

Sport Fish Stocking and Fish Hatchery Operations/Maintenance

Disclaimer

This project statement is meant to be used as a training aid. While some of the information provided in the project statement is based upon factual data, the entire project statement is not meant to represent an actual project statement drafted by the Kentucky Department of Fish and Wildlife Resources.

KY – Sport Fish Stocking and Fish Hatchery Operations/Maintenance

Need

There is a need to maintain and enhance existing sport fish populations, in order to ensure species continued viability, as well as meeting angler catch rates that are acceptable to the public. In 2011, data from the National Survey of Fishing, Hunting, and Wildlife-Associated Recreation indicated over 554,000 anglers fished in Kentucky for a total of 10.2 million angler-days. These anglers expended over \$807 million in trip and equipment-related expenditures.

Unfortunately, many of Kentucky's sport fish species are not able to sustain adequate populations through natural reproduction as a result of water level fluctuations, man-made impoundments, inadequate spawning habitat, environmental perturbations, and intense angling pressure. Kentucky's musky, striped bass, hybrid striped bass, walleye, saugeye, and rainbow trout fisheries typically do not successfully reproduce annually. Although largemouth bass, white crappie, blue catfish, and channel catfish spawn annually, surveys have shown that these species, oftentimes, produce a strong year-class only once in every 2-3 years. The Kentucky Department of Fish and Wildlife Resources (KDFWR) is the state agency charged with managing the state's recreational sport fisheries. It is our statutory responsibility to operate fish hatcheries and stock fish to meet the needs of Kentucky's anglers, in addition to conserving and managing existing fish populations. Without supplemental stocking efforts, many of the state's recreationally important sport fish species would decline to unviable levels which would ultimately result in unacceptably low angler catch rates.

Purpose

The purpose of this grant is to enhance recreational sport fish populations and provide increased recreational fishing opportunities throughout the Commonwealth of Kentucky.

Objectives

The objectives of this grant are to:

- (1) Stock 3,240,300 fish by December 31, 2016. *(NOTE: TRACS strategy - Species Reintroduction & Stocking)*
- (2) Operate and maintain two (2) facilities by December 31, 2016. *(NOTE: TRACS strategy - Facility Construction; Facility & Area O&M)*

Results and Benefits Expected

This grant will help to conserve, supplement, and improve recreational sport fish populations throughout Kentucky. Supplemental stocking helps to offset poor (or complete lack thereof) year-class production.

This grant will benefit anglers through increased catch and satisfaction rates. These stocking efforts will help to maintain acceptable angler catch rates that have been determined through management plans and ongoing creel surveys.

This grant will also benefit local economies as anglers are willing to travel considerable distances to enjoy their fishing experiences. Local economies will derive benefits from increased sales of gasoline, food, supplies, lodging, and fishing equipment. Society will benefit from a healthy environment and increased outdoor recreation participation.

Approach

Objective 1 – Stock 3.2 million fish by December 31, 2016.

Hatchery staff maintain on-site brood stock of white bass, largemouth bass, blue catfish, channel catfish, and rainbow trout. For all other species, brood fish will be collected from wild stocks. Musky brood fish (n=25) will be collected from Cave Run Lake and the Licking River immediately below Cave Run Lake Dam. Walleye brood fish (n=100) will be collected from Carr Creek Lake and the Green River Lake tailwater. Sauger brood fish (n=125) will be collected from the Ohio River (below Markland Dam). Striped bass brood fish (n=25) will be collected from Lake Cumberland. All fish will be collected using boat mounted DC electrofishing or gillnets once surface water temperatures reach 35-40F (typically mid/late February). Once collected, brood fish will be placed onto hauling trucks and immediately transported to their respective hatcheries where they will be quarantined and treated (salt) to minimize mortality and prevent disease or parasite outbreaks.

Musky, walleye, striped bass, white bass, sauger, and rainbow trout will be artificially spawned using the "dry" method (Piper et al. 1989). Human chorionic gonadotropin (HCG) may be used to help induce spawning (injections will follow prior accepted standards for each species). Following fertilization, eggs will be placed in hatching jars to allow for incubation. Post hatching, swim up fry (musky, walleye, striped bass, white bass, hybrid striped bass, and saugeye) will be collected and immediately stocked into earthen aquaculture ponds that have been extensively fertilized to promote suitable plankton forage. Rainbow trout fry will be retained indoors intensively and immediately offered a commercially prepared diet to begin the feed training process.

