett-AR | Banner Creek-KS | Flaming Gorge-WY |
|  | 1 | 3 | 2 | 4 | 6 | 5 |
|  | 1 | 2 | 4 | 3 | 5 | 6 |
|  | 1 | 2 | 3 | 4 | 6 | 5 |
|  | 1 | 3 | 2 | 4 | 5 | 6 |
| AVE. SCORE | 1 | 2.5 | 2.75 | 3.75 | 5.5 | 5.5 |

Projects Locations (2010-2017)



|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| FY2018 Reservoir Fish Habitat Partnership Project Proposal Scoring | | |  |  |  |  |  |  |  |  |  | |  | |  | | |  | | |  | | |  | | |  | |
|  | *I. Aquatic Habitat Conservation* | | | | | *II. Quality of Life for Americans* | | | | *III. Partnerships, Fund leveraging, and Promotion* | | | | | | | | | | | | | | | |  | |
| Reservoir/Project type/Sponsor | 1 | 2 | 3 | 4 | I. Sub | 1 | 2 | 3 | II. Sub | 1 | | 2 | | 3 | | 4 | | | 5 | | | 6 | | | III. Sub | **Total** | |
| **Illinois** |  |  |  |  |  |  |  |  |  |  | |  | |  | |  | | |  | | |  | | |  |  | |
| Shelbyville/Structure/USACE | | | | | |  |  |  |  |  | |  | |  | |  | | |  | | |  | | |  |  | |
| $30,000 |  |  |  |  |  |  |  |  |  |  | |  | |  | |  | | |  | | |  | | |  |  | |
|  | 50 | 40 | 40 | 15 | 145 | 15 | 20 | 15 | 50 | 15 | | 15 | | 15 | | 10 | | | 15 | | | 10 | | | 80 | **275** | |
|  | 50 | 40 | 40 | 15 | 145 | 10 | 20 | 15 | 45 | 15 | | 15 | | 15 | | 10 | | | 15 | | | 10 | | | 80 | **270** | |
|  |  |  |  |  | 120 |  |  |  | 45 |  | |  | |  | |  | | |  | | |  | | | 80 | **245** | |
|  |  |  |  |  | 100 |  |  |  | 50 |  | |  | |  | |  | | |  | | |  | | | 75 | **225** | |
|  |  |  |  |  | 95 |  |  |  | 45 |  | |  | |  | |  | | |  | | |  | | | 75 | **215** | |
|  | 50 | 40 | 40 | 15 | 145 | 15 | 20 | 15 | 50 | 15 | | 15 | | 15 | | 10 | | | 15 | | | 10 | | | 80 | **275** | |
|  |  |  |  |  |  |  |  |  |  |  | |  | |  | | **Ave. Score** | | | | | | | | |  | **251** | |
|  |  |  |  |  |  |  |  |  |  |  | |  | |  | |  |  | | |  | | | | |  |  | |
| Small Lakes/Structure (BMP)/  IL Natural History Survey |  |  |  |  |  |  |  |  |  |  | |  | |  | |  |  | | |  | | | | |  |  | |
| $30,000 |  |  |  |  |  |  |  |  |  |  | |  | |  | |  |  | | |  | | | | |  |  | |
|  | 25 | 10 | 40 | 0 | 75 | 5 | 20 | 0 | 25 | 5 | | 10 | | 10 | | 5 | 10 | | | 0 | | | | | 40 | **140** | |
|  | 25 | 20 | 20 | 0 | 65 | 10 | 20 | 15 | 45 | 10 | | 10 | | 10 | | 5 | 10 | | | 0 | | | | | 45 | **155** | |
|  |  |  |  |  | 60 |  |  |  | 35 |  | |  | |  | |  |  | | |  | | | | | 45 | **140** | |
|  |  |  |  |  | 75 |  |  |  | 35 |  | |  | |  | |  |  | | |  | | | | | 45 | **155** | |
|  |  |  |  |  | 60 |  |  |  | 35 |  | |  | |  | |  |  | | |  | | | | | 40 | **135** | |
|  | 25 | 40 | 40 | 15 | 120 | 5 | 20 | 15 | 40 | 10 | | 10 | | 10 | | 5 | 10 | | | 0 | | | | | 45 | **205** | |
|  |  |  |  |  |  |  |  |  |  |  | |  | |  | | **Ave. Score** | | | | | | | | |  | **155** | |
|  |  |  |  |  |  |  |  |  |  |  | |  | |  | |  |  | | |  | | | | |  |  | |
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|  |  |  |  |  |  |  |  |  |  |  | |  | |  | |  |  | | |  | | | | |  |  | |
