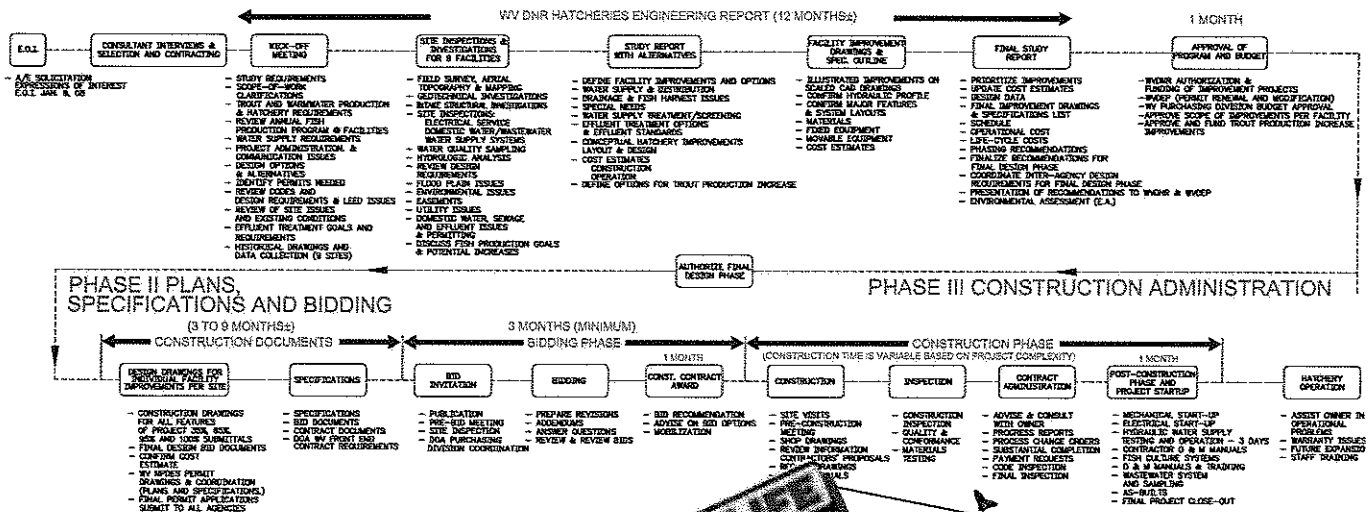
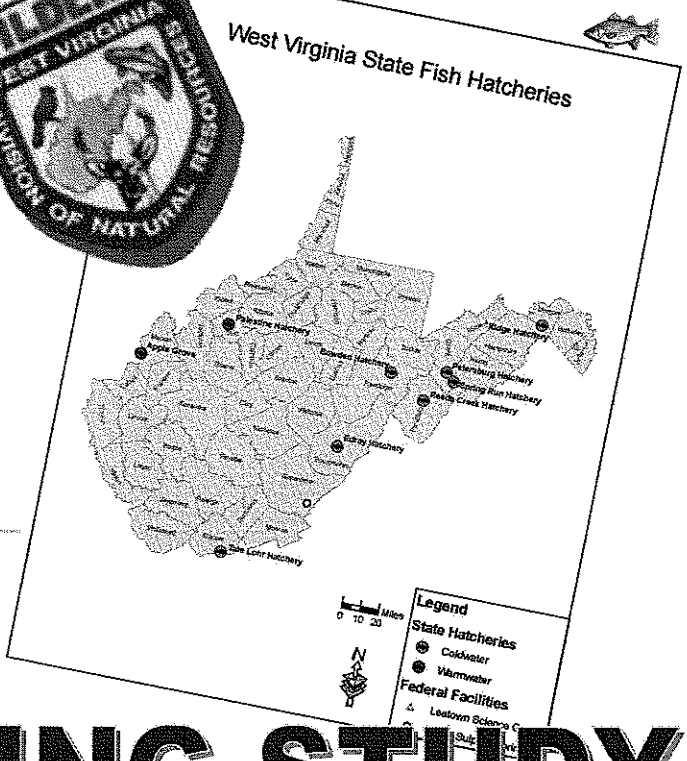
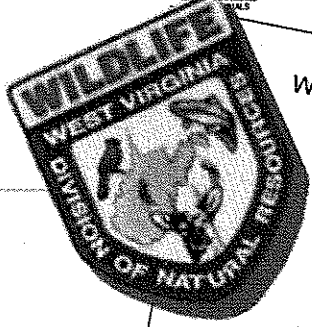


PHASE I ENGINEERING STUDY OF WVDNR FISH HATCHERIES (9 FACILITIES)



**Expression of Interest**  
**RFQ NUMBER DNR90076**



**West Virginia**  
**ENGINEERING STUDY**  
**OF DNR FISH HATCHERIES**

Presented January 8, 2008 by



January 08, 2008

Selection Committee  
Department of Administration  
Purchasing Division  
Building 15  
2019 Washington Street, East  
Charleston, WV 25305-0130

**RE: Engineering Study of DNR Fish Hatcheries – REQ# DNR90076**

Dear Selection Committee:

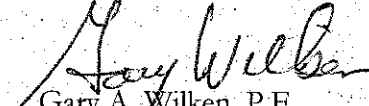
To assist the WV DNR in evaluating the infrastructure condition and production increase capacity at nine state owned facilities, a chosen consultant must have a solid understanding of issues surrounding not only the operation, but also the permitting, design and construction management of fish facilities. The selected team must also be capable of providing services beyond the evaluation to take ideas and turn them into functional solutions. **HDR | FishPro's** team has an established history of advising state operated facilities to provide sound recommendations of existing and new facilities while also providing the design services required to turn ideas into operating facilities that represent a wise investment of state funds.

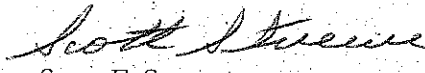
The attached response to RFQ# DNR90076 outlines the **HDR | FishPro** team, its members (Section I), capabilities and experience (Section E) and technical approach (Section B). The proposed team will be utilized to assist WV DNR in achieving the goals of evaluating the condition of existing hatchery infrastructure, listing improvements required, outlining impacts to effluent discharge and increasing trout production to 1,000,000 pounds annually. We have a solid understating of environmental issues surrounding operation and construction of fish hatcheries (Section L) within our fisheries design center staff and Weirton, West Virginia office. We have also continued our successful teaming arrangement from previous work for WV DNR by incorporating the **Chapman Technical Group** with offices in St. Albans and Buckhannon, West Virginia on to our team (Section J). We are proud of our rich history in completing facilities evaluations and design and encourage WV DNR to contact our past and present clients (Section G).

Our team is passionate about fish hatchery operation and design, and is committed to assisting resources agencies around the country in improving the efficiency of sport fish restoration activities such as those occurring in West Virginia.

We look forward to the opportunity to discuss **HDR | FishPro's** role in evaluating the nine WV DNR facilities.

Sincerely,

  
Gary A. Wilken, P.E.  
Vice President

  
Scott F. Stuewe  
Senior Fisheries Biologist

	<b>Introduction</b>
<b>Section A</b>	<b>Project Team Capability</b>
<b>Section B</b>	<b>Project Work Tasks Timetable and Performance Schedule</b>
<b>Section C</b>	<b>Firm Location</b>
<b>Section D</b>	<b>Understanding of Fish Hatchery Operation and Design</b>
<b>Section E</b>	<b>Fish Hatchery Experience</b>
<b>Section F</b>	<b>Current Workload</b>
<b>Section G</b>	<b>Client References</b>
<b>Section H</b>	<b>Corporate Officers and Principals</b>
<b>Section I</b>	<b>A/E Team for WV Engineering Study of DNR Fish Hatcheries</b>
<b>Section J</b>	<b>Subcontracting</b>
<b>Section K</b>	<b>Environmental Capabilities</b>
<b>Section L</b>	<b>Minority Participation</b>
<b>Section M</b>	<b>Litigation</b>
<b>Section N</b>	<b>Statement on Disqualifications</b>

## Project Team Overview

Aquaculture facility planning, design and construction is a complex process that merges the biological sciences of fish and aquatic animal culture with the technological applications of engineering and architecture. HDR Engineering, Inc. dba **HDR | FishPro** is one of the nation's leading professional services firms focusing on fish hatchery, aquatic animal, laboratories, and related projects. We specialize in the planning, design and construction of new facilities and in the renovation of existing facilities, including water and wastewater treatment systems; system-wide facility studies and analysis; and facilities dedicated to the preservation of threatened and endangered species. **HDR | FishPro** also provides specialized planning and design services for fish passage, fish screening, environmental impact assessments, and ecological restoration projects.

**OVERVIEW**

**HDR | FishPro** is a multi-disciplined consulting firm with fish and aquatic animal culture biological expertise and mechanical, electrical, civil, structural engineering as well as architecture. Our multidisciplinary staff is familiar with the latest extensive and intensive cultural technology for freshwater and marine fish production and can provide comprehensive integrated system engineering and design for aquaculture facilities. We are fully capable of providing all the specialized services required for the planning, analysis, design, construction and operation of modern fish hatcheries, aquatic animal laboratories, visitor centers and related aquaculture facilities. Our experience in both the biological and engineering aspects of hatchery operation contributes significantly to our ability to design cost effective, energy efficient facilities that will successfully meet fish production requirements. We give high priority to the human aspects of facility operation and control systems in the design of all facilities.

**HDR | FishPro** combines the expertise formerly offered by Cochran & Wilken, Inc./FishPro and FishPro, Inc. HDR Engineering, Inc. acquired Port Orchard, WA and Santa Fe, NM-based FishPro, Inc. in 2002, and Springfield and Murphysboro, IL-based Cochran & Wilken, Inc./FishPro in May 2006. HDR, Inc., is a leading engineering, planning, and consulting firm with corporate headquarters in Omaha, Nebraska. Among the firm's 150 offices nationwide are offices in **Weirton, WV** and Pittsburgh, PA. The Weirton, WV, office adds local surveying, environmental permitting, access road design, and in-state construction observation. HDR, excels at complex projects and solving challenges for clients. Our professionals represent hundreds of disciplines and work on diverse teams to provide solutions well beyond the scope of traditional A/E firms.

**HDR | FishPro** specifically provides fisheries-related biological and engineering consulting and design services for state, federal and private clients across the United States and in Canada. We specialize in the planning, design and construction of new facilities and in the renovation of existing facilities, including water and wastewater treatment systems; system-wide facility studies and analysis; and facilities dedicated to the preservation of threatened and endangered species. **HDR | FishPro** also provides specialized planning and design services for fish passage, fish screening, environmental impact assessments, and ecological restoration projects

HDR | FishPro's experience with fisheries engineering and design traces back to 1978 when the first of many successful fisheries projects was completed. Since then, projects involving hatcheries, whether in planning, design, construction, or operations evaluation, have been a mainstay of HDR | FishPro services. Our track record of satisfied clients has allowed our service range to extend to 46 states and 3 Canadian Provinces with over 500 projects.

Joining HDR | FishPro's project team is Chapman Technical Group of St. Albans, West Virginia. Previously, this Project Team successfully worked together on the Mason County (Apple Grove) State Fish Hatchery Production Building and Staff Residence and the Spring Run State Fish Hatchery Improvements Project.

Our Project Team brings an **enthusiasm, commitment to excellence, and demonstrated track record** of providing fish hatchery planning and design services to West Virginia Department of Natural Resources (WV DNR) that will assure a positive working relationship on this important project.



## Project Team Capability

Our Project Team understands that the WV DNR is seeking a comprehensive, objective scientific and engineering review of its state-owned fish facilities. We understand that this study is to provide an objective, comprehensive and credible assessment of the condition of the nine WV DNR hatcheries. The study document shall provide a consistent evaluation of fish production capability and potential at each facility including analysis of facility infrastructure, water supplies, fish rearing units and systems, buildings, support systems, utilities, effluent treatment systems, staffing, and operational costing information. The study document shall provide a list of needed facility improvements and their priority and cost estimates for the recommended improvements. The Study shall include the development of a series of potential options for increasing annual trout production statewide from 750,000 ponds to 1,000,000 pounds (a 250,000 lb/year increase).

Our Project Team has completed many similar statewide fish hatchery system evaluation studies (see listing in Tab E, Section 2) and we believe our experience in aquaculture facility planning, design engineering and construction administration will be especially beneficial to this project. It is our understanding that the required A/E services for this project will be executed in three phases.

#### **Phase I – Engineering Study of West Virginia Division of Natural Resources State Fish Hatcheries**

The extensive Project Team experience in conducting comprehensive fish hatchery system evaluations will be very beneficial to the successful completion of this important study. Our team of experienced hatchery biologists and hatchery design engineers will work closely with the WV DNR hatchery and management staff to provide viable improvement options and costing information to develop the best alternatives for upgrading each WV DNR facility. Similar studies completed in Arkansas, Maine, Pennsylvania, Virginia, Iowa, Missouri, South Dakota, Tennessee, North Carolina, and several western states have provided critical information to plan and fund required long-term fish hatchery infrastructure improvements needed to meet fish production goals. Our experience in fish production program evaluation will provide a scientifically-based, sound approach to meeting trout production expansion options in West Virginia. Our study recommendations and presentation of them to agency administrators, staff, user-groups, and state legislative representatives have helped secure funding and authorization of major hatchery capital improvement programs. Team experience in the evaluation of historical construction plans, and existing facility condition information will be very useful in developing a set of existing condition drawings for each facility upon which potential improvements will be overlaid. Experience in hatchery operation, cost analysis and hatchery construction costing will ensure that a set of sound recommendations and a viable implementation plan is developed for improvements to the WV DNR fish hatchery system.

## Phase II – Construction Plans, Specifications and Bid Documents

The Project Team has many years of multi-disciplined engineering and architecture experience in providing detailed hatchery construction drawings and specifications (see listing in Tab E). Implementing recommendations from statewide hatchery evaluation studies has been a primary factor in the development of detailed capital construction documents for most state projects.

Experience in the design of a wide variety of hatchery infrastructure improvements, including water supply, water supply treatment, fish rearing systems, (tanks raceways, pond complexes, recirculation systems, effluent treatment, buildings and support infrastructure) will ensure that WV DNR hatchery improvements are correctly designed in full compliance with applicable codes and regulatory requirements. Although the exact scope-of-work for Phase II is unknown at this time pending completion of the Study Phase, our Project Team will be capable of meeting all multi-disciplined architectural, engineering, environmental and fisheries challenges of future WV DNR hatchery improvements projects.

HDR has many LEED accredited design professionals and has completed a variety of LEED certified projects. Should WV DNR desire to pursue LEED Certification in hatchery improvements projects or follow “green” sustainable design guidelines, the Project Team has the capability to meet these goals.

Regarding the trout production expansion program to increase production by 250,000 pounds per year, the Project Team has direct, applied experience in evaluation of trout production programs and the development of a series of facility improvement recommendations to meet agency goals. Recent projects in Maine, Connecticut, Missouri, South Dakota, Arkansas, Michigan, Wisconsin, Pennsylvania, and Virginia, involved specific recommendations on how to increase overall coldwater fish production system wide and simultaneously address discharge permit requirements. Combinations of facility improvement technologies, such as dissolved oxygen management, improved water reuse, water recirculation systems, water supply treatment, biosecurity and production improvements, as well as new fish production systems, such as broodstock holding, egg incubation, early rearing units, circular tanks and raceways, are examples of methods that have been successfully applied by the Project Team to meet increased production goals in comparable state agency coldwater fish hatcheries. We expect that a similar set of facility improvement options will be appropriate for the WV DNR hatchery system.

## Phase III – Construction Administration, Full-Time Inspection Services, and Project Close-Out

The Project Team includes experienced project construction phase managers who will play key roles in Construction Contract Administration, including pay progress meetings and approval of all pay requests, responses to contractor request for information (RFI's), change orders, coordination of shop drawings for review, and approval and preparation of project as-built drawings. The Design Team includes several experienced construction inspection/observers with fish hatchery construction experience to address Phase III requirements. **HDR | FishPro** uses an established set of procedures for fish hatchery component testing, hatchery system testing, and Owner training. Project close-out will be completed upon meeting all WV DOA and DNR requirements. Our experience, multi-disciplined science and engineering team will provide all services to properly test, calibrate

and document the successful construction and operation of all fish hatchery improvements constructed for WV DNR under this project. **HDR | FishPro** utilizes a predefined, established set of Project Quality Control/Quality Assurance (QA/QC) procedures on all projects throughout each phase (planning, design, and construction). Project budgets are established and tracked for each phase and work task item using computer-based project management software. We strive to deliver projects on time and within budget as shown by our demonstrated track record.

During project execution and construction, the use of digital photography, project Web pages, Project Wise sharing of CADD drawings and project data using high-speed computer communication tools provide rapid information transfer and communication with the User Agency, contractors, project team members and permitting agencies. Our Project Team includes local in-state construction observation inspectors from our HDR Weirton, WV, office and Chapman Technical Group in St. Albans, WV augmented when needed by our highly skilled fish hatchery design center team members based in our Springfield, Illinois office. We believe our Project Team will provide cost effective project execution to WV DNR by:

- Starting with a detailed project scope and deliverables that is understood by all parties
- Project planning involving **HDR | FishPro's** quality program team
- Maintaining lines of communication with the client throughout the project and into the future
- Meeting our deadlines
- Utilizing a highly skilled project design team with demonstrated fish hatchery planning, design and construction experience
- Considering ourselves stewards of government funds
- Implementing Innovative project execution methods
- Using sophisticated cost accounting tools and QA/QC procedures
- Meeting and Exceeding Client Expectations and Project Goals
- Establishing a long-term relationship with WV DNR by providing highly qualified A/E Services.