Largemouth bass, blue catfish, and channel catfish will be allowed to spawn naturally in earthen aquaculture ponds. Spawning mats will be

provided for largemouth bass, while spawning canisters will be provided for both blue and channel catfish. After spawning, adults will be removed and the resulting largemouth bass fry will be allowed to remain in the pond for grow-out. Blue and channel catfish eggs will be incubated intensively indoors. Post hatching, all catfish fry will be stocked into earthen aquaculture ponds for grow-out.

Walleye, striped bass, white bass, hybrid striped bass, and saugeye will be reared to a size of approximately 2", using plankton as the food source. On average, these species reach their desired stocking size by late May/mid June. Musky and largemouth bass will initially be reared using plankton as the food source. Once fingerlings reach a size of 2", fathead minnows/goldfish will be regularly stocked to provide the remaining forage necessary to reach the target stocking size. Rainbow trout, blue catfish, and channel catfish will be reared using commercially prepared diets. These diets will be feed according to established aquaculture standards for each species. Water quality, dissolved oxygen, disease, and growth of each pond will be monitored regularly throughout the grow-out phase.

As species reach stocking size, fish will be harvested from ponds by draining each pond and fish will be collected in the kettle basins. Nets will be used to collect fish and will be immediately loaded onto hauling trucks and taken to the fish hatching houses and placed in raceways. Length, weight, and numbers will be determined for each species/pond. Fish will then be loaded onto hauling trucks based on stocking density/location. Liquid oxygen will be provided in each hauling compartment to sustain dissolved oxygen concentrations greater than 4.0 ppm. Dissolved oxygen will be monitored every 3 hours en route to each stocking location. At the stocking site, fish will be tempered to ensure that water temperatures do not differ by more than 5 degrees between the hauling truck and the receiving surface water temperature. A list of stocking locations, numbers, and GPS coordinates for each species is provided in Table 1.

.(NOTE: TRACS Activity Tag for reporting purposes.)

TRACS Activity Tag 1: Production and stocking for recreational purposes (# by species)

TRACS Activity Tag 2 (optional): Put-and-take

TRACS Activity Tag 2 (optional): Put-grow-and-take

Objective 2 – Operate and maintain two facilities by December 31, 2016.

Pfeiffer Fish Hatchery – Pfeiffer Fish Hatchery is located in Franklin County and resides upon 145 acres adjacent to Elkhorn Creek, which acts as the primary water source for the entire hatchery. The hatchery has a total of 48 earthen production ponds encompassing approximately 50 acres of production water: 37 (0.9 acre ponds), 8 (0.5 acre ponds), 1 (4.0 acre pond), and 2 irregular ponds (totaling 8.5 acres). Each pond contains one concrete fish harvesting kettle and some ponds have liners installed to prevent water seepage or for specific fish production purposes. Water supply and drain lines exist at each pond, in addition to electricity to aid with the operation of aerators.

Two modern fish hatching/intensive culture buildings are also located at the hatchery. A total of 24 raceways and 16 large circular tanks are permanently established within the buildings. Numerous smaller raceways and tanks are also present and may be constructed/deconstructed based upon the production species desired and their individual needs. Additional infrastructure includes pumps, biofilters, settling chambers, computer monitoring systems, heat pumps, chillers, scales, and generators.

The remaining hatchery infrastructure is comprised of: (1) three hatchery residence houses (furnished); (2) one main office building; (3) three storage sheds; and (4) one well pump structure. Other capital assets include vehicles, ATV's, aerators, hauling tanks, mowers, welders, microscopes, and other typical fish hatchery items.

Minor Clark Fish Hatchery – Minor Clark Fish Hatchery is located in Rowan County and resides upon 300 acres, immediately below the dam that forms Cave Run Lake and which provides water for the hatchery. The hatchery has 97 earthen production ponds encompassing approximately 122 acres of production water: 83 (1.0 acre ponds), 10 (1/10th acre ponds), two (7 acre ponds), one (10 acre pond), and one (14 acre pond). Each pond contains one concrete fish harvesting kettle and some ponds have liners installed to prevent water seepage or for specific fish production purposes. Water supply and drain lines exist at each pond, in addition to electricity to aid with the operation of aerators.

One large, modern fish hatching/intensive culture building is also located at the hatchery. A total of 8 raceways and 12 large circular tanks are permanently established within the building. Additional circular tanks may be constructed/deconstructed based upon production species desired and their individual needs. Additional infrastructure includes pumps, biofilters, settling chambers, monitoring systems, heat pumps, chillers, scales, and generators.