| **Pennsylvania** |  |  |  |  |  |  |  |  |  |  | |  | |  | |  |  | | |  | | | | |  |  | |
| Glendale/Shoreline Stabilization;Structure/Cambria Co. |  |  |  |  |  |  |  |  |  |  | |  | |  | |  |  | | |  | | | | |  |  | |
| $30,000 |  |  |  |  |  |  |  |  |  |  | |  | |  | |  |  | | |  | | | | |  |  | |
|  | 50 | 40 | 40 | 15 | 145 | 15 | 20 | 10 | 45 | 10 | | 10 | | 10 | | 5 | 15 | | | 10 | | | | | 60 | **245** | |
|  | 50 | 40 | 20 | 15 | 125 | 15 | 20 | 15 | 50 | 10 | | 10 | | 10 | | 10 | 10 | | | 10 | | | | | 60 | **235** | |
|  |  |  |  |  | 145 |  |  |  | 45 |  | |  | |  | |  |  | | |  | | | | | 60 | **250** | |
|  |  |  |  |  | 100 |  |  |  | 50 |  | |  | |  | |  |  | | |  | | | | | 60 | **210** | |
|  | 50 | 40 | 40 | 15 | 145 | 15 | 20 | 15 | 50 | 15 | | 10 | | 10 | | 10 | 15 | | | 10 | | | | | 70 | **265** | |
|  |  |  |  |  |  |  |  |  |  |  | |  | |  | | **Ave. Score** | | | | | | | | |  | **241** | |
|  |  |  |  |  |  |  |  |  |  |  | |  | |  | |  |  | | |  | | | | |  |  | |
| Minsi/Shoreline Stabilization;Structure/Northampton Co. |  |  |  |  |  |  |  |  |  |  | |  | |  | |  |  | | |  | | | | |  |  | |
| $30,000 |  |  |  |  |  |  |  |  |  |  | |  | |  | |  |  | | |  | | | | |  |  | |
|  | 50 | 40 | 40 | 15 | 145 | 15 | 20 | 0 | 35 | 10 | | 15 | | 15 | | 10 | 15 | | | 10 | | | | | 75 | **255** | |
|  | 50 | 40 | 20 | 15 | 125 | 15 | 20 | 15 | 50 | 10 | | 10 | | 10 | | 10 | 10 | | | 10 | | | | | 60 | **235** | |
|  |  |  |  |  | 120 |  |  |  | 50 |  | |  | |  | |  |  | | |  | | | | | 75 | **245** | |
|  |  |  |  |  | 125 |  |  |  | 45 |  | |  | |  | |  |  | | |  | | | | | 70 | **240** | |
|  | 50 | 40 | 40 | 15 | 145 | 15 | 20 | 15 | 50 | 15 | | 15 | | 10 | | 10 | 10 | | | 10 | | | | | 70 | **265** | |
|  |  |  |  |  |  |  |  |  |  |  | |  | |  | | **Ave. Score** | | | | | | | | |  | **248** | |
| **Georgia/South Carolina** |  |  |  |  |  |  |  |  |  |  | |  | |  | |  |  | | |  | | | | |  |  | |
| Strom Thurmond/native vegetation/USACE |  |  |  |  |  |  |  |  |  |  | |  | |  | |  |  | | |  | | | | |  |  | |
| $18,000 |  |  |  |  |  |  |  |  |  |  | |  | |  | |  |  | | |  | | | | |  |  | |
|  | 25 | 40 | 40 | 15 | 120 | 10 | 20 | 15 | 45 | 10 | | 10 | | 10 | | 10 | 10 | | | 10 | | | | | 60 | **225** | |
|  | 25 | 40 | 20 | 5 | 90 | 5 | 20 | 10 | 35 | 10 | | 10 | | 10 | | 5 | 5 | | | 10 | | | | | 50 | **175** | |
|  | 10 | 40 | 30 | 15 | 95 | 15 | 20 | 5 | 40 | 10 | | 15 | | 10 | | 5 | 10 | | | 10 | | | | | 60 | **195** | |
|  | 50 | 40 | 20 | 15 | 125 | 5 | 20 | 10 | 35 | 5 | | 10 | | 10 | | 5 | 10 | | | 10 | | | | | 50 | **210** | |
|  |  |  |  |  | 70 |  |  |  | 35 |  | |  | |  | |  |  | | |  | | | | | 45 | **150** | |
|  |  |  |  |  |  |  |  |  |  |  | |  | |  | | **Ave. Score** | | | | | | | | |  | **191** | |
| **Texas** |  |  |  |  |  |  |  |  |  |  | |  | |  | |  |  | | |  | | | | |  |  | |