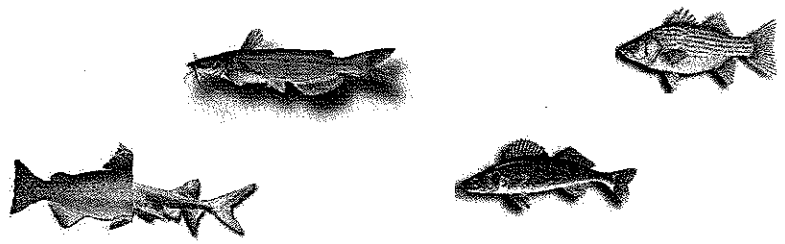
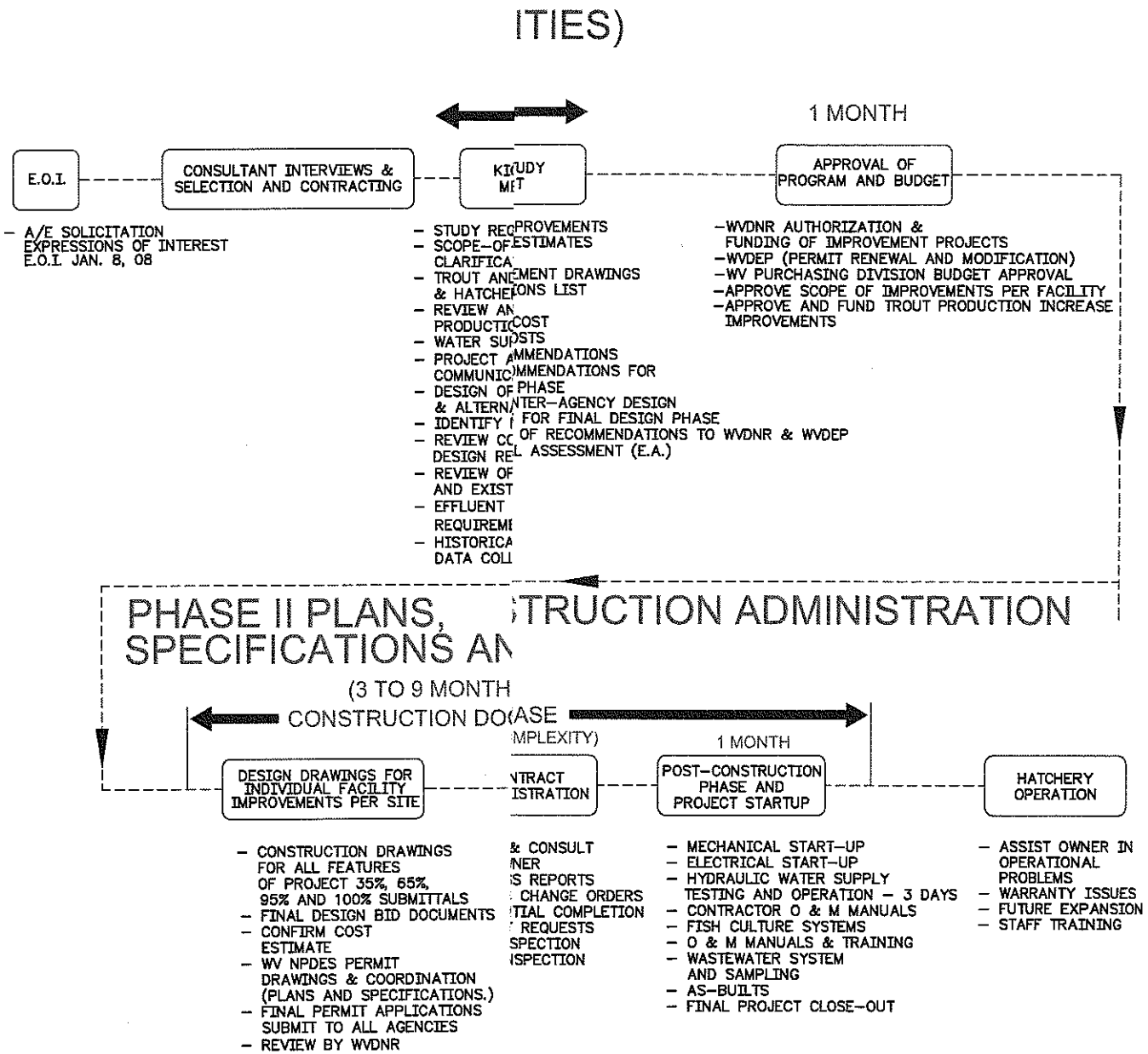
The following flow chart (Figure 1) illustrates the anticipated work tasks normally completed by Phase I Study, Phase II Construction Document, and Phase III.

## Projected Work Tasks Timetable and Performance Schedule

Based on our understanding of the Scope of Services for the *West Virginia Engineering Study of DNR Fish Hatcheries*, we are providing the following proposed work tasks timetable and performance schedule. This schedule is based upon the Phase I Procurement Specifications presented in the West Virginia's Department of Administration's Purchasing Division Expression of Interest (E of I) requirements and guidelines dated November 28, 2007. Our Project Team will visit and evaluate each of the nine fish hatcheries and provide preliminary cost estimates for upgrading each hatchery. Preliminary plans and cost estimates will be provided to increase trout production from 750,000 pounds to one millions pounds annually. Operational costs for the additional production and the improvements will also be included. Similar studies of this complexity and magnitude have required 12 to 18 months depending upon review periods and execution time frames (Figure 1).

A/E Responses to RFP.....	January 8, 2008
Interviews & Consultant Selection .....	Week of January 21-26, 2008
Study Contract Approval and Signing .....	Up to 30 days
Coordination & Kickoff Meeting/Data Exchange.....	1 day
Field Inspection of 9 Sites	
(7 cold water; 2 warm water hatcheries) .....	11 days (with travel time)
35% Report Submittal .....	45 days after field inspection
WV DNR Review and Comments .....	7 days
65% Report Submittal .....	60 days
WV DNR Review and Comments .....	15 days
Initial Recommendations	
& Preliminary Budget Costing.....	30 days
95% Report Submittal .....	60 days
WV DNR Review and Comments	
& Meeting to Discuss.....	15 days
Final Report.....	30 days
WV DNR Staff and Administrators Study Presentation .....	1 day
<hr/>	
Study Phase Duration .....	330-365 days (minimum)

# FIGURES ENGINEERING



DRAWING TITLE: PROJECT FLOW CHART BY PHASE

PROJECT: ENGINEERING STUDY OF WV DNR HATCHERIES

FP # -----  
1/08/08

SHEET: FIG.1

OF - SHEETS

We understand that Phase II, the development of plans and specifications for upgrading hatcheries, and Phase III, providing contract administration and full-time inspection services during construction, including approving pay estimates and change orders, review shop drawings, prepare as-built drawings and a final report, are dependent upon the results of Phase I and the availability of funding.

The following narrative defines proposed work tasks associated with successfully completing Phase I, the evaluation and study phase of each of WV DNR's nine hatcheries.

### **Task 1 Field Inspection of Nine (9) Hatcheries**

Prior to this task we propose to obtain all available hatchery historical data, production records, and drawings from the central WV DNR office in Charleston, WV, files before beginning the field inspection work at the nine facilities. We propose a meeting with fisheries and engineering staff in Charleston to review the scope of work, proposed work plan, discuss staff expectations and goals for the study work product, and obtain needed data to begin the study. Our suggested team will be represented for the proposed eleven (11) days of field hatchery inspections (plus travel time) by the Project Manager, Fisheries Biologist, Civil/Environmental Engineer, Mechanical Engineer, Electrical Engineer, and CAD Designer.

This suggested team of six professional individuals is experienced in conducting fish hatchery field inspections. Our staff team will conduct inspections of the seven coldwater and two warmwater fish production facilities. We propose to complete this work using an agreed upon inspection schedule and agenda. It is our intent to involve the WV DNR hatchery staff members, supervisors, and engineering staff during the field inspections.

During the field inspection, an evaluation of existing facility inventory and operation will be accomplished by the following:

- Interviewing hatchery managers and staff
- Detailed facility questionnaires
- Assessment of facility problems
- Documentation of existing conditions
- Data collection including as-built drawings, site plans, historical data, pictures, video, narrative, figures and tables
- Review effluent sampling procedures and discharge permitting issues.
- Develop to scale CAD existing condition drawings for each of the nine facilities illustrating current condition and layout.

### **Task 2 Review of Current and Future Fish Production Requirements**

During this task we propose to review up to five years of past fish production records for each of the hatcheries and to review WV DNR projected future increased trout and warmwater fish production needs by species. The following work will be included in this task:

- Evaluate fish production requirements and define interrelationships of the operation of trout production at each of the trout facilities. Complete a similar analysis for the two warmwater fish hatcheries and warmwater fish production program
- Evaluate historical production and trends for all facilities
- Evaluate cost of operation and cost of production for all facilities

- Analyze options to meet future increased trout production needs as determined by the WV DNR., increasing annual production from 750,000 pounds to 1,000,000 pounds.
- Determine individual facility and overall statewide hatchery system resources needed to meet WV DNR production goals
- Define required inter station transfer of trout, stocking requirements and methods to reduce system wide production risks and improve trout quality for management programs. Complete a similar analysis of the warmwater fish production program to ensure long term WV DNR goals are met in the future.

### **Task 3 Review of Personnel Needs**

During this task we will review and evaluate the current staffing of each of the nine fish cultural facilities. Staffing analysis shall be completed for each facility and will reflect the overall recommendation of this study regarding future improvements to, and possible expansion of (if appropriate), the hatchery system. WV DNR shall provide current hatchery job classification data and current staffing information to the consultant for completion of this task.

### **Task 4 Cost of Operations and Cost Efficiency Analysis**

During this task we propose to analyze four years of past operating data for each of the production facilities to develop a cost of operations background. WV DNR shall provide a copy of all available cost data for each facility including personnel services, utilities, fish food and chemicals, vehicle operation, equipment, minor and major repair/maintenance data and related cost data for use in completing this task. Cost of production and cost analysis shall be prepared using WV DNR facility operational cost data. Projections of future operating costs required to support the trout production increase statewide shall be prepared.

### **Task 5 Review and Analysis of Fish Hatchery Infrastructure**

Using the results of the field inspections and analysis of historical and as-built hatchery data, we propose to analyze and document the condition of the seven WV DNR coldwater and two warmwater fish production facilities. The work will include scaled CAD site drawing illustrating the current "as-built" conditions (using drawings and information furnished by WV DNR) and the narrative and will include the following:

- Objective inventory of each facility's water supply - source(s), yield, and expansion potential including surface gravity, surface pumped, springs, wells, reuse and recirculation options (simple & complex)
- Water quality compared to established fish culture standards
- Property boundary (as supplied by WV DNR), access, and security issues
- Space and land base (current use & expansion potential)
- Drought impacts to water supplies and methods to minimize impacts to fish health and quality shall be reviewed and analyzed. Biosecurity issues shall be specifically defined and improvement recommendations prepared as appropriate.
- Flood impacts to water supplies and methods to minimize impacts to fish health and quality shall be reviewed and analyzed
- Soils and topography

- Utilities and cost data
- Inventory of rearing units (number, size, condition, piping, access, accessories) and general assessment of performance for trout culture
- Inventory of buildings and support facilities
- Code, life-safety issues
- Public visitation, public information and education
- Environmental and Cultural Historical Impacts
- Wastewater treatment and effluent discharge permitting

#### **Task 6 Facility Infrastructure Improvements/Repair Recommendations & Cost Estimates**

This task will include potential improvements at each of the fish production facilities prioritized for each station. An improvements/ repair to-scale CAD site drawing will be developed and used to illustrate potential improvements and to develop cost estimates. These drawings will essentially provide Master Plans for each of the facilities. Cost estimates will provide unit quantities, unit costs and estimated construction costs for each station (as outlined in Task 9). Data from our experience as aquaculture facility designers as well as cost data from WV DNR will be used to estimate costs.

#### **Task 7 Increase Statewide Trout Production Recommendations and Cost Estimates**

This task will review current facility production, and outline possible options to increase production at each facility where appropriate. Biological modeling to illustrate how trout production can be potentially increased at each facility and what impacts these proposed trout production increases will have on the number of production units, water supply, and effluent discharges will be completed. Cost estimates will be prepared for potential production increases (as appropriate for each facility). This work task will be completed as an extension of Task 6 Facility Improvements so that separate costing and improvement items for the proposed 250,000 pounds/er year trout production increase can be developed for agency planning and future options.

#### **Task 8 Analysis of Hatchery Wastewater Treatment, Permitting Requirements, & Waste Water System Improvements**

This task will review and analyze the existing domestic and process wastewater systems at each of the production facilities. An effluent sampling program will be prepared if required. Existing NPDES permitting shall be reviewed. Effluent treatment enhancement shall be proposed as appropriate for each facility. Subjects such as improved suspended solids control, therapeutic chemicals, biosecurity, fish escapement control, ammonia and phosphorus shall be addressed in this work task. The WV DNR permitting requirement will be reviewed. In addition, discharge permits and effluent treatment requirements shall be evaluated for compliance with WV DNR requirements and the Federal Clean Water Act. The trout production increase may impact effluent treatment requirements at some facilities depending upon the magnitude of the facility increase and installed system waste water treatment capacity.

### **Task 9 Cost Analysis and Prioritization of Improvements**

This task will involve the comprehensive evaluation of all potential improvements / repairs at all facilities. A prioritization list and schedule will be prepared that defines a recommended program for the future. This work task will include the following:

- Cost estimates (design, engineering, construction & operation)
- Prioritized list of recommended improvements for each facility
- Implementation plan schedule and time frame sequencing and interim fish production impacts

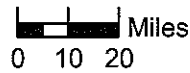
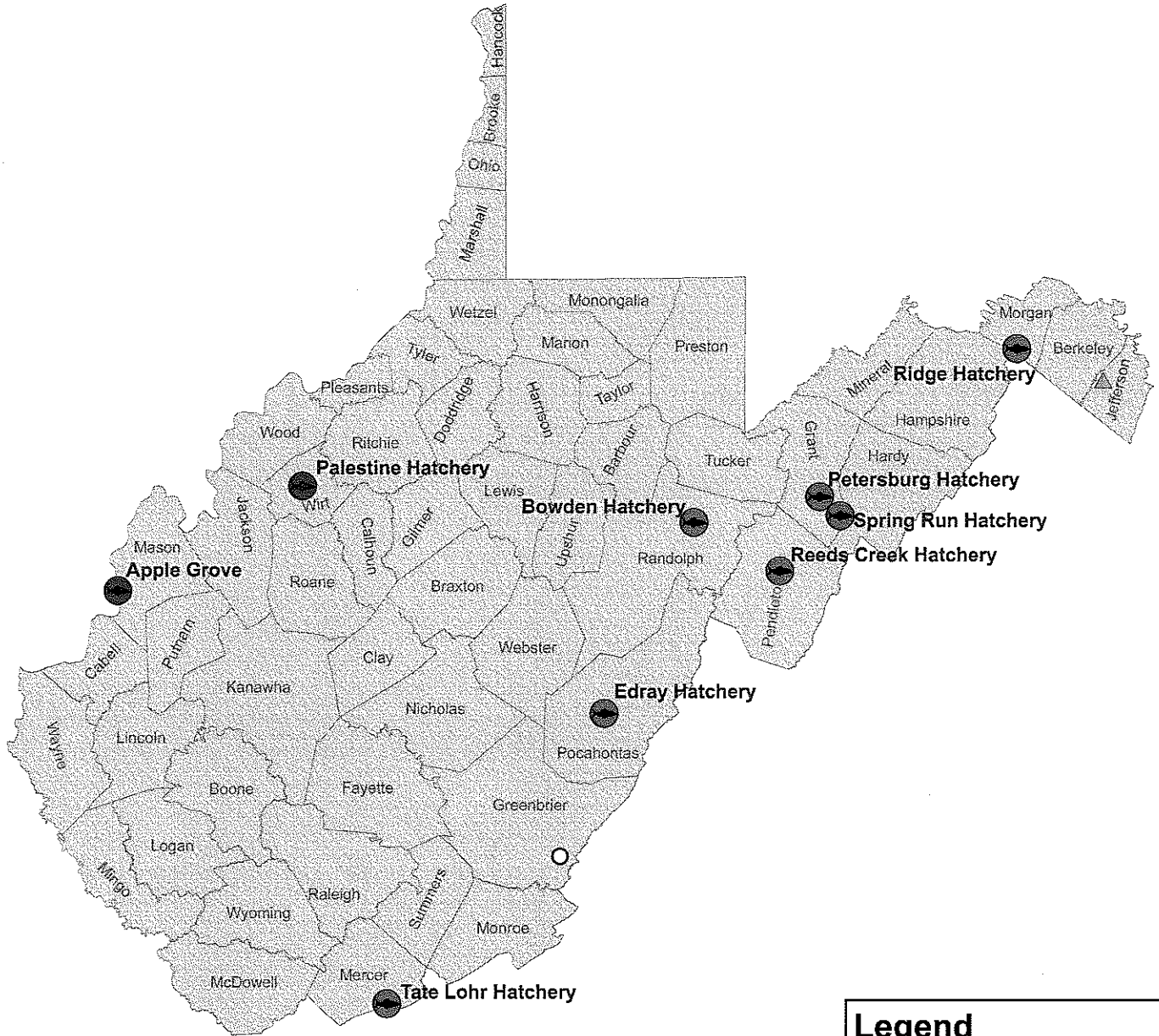
### **Tasks 10 Report Preparation and Review Coordination**

This task involves the work effort in preparing and coordinating the report preparation and its various submittals with the WV DNR. The submittals will address questions, comments, suggestions and enhancements provided by WV DNR reviewers in writing to **HDR | FishPro**. A report will be submitted at the 35%, 65% 95% and 100% completion levels. The report shall include the following:

- A bound and indexed report organized to include the written documentation of the condition of the existing hatchery system by facility
- Narrative outlining problems and potential solutions
- Existing condition and conceptual improvement drawings (CAD format)
- Repair / improvement options and alternatives
- Production increase improvement options, alternatives, and costs
- Cost estimates (engineering, construction & operation)
- Recommendations and prioritized list of improvements for each facility
- Implementation Plan
- Implementation Schedule with required time sequencing including trout and warmwater fish production impacts due to construction impacts (if required)



Review meetings are proposed prior to the submitting of the summary recommendations and budget planning cost estimates and the 95% submittal. A PowerPoint presentation of the findings and recommendations of the study will be provided to the WV DNR staff and agency administrators upon completion of the Final Report.

# West Virginia State Fish Hatcheries





## Legend

### State Hatcheries

-  Coldwater
-  Warmwater

### Federal Facilities

-  Leetown Science Center
-  White Sulphur Spring

## Firm Location

Team members for this project will be located in Weirton and St. Albans, West Virginia, and Springfield, Illinois, and will perform all work tasks associated with the *WV Engineering Study of DNR Fish Hatcheries*. The Springfield **HDR | FishPro** Office is multi-disciplined fish hatchery design center with fish culture biological expertise and mechanical, electrical, civil, structural engineering, and the Weirton office brings civil and environmental expertise to the team. **HDR | FishPro** staff located in other offices may provide additional services such as QA/QC. Chapman Technical Group (CTG) has its office in St. Albans, West Virginia, and will provide local architectural design, process wastewater and permitting expertise, local construction administration services, and project inspection services. **HDR | FishPro** and **CTG have successfully provided A/E Services to WV DNR** in the past at the Apple Grove (Mason County) Hatchery Building and the Spring Run Trout Hatchery Improvements Project.

**Understanding of Fish Hatchery Operation and Design**

**HDR|FishPro** has provided biological and engineering consulting and design services for more than 500 state, federal and private fish hatchery, aquaculture and environmental projects since 1984. Merging the biological sciences of fish culture with the technological sciences of engineering and architecture, **HDR|FishPro** is proposing to provide aquaculture facility planning, design and construction services for the *West Virginia Engineering Study of DNR Fish Hatcheries*. Our Project Team will be able to provide *all* of the required specialized services related to this project, including field investigations, data collection, analysis, and recommendations (Study – Phase I), planning and design (Phase II), and construction phase (Phase III) services required by WV DNR to meet the goals of this project.

To date, **HDR|FishPro** aquaculture planning and design engineering projects have been completed in 44 of the 50 United States, as well as several locations in Canada. With this variety of warm, cool, and coldwater hatchery planning and design experience, **HDR|FishPro** has developed a strong in-house team of scientists and engineers whose goal is to provide each facility owner and operator with:

- The type of aquaculture facility and technologies appropriate to their fish culture programs, construction and operating budgets.
- Design that provides the optimum level of operational flexibility so that as fish production requirements, as well as technologies change, the facility can be adapted and modified to accommodate newer requirements.
- A level of planning and design expertise that will allow the Owner to evaluate various types of available fish culture technologies and options. Our Project Team assists the Owner in selecting the most reasonable solution for the circumstances of their particular program goals.

**HDR|FishPro** is experienced in the preparation of comprehensive statewide system studies, project programming and feasibility reports, site planning and design, environmental assessments and permitting, energy and life cycle costing/ value engineering, cost estimating and the preparation of construction plans and specifications.