The remaining hatchery infrastructure is comprised of: (1) three hatchery residence houses (furnished); (2) one main office building; (3) one workshop building; (4) four storage sheds; and (5) one well pump structure. Other capital assets include vehicles, ATV's, aerators, hauling tanks, mowers, welders, microscopes, and other typical fish hatchery items.

Operational and maintenance activities (actions necessary to ensure useful life and grant objectives are met) at each hatchery will include the following:

- Mowing/spraying of vegetation (terrestrial/aquatic) around ponds, office/production buildings, storage sheds, and residence houses.
- Roadway and levee repairs/maintenance.
- Vehicle and equipment operation/repair/replacement.
- Plumbing, electrical, HVAC maintenance/repair/replacement.
- Pond (including kettles and liners) and production building (including raceways, pumps, recirculating systems, biofiltration systems, heat pumps, settling chambers, and electrical monitoring systems) maintenance/repair.
- Maintaining existing brood fish species for future production.
- Maintenance of existing structures (residence houses, storage sheds, and office buildings).
- General administrative functions (timesheets, developing reports, employee evaluations, answering phone/emails, record keeping).
- Continuing education/training of hatchery staff (production techniques, disease/parasite, chemical application, staff leadership development, OSHA, CPR/First Aid, and other state mandated employee development).

Larger maintenance activities will include the following:

- Install new well pump (Minor Clark Fish Hatchery).
- Replace existing roofs at office building and one hatchery residence house (Pfeiffer Fish Hatchery).
- Replace existing sump pump at one hatchery residence house (Pfeiffer Fish Hatchery).

(NOTE: TRACS Activity Tag for reporting purposes.)

TRACS Activity Tag 1: Hatcheries

TRACS Activity Tag 2 (optional): Recreational purposes

Useful Life/Equipment

The useful life of the new well pump at Minor Clark Fish Hatchery is expected to be 15 years. The useful life of the new roof at the Pfeiffer Fish Hatchery office building is expected to be 20 years. The useful life of the new roof at the Pfeiffer Fish Hatchery residence house is expected to be 20 years.

Geographic Location

The locations of KDFWR's two state-owned hatcheries are listed below.

Fish Hatchery	County	Latitude	Longitude
Pfeiffer Fish Hatchery	Franklin	38.318528	-84.819745
Minor Clark Fish Hatchery	Rowan	38.120222	-83.538601

Principal Investigator(s), for Research Projects

Not applicable.

Program Income

None.

Budget Narrative

Federal Share: \$ 1,617,285 (75%) - Sport Fish Restoration subprogram (9514)

State Share: \$ 539,095 (25%) - KDFWR restricted Fish and Game Fund

Total Cost: \$ 2,156,380

NOTE: Applicants may provide the budget information using the SF 424A (Budget Information for Non-Construction Programs), SF 424C (Budget Information for Construction Programs), or using the applicant's created budget displaying an equivalent or greater level of detail.

Budget Class Category	Cost
Personnel	\$692,000
Fringe Benefits (@51.47%)	\$356,172
Travel	\$10,500
Equipment	\$275,000
Supplies	\$100,000
Contractual	\$500,000
Construction	\$0
Other	\$55,000
Total Direct Costs	\$1,988,672
Indirect Costs	\$167,708
TOTAL	\$2,156,380

Personnel - budget estimate comprised of staff (15-20) in the following classifications: (1) Hatchery Manager; (2) Assistant Hatchery Manager; (3) Fisheries Biologist; (4) Fisheries Technician; (5) Fish and Wildlife Seasonal.

Fringe benefits - consists of the required employer contribution of Social Security, Medicare, unemployment tax, retirement, and employee health insurance, and is estimated at 51.47% of salaries.

Travel - staff will attend in-state meetings related to fish production issues. Staff may also attend regional/national meetings such as AFS and SDAFS (including the various committees and sections), as well as SEAFWA and MAFWA. Travel costs will include lodging, transportation, and

per diem following state policies and procedures.

Equipment - the following equipment is necessary and reasonable for the accomplishment of grant objectives.

- Pfeiffer Fish Hatchery

(1) Two Ford F-150 Supercab ¾ ton trucks - \$25,000 each. Useful life = 6 years.

(2) International truck with ten compartment hauling tank - \$90,000. Useful life = 10 years.

- Minor Clark Fish Hatchery

(1) Two Ford F-150 Supercab ¾ ton trucks - \$25,000 each. Useful life = 6 years.