| Bois d'Arc/Structure/TPWD |  |  |  |  |  |  |  |  |  |  | |  | |  | |  |  | | |  | | | | |  |  | |
| $26,221 |  |  |  |  |  |  |  |  |  |  | |  | |  | |  |  | | |  | | | | |  |  | |
|  | 25 | 30 | 40 | 15 | 110 | 10 | 20 | 10 | 40 | 10 | | 15 | | 15 | | 5 | 10 | | | 10 | | | | | 65 | **210** | |
|  | 25 | 10 | 40 | 15 | 90 | 15 | 20 | 10 | 45 | 10 | | 10 | | 10 | | 10 | 10 | | | 10 | | | | | 60 | **195** | |
|  | 50 | 40 | 40 | 15 | 145 | 0 | 20 | 10 | 30 | 10 | | 10 | | 10 | | 10 | 5 | | | 10 | | | | | 55 | **230** | |
|  | 50 | 40 | 40 | 10 | 140 | 15 | 20 | 10 | 45 | 15 | | 10 | | 10 | | 5 | 10 | | | 10 | | | | | 60 | **245** | |
|  | 50 | 40 | 40 | 15 | 145 | 10 | 20 | 0 | 30 | 10 | | 15 | | 10 | | 5 | 10 | | | 10 | | | | | 60 | **235** | |
|  |  |  |  |  | 145 |  |  |  | 45 |  | |  | |  | |  |  | | |  | | | | | 60 | **250** | |
|  |  |  |  |  |  |  |  |  |  |  | |  | |  | | **Ave. Score** | | | | | | | | |  | **228** | |
|  |  |  |  |  |  |  |  |  |  |  | |  | |  | |  |  | | |  | | | | |  |  | |
| Lake Wichita/Structure;Sediment/TPWD |  |  |  |  |  |  |  |  |  |  | |  | |  | |  |  | | |  | | | | |  |  | |
| $30,000 |  |  |  |  |  |  |  |  |  |  | |  | |  | |  |  | | |  | | | | |  |  | |
|  | 50 | 30 | 40 | 10 | 130 | 15 | 20 | 15 | 50 | 10 | | 15 | | 15 | | 10 | 15 | | | 10 | | | | | 75 | **265** | |
|  | 50 | 10 | 40 | 15 | 115 | 15 | 20 | 15 | 50 | 10 | | 15 | | 15 | | 10 | 15 | | | 10 | | | | | 75 | **240** | |
|  | 50 | 40 | 40 | 15 | 145 | 15 | 20 | 15 | 50 | 15 | | 10 | | 10 | | 10 | 15 | | | 10 | | | | | 70 | **265** | |
|  | 50 | 20 | 20 | 10 | 100 | 15 | 20 | 15 | 50 | 15 | | 15 | | 15 | | 5 | 15 | | | 10 | | | | | 75 | **225** | |
|  | 50 | 10 | 20 | 0 | 90 | 15 | 20 | 10 | 45 | 15 | | 15 | | 15 | | 10 | 15 | | | 10 | | | | | 80 | **215** | |
|  |  |  |  |  | 110 |  |  |  | 45 |  | |  | |  | |  |  | | |  | | | | | 75 | **220** | |
|  |  |  |  |  |  |  |  |  |  |  | |  | |  | |  | **Ave. Score** | | | | | | | | | **238** | |
| **Arkansas** |  |  |  |  |  |  |  |  |  |  | |  | |  | |  |  | | |  | | |  | | |  | |
| Poinsett/Structure/AGFC | | | |  |  |  |  |  |  |  | |  | |  | |  |  | | |  | | |  | | |  | |
| $30,000 |  |  |  |  |  |  |  |  |  |  | |  | |  | |  |  | | |  | | |  | | |  | |
|  | 25 | 40 | 40 | 15 | 120 | 15 | 20 | 15 | 50 | 10 | | 15 | | 10 | | 5 | 10 | | | 10 | | | 60 | | | **230** | |
|  | 25 | 10 | 40 | 15 | 90 | 10 | 20 | 15 | 45 | 5 | | 15 | | 10 | | 5 | 15 | | | 10 | | | 60 | | | **195** | |
|  | 50 | 40 | 30 | 15 | 135 | 15 | 20 | 15 | 50 | 15 | | 15 | | 15 | | 5 | 15 | | | 10 | | | 75 | | | **260** | |
|  | 50 | 40 | 20 | 15 | 125 | 10 | 20 | 10 | 40 | 10 | | 15 | | 10 | | 5 | 15 | | | 10 | | | 65 | | | **230** | |
|  |  |  |  |  | 55 |  |  |  | 40 |  | |  | |  | |  |  | | |  | | | 60 | | | **155** | |
|  |  |  |  |  |  |  |  |  |  |  | |  | |  | | **Ave. Score** | | | | | | |  | | | **214** | |
|  |  |  |  |  |  |  |  |  |  |  | |  | |  | |  |  | | |  | | |  | | |  | |