The **HDR|FishPro** Project Team will provide project planning, design and construction services promptly and efficiently as requested by WV DNR. We have the applied fish hatchery design expertise to fully implement the recommendations of the *West Virginia Engineering Study of DNR Fish Hatcheries*, as well as provide construction phase services that include management from construction contract award to final acceptance, including warranty period. Our office is able to provide CADD drafting, word processing, and cost estimating, as we are equipped with modern computer communication technology and software to provide effective project administration, coordination and document preparation throughout the United States.

**HDR|FishPro's** principle design philosophy is one of working cooperatively with the Owner by explaining alternatives and options throughout the entire planning and design process. Design flexibility is given a high priority in all projects in order to provide for

future facility expansion or to accommodate new fish culture technologies. Our Project Team members have worked in state fish production programs in support of state fisheries management goals for many years and can directly related to the WV DNR program goals and requirements.

It is our goal at **HDR | FishPro** to meet our clients' needs in the most responsible and cost-effective manner possible. Our success in meeting this goal is illustrated by our high percentage of repeat business and our reputation for completed projects that meet and exceed our clients' expectations. We believe that our Project Team's past successful working relationship with WV DNR provided at the Apple Grove and Spring Run State Fish Hatchery Projects in conjunction with our completion of many similar comprehensive statewide fish hatchery engineering studies and design projects will be very beneficial to the successful completion of this important project.

The following is a list of fish hatcheries designed by the firm for which construction contracts were administered during the past ten years and whether such projects were completed on time (an explanation is included if the project was delayed) and whether such projects were completed within budget:

Project Name	State/Client	Project Cost	Completed within Budget	Completed on time
Andrew H. Hulsey SFH	Arkansas	\$ 2,000,000	Yes	Yes
Spring River Trout Hatchery	Arkansas	\$ 3,500,000	Under	Yes
Quinebaug Valley SFH Phase 4 Enhancement Project	Connecticut	\$ 3,000,000	Yes	Yes
Quinebaug Valley SFH Phase 3 Enhancement Project	Connecticut	\$ 3,000,000	Yes	Yes
Quinebaug Valley SFH Phase 2 Enhancement Project	Connecticut	\$ 3,000,000	Yes	Yes
Florida Bass Conservation Center - Richloam	Florida	\$ 1,350,000	Yes	Yes
University of Georgia Aquatic Biotechnology & Environmental Lab	Georgia	\$ 1,000,000	Yes	2 month construction delay
IA State Fairgrounds Aquaria Project	Iowa	\$ 200,000	Yes	Yes
Rathbun SFH Research Facility & Rearing Pond Project Phase 3	Iowa	\$ 1,200,000	Yes	6 month weather delay
Dissolved Oxygen Management (Casco, Dry Mills, Enfield, Governor Hill, and Palermo SFH)	Maine	\$ 600,000	Yes	Yes
Effluent Treatment Enhancements (Casco, Enfield, and Palermo SFH)	Maine	\$ 2,500,000	Yes	Yes
Embden SFH Total Facility Renovation	Maine	\$ 3,000,000	Yes	Yes
Oden SFH Total Facility Renovation	Michigan	\$10,000,000	Yes	Yes
Platte River SFH Renovation	Michigan	\$ 5,500,000	Yes	Yes
Enid SFH - New Hatchery	Mississippi	\$ 5,500,000	Yes	Yes
Watha SFH Improvements	N. Carolina	\$ 5,000,000	Yes	Yes
Pisgah Forest SFH Improvements	N. Carolina	\$ 300,000	Yes	still in construction
Hackettstown Intensive Fish Rearing Building	New Jersey	\$ 2,700,000	Yes	Yes
TPWD Athens SFH Water Strainer	Texas	\$ 200,000	Yes	Yes
A.E. Wood SFH Wastewater System Improvements	Texas	\$ 2,400,000	Yes	3 month weather delay
Brookneal SFH	Virginia	\$ 2,100,000	Yes	Yes
Wild Rose SFH Phase I	Wisconsin	\$12,000,000	Yes	Expected to be completed ahead of schedule









## Spring Run State Fish Hatchery

Petersburg, West Virginia

**Client:**

West Virginia Division  
of Natural Resources,  
Wildlife Section

**Contact:**

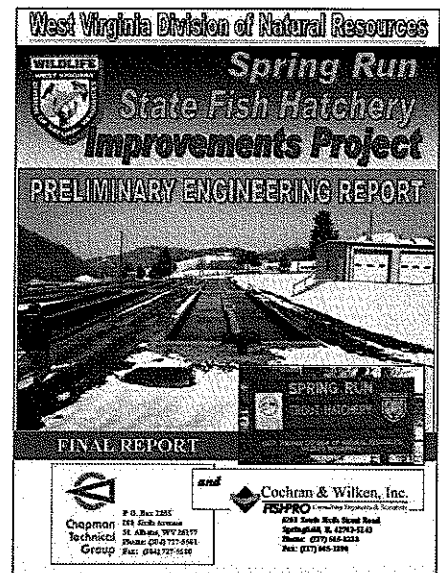
Mr. Mike Shingleton  
(304) 637-0245

**Completed:** 2005

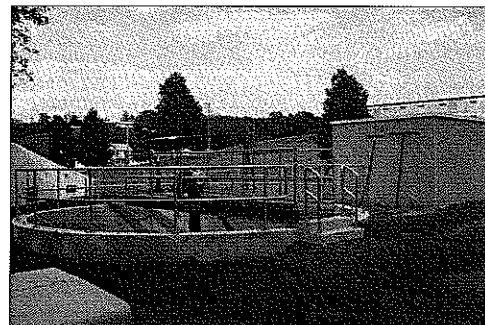
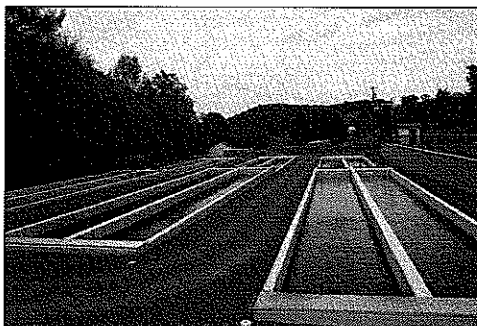
**Fish Species:** Trout

The Spring Run SFH Preliminary Engineering Report consisted of a fisheries and engineering review and analysis of the existing facility and presented a series of conceptual improvements to ensure that existing and future NPDES permit requirements could be met.

This project master plan outlined the first steps necessary to modernize the facility's effluent treatment. This report provided the basis to evaluate the options and costs associated with the proposed wastewater treatment improvements. The areas of critical review included: water source(s), water distribution, supplemental oxygenation of water supplies, water treatment systems, buildings, fish rearing units, effluent management, general facility infrastructure and visitor facilities. Emphasis was placed on evaluating the existing rearing unit complex cleaning patterns and existing effluent water quality analysis. Potential solutions and possible options to the hatchery wastewater treatment system were provided. Construction cost estimates and projected time frame requirements for implementation were also included.



This project was completed as a subconsultant to Chapman Technical Group (CTG). Final Design Phase included the construction of wastewater piping, new solids collection clarifier, sludge storage tank; solids pump station, and new production raceways that replaced a series of concrete shad rearing ponds. This project illustrates team working relationship between **HDR|FishPro** and **CTG**.



## Vic Thomas Striped Bass State Fish Hatchery Modernization Project

Brookneal, Virginia

**Client:**  
Virginia Department  
of Game & Inland  
Fish

**Contact:**  
Ron Southwick  
P.O. Box 11104,  
Richmond, VA  
(804) 367-1292

**Cost:** \$2.1 million

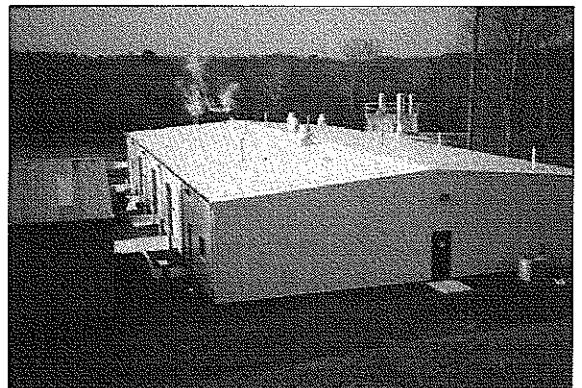
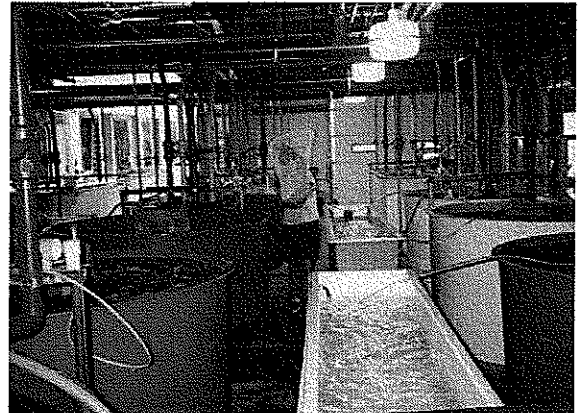
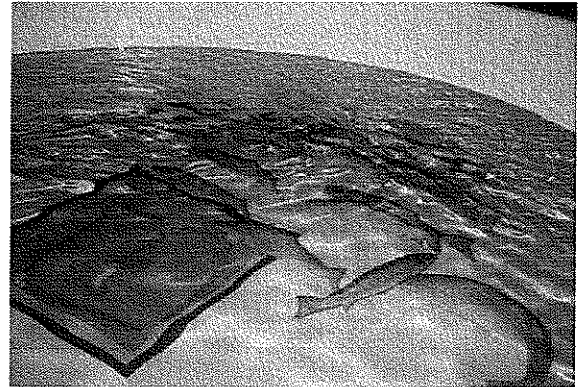
**Completed:** 1999

**Type of fish  
produced:** Striped  
Bass and Hybrid  
Striped Bass

The Virginia Department of Game and Inland Fisheries contracted **HDR|FishPro** to complete the planning and design engineering for a new 6,900 SF striped bass/hybrid striped bass hatchery. The project includes an 1,400 gpm river water supply system with screened river intake, pump station and process water treatment components (i.e. filtration, heat exchanging and heat recovery, UV disinfection and liquid oxygen-based aeration degassing).

The facility provides for natural tank spawning of Roanoke strain striped bass and includes required adult holding, spawning, egg incubation and intensive rearing systems. The building includes offices, lab area support visitor and storage areas. Four twenty-foot diameter stainless steel circular tanks provide for high density rearing of phase 2 striped bass out of the river floodplain.

The Brookneal Hatchery is the first of nine Virginia fish culture stations to be renovated under Virginia's \$22 million Fish Hatchery Master Plan. The Master Plan was completed by **HDR|FishPro** and provided a detailed analysis of nine fish cultural stations and a comprehensive plan for modernization.



## Embden State Fish Hatchery

Somerset County, Maine

**Client:**

Maine Department of  
Inland Fisheries &  
Wildlife

**Contact:**

Mr. Steve Wilson  
(207) 287-5262

**Completed:** 2006

**Cost:** \$3 million

**Fish Species:**

Brown  
Trout, Brook Trout,  
and Atlantic salmon

HDR | FishPro completed the conceptual layout, bioprogramming and design for the Embden Fish Hatchery renovation. HDR | FishPro was tasked with managing the project from design to bidding through construction observation

The Embden State Fish Hatchery Renovation project was one of five projects to be completed under the \$7.0 million bond bill for improvements to the Maine Fish Hatchery System. HDR | FishPro designed the facility and provided initial statewide project planning bioprogramming assistance to the State of Maine for the entire nine-hatchery system including coordination with the Maine Fish Hatchery Study Commission.

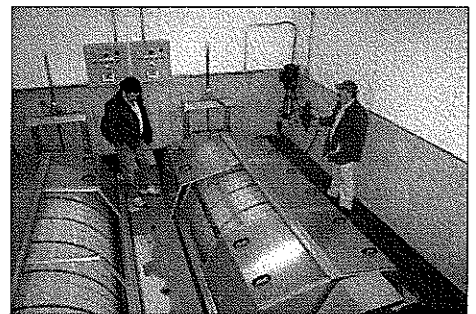
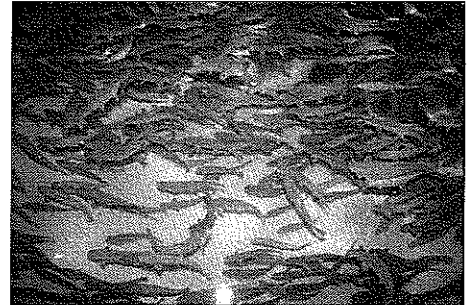
The rearing facility produces brook and brown trout and landlocked salmon. It has a 25,000 SF covered circular tank rearing system with 30 twenty-foot diameter tanks, modern effluent treatment system and liquid oxygen-based aeration/degassing system for high efficiency operation with a limited volume of water.

This facility utilizes self-cleaning 20 ft. diameter circular tanks and an effluent treatment system including microscreen, sludge storage and renovation of the existing clarifier targeted to meet strict Maine DEP discharge license requirements.

Renovation of the facility involved the demolition of existing raceways and associated wooden covers.

The facility design included renovation of the lake intake structures and pipelines located at two different depths within the water supply lake. The two lines allow for the blending of water temperatures which matches growth requirements of the species propagated at this station. Influent lake water is U.V. sterilized using new immersion type UV equipment to reduce the spread of infectious disease to the coldwater fish being reared at the facility. In addition to sterilization, the design incorporated dissolved oxygen management technology using liquid oxygen supply to maximize the carrying capacity.

This is the first of five lake-based water supply state fish hatcheries to be renovated using single-pass circular tank technology with full effluent microscreening.



## Richloam State Fish Hatchery / Florida Bass Conservation Center

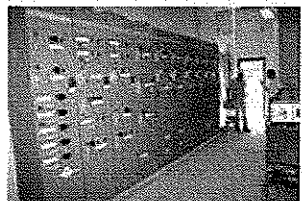
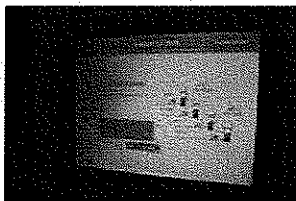
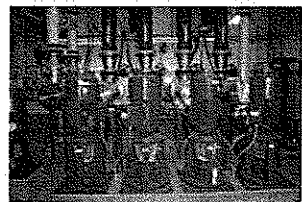
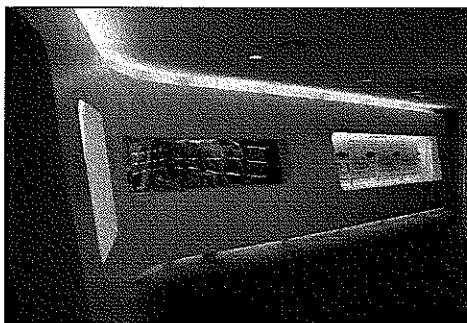
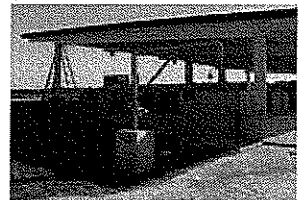
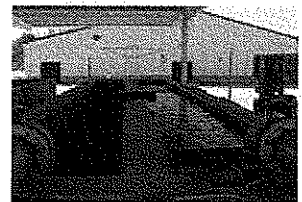
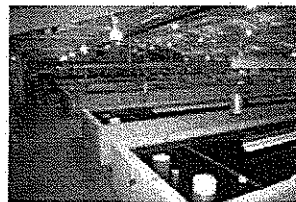
Sumter County, Florida

**Client:**Florida Fish & Wildlife  
Commission**Contact:**Rick Stout  
Hatchery Manager  
(352) 583-3545**Cost:** \$14.4 million**Completed:** 2006**Fish Species:**Florida strain of  
largemouth bass,  
stripped bass, hybrid  
bass, channel catfish,  
bluegill, redear, crappie  
and triploid grass carp

In February of 2007, the newly constructed Florida Largemouth Bass Conservation Center (FBCC) located at Richloam State Fish Hatchery in central Florida was officially dedicated. This unique facility was established to provide science and propagation of sport fish including the popular Florida strain of largemouth bass endemic to central Florida. The facility is capable of producing over four million fish annually for stocking into waters throughout the State of Florida. HDR|FishPro (formerly Cochran & Wilken / FishPro) provided aquaculture and engineering services for the design and construction of the modern **recirculation facility**. The facility design includes an indoor production system using a variable flow 6,400 gpm treated **recirculation system**, chilled and heated incubation water supplies, research laboratories, visitor aquaculture displays and **water treatment processes** all in an enclosed environment. The FBCC facility also includes enhancements to the existing Richloam Hatchery extensive pond complex of 55 ponds. Pond renovation includes **new harvest kettles**, water supply, low pressure air and pond electrical system in addition to enhancement of the water supply reservoirs. The building complex of the project consisted of demolition of the existing fish house and modification of four production ponds to make an area for the new 3,000 SF building. Sitework includes entrance road and parking lots, **electrical distribution, site piping** for hatchery supply and drain lines; a new 1,000 gpm west reservoir recycle **pump station** including reuse pond and ditch regarding. The new building complex includes a new 5,300 SF fish transfer/ holding raceway pavilion including fourteen concrete raceways to process fish harvested from raceways. The FBCC consists of a new two-story 10,000 SF concrete masonry office building including offices, laboratories and elevator; a 24,000 SF production/research/water treatment building attached to the office building. Process water treatment area includes a boilers, chillers, **U.V. sterilization, sand filtration, ozonation** and carbon dioxide stripping

as well as **dissolved oxygen** management technology provided by a **liquid oxygen** system connected to central concrete headtank. Solids management for the recirculation water was accomplished utilizing two 3,600 gpm **drum microscreens**. Water supply is provided by a new 1,200 gpm production groundwater well and two renovated 1,200 gpm wells, a new potable water well and domestic on-site wastewater treatment system; a new 4,000 SF equipment storage building; and the rehabilitation and upgrade of the existing east recycle pump station. The planning and design phase of a \$5.0 million visitor education and fishing center to be located on the western boundary of the site is now underway.

**HDR | FishPro** completed the conceptual layout, bioprogramming and design for the Florida Bass Conservation Center. **HDR | FishPro** was tasked with managing the project from design to bidding through construction observation.