(2) John Deere 5085E Tractor - \$85,000. Useful life = 15 years.

Supplies - budget estimate includes general office/lab supplies, field attire (raingear, overalls, rubber boots), HCG and oxytetracycline HCl (fish marking chemical), nets, tubs, jars, vials, containers, salt.

Contractual - budget estimate comprised of one contract (\$20,000) with Ohio University to perform genetic analysis of tissue samples from walleye broodstock in order to differentiate between native-strain vs Lake Erie strain adults prior to spawning. Additionally, to perform genetic analysis of largemouth bass broodstock to determine allele frequency of Florida bass genes present. Also includes contract (\$480,000) for fish food acquisition (prepared diets and fathead minnows).

Other - budget category estimates include utilities and bottled gas.

Indirect Costs - The KDFWR's approved NICRA is 16.00% charged to the base of salaries and fringe. A copy of the NICRA is on file in the WSFR Region 4 Office.

In-Kind Match: No in-kind match will be utilized for this grant.

Pre-Award Costs: No pre-award costs are requested for this grant.

Indirect Cost Statement: "We are (1) a U.S. state government entity receiving more than \$35 million in direct Federal funding each year with an indirect cost rate of 16.00%. We submit our indirect cost rate proposals to our cognizant agency. A copy of our most recently approved rate agreement/certification is attached."

Single Audit Reporting Statement: The Commonwealth of Kentucky was required to submit a Statewide Single Audit report for its most recently closed fiscal year and that report is available on the Federal Audit Clearinghouse Single Audit Database website. The report is filed under the Commonwealth of Kentucky's EIN (99-9999999).

Conflict of Interest Statement: KDFWR, at the time of this application, is not aware of any actual or potential conflicts of interest that may arise during the life of this award which may affect the KDFWR, its employees, or its subrecipients. Should an actual or potential conflict of interest arise during the period of performance, then KDFWR will notify the WSFR Regional Office.

Multipurpose Projects

Not applicable.

Relationship with other Grants

None.

Timeline

Period of performance is January 1, 2016 - December 31, 2016.

January 1, 2016 – March 31, 2016:

- Collection of wild brood fish.
- Setup and prepare all spawning equipment, hatching jars, rearing tanks, and ponds (fertilize/lime).
- Complete strip spawning of brood fish and distribute eggs/fry in rearing jars/tanks/aquaculture ponds.
- Monitor ponds for water quality.
- Initiate feed training practices on select production species.

April 1, 2016 – June 30, 2016:

- Complete spawning actions for blue catfish, channel catfish, white bass, and largemouth bass.
- Continue grow-out phase of target species.
- Monitor hatchery production for survival, growth, and disease issues.
- Maintain hatchery grounds, facilities, and equipment.
- Stock walleye, striped bass, hybrid striped bass, white bass, and rainbow trout at target locations.

July 1, 2016 – September 30, 2016:

- Continue grow-out phase of target species.
- Maintain hatchery grounds, facilities, and equipment.
- Monitor hatchery production for survival, growth, and disease issues.

- Stock blue catfish, channel catfish, saugeye, and rainbow trout at target locations.

October 1, 2016 – December 31, 2016:

- Continue grow-out phase of target species.
- Maintain hatchery grounds, facilities, and equipment.
- Monitor hatchery production for survival, growth, and disease issues.
- Stock musky, largemouth bass, and rainbow trout at target locations.
- Winterize hatchery grounds, facilities, and equipment.
- Draft stocking summary/accomplishment reports.

General

NOTE: 50 CFR 80.82 (c) requires that a project statement must include information pertaining to 13 data elements. Element 13 requires that information be included in the project statement that (a) shows that the proposed activities are eligible for funding and substantial in character and design and (b) enables the Service to comply with applicable requirements under NEPA, ESA, and NHPA, and other laws, regulations, and policies. If information is not provided in the project statement, please attach additional documentation regarding NEPA, ESA, and NHPA compliance.

Related Pages

[Sport Fish Restoration Eligible Activities - WSFR](#)

[Sport Fish Restoration Program Apportionments- WSFR](#)

Resources

[Project Statement_Sport Fish Stocking and Fish Hatchery Operations and Maintenance.docx](#)

[WSFR_Quick Reference_SFR](#)

[Sport Fish Restoration Funding diagram](#)

References

[50 CFR 80.51 What activities are eligible for funding under the Dingell-Johnson Sport Fish Restoration Act?](#)

[50 CFR 80.82 What must an agency submit when applying for a project-by-project grant?](#)