| **Ohio** |  |  |  |  |  |  |  |  |  |  | |  | |  | |  |  | | |  | | |  | | |  | |
| Buckeye/Siltation;Structure/OH BASS Nation |  |  |  |  |  |  |  |  |  |  | |  | |  | |  |  | | |  | | |  | | |  | |
| $30,000 |  |  |  |  |  |  |  |  |  |  | |  | |  | |  |  | | |  | | |  | | |  | |
|  | 50 | 10 | 20 | 5 | 85 | 15 | 20 | 15 | 50 | 5 | | 5 | | 10 | | 5 | 15 | | | 10 | | | 50 | | | **180** | |
|  | 50 | 40 | 40 | 15 | 145 | 15 | 20 | 15 | 50 | 15 | | 5 | | 10 | | 10 | 15 | | | 10 | | | 65 | | | **260** | |
|  |  |  |  |  | 105 |  |  |  | 50 |  | |  | |  | |  |  | | |  | | | 55 | | | **210** | |
|  |  |  |  |  | 90 |  |  |  | 45 |  | |  | |  | |  |  | | |  | | | 50 | | | **185** | |
|  | 50 | 40 | 20 | 5 | 115 | 5 | 20 | 10 | 35 | 10 | | 5 | | 10 | | 10 | 15 | | | 10 | | | 60 | | | **210** | |
|  |  |  |  |  |  |  |  |  |  |  | |  | |  | | **Ave. Score** | | | | | | |  | | | **209** | |
|  |  |  |  |  |  |  |  |  |  |  | |  | |  | |  |  | | |  | | |  | | |  | |
| **New Mexico** |  |  |  |  |  |  |  |  |  |  | |  | |  | |  |  | | |  | | |  | | |  | |
| Elephant Butte/Structure/NM BASS |  |  |  |  |  |  |  |  |  |  | |  | |  | |  |  | | |  | | |  | | |  | |
| $25,000 |  |  |  |  |  |  |  |  |  |  | |  | |  | |  |  | | |  | | |  | | |  | |
|  | 10 | 40 | 40 | 15 | 105 | 15 | 20 | 10 | 45 | 10 | | 15 | | 15 | | 10 | 10 | | | 10 | | | 70 | | | **220** | |
|  | 50 | 40 | 40 | 15 | 145 | 15 | 20 | 15 | 50 | 15 | | 15 | | 15 | | 10 | 10 | | | 10 | | | 75 | | | **270** | |
|  | 50 | 40 | 40 | 15 | 145 | 5 | 20 | 10 | 35 | 10 | | 15 | | 15 | | 10 | 5 | | | 10 | | | 65 | | | **245** | |
|  | 10 | 25 | 20 | 15 | 70 | 15 | 20 | 15 | 50 | 15 | | 15 | | 15 | | 10 | 5 | | | 10 | | | 70 | | | **190** | |
|  | 25 | 40 | 20 | 15 | 100 | 10 | 20 | 10 | 40 | 15 | | 15 | | 15 | | 10 | 10 | | | 10 | | | 75 | | | **215** | |
|  |  |  |  |  |  |  |  |  |  |  | |  | |  | | **Ave. Score** | | | | | | |  | | | **229** | |
|  |  |  |  |  |  |  |  |  |  |  | |  | |  | |  |  | | |  | | |  | | |  | |
| **Tennessee** |  |  |  |  |  |  |  |  |  |  | |  | |  | |  |  | | |  | | |  | | |  | |
| Tims Ford/Structure/TWRA |  |  |  |  |  |  |  |  |  |  | |  | |  | |  |  | | |  | | |  | | |  | |
| $12,465 |  |  |  |  |  |  |  |  |  |  | |  | |  | |  |  | | |  | | |  | | |  | |
|  | 25 | 30 | 40 | 15 | 110 | 5 | 20 | 0 | 25 | 10 | | 10 | | 10 | | 5 | 3 | | | 0 | | | 38 | | | **173** | |
|  | 25 | 10 | 20 | 5 | 60 | 5 | 20 | 0 | 25 | 5 | | 5 | | 10 | | 5 | 5 | | | 0 | | | 30 | | | **115** | |
|  | 25 | 30 | 30 | 15 | 100 | 15 | 20 | 10 | 45 | 10 | | 5 | | 10 | | 5 | 3 | | | 0 | | | 33 | | | **178** | |
|  | 25 | 10 | 20 | 0 | 55 | 5 | 20 | 0 | 25 | 5 | | 5 | | 10 | | 10 | 10 | | | 0 | | | 40 | | | **120** | |
|  |  |  |  |  | 70 |  |  |  | 35 |  | |  | |  | |  |  | | |  | | | 35 | | | **140** | |
|  |  |  |  |  |  |  |  |  |  |  | |  | |  | | **Ave. Score** | | | | | | |  | | | **145** | |