## South Dakota State Fish Hatchery Renovation Project

### South Dakota Preliminary Engineering Fish Production Analysis

*Cleghorn Springs, South Dakota*

**Client:**

South Dakota Game,  
Fish & Parks

**Contact:**

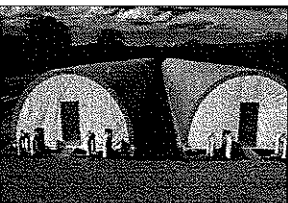
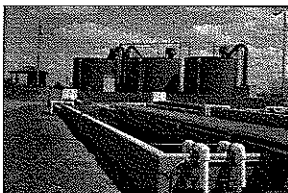
Dennis Unkenholz,  
State Fisheries  
Administration  
(605)773-4508

Cami Widvey,  
OSE Project Engineer  
(605) 773-3052

**Cost:** SD Coldwater  
Production Analysis  
(Dec. 2004) \$62,105

Cleghorn Springs SFH  
Renovation (Jan. 2004)  
\$6.5 million

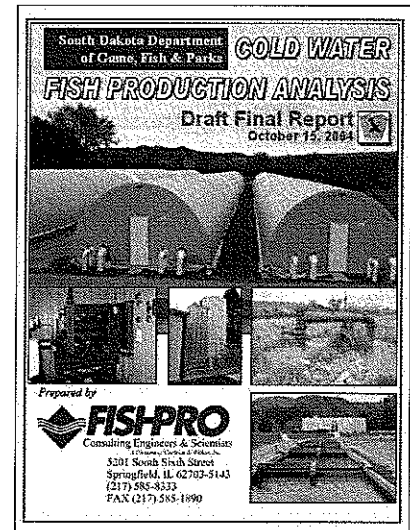
**Completed:** 1999



In 2003, **HDR|FishPro** completed preliminary engineering plans and cost estimates for the proposed renovation of the Cleghorn Springs SFH in Rapid City, SD. In response to SDGFP and OSE planning contract requirements, **HDR|FishPro** investigated options for the renovation of Cleghorn Springs SFH, which included major repair/renovation of the existing concrete raceway system and replacement of the raceways with modern covered circular tank rearing systems. Work included options for improving the spring water 10 CFS water collection and low-head pumping system including an improved array of water pumps with high-energy efficiency. The study outlined a series of potential improvements to the hatchery buildings, including new circular indoor rearing tanks, laboratory, and office and crew support areas. Additional storage building options were included in the study to insure that valuable equipment, vehicles, and feed storage needs are met in the planned renovation. The hatchery lies within the 100-year flood plan of Rapid Creek and coordination with Rapid City flood assessment staff was completed to meet flood plain regulations. Preliminary engineering drawings, cost estimates, and schedules were completed. **HDR|FishPro's** earlier work on Cleghorn during the water supply aeration/degassing project was helpful in providing a working knowledge of the facility infrastructure and design requirements. Staff experience in several projects with large covered circular tank rearing systems was also helpful (Quinebaug, CT; Embden, ME; and Brookneal, VA).

As a result of SDGFP staff and Commission questions regarding the infrastructure condition of the McNenny SFH near Spearfish, SD, and the possible consolidation of coldwater fish production in South Dakota, **HDR|FishPro** completed the Coldwater Fish Production Analysis report in 2004. This study investigated potential infrastructure improvements needs at McNenny SFH and provided a review of SDGFP coldwater fish production program requirements using both McNenny and Cleghorn Springs SFH or possible consolidation of the program at one facility.

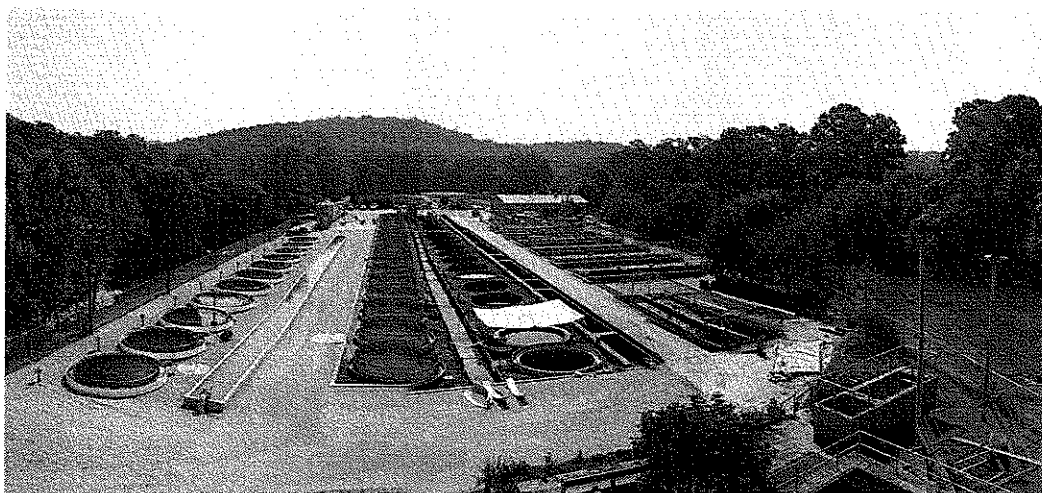
The study concluded that continued operation of both the McNenny and Cleghorn Springs hatcheries to meet SDGFP coldwater fish production requirements was appropriate. By effectively utilizing available water supplies and optimizing the facility infrastructure at both facilities by completing a series of improvements at both McNenny and Cleghorn Springs, the Agency's coldwater fish production program would be fully achieved at minimal risk. A series of preliminary engineering drawings, cost estimates, and schedules were prepared as a part of this study. **HDR|FishPro's** earlier renovation of the McNenny SFH in 1984 provided valuable background knowledge of the hatchery. These findings were presented to the SDGFP Commission and staff in October 2004.



## Jim Hinkle / Spring River State Fish Hatchery

## Modernization Project

Mammoth Spring, Arkansas

**Client:**Arkansas Game & Fish  
Commission**Contact:**Dale Gunter  
Chief Engineer  
(501) 978-7309**Cost:** \$3.6 million**Completed:** 2003**Type of fish****produced:** 700,000  
pounds of Rainbow  
Trout**Awards and  
Recognition**Engineering  
Excellence Special  
Achievement Award  
2006—Consulting  
Engineers Council of  
IllinoisPublic Works Large  
Project of the Year  
Award 2005—  
Arkansas Chapter of  
the American Public  
Works AssociationAward of  
Excellence—2005  
Association of  
Conservation  
Engineers

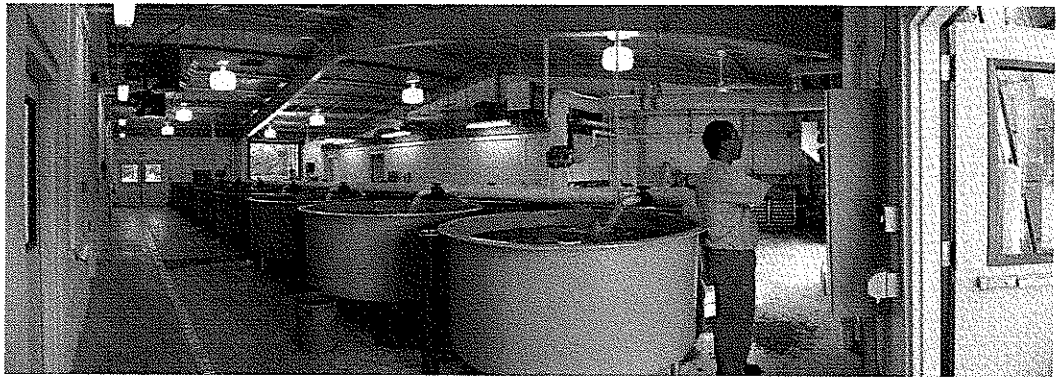
On five acres on an island in the middle of the Spring River in northeastern Arkansas, The Jim Hinkle / Spring River State Fish Hatchery is one of few worldwide facilities that utilize in-ground silos for fish rearing. Called upon to increase production by approximately 35 percent for stocking trout throughout Arkansas, this 30-plus-year-old facility required major improvements. Two elements were key to the successful modernization of this facility:

- All construction had to be performed while the facility was in total and full production, and
- Severe site limitations governed the design of new facility, as well as required critical coordination of construction and delivery and storage of construction materials.

Water supply and drainage for the raceways utilized existing infrastructure. The water supply system design required coring into an existing water supply structure located 12 feet below grade and the removal by a diver of eight submerged 12-foot tall pyramid shaped cones. Both were accomplished while up to 50,000 gallons of water per minute passed through the structure. Drainage pipes were core drilled into an existing concrete box culvert also while water flowed continuously. Another criteria was to provide 500 gallons of water per minute from the existing well. The 30-year-old well was straightened, bored, and cased for a new pump and now supplies both production and domestic water. The well location greatly influenced the location of new structures.

One significant requirement of this project was the need for additional rearing silos. This was met by installing one-piece fiberglass silos and drainage trough system that closely matched the existing stainless steel rearing units. Due to the size of the units, on-site space limitations, and the equipment necessary for placement, the contractor used a “just-in-time” delivery and installation schedule.

HDR|FishPro provided all the specialized services required for the planning, analysis, design, construction and operation of the modernized and expanded fish hatchery and related aquaculture facilities. Specifically, HDR|FishPro provided engineering services for: 75,000 gpm water supply in-take screening, Hatchery Building / Office, new raceways and water supply, new silos and water supply. Silo overflow flume repairs. Fill-in East Pond for parking lot, diversion box, and wastewater treatment system. HDR|FishPro provided all construction office administration, shop drawing review and monthly coordination / pay meeting administration and start-up, testing and training. This is the only trout production facility in AGFC system and the largest facility in the country using the upwelling vertical site production system.



## Andrew H. Hulsey State Fish Hatchery Renovation

Hot Springs, Arkansas

### Client:

Arkansas Game  
& Fish Commission

### Contact:

Don Brader  
Fish Hatchery  
Supervisor  
(501) 276-1253

Cost: \$2 million

Completed: 2003

Fish Species: Florida  
largemouth bass,  
channel catfish,  
walleye, hybrid striped  
bass, smallmouth bass

Work at the Andrew H. Hulsey hatchery involved two contracts, Contract A and Contract B. The contracts followed a detailed study of the State's hatchery system completed by **HDR | FishPro** in 1999. The report documented existing conditions and outlined modernization improvements at five hatcheries including Andrew H. Hulsey.

### REARING POND SUBDIVISION - MODERNIZATION PROJECT, CONTRACT 'A' -

The project consisted of internal pond levee construction to subdivide existing fish rearing ponds, construction of nine concrete pond outlet structures and installation of water supply and drain piping to these structures.

### SPAWNING BUILDING REPLACEMENT - MODERNIZATION PROJECT, CONTRACT 'B'

The project consisted of demolishing an existing 40'x50' Spawning Building and replacing with a new 50'x70' Spawning Building that included pressure filtration, U.V. disinfection and a 300 gpm heating/chilling system. The project scope included a new lake water supply line, pumping system, pressure strainer installation (1,500 gpm) and a new in-lake water intake structure. Work also included permitting and in lake execution for the new lake water intake system.

### LAKE WATER PHYTOPLANKTON REMOVAL AND DISINFECTION SYSTEM

Andrew Hulsey State Fish Hatchery in Arkansas utilizes Lake Hamilton an entropic phytoplankton rich lake as its primary water supply source. To condition this green high turbidity water for spawning, egg incubation and early rearing, a high capacity pressure filtration system with anionic polymer feed followed by a medium pressure, high intensity UV disinfection system but was not specifically targeted for Golden Algae or ichthyotoxin management.



## Wild Rose State Fish Hatchery

*Wild Rose, Wisconsin*

**Client:**  
Wisconsin Department  
of Natural Resources

**Contact:**  
Mr. Al Kaas  
(608) 267-7865

**Completed:** 2008

**Fish Species:**  
Chinook salmon,  
brown trout, as well as  
northern pike,  
muskellunge, walleye,  
suckers, and lake  
sturgeon

HDR | FishPro was retained in 2002 to develop a major renovation and compliance study for the Wild Rose Fish Hatchery, the largest of 18 facilities operated by the Wisconsin Department of Natural Resources. This study, "Fish Propagation Water Supply Compliance and Renovation Study," completed in January 2003, led to funding for expansion and renovation of the fish hatchery in three phases. A major constraint associated with this project is the requirement to keep the existing hatchery operational while expanding and renovation its usage.

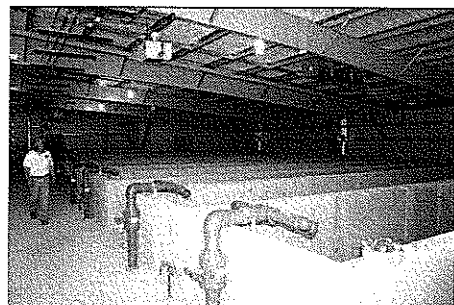
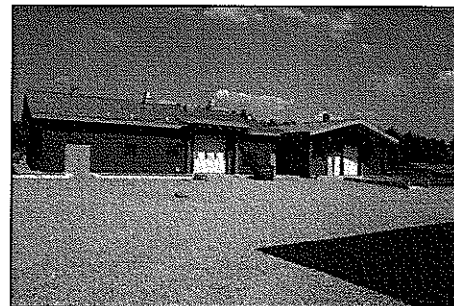
**Phase 1** includes the total modernization and renovation of the coldwater (west) side of the facility. On this side of the facility construction includes new covered intensive rearing systems for the following species: Brown Trout, Chinook Salmon, Seeforellen Brown Trout, and Rainbow Trout. The \$11.6 million project includes a 14,000 SF hatchery building, four 5,000 SF covered raceway buildings, an 8,000 SF broodstock building, modern effluent treatment system, and a visitor center.

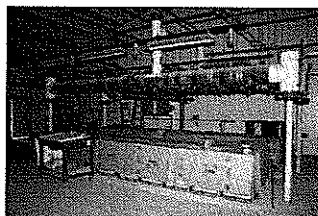
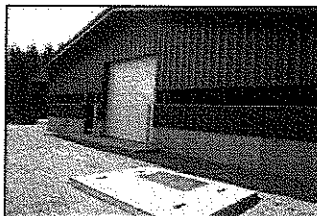
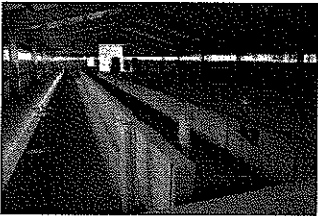
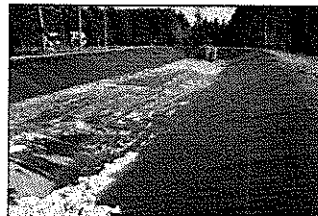
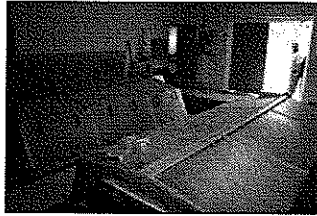
**Phase 2** will include a total modernization and expansion of the coolwater / warmwater production (east) side of the facility. On the east side of the facility construction will include a modern lined pond complex and a 30,000 SF intensive recirculation (RAS-based) indoor rearing building for five strains of Lake Sturgeon, Spotted Muskellunge, White Sucker (forage), Northern Pike and Walleye. Project includes 14 modern lined production ponds and effluent treatment system. Cost is \$15.6 million.

Items included in both phases include but are not limited to:

- Fish rearing and egg preparation facilities
- Bio-security areas associated with egg preparation and facility effluents
- Significant water treatment and distribution systems that allow for maximum reuse of water and best management practices
- Water control structures for production ponds and numerous other ponds.
- Both water storage and detention ponds
- Water monitoring through all phases of project from intake water supplies to discharge water supplies – modern PLC-based instrumentation and alarm systems
- LHO's and oxygen injection systems
- Microscreens and UV systems for effluent treatment and reuse of water.

Upon the completion of these two phases, a third phase will be undertaken to demolish buildings and system components no longer required and to restore the historical natural spring for hatchery stream. This facility incorporates state of the art oxygen-based intensive rearing with treated serial water reuse and semi-recirculating heated water management technology to maximize production with limited water supply source volume.





## Shepherd of the Hills Fish Hatchery Improvement Project

*Branson, Missouri*

### Client:

Missouri Department  
of Conservation

### Contact:

Mr. Bill Lueckenhoff  
Missouri Department  
of Conservation  
P.O. Box 180  
Jefferson City, MO  
65201

Cost: \$4.5 million

Completed: 2007

### Type of fish

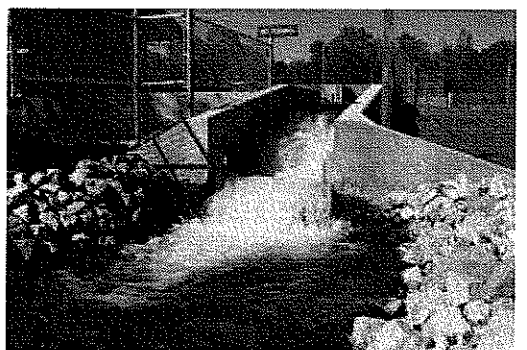
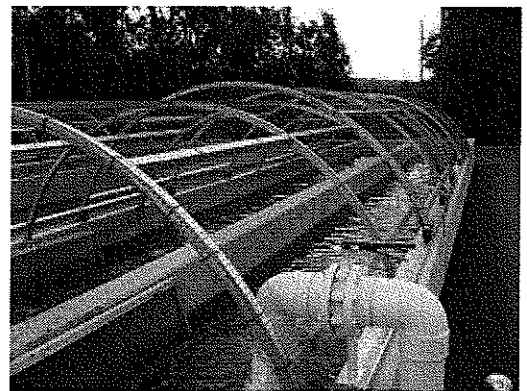
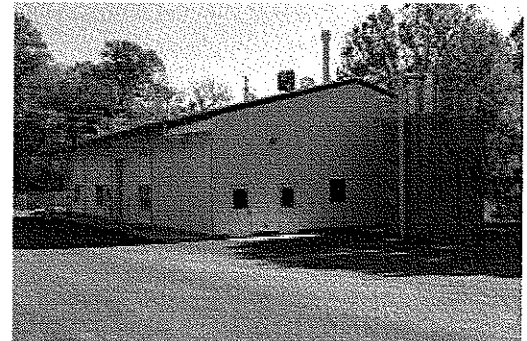
produced: Rainbow  
trout, Brown trout

**HDR | FishPro** provided engineering design for \$4.5 million facility expansion to raise a wild strain of brown trout and make needed improvements to the existing rainbow trout facility. The project included the addition of a new rearing facility, production water well, concrete head tank, production raceways broodstock holding raceways, and a combination natural fish way /pool and weir fish ladder, (including a natural area for visitor

interpretation). Also included in the project were intermediate and final rearing units, new facility valving across the existing facility and an improved oxygen and aeration system for the rearing units utilizing low head oxygenators. Electrical design for the facility included lighting, power distribution, automated VFD control of new well, and aquaculture process monitoring and alarm system.

The Shepherd of the Hills project was a the second phase of a larger project that included a facility evaluation of five coldwater fish hatcheries operated by the state. The analysis involved a physical evaluation of improvements and a prioritized cost analysis of the recommendations. The recommended improvements would allow the state to achieve its goal of 10% percent increase in production capability that could be used for expanding the trout program. In addition, the improvements would allow for 10% percent emergency buffer within the system production. For all five

facilities, **HDR | FishPro** was asked to investigate the use of oxygen injection, the most efficient use of existing raceways, the most efficient use of existing water supplies, as well as other possible ways to increase production.



## Current Workload

**HDR|FishPro** has the capacity for additional projects while having the following fisheries-related projects currently under contract:

**Wild Rose State Fish Hatchery, Wild Rose, Wisconsin**

**Phase 2 of Total Modernization and Expansion**

Status: Construction begins spring 2008; scheduled construction completion December 2009

Phase 2 includes a total modernization and expansion of the coolwater / warmwater production (east) side of the facility. On the east side of the facility construction will include a modern lined pond complex and a 30,000 SF intensive recirculation (RAS-based) indoor rearing building for five strains of Lake Sturgeon, Spotted Muskellunge, White Sucker (forage), Northern Pike and Walleye. Project includes 14 modern lined production ponds and effluent treatment system. Cost is \$15.6 million.

**Oklahoma Statewide Study, Oklahoma**

**Evaluation of fish production and infrastructure**

Status: Study to be completed April 2008

Evaluation of fish production and infrastructure at four existing ODWC fish hatcheries - Byron SFH, J.A. Manning, SFH, Durrant SFH, and Holdenville SFH. A final report and executive summary report will provide documentation of existing facility conditions, recommend improvements, CAD drawings, narrative, figures, tables and cost estimates with implementation time frames and schedules.

**Durant State Fish Hatchery, Oklahoma**

**Share-A-Lunker Project**

Status: Study to be completed April 2008

Provide conceptual site plan, floor plan and list support equipment and process necessary to conduct a Share-A-Lunker program at Durant State Fish Hatchery. Facility would be sized to hold up to 20 trophy-sized fish for research, display to the public, and breeding.

**Auburn University Aquatic Research Facility, Alabama**

**Programming and Site Development Plan**

Status: Programming to be completed February 2008

**HDR|FishPro** is preparing the programming and site development plan for a new Aquatic Resources Center to be located on the North Auburn Upper Fisheries Research Station campus. The proposed facility is to include offices, meeting rooms, visitor area, and displays, analytical and biological laboratories, wastewater treatment system, water supply systems and related facility support functions. Project includes design and construction phases. Design to start in April 2008.

**Reynoldsdale Fish Culture Station, Pennsylvania****Design and Construction Phase Services**

Status: Design Phase to start in February 2008

HDR | FishPro was recently selected to provide design and construction phase services for this existing coldwater, spring-fed facility. Project will increase production from 750,000 pounds to 1.0 million pounds annually by replacing existing earthen raceways with a large-diameter circular tank system with 75% water recirculation capabilities. Estimated construction cost is \$6.0 million.

**Big Creek State Fish Hatchery, Iowa****Preliminary Design, Environmental Assessment and Site Suitability.**

Status: Report to be completed by March 2008

A site was selected for a new, modern fish production facility near Des Moines, Iowa. The site required evaluation to determine if it would be adequate to serve the needs for the facility while also minimizing all environmental impacts. In addition to fish rearing infrastructure features, the facility conceptual design includes recirculation of the water supply, educational opportunities, LEED building elements and biosecurity controls.

**London, Kincaid and Castalia Hatcheries, Ohio****Fish Hatchery Renovations - Statewide - Design Phase**

Status: Design to be completed May 2008; Construction to begin Fall 2008

HDR | FishPro was recently selected to provide design at three facilities:

- Castalia (coldwater) – Water supply improvements; cover/predator control over existing raceways; new hatchery building. \$5.0 million
- London (warmwater) – Replace and improve existing electrical system through the pond complex and hatchery building. \$1 million
- Kincaid (warmwater) – Replace existing building over raceway complex, improve water supply and drainage. \$2 million

**East Texas State Fish Hatchery, Jasper, Texas****New Warmwater Fish Hatchery**

Status: Construction to begin Spring 2008; Scheduled construction completion December 2009

HDR | FishPro is providing design services for the new fish hatchery that will include approximately 64, one-acre and six ½-acre fish rearing ponds, a waste retention basin, a water supply storage reservoir, a hatchery production building more than 30,000 square feet in size with administration facilities and associated structures related to the hatchery operation.

**Coursey Springs Fish Culture Station, Bath County, Virginia****Design and Construction Phase Services**

Status: Construction begins Spring 2008; scheduled completion September 2009

**HDR | FishPro** is completing design for this \$9.0 million renovation project which will replace existing concrete and earthen raceways with a covered large-diameter circular tank system; spring water supply improvements; solids collection and wastewater treatment system; new support facilities including a new residence, an addition of an existing residence, and a new trailer as well as a storage building and oxygen supplementation system.

**Stock Enhancement Research Facility, Port Manatee, Florida****Facility Relocation**

Status: Preliminary Analysis and Site Selection to be completed December 2008

**HDR | FishPro** is providing full engineering planning for design for relocation of the existing SERF to a new site and the future design and construction of a new SERF facility that will provide state-of-the-art mariculture research and be capable of fully meeting research requirements for red drum, common snook, big scallops, queen conch, or other marine finfish or mollusks that are important to FWC marine resource programs. The new SERF will have an increase emphasis on intensive culture systems that will provide flexible and efficient temperature controlled recirculating systems with effective disease and parasite control systems.

## Client References

With more than 500 successfully completed fisheries and aquatic species facilities completed over the past 30 years, **HDR | FishPro** has quite a lengthy list of clients. We offer the following select clients as references and encourage WV DNR to contact them regarding their satisfaction with our services.

**Client:** Florida Fish & Wildlife Commission

**Contact:** Mr. Rick Stout, Hatchery Manager (352) 583-3545  
Dr. Mahmoud Madkour, P.E. (850) 488-0331

**Project:** Richloam State Fish Hatchery / Florida Bass Conservation Center  
Sumter County, Florida

**Client:** Wisconsin Department of Natural Resources

**Contact:** Mr. Al Kaas, Hatchery Manager (608) 267-7865

**Project:** Wild Rose State Fish Hatchery  
Wild Rose, Wisconsin

**Client:** Texas Department of Fish & Wildlife

**Contact:** Mr. Todd Engling, Chief of Inland Fisheries (512) 389-4826

**Project:** A.E. Wood State Fish Hatchery / Robert Kemp Fisheries Center  
San Marcos, Texas

**Project:** East Texas State Fish Hatchery  
Jasper County, Texas

**Client:** Virginia Department of Game and Inland Fisheries

**Contact:** Mr. Ron Southwick, (804) 367-1292

**Project:** Vic Thomas Striped Bass State Fish Hatchery  
Brookneal, Virginia

**Client:** Pennsylvania Fish & Boat Commission

**Contact:** Mr. Tom Cochran (814) 359-5230

Mr. Larry Hines (814) 755-3524  
**Project:** Pennsylvania Fish Culture Facilities Comprehensive Study  
Statewide, Pennsylvania

**Client:** Tennessee Wildlife Resources Agency

**Contact:** Mr. Bobby Wilson, (615) 781-6578

**Project:** Coldwater Fish Hatchery Study  
Statewide, Tennessee

**Client:** Oklahoma Department of Wildlife Conservation

**Contact:** Mr. Steve Spade, (580) 474-2663

**Project:** Fish Hatchery Production Capabilities Assessment  
and Facilities Upgrade Master Plan  
Statewide, Oklahoma

## Corporate Officers and Principals

The names, addresses, telephone numbers and credentials of the firm's corporate officers and principals specifically related to this project are:

**Mark Sikora, P.E.**

Vice President  
333 Penco Road, Third Floor  
Weirton, WV 26062-3828  
304.748.8740

**Gary A. Wilken, P.E.**

Vice President  
5201 South Sixth Street Road  
Springfield, IL 62703-5143  
217.585.8333

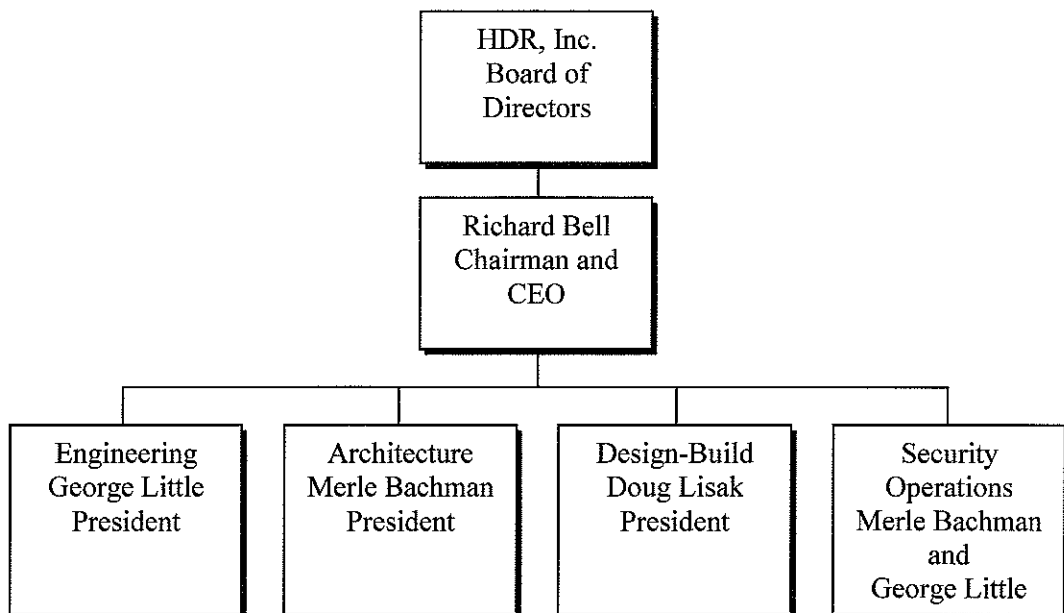
**Lincoln D. Cochran, P.E., LEED A.P.**

Vice President  
5201 South Sixth Street Road  
Springfield, IL 62703-5143  
217.585.8333

**Thomas L. Johnson.**

Vice President  
5201 South Sixth Street Road  
Springfield, IL 62703-5143  
217.585.8333

HDR, Inc. is the parent company of HDR dba **HDR | FishPro**, an employee-owned architectural, engineering and consulting firm. The following organizational chart demonstrates HDR, Inc.'s management structure.



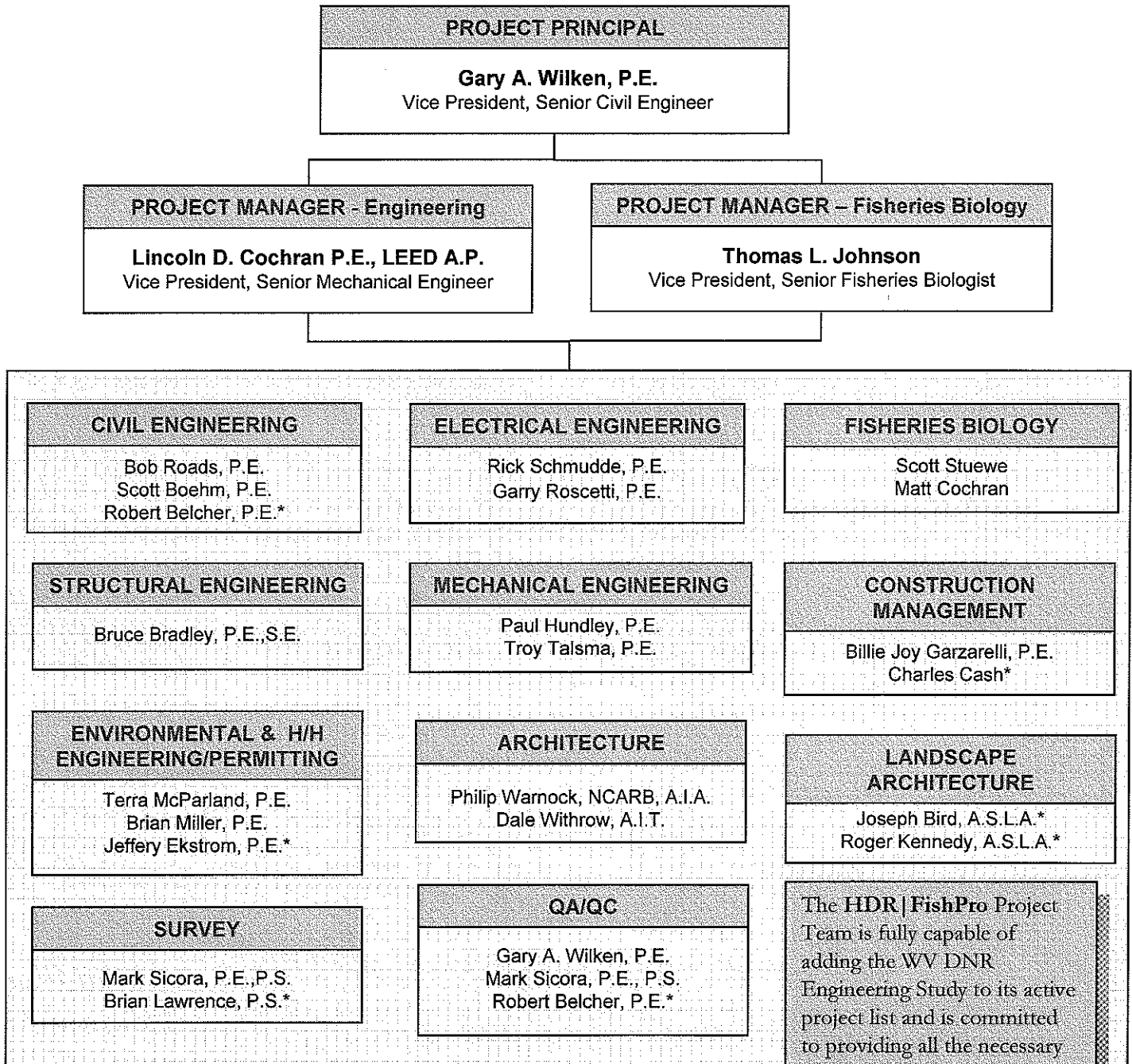
The **HDR | FishPro** project team assembled has a wide variety of fish hatchery experience and understanding. Our team members have been involved not only in study, design and construction management of hatcheries but also in the operation of hatcheries. Our Study Team includes two former state fish hatchery managers. Both of these individuals have also been in Fisheries Division Administration as well. This experience will provide WV DNR with a well balanced team capable of addressing all areas of facility improvement, as well as operation issues and production increases.

The following pages outline the assembled team. Provided for review by the selection committee is the proposed organization chart followed by resumes for each team member. The core staff assigned to this project, which includes a project manager, fisheries biologist, civil/environmental engineer, mechanical engineer, electrical engineer and CAD technician will spend approximately 75% of their time devoted to advising WV DNR during the study phase to provide the desired documentation in a timely manner. Additional support staff will provide review and assistance as needed. This time will include support to maintain project deadlines and also QA/QC. In addition, our proposed subconsultant (see Section J) will also provide support to the core project team.

At the conclusion of this section is a discussion of **HDR | FishPro's** management controls:

- Quality Control and Quality Assurance
- Budget Control
- Schedule Control

**A/E Team for  
WV Engineering Study of  
DNR Fish Hatcheries**



\* Chapman Technical Group

The HDR | FishPro Project Team is fully capable of adding the WV DNR Engineering Study to its active project list and is committed to providing all the necessary staff and resources to ensure the successful completion of this project in a timely and cost efficient manner.

**Gary A. Wilken, P.E.**

*Project Principal / Civil Engineer*

**Office Location**  
Springfield, Illinois

**Education**  
Bachelor of Science  
(Highest Honors), Civil  
Engineering, University of  
Illinois - Urbana  
Champaign, 1971

**Professional Registrations**  
Licensed Professional  
Engineer:  
West Virginia #16064  
Illinois #620-34262

Also in AR, CT, GA, IA,  
IN, LA, MD, ME, MI, MN,  
MO, MS, NC, ND, NE,  
NH, NJ, OH, OK, PA,  
VA, WI

**Professional Affiliations**  
American Society of Civil  
Engineers (ASCE), Member  
Association of Conservation  
Engineers, Editor National  
Association Newsletter  
Association of Conservation  
Engineers, Member  
National Society of  
Professional Engineers  
(NSPE), Member  
North American Lake  
Management Society,  
Member  
Association of Conservation  
Engineers, President, 1991-  
1992

**HDR Tenure**  
23 Years

**Industry Tenure**  
36 Years

## Professional Experience

**Mr. Wilken's** duties include vice president, project manager, and lead civil engineer on most multi-disciplined projects. He is well versed in planning and design projects and has the ability to maintain coordination and scheduling of the various staff professionals involved in complex design projects. Mr. Wilken is an experienced aquaculture warm/cool/coldwater designer familiar with harvest kettles, water control structures, and membrane liners, pond hydraulics, water and wastewater treatment, raceways and reuse systems. He has also been the lead civil engineer for numerous fisheries projects across the United States; many include major building construction, lake withdrawal water systems, and infrastructure restoration, as well as providing public access and educational outreach opportunities. His major project involvement is in site grading, primary and secondary roads, lake restoration and hydraulic dredging, and site development for buildings as well as overall civil engineering coordination.

## HDR | FishPro Project Experience

- USFWS National Fisheries Research Center Oxygen & Degassing System, West Virginia
- Maine State Fish Hatchery Planning and Engineering Study
- Tennessee Warm Water Fish Hatchery Evaluation
- Arkansas Statewide Hatchery System Evaluation
- New Hampshire Hatchery Evaluation - statewide
- Virginia Department of Game and Inland Fisheries Statewide Fish Hatchery Study
- Coursey Springs Fish Culture Station Renovations Project, Virginia
- Buller Fish Cultural Station Master Site Plan and Preliminary Engineering Evaluation and Report, Virginia
- Iowa Statewide Cool / Warm Water Fish Hatchery Evaluation
- Big Creek State Fish Hatchery Preliminary Design, Environmental Assessment and Site Suitability, Iowa
- Evaluation of State Fish Hatcheries at Hackettstown, New Jersey
- Pennsylvania Fish Culture Facilities Comprehensive Study
- Jasper SFH and Possum Kingdom SFH Studies, Texas
- East Texas State Fish Hatchery, Jasper, Texas
- Oklahoma Department of Wildlife Conservation Fish Hatchery Production Capabilities Assessment and Facilities Upgrade Master Plan
- North Carolina Statewide Fish Hatchery Engineering and Planning Study
- South Dakota Statewide Hatchery Feasibility Study
- Blue Dog Fish Hatchery Infrastructure Evaluation, Waubay, South Dakota
- King and Queen State Fish Hatchery Master Plan Report, Virginia
- Jake Wolf Memorial Fish Hatchery Enhancement and Expansion Study, Illinois
- Quinebaug Fish Hatchery Renovation and Expansion Technical Study, Connecticut
- Toledo Bend Reservoir Fish Hatchery Feasibility Study, Texas
- Richloam State Fish Hatchery / Florida Bass Conservation Center, Florida
- Wild Rose State Fish Hatchery, Wisconsin
- Shepherd of the Hills, Roaring River, and Montauk State Fish Hatcheries, Missouri

**Thomas L. Johnson**

*Project Manager / Senior Fisheries Biologist*

#### Office Location

Springfield, Illinois

#### Education

Master of Science, Zoology,  
Southern Illinois University,  
1972

Bachelor of Arts, Biology,  
Culver-Stockton College,  
1970

#### Professional Affiliations

American Fisheries Society,  
Bioengineering Section,  
Member

American Fisheries Society,  
Computer Users Section,  
Member

American Fisheries Society,  
Fish Culture Section,  
Member

American Fisheries Society,  
Fish Health Section,  
Member

American Fisheries Society,  
Illinois, Member

American Fisheries Society,  
National, Member

Aquacultural Engineering  
Society (AES), Member

Association of Conservation  
Engineers, Member

World Aquaculture Society,  
Member

#### HDR Tenure

23 Years

#### Industry Tenure

37 Years

#### Professional Experience

**Mr. Johnson** provides biological services for fisheries management, aeration / destratification, aquatic vegetation and algae control for lake, stream, and river enhancements and wetlands mitigation projects. He has provided biological expertise for more than 150 fisheries projects ranging from small studies to the design and construction of multi-million dollar production facilities. In addition, he has developed in-house computer programs for fish growth, oxygen injection, aeration/degassing, fish feeding and hatchery water utilization/requirements. He has also provided biological expertise for numerous natural resource projects. Mr. Johnson serves as Vice President of Aquaculture / Fish Facilities design services and heads the National Fish Facilities Practice Group within HDR.