**8th Annual Meeting**

**Reservoir Fisheries Habitat Partnership**

**Days Inn**

**State College, PA**

**10-11 October 2017**



**SPONSORS**













|  |  |
| --- | --- |
| **Monday, October 9** |  |
| Travel Day |  |
| **Tuesday, October 10** |  |
| 0730-0800 | **Continental Breakfast-Rm (Sylvan Room)** |
| 0800-0810 | Welcome/Introductory Remark –Ben Page |
| 0810-0840 | Reservoir Fisheries Habitat Restoration is too Big a Job for Any one Agency to Tackle: Partnering and the Friends of Reservoirs Role in its Promotion-Jeff Boxrucker, RFHP Coordinator |
| 0840-0910 | Friends of Reservoirs Website (www.friendsofreservoirs.com) – Amberle Jones, Arizona Game and Fish Dept. |
| 0910-0930 | Pennsylvania’s Division of Habitat Management-Ben Page, PA Fish and Boat Commission |
| 0930-0950 | Leaser Lake Partnership: Grass Roots Organization Sets Model on How to Restore a Local Lake-Randy Metzger, Leaser Lake Heritage Foundation |
| 0950-01010 | Evaluation of Channel Catfish Spawning Success using Pennsylvania Channel Catfish Spawning Boxes-Keith Beamer, PA Fish and Boat Commission |
| **1010-10:30** | **Coffee Break (sponsored by Esten Lumber)** |
| 1030-10:50 | Glade Run Lake Restoration and Habitat Improvement Project-David Fowler, Glade Run Lake Conservancy |
| 10:50-11:10 | Obtaining Shell Grants and Implementing a Large Scale Lake Habitat Project on Lake Nessmuk-Don Kelly, Tioga County Bass Anglers |
| 11:10-11:30 | Stream Habitat Improvements on Limestone Run-Tyler Niemond, PA Fish and Boat Commission |
| 11:30-11:50 | Pennsylvania Lake Management Society – Supporting sound lake and reservoir management for 27 years-Brian S. Pilarcik, Crawford Co. Conservation District |
| **11:50-1300** | **Lunch (sponsored by B.A.S.S.) Linden/Grove Room** |
| 1300-1320 | Reservoir Rehabilitation Tactics: Lessons Learned from the Nebraska Aquatic Habitat Program-Mark Porath, NE Game and Parks Commission |
| 1320-1350 | Indiana’s New Reservoir Enhancement Program-Sandra Clark-Kolaks, IN DNR |
| 1350-1410 | Establishing Aquatic Plants in Reservoirs: Why and How-Richard Ott, TX Parks and Wildlife Dept. |
| 1410-1430 | Inspiring the Will to Revitalize a Reservoir-Tom Lang, TX Parks and Wildlife Dept. |
| 1430-1450 | Willard Bay Reservoir: the Making of Strawberry Reef-Kent Sorenson, UT Division of Wildlife Resources |
| **1450-1510** | Replacing Degraded Structure in Roosevelt Lake, Arizona-Amberle Jones, AZ Game and Fish |
| 1510-1530 | **Coffee Break (Sponsored by Pennsylvania Lake Management Society)** |
| 1530-1600 | Cave Run Lake Fish Habitat Project-Thomas Timmermann, KY Dept. of Fish and Wildlife Resources |
| 1600-1620 | Reversing Habitat Loss in Reservoirs: No One Can Do It Alone- Matthew Wolfe, OH DNR |
| 1620-1640 | Reservoir Habitat Improvement Efforts in Virginia- Steve Owens and Mike Bednarski, VA Dept of Game and Inland Fisheries |
|  | Dinner on your own |
|  |  |
| **Wednesday, October 11** |  |
|  | **Breakfast on your own** |
| 0800-1200 | RFHP Business Meeting (Sylvan Room) |
| 1200-1300 | **Lunch** |
| 1300-1700 | Field Trip- F.J. Sayers Reservoir RFHP Habitat Project |
|  |  |
| **Thursday, October 12** |  |
| 0800-1200 | Optional fly fishing for brown trout on Spring Creek |

**MEETING ABSTRACTS**

**Reservoir Fisheries Habitat Restoration is too Big a Job for Any one Agency to Tackle: Partnering and the Friends of Reservoirs Role in its Promotion**

Jeff Boxrucker

Coordinator

Reservoir Fisheries Habitat Partnership

The task of restoring habitat in the nation's reservoirs is a multijurisdictional challenge and cost prohibitive for a federal and/or state agency to accomplish without partnering with other public and private organizations or individuals. The Reservoir Fisheries Habitat Partnership (RFHP) recognizes that reservoir fisheries habitat impairments are often extensions of poor land-use practices in the respective watersheds. RFHP works to bring agencies and local organizations and individuals together to address habitat impairments at the local scale. RFHP and the Friends of Reservoirs Foundation have a membership and grant program that encourages local groups to work with state fisheries biologists to ensure that projects enhance fisheries management plans. RFHP has conducted a habitat impairment assessment of reservoirs nationwide to help prioritize activities. Funded projects have focused on native vegetation restoration, structure addition and shoreline stabilization. Future projects look to partner with organizations to address watershed impairments to improve water quality and habitat in downstream impoundments.

**Pennsylvania’s Division of Habitat Management**

Ben Page

Lake Habitat Section

Division of Habitat Management

Pennsylvania Fish and Boat Commission

The Pennsylvania Fish & Boat Commission’s Division of Habitat Management consists of four sections. The Lake Section, Stream Section, Fish Passage Section, and Special Projects Section are customized to meet the needs of high priority habitat issues on various waters throughout the state. The PFBC staff uses the Cooperative Habitat Improvement Program (CHIP) and the Technical Assistance Program (TAP) to plan and execute organized fish habitat improvement projects. Projects vary in scope based on the specific water body, funding availability, volunteer effort, machinery needs and access to the site.

**Leaser Lake Partnership: Grass Roots Organization Sets Model on**

**How to Restore a Local Lake**

Randy Metzger

Leaser Lake Heritage Foundation

The Leaser Lake Heritage Foundation worked with the Pennsylvania Fish and Boat Commission (PFBC) to leverage funding from several sources including the Reservoir Fisheries Habitat Partnership to help rebuild the dam and complete an extensive fish habitat project at this lake. With several high-hazard dams owned by the PFBC, the process used for Leaser Lake dam reconstruction and habitat restoration is serving as a model for other conservancies in Pennsylvania. There are many steps that need to be taken as the PFBC rebuilds the dams, accesses and habitat at each of the PFBC lakes. The local conservancy group has proven to be an invaluable partner when communicating with legislators, organizing infrastructure plans, leveraging grant funds and gathering a volunteer labor force.