#### HDR | FishPro Project Experience

- Spring Run State Fish Hatchery Improvements Project, West Virginia
- Apple Grove (Mason County) Hatchery Building Conceptual Planning, West Virginia
- USFWS National Fisheries Research Center Oxygen & Degassing System, West Virginia
- Leetown Science Center National Fish Health Research Laboratory Bio-Safety Level 3 Wet Laboratory, Kearneysville, West Virginia
- Maine State Fish Hatchery Planning and Engineering Study
- Tennessee Warm Water Fish Hatchery Evaluation
- Arkansas Statewide Hatchery System Evaluation
- Hulsey and Spring River State Fish Hatcheries Improvements, Arkansas
- King and Queen State Fish Hatchery Master Plan Report, Virginia
- Virginia Department of Game and Inland Fisheries Statewide Fish Hatchery Study
- Iowa Statewide Cool / Warm Water Fish Hatchery Evaluation
- Rathbun State Fish Hatchery Research Facility & Rearing Pond Design Study, Iowa
- Decorah State Fish Hatchery Renovations, Iowa
- Evaluation of State Fish Hatcheries at Hackettstown, New Jersey
- Pennsylvania Fish Culture Facilities Comprehensive Study
- Big Spring State Fish Hatchery Effluent Water / Waste Treatment System Study, PA
- Oden, Platte River and Thompson State Fish Hatcheries Improvements, Michigan
- Quinebaug Valley State Fish Hatchery Enhancement Project, Connecticut
- Jasper and Possum Kingdom State Fish Hatcheries Studies, Texas
- North Carolina Statewide Fish Hatchery Engineering and Planning Study
- South Dakota Statewide Hatchery Feasibility Study
- Jake Wolf Memorial Fish Hatchery Enhancement and Expansion Study, Illinois
- Quinebaug Fish Hatchery Renovation and Expansion Technical Study, Connecticut
- Florida Bass Conservation Center Conceptual Plan, Florida
- A.E. Wood State Fish Hatchery/Robert Kemp Fisheries Center, San Marcos, Texas
- East Texas State Fish Hatchery, Texas
- New Hampshire Hatchery Evaluation - statewide
- Wild Rose State Fish Hatchery, Wisconsin
- Shepherd of the Hills, Roaring River, and Montauk State Fish Hatcheries, Missouri

**Lincoln D. Cochran, P.E., LEED, AP**  
*Project Manager / Senior Mechanical Engineer*

**Office Location**  
 Springfield, Illinois

**Education**  
 Master of Science,  
 Engineering Technology,  
 Southern Illinois University,  
 1979

Bachelor of Science,  
 Mechanical Engineering,  
 University of Missouri  
 Rolla, 1968

**Professional Registrations**  
 Licensed Professional  
 Engineer, Illinois, No. 620-  
 31349, 1973

LEED Accredited  
 Professional 2006

Successfully completed  
 CDB Project Manager  
 Training for Architects /  
 Engineers - 2001

**Professional Affiliations**  
 National Society of Professional  
 Engineers

IL Society of Professional Engineers  
 -Capitol Chapter Engineer of the  
 Year 2006; -State Young Engineer  
 of the Year Award 1981

Consulting Engineers Council of  
 Illinois

Association of Conservation  
 Engineers -President's Award for  
 Outstanding Service 1978

American Society of Heating,  
 Refrigeration & Air Conditioning  
 Engineers - Board of Directors 1994  
 -1999; Chapter President 1999 -  
 2000

American Fisheries Society  
 Bioengineering Section --  
 Newsletter Editor 1987

American Society of Plumbing  
 Engineers

American Society of Hospital  
 Engineers

Illinois State Plumbing Code  
 Advisory Council 1996 - Present

City of Springfield Building  
 Department Mechanical  
 Commission 1981 to Present

**HDR Tenure**  
 23 Years

**Industry Tenure**  
 38 Years

## Professional Experience

**Mr. Cochran** serves as principal-in-charge for building-related projects for state, federal, industrial and commercial projects in the areas of electrical and mechanical engineering. He typically coordinates the overall mechanical/electrical design effort for all projects. He is very familiar with most mechanical and plumbing codes and the special requirements of various state and federal agencies. His expertise in mechanical and plumbing design includes work from complex industrial projects to municipal / state institutions and commercial buildings.

Mr. Cochran has familiarity with the mechanical/electrical systems normally found in fisheries facilities, such as laboratories, classroom facilities, residences, small offices, maintenance facilities, and visitor centers,. He has been directly involved in many of the company's fish hatchery projects. He has applied experience with process water heating and chilling systems, ultraviolet sterilization equipment, low-pressure air, oxygen equipment and screening/filtration systems for fish hatchery water supply treatment.

## HDR | FishPro Project Experience

- USGS Leetown Science Center - Biosafety Laboratory Level III – Wet Lab Design National Fish Health Research Laboratory, West Virginia
- USGS Tunison Laboratory of Aquatic Science – Atlantic Salmon Project, NY
- Maine State Fish Hatchery Planning and Engineering Study
- Tennessee Warm Water Fish Hatchery Evaluation
- Arkansas Statewide Hatchery System Evaluation
- New Hampshire Hatchery Evaluation - statewide
- Virginia Department of Game and Inland Fisheries Statewide Fish Hatchery Study
- Iowa Statewide Cool / Warm Water Fish Hatchery Evaluation
- Evaluation of State Fish Hatcheries at Hackettstown, New Jersey
- Pennsylvania Fish Culture Facilities Comprehensive Study
- Jasper SFH and Possum Kingdom SFH Studies, Texas
- North Carolina Statewide Fish Hatchery Engineering and Planning Study
- South Dakota Statewide Hatchery Feasibility Study
- King and Queen State Fish Hatchery Master Plan Report, Virginia
- Jake Wolf Memorial Fish Hatchery Enhancement and Expansion Study, Illinois
- Quinebaug Fish Hatchery Renovation and Expansion Technical Study, Connecticut
- University of Georgia Aquatic Biotechnology and Environmental Laboratory (ABEL), Athens, Georgia
- Auburn University Center for Aquatic Resources, Auburn, Alabama
- Stock Enhancement Research Facility, Port Manatee, Florida
- Florida Bass Conservation Center
- US Dept. of Interior - USGS, Atlantic Salmon Rearing Facility at the Tunison Laboratory of Aquatic Sciences
- Dissolved Oxygen Management Improvements at Embden State Fish Hatchery, Maine

**Scott F. Stuewe**

*Senior Fisheries Biologist*

**Office Location**  
Springfield, Illinois

**Education**  
Bachelor of Science, Fishery  
Sciences, Kansas State  
University, 1977

**Professional  
Certifications**  
American Fisheries Society,  
Certified Fisheries Scientist

**Professional Affiliations**  
American Fisheries Society,  
Bioengineering Section,  
Member

American Fisheries Society,  
Fish Culture Section,  
Member

American Fisheries Society,  
Fisheries Administration  
Section, Member

American Fisheries Society,  
Illinois, Member

American Fisheries Society,  
Kansas, Past-President

American Fisheries Society,  
National, Member

**HDR Tenure**  
Less than a year

**Industry Tenure**  
30 Years

## Professional Experience

Mr. Stuewe very recently joined HDR as a senior fisheries biologist bringing 28 years of experience in fisheries and aquatic management to the firm. He previously had been serving as IL DNR Acting Chief for the Division of Fisheries where his duties included overseeing all fishery and aquatic resource management for the State of Illinois including Lake Michigan, Federal reservoirs, state, public and private impoundments, rivers and streams, and the State Hatchery System. These duties also include managing a \$10.5 million budget comprised of license, general revenue and federal dollars to oversee the management of 92 Division personnel and three state fish hatchery facilities. Some programs include the Commercial Fishing and Urban Fishing programs, with coordination to constituency and legislative services, private pond stocking, aquatic nuisance species monitoring and control, personnel management including grievance hearing and resolution, union contract negotiation and disciplinary action responsibilities. Policy and Rule Making are integral duties of the position in addition to the personnel management and budget responsibilities.

## HDR | FishPro Project Experience

- Auburn University Aquaculture Research Laboratory, Auburn, Alabama.
- California Fish Producers Aquaculture Facility.
- Dissolved Oxygen Study – Salt Creek and DuPage River, Illinois.
- Big Creek Fish Hatchery Preliminary Design, Environmental Assessment and Site Suitability, Iowa t.
- Oklahoma Hatchery Production Capabilities Assessment and Facilities Upgrade Master Plan.
- Coursey Springs State Fish Hatchery Renovations, Virginia.
- Wild Rose State Fish Hatchery, Wisconsin.
- Shepherd of the Hills Fish Hatchery Facility Expansion, Branson, Missouri.
- East Texas State Fish Hatchery, Jasper County, Texas.
- USACE - Omaha District, Cumulative Environmental Impact Statement for Section 33, Bank Stabilization Program, Omaha, Nebraska.

## Non-HDR Project Experience

**IL DNR Fisheries Chief Coordination of Management Plans with the USFWS and ACOE.**

**Jake Wolf Fish Hatchery, Illinois** - Hatchery Manager instrumental in developing rearing techniques and equipment needs for the intensive and extensive culture of cold, cool and warmwater species. Identified needs and requirements for construction of an additional 10 acres of ponds that resulted in a 100% increase in pond production of cool and warmwater species.

**Milford Fish Hatchery, Kansas** - First manager for the facility and as a result was instrumental in start up, fish culture equipment development, staffing needs and initial fish rearing techniques for intensive and extensive aquaculture techniques.

**Matthew D. Cochran**  
Senior Fisheries Biologist

**Office Location:**  
Springfield, Illinois

**Education**  
Master of Science, Ecology,  
University of Illinois  
Springfield, 2007

Bachelor of Science,  
Environmental  
Sciences/Studies, Eastern  
Illinois University, 1995

**Professional Registrations**  
Certified Lake Manager  
(NALMS)

**HDR Tenure**  
12 Years

**Industry Tenure**  
12 Years

## Professional Experience

**Mr. Cochran's** provides biological and ecological services for fisheries and environmental restoration projects throughout the United States. His responsibilities include aquaculture water and wastewater design and analysis, fish passage, water quality testing and lake restoration studies. In addition, he has experience with hydrographic surveys and sedimentation studies; exotic species; wetland delineations; surface water, aquatic vegetation and habitat assessments, algae and zooplankton identification, water quality analysis and environmental assessments on lake restoration projects. Mr. Cochran also provides biological and ecological computer modeling for aquatic and environmental design analysis and is knowledgeable of GIS and statistics. In addition to course work and project experience, Mr. Cochran has also completed short-courses related to specific topics including wetland delineation and fish passage. He has been involved in the design of water supply systems, recirculation systems and fish holding tanks for several aquaculture projects. Mr. Cochran was project coordinator and principal writer for numerous facility studies, many of which included wetland, fisheries, infrastructure, water quality and environmental assessments.

## HDR | FishPro Project Experience

- USGS Leetown Science Center Biosafety Laboratory Level III – Wet Lab Design National Fish Health Research Laboratory, West Virginia
- USGS Tunison Laboratory of Aquatic Science – Atlantic Salmon Project, NY
- USFWS - Neosho National Fish Hatchery Study, MO
- Upper Mississippi River Asian Carp Barrier Feasibility Study
- Florida Bass Conservation Center Conceptual Plan, Florida
- Missouri Coldwater Hatchery System Study
- Wild Rose Fish Hatchery Feasibility Study, Wisconsin
- Toledo Bend Reservoir Fish Hatchery Feasibility Study, Texas
- Maine State Fish Hatchery Comprehensive Planning Study
- Maine State Fish Hatchery Effluent Study
- Pennsylvania Fish Culture Facilities Comprehensive Study
- Big Spring Recirculation Study, Pennsylvania
- Connecticut Effluent Study
- Jasper and Possum Kingdom State Fish Hatcheries Studies, Texas
- Virginia Statewide Fish Hatchery Study
- Alternative Analysis and Preliminary Design for Multi-Purpose Dam Project at the Yorkville Dam in Yorkville, Illinois
- Shepherd of the Hills Fish Hatchery Facility Expansion, Branson, MO
- Feasibility Study to Limit the Invasion of Asian Carp into the Upper Mississippi River Basin
- Feasibility Study to Limit the Spread of Zebra Mussels from Ossawinnamakee Lake, Minnesota
- Saginaw Bay Watershed Barrier Assessment Frankenmuth, Michigan
- City of Bloomington Asian Carp Study, Illinois

**Paul L. Hundley, Jr., P.E.**  
*Senior Mechanical Engineer*

**Office Location**  
 Springfield, Illinois

**Education**  
 Master of Science,  
 Mechanical Engineering,  
 University of South  
 Carolina, 1986

Bachelor of Science, Ocean  
 Engineering, Florida  
 Atlantic University, 1975

**Professional Registrations**  
 Mechanical Engineer, FL,  
 MD, SC & VA

**Professional Affiliations**  
 American Fisheries Society,  
 Bioengineering Section,  
 Member

American Fisheries Society,  
 Fish Culture Section,  
 Member

American Society of  
 Agricultural & Biological  
 Engineers, Member

American Society of  
 Agricultural & Biological  
 Engineers, U.S. Technical  
 Advisory Group - ISO TC  
 234 Aquaculture & Fisheries

American Society of  
 Heating, Refrigeration &  
 Air-Conditioning Engineers,  
 Member

Aquacultural Engineering  
 Society, Member, Board of  
 Directors

World Aquaculture Society,  
 Member

**HDR Tenure**  
 1 Year

**Industry Tenure**  
 20 Years

## Professional Experience

**Mr. Hundley** provides engineering services for fisheries and aquaculture projects. He has provided engineering expertise for more than 50 fisheries and aquaculture projects ranging from small studies to the design and construction of multi-million dollar research and production facilities. In addition, he has developed and implemented Facility Condition Assessment spreadsheets based on U.S. Fish & Wildlife Service operation and maintenance guidelines. Mr. Hundley has 20 years experience in the design, startup, operation, maintenance and retrofit of fisheries and aquacultural systems and facilities for education, research, large aquariums, hatchery and seafood production, and seafood holding and distribution. This experience includes numerous cool and coldwater finfish projects in the north-central and northeastern U.S. His professional practice has focused on the cost effective application of key aquaculture technologies in governmental, commercial, industrial and institutional facilities. Water quality and water treatment, tank design, solids removal and management, nitrification and de-nitrification, aeration and oxygenation, UV and ozone disinfection, foam fractionation, heating and cooling, and instrumentation and controls are his primary areas of expertise. Mr. Hundley's project experience includes both freshwater and marine aquaculture of amphibians, crustaceans, finfish and shellfish. Since 1988 he has been involved in many of the larger aquaculture projects in North America as Project Manager and Project Engineer. Prior to and concurrent with his career in aquaculture, Mr. Hundley has provided marine-mechanical, maintenance and mechanical engineering and commissioning services to numerous governmental, commercial, industrial and institutional clients. He serves as Project Manager and Project Engineer for Aquaculture / Fish Facilities design services provided by the HDR National Fish Facilities Practice Group.

## HDR | FishPro Project Experience

- USDA National Center for Cool and Coldwater Aquaculture, Leetown Brood Fish Facility, Kearneysville, WV – Comprehensive Fisheries and Aquacultural Engineering study, assessment and design services.
- USDA National Center for Cool and Coldwater Aquaculture, Kearneysville, WV – Fisheries and Aquacultural Engineering for startup and up-fit of newly constructed comprehensive research aquaculture facility.
- USGS Leetown Science Center National Fish Health Research Laboratory, Kearneysville, WV – Water Quality Testing and Analysis for new potable water well for the USGS/USDA campus.
- West Virginia Aqua LLC, Rockhouse Springs Arctic Char Growout Facility, Man, WV – Aquacultural Systems Engineering support for process design review and study of temperature control issues.
- Mingo County Redevelopment Authority Arctic Char Fish Hatchery, Mingo County, WV – Aquatic Systems Engineering support for hatchery facility construction.
- Wild Rose State Fish Hatchery, Wisconsin
- East Texas State Fish Hatchery, Texas
- Auburn University Center for Aquatic Resources, Auburn, Alabama
- Stock Enhancement Research Facility, Port Manatee, Florida

Troy A. Talsma

*Mechanical Engineer***Office Location**

Springfield, Illinois

**Education**

Bachelor of Science,  
Mechanical Engineering,  
South Dakota School of  
Mines, 1990

**Professional Registrations**

Professional Engineer –  
Mechanical, Wisconsin,  
No. 31253

**Professional Affiliations**

Association of Conservation  
Engineers

**HDR Tenure**

16 Years

**Industry Tenure**

16 Years

**Professional Experience**

**Mr. Talsma's** expertise includes design of open and closed supply, reuse and wastewater systems containing pumps, screens, filters and disinfection. He sizes and selects central air handlers, chillers, boilers, blowers, compressors, oxygen generators and fuel storage tanks and provides estimates of operational and construction costs. He has planned numerous water, air, oxygen and fuel distribution systems. His design experience includes the selection of pumps for main water supply, domestic water systems, screening systems, and truck fill, as well as detailed pressure filtration, ultraviolet sterilization equipment and distribution lines for water and low pressure air. He also has experience with chemical storage; spill containment, alarms, spill removal, personnel safety equipment and special ventilation

**HDR | FishPro Project Experience**

- USGS Leetown Science Center Biosafety Laboratory Level III – Wet Lab Design National Fish Health Research Laboratory, West Virginia
- USGS Tunison Laboratory of Aquatic Science – Atlantic Salmon Project, NY
- Maine State Fish Hatchery Planning and Engineering Study
- Tennessee Warm Water Fish Hatchery Evaluation
- Arkansas Statewide Hatchery System Evaluation
- New Hampshire Hatchery Evaluation - Statewide
- Virginia Department of Game and Inland Fisheries Statewide Fish Hatchery Study
- Iowa Statewide Cool / Warm Water Fish Hatchery Evaluation
- Pennsylvania Fish Culture Facilities Comprehensive Study
- Jasper SFH and Possum Kingdom SFH Studies, Texas
- North Carolina Statewide Fish Hatchery Engineering and Planning Study
- South Dakota Statewide Hatchery Feasibility Study
- King and Queen State Fish Hatchery Master Plan Report, Virginia
- Jake Wolf Memorial Fish Hatchery Enhancement and Expansion Study, Illinois
- Quinebaug Fish Hatchery Renovation and Expansion Technical Study, Connecticut
- Toledo Bend Reservoir Fish Hatchery Feasibility Study, Texas
- Northeast Mississippi Fish Hatchery Site Reconnaissance Study
- A.E. Wood State Fish Hatchery/Robert Kemp Fisheries Center, San Marcos, Texas
- Oden State Fish Hatchery, Michigan
- Cleghorn Springs State Fish Hatchery, South Dakota
- Platte River State Fish Hatchery, Michigan
- Hackettstown State Fish Hatchery Intensive Fish Rearing Building, New Jersey.
- Florida Bass Conservation Center, Florida
- Rathbun State Fish Hatchery, Appenoose, Iowa
- Thompson State Fish Hatchery, Manistique, Michigan
- Andrew H. Hulsey State Fish Hatchery, Hot Springs, Arkansas
- North Mississippi Fish Hatchery, Enid Lake, Mississippi
- Blue Dog State Fish Hatchery Pond Aeration, South Dakota

Richard W. Schmutde, P.E.

Senior Electrical Engineer

**Office Location**  
Springfield, Illinois

**Education**  
Bachelor of Science,  
Electrical Engineering,  
University of IL Urbana  
Champaign, 1976

**Professional Registrations**  
Professional Engineer -  
No. 16269, 2003

South Dakota, No. 8095,  
2003

Indiana,  
No. PE10101308, 2001

Colorado,  
No. 33699, 1999

Illinois,  
No. 062-038834, 1990

**Professional Affiliations**  
Association of Conservation  
Engineers, Member

**HDR Tenure**  
20 Years

**Industry Tenure**  
32 Years

## Professional Experience

As lead electrical engineer, **Mr. Schmutde** has worked extensively with building lighting, emergency lighting, visual alarms, standby power, security systems and energy management. He has extensive experience with all types of electrical power system upgrades and replacement, building and task lighting, and communication (phone, computer, other) systems. His projects include designing power centers, switchgear, electrical distribution systems, monitoring, motor controls and emergency generators. He has also completed many electrical surveys for which he accurately located all major electrical distribution components including transformers, switchgears, power pedestals, electrical vaults and manholes, primary and secondary power lines, etc.

## HDR | FishPro Project Experience

- Maine State Fish Hatchery Planning and Engineering Study
- Tennessee Warm Water Fish Hatchery Evaluation
- Arkansas Statewide Hatchery System Evaluation
- New Hampshire Hatchery Evaluation - statewide
- Virginia Department of Game and Inland Fisheries Statewide Fish Hatchery Study
- Iowa Statewide Cool / Warm Water Fish Hatchery Evaluation
- Evaluation of State Fish Hatcheries at Hackettstown, New Jersey
- Pennsylvania Fish Culture Facilities Comprehensive Study
- Jasper SFH and Possum Kingdom SFH Studies, Texas
- North Carolina Statewide Fish Hatchery Engineering and Planning Study
- South Dakota Statewide Hatchery Feasibility Study
- King and Queen State Fish Hatchery Master Plan Report, Virginia
- Jake Wolf Memorial Fish Hatchery Enhancement and Expansion Study, Illinois
- Quinebaug Fish Hatchery Renovation and Expansion Technical Study, Connecticut
- Florida Bass Conservation Center Conceptual Plan, Florida
- Toledo Bend Reservoir Fish Hatchery Feasibility Study, Texas
- Northeast Mississippi Fish Hatchery Site Reconnaissance Study
- Wild Rose State Fish Hatchery, Wisconsin
- Purdue Univ., Purdue University Aquaculture Research Facility, Montmorenci, Indiana
- South Dakota Coldwater Fish Hatcheries Facility Infrastructure analysis and Renovation Project (Cleghorn Springs, Blue Dog Lake, and McNenny SFH) –
- USGS, Atlantic Salmon Rearing Facility at the Tunison Laboratory of Aquatic Sciences
- Leetown Science Center National Fish Health Research Laboratory Bio-Safety Level 3 Wet Laboratory, Kearneysville, West
- Native Aquatic Species Restoration Facility, Alamosa, Colorado
- Saratoga National Fish Hatchery, Wyoming
- USFWS National Fisheries Research Center, Oxygen & Degassing System, Leetown, West Virginia

Garry T. Roscetti, PE

Electrical Engineer

**Office Location**  
Springfield, Illinois

**Education**  
Bachelor of Science,  
Electrical Engineering,  
Bradley University, 1988

**Professional Registrations**  
Professional Engineer,  
Illinois, No. 062-048409,  
2005

**HDR Tenure**  
14.5 Years

**Industry Tenure**  
18 Years

## Professional Experience

**Mr. Roscetti** designs electrical engineering systems including power distribution, lighting, emergency lighting, standby power, communication, fire alarm, and energy management. He is familiar with the NFPA Fire Codes and the NEC. Mr. Roscetti has created several general electrical systems designs for new and renovated facilities. He has been involved in the generation of specifications and contract documents and plans, shop drawing analysis and review, and project cost estimation. Mr. Roscetti has experience with industrial automation systems using large distributed I/O PLC's, and fiber optics communications and have worked with telephone companies using more sophisticated detection and suppression systems including VESDA (very early smoke detection & alarm), Halon (computer room suppression), and smoke exhaust systems. He has worked with products from all the manufacturers: Pyrotronics, Simplex, Fenwall, Autocall, Notifier, Gamewell and Edwards. His designs include annunciators that vary from the simplicity of identifying each zone to the identification of all detection and initiating devices by either graphic or LED messages. He is continually updating his knowledge on the latest techniques and equipment available by attending code seminars, trade shows, and manufacturer equipment presentations. Prior to joining the firm, Mr. Roscetti worked for the Illinois Capital Development Board (CDB) in Springfield, Illinois as an Evaluating Electrical Engineer. For the four years he was on staff, he was responsible for the review of designs of all new and renovated construction projects for the State of Illinois to ensure compliance with state and national mandates.

## HDR | FishPro Project Experience

- Virginia Department of Game and Inland Fisheries Statewide Fish Hatchery Study
- Quinebaug Fish Hatchery Renovation and Expansion Technical Study, Connecticut
- Colorado Native Aquatic Species Restoration Facility, Colorado
- Nez Perce Tribal Hatchery Program, Idaho
- Rathbun State Hatchery Fisheries Research Laboratory and Pond Project, Iowa
- Quinebaug Valley State Fish Hatchery Renovation and Improvements Project, Connecticut
- Goldendale Fish Hatchery, Washington
- St. Mary's Fish Hatchery, Ohio
- Shelton Fish Hatchery, Washington
- Brookneal Striped Bass Hatchery Improvements, Virginia
- Shepherd of the Hills State Fish Hatchery, Missouri
- Enid State Fish Hatchery, Mississippi
- Watha State Fish Hatchery, North Carolina
- Native Aquatic Species Restoration Facility, Colorado
- Blue Dog State Fish Hatchery Facility Infrastructure Analysis and Improvements Project, South Dakota
- Pisgah State Fish Hatchery Improvements, South Carolina
- Spring River State Fish Hatchery, Arkansas
- Vic Thomas Striped Bass Hatchery, Brookneal, Virginia

Robert A. Roads, P.E.

Civil Engineer

**Office Location**

Springfield, Illinois

**Education**

Bachelor of Science, Civil  
Engineering, University of  
IL Springfield, 1971

**Professional Registrations**

Professional Engineer,  
Illinois, No. 062-036917,  
1979

**Professional Affiliations**

Association of Conservation  
Engineers

**HDR Tenure**

2 Years

**Industry Tenure**

35 Years

**Professional Experience**

**Mr. Roads** spent 29 years with the Illinois Department of Natural Resources (IDNR) where he held every engineering position within the Engineering Division. He was a manager since 1981 and managed the Division of Grants and Engineering when he left IDNR. Under his direction 2,450 projects costing \$667 million were completed. Mr. Roads is intimately familiar with the NPDES permit requirements associated with disturbance of parcels larger than 1-acre in size. He developed and / or oversaw the development of numerous permits to satisfy these requirements. Mr. Roads worked on dozens of major boat access facilities within Illinois and under his direction; master specifications and drawing details were developed for the Illinois Department of Natural Resources (IDNR). In addition, under his direction, the IDNR developed a boat access design manual that is distributed to designers and grantees to be utilized in the development of boat access areas.

**HDR | FishPro Project Experience**

- Wild Rose State Fish Hatchery, Wild Rose, Wisconsin - Project Manager and Project Engineer for Phase I and II Services.
- East Texas State Fish Hatchery, Jasper County, Texas - Project Engineer for the design a new \$20-\$30 million fish hatchery. Also providing overall project management for the project.
- Illinois Capital Development Board, Repair Barkhausen Levee Flood Damage at the Sanganois Conservation Area, Cass County, Illinois, Cass, Illinois - Senior Civil Engineer involved in planning and beginning the repair of all flood related damages including rehabilitating the Barkhausen Refuge Levee, the Coon Slough River Ridge, the Chain Lake levee, the Woods Hole levee, the Whites levee and two access road embankments across Coon Slough, all within this 8,395-acre area located at the junction of the Sangamon and Illinois Rivers located in the Mississippi River Basin. Prior to joining HDR | FishPro, Mr. Roads served as project manager for the development of the Sanganois Master Plan and almost all subsequent development efforts over a 30-year period.
- Alabama Department of Conservation & Natural Resources, Wind Creek Campground, Alexander City, Alabama
- Alliance for the Great Lakes Study to Separate Lake Michigan from Mississippi River Basin.
- Coursey Springs Fish Culture Station Renovations Project, Virginia.

**Terra L. McParland, P.E.**  
*Civil / Environmental Engineer*

**Office Location:**  
 Springfield, Illinois

**Education**  
 Master of Science, Civil  
 Engineering, University of  
 Hawaii-Manoa, 1992

Bachelor of Science, Civil  
 Engineering, University of  
 Michigan-Ann Arbor, 1990

**Professional Registrations**  
 Professional Engineer,  
 Illinois, #062-050924, 1996

**Professional Affiliations**  
 American Society of Civil  
 Engineers (ASCE), West  
 Branch:  
 Secretary, 1993-1994;  
 Treasurer, 1994-1995;  
 Vice President, 1995-1996  
 President, 1997-1998

Association of Conservation  
 Engineers

American Council of  
 Engineering Companies,  
 IEPA Liason Committee,  
 2005-2007

**HDR Tenure**  
 14 Years

**Industry Tenure**  
 17 Years

## Professional Experience

**Mrs. McParland's** responsibilities include technical design and project management on civil, environmental, lake restoration and fish hatchery projects. In addition, she performs field and site investigations, preliminary project analysis and conceptual design, contract and construction administration, subconsultant work coordination, and project follow-up. She has significant civil and environmental engineering experience in many recent projects including effluent treatment systems and NPDES permitting. Ms. McParland has experience with a constructed wetlands design for wastewater treatment and numerous diagnostic/feasibility studies. She has performed wastewater treatment modeling to evaluate alternative treatment systems.

## HDR | FishPro Project Experience

- Spring Run State Fish Hatchery Wastewater Treatment System Study, West Virginia.
- New Hampshire State Fish Hatchery Improvements Project
- Big Springs Effluent Water/Waste Treatment System Study, Pennsylvania
- Michigan DNR Fish Hatchery Renovations
- Quinebaug Valley SFH Phases 1-4 Enhancement Project, Connecticut
- Hackettstown Intensive Fish Rearing Building, New Jersey
- Virginia Department of Game & Inland Fisheries Statewide Fish Hatchery Study
- Vic Thomas Striped Bass Hatchery Improvements, Virginia
- Coursey Springs Fish Culture Station Preliminary Engineering Report and Renovations Project, Virginia
- Buller Fish Cultural Station Master Site Plan and Preliminary Engineering Evaluation and Report, Virginia
- King and Queen State Fish Hatchery Master Plan Report, Virginia
- Maine State Fish Hatchery Planning and Engineering Study
- Tennessee Warmwater Fish Hatchery Evaluation
- Arkansas Statewide Hatchery System Evaluation
- Maine Fish Hatchery Effluent Study
- Iowa Statewide Cool / Warmwater Fish Hatchery Evaluation
- Rathbun State Fish Hatchery Research Facility and Rearing Pond Project Schematic Design Study, Iowa
- Evaluation of State Fish Hatcheries at Hackettstown, New Jersey
- University of Georgia Aquatic Biotechnology & Environmental Laboratory (ABEL)
- Oklahoma Department of Wildlife Conservation Fish Hatchery Production Capabilities Assessment and Facilities Upgrade Master Plan.
- Big Creek State Fish Hatchery Preliminary Design, Environmental Assessment and Site Suitability, Iowa.
- Walhalla State Fish Hatchery Wastewater Treatment System Study, South Carolina
- Wild Rose State Fish Hatchery Preliminary Engineering Evaluation and Report and Renovations Project, Wisconsin.

**Bruce A. Bradley, P.E., S.E.**

*Structural Engineer*

**Office Location**  
Springfield, Illinois

**Education**

Bachelor of Science, Civil  
Engineering, University of  
Illinois - Urbana  
Champaign, 1995

Associate of Science,  
Lincoln Land Community  
College, 1993

**Professional Registrations**

Professional Engineer -  
Structural, Illinois,  
No. 081-006102, 2004

Professional Engineer -  
Civil, Illinois,  
No. 062-054446, 2001

**Professional Affiliations**

**HDR Tenure**

10 Years

**Industry Tenure**

11 Years

**Professional Experience**

**Mr. Bradley's** responsibilities include structural design for both building and bridge type structures. He prepares staged construction plans, estimates of probable costs; and project reports, as well as structural engineering planning, design, and construction documents for numerous types of projects including educational facilities, maintenance facilities, and Illinois DOT bridge type projects. He also provides structural engineering for new buildings including manufactured buildings. His experience includes design and plan preparation of buildings and other structures including concrete water holding tanks, circular and rectangular clarifiers, water control and other miscellaneous structures on a variety of building and fish hatchery projects, including new construction and rehabilitations.

**HDR | FishPro Project Experience**

- Blue Dog Fish Hatchery Infrastructure Evaluation, Waubay, South Dakota
- Florida Bass Conservation Center Conceptual Plan, Florida
- Michigan DNR Fish Hatchery Renovations
- Quinebaug Valley Fish Hatchery Renovation and Improvements, Connecticut
- Vic Thomas Striped Bass Hatchery Renovation, Virginia
- Hackettstown State Fish Hatchery, New Jersey
- Spring Grove Fisheries Resource Center, Illinois
- Missouri Department of Conservation, Branson, Missouri
- North Carolina Wildlife Resource Commission, Watha, North Carolina
- South Dakota Department of Game, Fish & Parks, Rapid City, South Dakota
- Wisconsin Department of Natural Resources, Wild Rose, Wisconsin
- Oden State Fish Hatchery Improvements, Michigan
- Platte River State Fish Hatchery Improvements, Michigan
- Hulsey State Fish Hatchery Improvements, Arkansas
- Spring River State Fish Hatchery Improvements, Arkansas
- Rathbun State Fish Hatchery Fish Culture Research Expansion, Iowa
- Rathbun State Fish Hatchery Research Facility & Rearing Pond Design Study, Iowa

**Mark J. Sicora, P.E., P.S.**

*Survey / QA/QC*

**Office Location:**

Weirton, West Virginia

**Education**

M.S., Civil Engineering,  
West Virginia University,  
1982

B.S., Civil Engineering,  
West Virginia University,  
1979

**Professional Registrations**

Professional Engineer, 1985  
- PA, WV

Professional Surveyor, 1995  
- WV

**Professional Affiliations**

American Society of  
Highway Engineers,  
Pittsburgh Section- Past  
President and current  
member  
West Virginians for Better  
Transportation – Board  
Member  
West Virginia University  
Civil Engineering Advisory  
Committee – Member  
ACEC/WV - Past  
Transportation Chairman,  
Member and Chairman of  
Process Implementation  
Group  
American Society of Civil  
Engineers, West Virginia  
Section- past member  
Institute of Transportation  
Engineers, Mid-Atlantic  
Section - past member  
SAVE International, "The  
Value Society," Golden  
Triangle Chapter - past  
member

**HDR Tenure**

25 Years

**Industry Tenure**

31 Years

**Professional Experience**

**Mr. Sikora**, a Vice President and Branch Manager of HDR's Weirton, WV office, is responsible for overall supervision, recruitment, quality assurance/quality control and client coordination of civil engineering projects. He serves as a Senior Project Manager /Transportation Engineer on major and complex transportation projects using his extensive study, design and management experience in development of reports, public exhibits, plans, specifications, cost estimates, and project presentations. His experience in conceptual, preliminary and final design of major, minor and local transportation facilities includes: corridor, traffic, environmental, alignment and prioritization studies; roadway geometry; right-of-way investigations; utility relocations; drainage and hydrologic/hydraulic reports; erosion and sedimentation control; noise studies; pavement design; traffic control; signing/pavement markings/signalization; specifications/contract documents; scheduling; permit applications; environmental mitigation design; public involvement programs; value engineering studies; design charrettes; and project scoping.

**HDR Project Experience**

- Prioritization of State Projects, WV— Senior Project Manager for the development of a prioritization methodology and evaluation of a comprehensive list of projects located throughout the state. The February 2006 Final Report presented an overall listing in priority order according to their composite value for each category: Economics (40%), Traffic Flow (20%), Safety (20%), Environmental (10%) and Local/Regional Planning (10%). Projects were also broken out by Congressional District.
- Bayfront Parkway, Erie, PA - Performed preliminary/final studies and design of channel relocations, culverts, noise walls, new roadway alignments; and right-of-way plans; assisted PennDOT with public meetings on noise impacts/noise wall aesthetics; served as VE Team Leader on the conceptual design and recommended a potential construction cost saving in excess of \$5.4 million.
- Proposed I-70 Interchange and Interior Access Road, Ohio County, WV
- Ohio River Bridge at Mountaineer Resort, Hancock County, WV
- US 22/Three Springs Drive Interchange Bridge Replacement, Brooke County, WV
- Washington Avenue Bridge Replacement, Ohio County, WV
- WV Route 2: New Cumberland-Congo Road, Hancock County; Follansbee-Weirton Road, Brooke County; and Parkersburg-St. Marys Road, Wood County, WV
- Pennsylvania Avenue (WV Route 105), Hancock County, WV
- Oakwood Road Traffic and Design Study – Kanawha County, WV
- Davis Truss Bridge Replacement, Tucker County, WV
- Statewide Engineering, Traffic and Construction Inspection Contracts, WVDOT, Division of Highways
- County Route 74, Fish Creek Road, Marshall County, West Virginia
- County Route 208, Hancock County, West Virginia
- Chelyan Bridge Replacement/Relocation of U.S. 60, Kanawha County, WV
- I-64 Bridges Rehabilitation, Greenbrier and Cabell Counties, WV
- I-70 Bridges Rehabilitation, Ohio County, WV

Scott A. Boehm, P.E.

Civil Engineer

**Office Location:**

Weirton, West Virginia

**Education**

B.S., Civil Engineering,  
West Virginia University,  
1992

**Professional Registrations**

Professional Engineer,  
1997 - WV, PA, OH

**Professional Affiliations**

WVACE/WVDOT  
Drainage Manual Review  
Committee

**Additional Training**

Project Management  
Planning & Monitoring  
Workshop

Getting to Yes Negotiation  
Skills Workshop

Right of Way Plan  
Development

Drainage I, II and III

Urban Hydrology, TR-20 and  
TR-55

Workzone Traffic Control

Roadside Design

Value Engineering

Wetlands

Preconstruction  
Management

Pavement Design

Highway Geometric Design

**HDR Tenure**

9 Years

**Industry Tenure**

15 Years

**Professional Experience**

**Mr. Boehm**, a West Virginia University graduate, is a Civil Engineer at HDR. His background includes preliminary and final roadway geometry, drainage system design, maintenance of traffic plans, preparation of both right-of-way and construction plans, and cost estimating. His design experience includes urban and rural expressways, arterials, collectors, and local roads in both Pennsylvania and West Virginia. In addition, he has worked for the West Virginia Department of Transportation as a Highway Engineering Squad Leader and Project Manager. He has completed several WVDOH training courses, such as Right of Way Plan Development; Property Descriptions; Drainage; I-III; Hydrain; Urban Hydrology, TR-20 and TR-55; Wetlands; Basic Geometric Design; Work Zone Traffic Control; AASHTO Road Side Design; Value Engineering; and AASHTO Design for New Pavement. Mr. Boehm is an active member of the WVDOH-ACEC/WV Drainage Manual Review Committee.