**Evaluation of Channel Catfish Spawning Success using Pennsylvania Channel Catfish Spawning Boxes**

Keith Beamer

Lake Habitat Section

Division of Habitat Management

Pennsylvania Fish and Boat Commission

Since the early 1990’s, the Pennsylvania Fish & Boat Commission (PFBC) has placed wooden channel catfish spawning boxes in several reservoirs in an effort to encourage natural reproduction in stocked channel catfish waters. From 2012 to present, multiple monitoring techniques have been used to document channel catfish reproduction in the boxes at five different Pennsylvania reservoirs. Monitoring at all five reservoirs showed that greater than 50% of the boxes were utilized at least once for spawning. At one reservoir 92% of the boxes hosted at least two spawning events in one season (May-August). The PFBC has now implemented a study plan at five reservoirs to measure the amount of channel catfish offspring from boxes that survive one to five years (<450 mm).

**Glade Run Lake Restoration and Habitat Improvement**

David Fowler

Glade Run Lake Conservancy-Friends of Reservoirs Chapter

Glade Run Lake is a 52 acre lake created by the Federal Government in 1954 for recreation and nature preservation. The 150 acre property, located just north of Pittsburgh, is owned by the State of Pennsylvania and administered by the Pennsylvania Fish and Boat Commission. The lake was drained in 2011 because of deficiencies in the dam. Glade Run Lake Conservancy was formed to assist in the restoration and improvement of the lake and adjoining property. Funding sources for lake restoration are in short supply. Nonprofit organizations face numerous hurdles in both the technical and political arenas. Glade Run Lake Conservancy, with the help of many other organizations, and a good deal of luck, was able to facilitate the restoration of the lake and dam in 2017. The various steps taken by the Conservancy to help with the refurbishment of the dam and the processes necessary to add significant habitat improvements to the lake will be examined. Future plans for habitat improvement and monitoring will be discussed.

**Obtaining Shell Grant and Implementing a Large Scale Lake Habitat Project on Lake Nessmuk**

Don Kelly

Tioga County Bass Anglers - Friends of Reservoirs Chapter

In 2013, Lake Nessmuk in Wellsboro, PA was drained for dam rehabilitation, creating an opportunity for a large scale fish habitat project.  In order to secure funding, Tioga County Bass Anglers worked with the Pennsylvania Fish & Boat Commission (PFBC) and the Friends of Reservoirs to apply for a grant from Shell Appalachia. PFBC habitat managers proposed a habitat plan and upon obtaining the grant, the plan was implemented with help from community volunteers.  Lake Nessmuk was refilled in 2016 following the completion of the dam rehabilitation and large scale habitat project.  Habitat improvement efforts continue with small scale habitat projects.

**Stream Habitat Improvements on Limestone Run**

Tyler Neimond

Stream Habitat Section

Division of Habitat Management

Pennsylvania Fish and Boat Commission

The Pennsylvania Fish & Boat Commission has been enhancing streams since the 1930’s by constructing fish habitat improvement structures. The Stream Habitat Section continues to enhance streams by designing, permitting, and installing structures in watersheds across the commonwealth. Limestone Run in Montour and Northumberland counties is one example of restoring a watershed one property at a time. From 2004 to present, properties have been addressed with Best Management Practices (BMPs) to restore water quality, water temperatures and aquatic habitats. After more than a decade of BMPs, Limestone Run is now suitable for the reintroduction of native Brook Trout.

**Pennsylvania Lake Management Society – Supporting sound lake and reservoir management for 27 years**

Brian S. Pilarcik

Watershed Specialist- Crawford County Conservation District

President- Pennsylvania Lake Management Society

The Pennsylvania Lake Management Society (PALMS) has been a clearing house for sound lake and reservoir management principles for over 27 years.  The organization is comprised of over 120 members and an 11 person board with representation from state and local government, academia, private lake associations, and lake consultants.  I propose to give a brief history of the organization, as well as an overview of some of our major programs around the Commonwealth.

**Reservoir Rehabilitation Tactics: Lessons Learned from the Nebraska Aquatic Habitat**

Mark Porath,

Nebraska Game and Parks Commission,

[mark.porath@nebraska.gov](mailto:mark.porath@nebraska.gov)

The large number of impoundments constructed over a half century ago, now present us with many challenges on how to address the impacts of time and declining aquatic habitat conditions on these aging reservoirs. Important as recreational opportunities and local economic drivers, reservoirs in Nebraska support over 80% of annual angling hours. Not surprisingly, Nebraska anglers were instrumental in supporting the establishment of an Aquatic Habitat Program with a license fee increase. Since 1997, Nebraska’s Aquatic Habitat Program has worked with over 60 funding partners to rehabilitate 35 reservoirs (four in progress) at a cost of over $54,000,000 dollars. Addressing impairments caused by sedimentation, nutrients, shoreline erosion, and out-of-balance fish communities has helped us develop a number of successful tactics to bring “New Life to Aging Waters”.

**Indiana’s New Reservoir Enhancement Program-**

Sandra Clark-Kolaks,

Indiana Department of Natural Resources

In many Midwest states, including Indiana, large reservoirs are highly utilized by anglers. Also, similar to most reservoirs in the Midwest, reservoirs in Indiana are aging and aquatic habitat is deteriorating or nonexistent. Indiana Department of Natural Resources (DNR) is working to create a reservoir aquatic habitat enhancement program similar to other Midwest states using artificial structures: crib structures, rock piles, Georgia cubes, brush piles, and felled shoreline trees. General recommendations of the number of structures to place in a complex (i.e. 20 cribs per acre) are widely available but the question of how much aquatic habitat is needed is still unanswered. Indiana DNR is attempting to use a quantitative measure of habitat enhancement by calculating a Habitat Enhancement Zone (HEZ). The HEZ is the surface area for the portion of the lake with adequate oxygen levels for fish but deep enough not to obstruct boats. The HEZ is calculated using detailed bathometric maps which are created using Lowrance HDS depth finder and BioBase software. All artificial structures will be placed within this HEZ. We created an impact acreage for structure complexes (i.e. 20 cribs per acre) based on an area slightly greater than the complex surface area due to habitat created along the edges of the structures. Other structures, like brush piles and felled shoreline trees; where documentation of surface area is not available, the best estimate of the area of habitat created was based on an area slightly larger than the structure (length of tree, etc.). Based on these individual structure impact acreages, Indiana DNR hopes to increase available habitat by 5% to 20% in the Habitat Enhancement Zone in project lakes.

**Establishing Aquatic Plants in Reservoirs: Why and How**

(Richard Ott – Texas Parks and Wildlife)

The role of plants in aquatic systems is significant. Aquatic plants provide valuable fish and wildlife habitat, serve as a food source for waterfowl and other aquatic wildlife, improve water clarity and quality, reduce rates of shoreline erosion and sediment re-suspension, and help prevent the spread of nuisance exotic plants. Typically, three different situations occur in large multipurpose reservoirs: 1) low abundance of vegetation, 2) low species diversity, or 3) remediation following control of nuisance exotic plant species such as hydrilla (*Hydrilla verticillata*). Because reservoir hydrodynamics, herbivore populations, and seed bank are vastly different from natural lakes, techniques have been developed to improve the chances of success in aquatic plant introduction programs in reservoirs.

In this presentation, I submit an approach for accelerating community succession using native aquatic plant founder colonies. By ensuring that propagules, such as seed or plant fragments, are present in sufficient numbers when conditions are suitable for natural establishment, the time required for vegetative colonization to occur is shortened. Recommendations for production of suitable propagules include their growth requirements, operation of production facilities, and selection of different propagule types by species. Recommendations for establishment of these propagules in reservoir ecosystems includes site selection, season of establishment, planting techniques, defining individual phases of an establishment project and monitoring and adaptive management after species are introduced.

Example schematics, material selection, and placement of protective exclosures necessary for initial establishment are discussed. Growth requirements and individual autecology for submersed, floating-leaved, and emergent species found to work best in the full range of environmental conditions present in Texas’ reservoirs are provided.

**Inspiring the Will to Revitalize a Reservoir**

Tom Lang,

Texas Parks and Wildlife Department

Built in 1901, Lake Wichita in Wichita Falls is the third oldest lake in Texas. Known as the “Gem of North Texas,” it has served the region as a recreation destination, as a social mecca, as a driving economic force, as a home for the wise-use and conservation of fish and wildlife resources and as a foundation for community growth by serving as a drinking water source. At 115, Lake Wichita is beyond its expected 100-year life span. The natural reservoir aging-process (among other issues) has led to its present state where it is no longer able to provide significant social, economic, ecological, or recreational benefits to the community. Lake Wichita has been plagued by Golden Alga fish kills, a drought of record started in 2010 and nearly completely dried up the 1,200-acre reservoir until torrential rains in May of 2015 refilled the lake. With these issues and an average depth of 4.5 feet at conservation pool Lake Wichita was essentially dead. In May 2013, the City of Wichita Falls established a Lake Wichita Study Committee to make recommendations to the City Council. As a result, the Lake Wichita Revitalization Project has been established with several key project partners; City of Wichita Falls, City of Lakeside City, Texas Parks and Wildlife Department, Wichita Falls Area Community Foundation, and the Lake Wichita Chapter of Friends of Reservoirs. Together these organizations have led a grass roots effort that has been growing in political, financial, and public support for a holistic plan to revitalize the lake. Partners and the public have varied interests but all have agreed that without rebuilding the lake of sufficient quality to support a fisheries resource, no other desires for amenities at the lake matter. This project includes a dry excavation of 8-million cubic yards of sediment, bathymetric construction that minimizes evaporation during drought, watershed restoration, placement of a plethora of fish habitat, fish restocking, fishing access, commercial development, recreational amenities, and wildlife viewing. This presentation will focus on the grass roots process and efforts that is leading to the success of this holistic and integrated lake revitalization; including inspiring partners, politicians, civic organizations, philanthropists, and the general public to actively work for the successful revitalization of the lake.

**Willard Bay Reservoir; the making of Strawberry Reef**

Kent Sorenson

Utah Division of Wildlife Resources

Flat water angling accounts for just over 5 million angling hours annually in Utah, the majority of that occurs on reservoirs. Augmenting warm/coolwater reservoir habitat in Utah has been previously uncharted territory. Willard Bay Reservoir is a freshened arm of Great Salt Lake generally devoid of much topographical relief. Creating additional habitat was viewed as a positive step to enhance angler opportunity and bolster consistency in angling efforts. Difficulties with the legal parameters of water, dam, surrounding land, etc. ownership and management have made for a maze of regulatory roadblocks that must be navigated prior to any habitat augmentation. Developing partnerships became key in moving the project forward. Garnering funds from traditional sources as well as a grant from Reservoir Fisheries Habitat Partnership allowed for the flexibility to spend/have partners spend the money in a more efficient manner. We chose to use a local company to ferry loads of rock to an offshore site and construct a ‘reef’ of sorts comprised of large boulders dumped directly from the trucks. Fifty truckloads of rock were dropped in a more or less linear fashion to add complexity to the substrate. Locations were publicized and a few anglers even waited until project completion before trying the new spot.

**Replacing Degraded Structure in Roosevelt Lake, Arizona**

Amberle Jones

Aquatic Habitat Specialist

Arizona Game and Fish Department

Roosevelt Lake is the upper-most reservoir of a four-reservoir chain in the Salt River watershed. The lake level fluctuates over time in response to water use, evaporation, and annual precipitation and runoff. As of September, 2017, the lake is 62% full at an elevation of 2116ft with approximately 15,558 surface acres. Biologists have noticed a recent decline in the fishery that may be explained by a variety of factors including invasion and establishment of non-native gizzard shad, water quality (e.g. golden algae), diseases (e.g. largemouth bass virus), and lack of habitat due to the aging reservoir syndrome and the fluctuating levels. Roosevelt Lake has never had a fisheries habitat enhancement project and recent habitat analysis conducted at lower water levels (2070-2090 foot elevations) using side-scan sonar revealed minimal complex habitat available throughout the main lake body. The objective of the project is to improve fish community structure by providing structural habitat needed for various life stages of a variety of sport species important to the recreational fishery. The project targets structural habitat improvements to a minimum of 50 acres of the 2,719 littoral acres available between surface elevations 2060ft and 2080ft within the next ten years. We are seeking to provide a diverse array of structural habitat that will have a positive effect on multiple life stages of sport fish and their prey. The types of artificial structures being installed include Concrete Fish Balls (aka *Reef Balls*), *Mossback* *Safe Havens*, *Fishiding HighRise* structures, and Georgia cubes, along with brush bundles comprised of native trees.

**Cave Run Lake Fish Habitat Project**

Thomas Timmermann, Joseph Zimmermann

Northeastern Fishery District, Habitat Branch

Kentucky Department of Fish and Wildlife Resource

Lake aging, which leads to habitat loss, is a problem fisheries managers have been dealing with for years.  In 2013, the Kentucky Department of Fish and Wildlife Resources implemented a large scale habitat project on Cave Run Lake, an 8,270 acre meso- to oligotrophic reservoir in eastern Kentucky.  The goals of this project were to increase angler opportunity through additional habitat sites on the lower two-thirds of the lake and to increase secondary trophic level organisms in this low nutrient system with slow growing fish populations.  Furthermore, with a limited budget, the managers of this project were tasked with accomplishing these goals through governmental and public partnerships.  Since the implementation of this project, thousands of structures were added to the lake, which has increased angler opportunities.  Additionally, early studies have shown increases in growth rates of black and white crappie on the lower portions of the lake.

**Reversing Habitat Loss in Reservoirs: No One Can Do It Alone**

Matthew D. Wolfe

Fisheries Biologist- District 3 (Northeast Ohio)

Ohio Department of Natural Resources- Division of Wildlife

matt.wolfe@dnr.state.oh.us

Impoundments across North America face the dilemma of habitat loss due to the natural aging process. The natural resource agencies who manage these impoundments are limited in what they can accomplish due to constraints in manpower and budgetary resources. These consequences ultimately affect the success of angler groups, who in turn have their own limitations on what they can do. With so many problems, it is imperative that all user groups collaborate to find solutions to achieve a common goal. Pymatuning Reservoir is a large, impounded reservoir that spans the border between northeast Ohio and northwest Pennsylvania. Since the Shenango River was dammed to create the reservoir in 1934, the lake has lost significant in-lake habitat, including the rocky debris and wooden stumps that served its highly successful fisheries. Such a large reservoir (5,929 ha surface area) requires an approach that will serve all its user groups and address both short term and long term goals. Each year, the natural resource agencies (Ohio Division of Wildlife, Pennsylvania Fish and Boat Commission) collaborate with various user groups (Pymatuning Lake Association, Crawford County Conservation District) on small scale projects (i.e. in-water fish cribs) and large scale projects (i.e. shoreline stabilizations). These collaborations work well in that the user groups benefit immediately from these projects since they serve as fish concentration devices. But over time, the natural resource agencies are hopeful that these placements will serve as viable fish habitat that has been degrading away for decades.

**Reservoir Habitat Improvement Efforts in Virginia**

Steve Owens and Mike Bednarski

Virginia Department of Game and Inland Fisheries

The Virginia Department of Game and Inland Fisheries (DGIF) is responsible for managing more than 70 impoundments. DGIF utilizes a variety of techniques, including fish attractors, vegetation plantings, spawning boxes, fertilization, and liming to improve habitat conditions within these systems. As examples of our work, we present case studies of fish attractor development at multiple impoundments, native vegetation plantings in Claytor Lake, channel catfish spawning boxes in small impoundments, and liming efforts in Laurel Bed Lake. Examples such as these demonstrate the multi-faceted approach that DGIF is employing to maintain fish habitat and quality angling opportunities in our reservoirs.