**HDR Project Experience**

- Three Springs Drive Bridge/County Route 13, Brooke County, West Virginia.
- Davis Truss Bridge, Tucker County, West Virginia
- Ohio River Bridge at Mountaineer Resort, Hancock County, West Virginia
- Fort Henry Business and Industrial Centre, Internal Access Road, Ohio County, West Virginia
- Statewide Engineering, Right of Way Engineering Services, WVDOT, Division of Highways
- Cross Creek +1, Brooke County, WVDOT, Division of Highways
- WV Route 2, New Cumberland-Congo Road, Hancock County, West Virginia
- WV Route 2 Upgrade, Emerson Avenue Bridge/Parkersburg, St. Marys Road, Wood County, West Virginia
- WV Route 2, Follansbee-Weirton Road, Brooke County, West Virginia
- Elizabeth Bridge, Wirt County, West Virginia
- West Lake Bridge/County Route 60/2, Fayette County, West Virginia
- Tony Creek Bridge/WV Route 3, Boone County, West Virginia
- Rivesville Arch and Rivesville Truss/County Route 17, Marion County, West Virginia
- Tucker Valley Elementary School Access/County Route 219/6, Tucker County, West Virginia
- Sheridan Railroad Crossing Elimination/County Route 30/1, Lincoln County, West Virginia
- Freedom Way Road/County Route 507, Brooke County, West Virginia
- Three Springs Drive/County Route 13, Brooke County, West Virginia
- Midway to Buffalo/WV Route 62, Putnam County, West Virginia

**Brian S. Miller, P.E.**

*Civil / Environmental Engineer*

**Office Location:**

Weirton, West Virginia

**Education**

B.S., Civil Engineering, The Pennsylvania State University, May, 1999

**Professional Registrations**

Professional Engineer, 2005  
- WV, PA, OH

**Professional Affiliations**

American Society of Highway Engineers, Charter Member

**Additional Training**

Local Pathfinder Team, Oakwood Road Traffic and Design Study (2004)

Local Pathfinder Team, Pittsburgh/Weirton TDY Team (2003)

Crystal Pathfinder Team, Hoover Dam Bypass Project Delivery Team (2003)

Local Pathfinder Productivity and Performance (2003)

Local Pathfinder Team, Congo Road (2002)

Local Pathfinder External Client Service (2002)

Local MVP Award - (January 2000)

Local MVP Award - (January 2003)

Honor Societies - Chi Epsilon, Alpha Lambda Delta

Academic Awards - National Dean's List 1997-1998, Presidents Freshman Award for 4.00 GPA

Student Offices - Chi Epsilon/Marshall,

ASCE/Job Placement Chair

**Professional Experience**

**Mr. Miller** is a Civil Engineer at HDR. Mr. Miller specializes in hydrology, hydraulics, storm water analysis, erosion and sediment control, permitting and natural stream channel design. In 2003 and 2004, he attended four weeks of training in order to learn Rosgen Classification and stream restoration techniques. His background also includes right-of-way preparation, roadway geometric layout, construction details, and plan preparation. Design software utilized on a regular basis consists of HEC-RAS, Storm and Sanitary SelectCAD, InRoads, Microstation, Hydraflow Hydrographs, Hydraflow Storm Sewers, HY-8, TR-55, Visual Urban, Excel, and FlowMaster. Some other design software utilized includes RiverMorph, HEC-HMS, GIS, HyDrain, WSPRO and BriStars.

**HDR Project Experience**

- Allegheny Commons, Allegheny County, Pennsylvania - Located and assessed existing drainage in conjunction with Pressley and Associates to prepare a master plan for a historical refurbishment of Allegheny Commons. Allegheny Commons is a park and recreational area on the North Shore of Pittsburgh. Responsibilities included researching the layout and conditions of existing features such as storm sewers, sanitary sewers, drains and filling equipment for Lake Elizabeth, bathhouse, filter building
- West Virginia Dept. of Transportation:
  - Coalfields Expressway, Wyoming County, WV
  - County Route 208 - Corridor Study, Hancock County, WV
  - CR74 - Fish Creek Road, Marshall County, WV
  - Route 105 - Pennsylvania Avenue, Hancock County, WV
  - Route 74 - Fish Creek Road, Marshall County, WV
  - Ohio River Bridge at Mountaineer Resort, Hancock County, WV
  - Cross Creek Road, Brooke County, WV
  - Route 105 - Pennsylvania Avenue Improvements Study, Hancock County, WV
  - Route 2: Parkersburg to St. Mary's Road, Parkersburg; New Cumberland to Congo Road, Hancock County; Follansbee to Weirton Road, Brooke County; and Parkersburg to St. Mary's Road, Wood County, WV
  - Davis Truss Bridge Replacement, Tucker County, WV
  - Three Springs Bridge Replacement, Hancock County, WV
  - Washington Avenue Bridge Replacement, Ohio County, WV
- Ohio County Development Authority, Cabella Drive, Ohio County, WV

**HDR Tenure**

7 Years

**Industry Tenure**

7 Years

**Billie Joy Garzarelli, P.E.**

*Construction Management*

**Office Location:**

Weirton, West Virginia

**Education**

B.S.C.E.,  
Civil/Environmental  
Engineering, University of  
Pittsburgh, 2002

**Professional Registrations**

WV Compaction Inspector  
WV PCC Inspector  
WV Aggregate Sampling  
OSHA 10 Hour-  
Construction Safety and  
Health  
Professional Engineer 2007  
– WV # 17054

**HDR Tenure**

5 Years

**Industry Tenure**

5 Years

**Professional Experience**

**Ms. Garzarelli** is an engineer in HDR's Weirton Office. She received her BSCE in civil engineering with a concentration in Construction Management in 2002. Since her arrival at HDR in 2002, Ms. Garzarelli has served as a construction inspector on various construction projects throughout West Virginia. Her experience includes asphalt and concrete pavement, signing/pavement markings/signalization, drainage, earthwork and other miscellaneous items. Intermittently between construction projects, Ms. Garzarelli worked in a designer role. In design, Ms. Garzarelli worked on maintenance of traffic plans for multiple phase projects, traffic studies, drainage design and hydraulic analysis and right of way plans. Ms. Garzarelli is a registered engineer in the state of West Virginia.

**HDR Project Experience**

- Citywide Construction Program, Chicago DOT, Division of Engineering, Chicago, IL – (mid July to December 2005), Individual performed as a Consulting Construction Engineer (CCE) for the CDOT. Duties of a CCE included the following:
  - Perform field layout of project limits and verify work quantities
  - Standard asphalt inspection: taking temperatures, depth checks, spread rates, observing compaction and compaction testing.
  - Inspect/coordinate work of City crews as well as contractor crews
  - When field conditions differ from plan, provide recommendations to CDOT
  - Coordinate utility adjustments prior to work on project commencing
  - Provide CDOT with appropriate documentation on all projects
  - Ensure all projects are constructed to CDOT specifications
  - Review Inspector's reports, checking submitted calculations and daily logs, inputting reported data and quantities into excel spreadsheets, verifying quantities, creating weekly change order reports and yield reports to be submitted to CDOT.
- Three Springs Drive Bridge Renovation for West Virginia Division of Highways, Weirton, WV
- WV Rt 2 Wellsburg Slide, Wellsburg, WV
- North Star Sanitary Sewer, North Fayette Township, PA
- Design assignments in Weirton office, Weirton, WV
- Corridor D, US 50 Projects for West Virginia Division of Highways, Parkersburg, WV

There are three main control issues when managing a project: quality control and quality assurance, budget control, and schedule control. **HDR | FishPro** has documented its control methods and trains its project managers in the control systems, procedures, and methods. Brief descriptions of these three controls are as follows:

#### **Quality Control and Quality Assurance.**

**HDR | FishPro** has a fully documented quality control procedures manual that is maintained. This manual comes with forms and checklists that are used by the Project Managers and the Quality Control persons assigned to the project. Every report, document, and plan is checked for accuracy and to ensure it meets the client's terms. Each checkpoint on the form has a notation that the document was checked, that it complies with the client's wishes, and a plan of action if it does not meet the QC standards. Having QC procedures and standards assures that every deliverable is checked for accuracy before it reaches the client.

#### **Budget Control.**

**HDR | FishPro** tracks project costs through an automated People Soft system. Time sheets are input by staff and reviewed by project managers. If there are any discrepancies, the Project Manager has the authority to revise costs related to the project. The Department Manager works closely with the project manager to ensure proper quality assurance and good business management.

#### **Schedule Control.**

At the start of each project, each **HDR | FishPro** Project Manager prepares a Project Guide to document all information necessary to prepare a successful project. It is an internal document that becomes the road map for the project team. The Project Guide defines the project resources to be used on the assignment, such as the team member names and subconsultants. The guide includes the client contact information, project description, scope of work, deliverables, budget, project administration procedures, and filing requirements. The Project Guide also entails the communication methods to be used for the assignment, such as use of an e-room, intranet sites, electronic documentation, methods of written documentation, and details describing the client's method of handling media requests for information. The Project Guide also entails the quality control procedures, assignments, and schedules to be used, and any specific health and safety requirements above and beyond OSHA regulations for certain tasks. It also entails project closeout guidelines. The Project Guide maps the basis for control of the project resources, schedule, scope, and deliverables.

The Department Manager meets with the Project Manager at regular intervals during the project to ensure that the budget, schedule, deliverables are to the satisfaction of the client. If challenges arise on the project, the Department Manager and Project Manager try to resolve any issues quickly.

**HDR | FishPro** has selected Chapman Technical Group as a subconsultant for this project because of our successful experience working with them on WV DNR projects. **Chapman Technical Group** has provided the WV DNR with engineering and architectural services for a variety of projects for the Wildlife Resources Section and Parks and Recreation Section. CTG's current key staff has a wealth of experience working with these agencies having provided planning, design, and construction administration as well as construction observation services for the following partial list of projects:

**Wildlife Resources Section**

Apple Grove Fish Hatchery – New Fish Hatchery including Staff Residences

Spring Run Fish Hatchery – New Raceways and Waste Treatment System

Numerous Boat Ramps located throughout the Kanawha Valley

Elkins District Office – Re-roofing of existing office building

**Parks and Recreation Section**

Beech Fork State Park – New Pool, Bathhouse, Cabins, etc.

Moncove Lake State Park – New Pool and Bathhouse

Cabwaylingo State Park - Pool Renovations

Babcock State Park – New Water Storage Tank

Camp Creek State Park – New Water Storage Tank

Backwater Falls State Park – Recently Selected for New Cabins and Sled Run Improvements

## Company Overview



*Chapman Technical Group's St. Albans Office*

Chapman Technical Group is a full-service consulting firm with offices in St. Albans, Buckhannon, and Martinsburg, West Virginia offering an extensive range of professional architectural, engineering, interior design and landscape architectural services. Established in 1984, Chapman Technical Group has steadily grown to a diverse firm of professionals, many of whom were educated in West Virginia colleges and universities. We have achieved an outstanding reputation for providing high-quality design projects, while meeting client schedules and budgets and have received numerous awards for our work.

Our facilities are both state-of-the-art and architecturally significant. Our St. Albans office is a former post office and is now on the National Register of Historic Places. We also have a corporate airplane to better access our project sites.

*Chapman Technical Group offers a broad range of professional services.*

- Airport Design
- Architecture
- Civil Engineering
- Fire Puming & Protection
- Interior Design
- Landscape Architecture
- Recreational Facilities
- Roads, Highways, & Bridges
- Site Development
- Space Planning
- Surveying
- Water & Wastewater Systems



**ROBERT G. BELCHER, P.E.**  
**Senior Vice President, Engineering  
and Project Officer**

**EDUCATION**

West Virginia Institute of Technology, BSCE, 1983

**REGISTRATION**

Civil Engineering, West Virginia, 1996  
Civil Engineering, Ohio, 2006

**PROFESSIONAL  
HISTORY**

**January 1987 to Present: Chapman Technical Group**  
Senior Vice President and Project Officer.

**June 1984 to January 1987: Regional Intergovernmental Council**  
Planning and Development Council for West Virginia Region III - Metropolitan  
Planning Organization for Charleston, WV, MSA.

23 years professional experience.

**PROJECT  
EXPERIENCE**

**Water Systems:** Design and project management for numerous water systems for both public and private water companies. Projects include new water treatment plants as large as 10 MGD, improvements to existing plants, water mains and distribution systems. Water storage projects include glass-lined steel tanks, welded high-strength steel tanks, and elevated pedestal tanks.

**Wastewater Systems:** Design and project management for numerous wastewater systems throughout West Virginia. Projects include new tertiary wastewater treatment plants as large as 4.5 MGD, improvements to existing plants, small-flow treatment plants, extensive wastewater collection systems, and facility plan updates.

**Miscellaneous:** Design and project management for large highway and bridge projects, airport improvements projects, large stormwater management projects, as well as potable water and wastewater system design for many site development projects throughout West Virginia.

**AFFILIATIONS**

Water Environment Association - WV Section  
Contractor's Association of West Virginia - Associate Member  
American Water Works Association - WV Section  
WV Society of Professional Engineers  
American Council of Engineering Companies - ACEC/WV  
WVUIT Civil Engineering Advisory Board

**AWARDS**

George Warren Fuller Award, 2001



**JOSEPH E. BIRD, ASLA**  
**Senior Vice President**  
**Project Manager**

**EDUCATION**

West Virginia University, BSLA, 1978

**REGISTRATION**

Landscape Architect, West Virginia, 1981

**PROFESSIONAL  
HISTORY**

**August 1985 to Present: Chapman Technical Group**  
Senior Vice President and Project Manager.

**May 1978 to August 1985: Kelley, Gidley, Blair & Wolfe, Inc.**  
Landscape Architect and Project Manager.

Mr. Bird is a project manager and registered landscape architect. His experience ranges from large site development projects to the management of multi-discipline and architectural projects.

29 years professional experience.

**PROJECT  
EXPERIENCE**

**Site Development:** Site planning and project management for numerous projects throughout West Virginia ranging from small campus sites to large sites for commercial, government, industrial, and institutional development. Projects include military complexes, campuses, public housing developments and other public facilities.

**Parks and Recreation:** Projects include swimming pools, bathhouses, cabins and support facilities for the West Virginia Division of Natural Resources and similar facilities for county and municipal park systems. Also involved in the design of facilities such as softball fields, fishing access facilities, recreation facilities for prisons, as well as passive recreation areas for public and private clients.

**Miscellaneous:** Other project experience includes the urban planning and development, streetscape design, roadway and storm drainage projects, as well as the project management of numerous major architectural projects throughout West Virginia.

**AFFILIATIONS**

West Virginia Chapter of the American Society of Landscape Architects  
President, Board of Directors, St. Albans Renaissance Group

**AWARDS**

Honor Award for Shrewsbury St. Redevelopment Plan  
West Virginia Chapter of American Society of Landscape Architects



**JEFFERY D. EKSTROM, P.E.**  
**Manager, Environmental Engineering  
and Project Manager**

**EDUCATION**

West Virginia Institute of Technology, BSCE, 1990

**REGISTRATION**

Civil Engineering, West Virginia, 1996

**PROFESSIONAL  
HISTORY**

**April 1991 to Present: Chapman Technical Group**  
Manager, Environmental Engineering and Project Manager.

**October 1990 to March 1991: City of Charleston, South Carolina**  
Civil Engineer.

**June 1990 to September 1990: Bechtel Savannah River Inc.**  
Civil Engineer for Reactor Restart Group.

17 years of professional experience.

**PROJECT  
EXPERIENCE**

**Water Systems:** Design and project management for numerous water systems for both public and private water companies. Projects include new water treatment plants as large as 10 MGD utilizing ultrafiltration membrane treatment technology, improvements to existing plants, water mains and distribution systems. Water storage projects include precast-prestressed concrete tanks, glass-lined steel tanks, welded high-strength steel tanks, and elevated pedestal tanks. Hydraulic analysis of water distribution/transmission systems utilizing water CAD by Haestad methods.

**Wastewater Systems:** Design and project management for numerous wastewater systems throughout West Virginia. Projects include new tertiary wastewater treatment plants as large as 4.5 MGD, improvements to existing plants, small-flow treatment plants, extensive wastewater collection systems, and facility plan updates.

**Miscellaneous:** Design and project management for large stormwater management projects, as well as potable water and wastewater system design for many site development projects throughout West Virginia.

**AFFILIATIONS**

Water Environment Federation (West Virginia)  
American Water Works Association



**ROGER J. KENNEDY, ASLA**  
**Landscape Architect**

**EDUCATION**

West Virginia University, BSLA, 1990  
Natural Stream Training Courses I - III, West Virginia University,

**REGISTRATION**

Landscape Architect, West Virginia, 1993  
Landscape Architect, Pennsylvania, 2006

**PROFESSIONAL  
HISTORY**

**June 1990 to Present: Chapman Technical Group**  
Landscape Architect, Project Manager and Computer Network Manager.

**May 1989 to May 1990: WVU and the National Park Service**  
Inventoried and analyzed abandoned mine sites along the New River Gorge National River.

18 years professional experience.

**PROJECT  
EXPERIENCE**

**Site Development:** Responsibilities include grading design, site planning and layout, analysis of existing features and services, storm water design and management, erosion control, as well as project management. Projects include prisons, landfills, military complexes, banks, airports, subdivisions, gas stations and other public facilities.

**Bridge and Highway:** Responsibilities include the design of horizontal and vertical road alignments, superelevation design, intersection layout, slope design and quality control review. Projects include several multi-lane highways and bridges throughout West Virginia.

**Miscellaneous:** Other experience includes the use of various civil design software packages for use in site development and road design, digital terrain modeling, hydraulic analysis and related computer aided design tools. Additional responsibilities include the development and management of the computing resources of the company. This includes the management of software and hardware inventories, as well as the development and management of all local area networks in each office and the wide area network which links them.

**AFFILIATIONS**

Chairman of the West Virginia State Board of Landscape Architects  
Member of the Sigma Lambda Alpha Honor Society of Landscape Architects  
Member of the St. Albans Riverfest Board  
Member of the St. Albans Renaissance Group



**BRIAN W. LAWRENCE, P.S.**  
**Professional Land Surveyor**

**EDUCATION**

Glennville State College, AS, Land Surveying, 1995

**REGISTRATION**

Professional Surveyor, West Virginia, 2002, P.S. No. 2056

**PROFESSIONAL  
HISTORY**

**August 2004 to Present: Chapman Technical Group**  
Professional Land Surveyor.

**December 2003 to August 2004: Point Surveying & Mapping**  
Professional Surveyor/Project Manager.

**December 1999 to November 2003: Terradon Corporation**  
Surveyor/Draftsman.

**January 1996 to December 1999: Board Land Surveying**  
Project Manager/Surveyor/Draftsman.

**May 1995 to December 1995: Smith Land Surveying**  
Crew Chief/Rodman.

12 years professional experience.

**PROJECT  
EXPERIENCE**

**Site Development:** Asbuilt/existing condition surveys and design surveys for numerous projects including water tank sites, cellular tower sites, water and sewer lines, subdivisions and commercial sites.

**Highways:** Provide preliminary site surveys of areas to be developed for highway construction. Set/layout points on the ground for the placement and/or construction of roadway surfaces, utility relocation, drainage structures, etc. Determine and set cut/fill stakes during the construction process.

**Boundary:** Numerous boundary surveys and ALTA/ACSM Land Title Surveys for commercial, residential clients on sites ranging from small lots to large commercial sites, and highway projects.

**AFFILIATIONS**

14 Year Member of the West Virginia Society of Professional Surveyors



**CHARLES DAVID CASH, JR.**  
**Construction Representative**

**EDUCATION**

South Charleston High School , 1983

Attended WV DOH Portland Cement Concrete Refresher Course, 1998

Attended WV DOH Hot-Mix Asphalt Refresher Course, 1998

Authorized Sample Collector for new water mains - WV Bureau of Public Health, 1997

**PROFESSIONAL  
HISTORY**

**November 1992 to Present: Chapman Technical Group**  
Construction Representative.

**June 1992 to October 1992: Business and Industrial Development Corporation (BIDCO).**  
Construction Representative.

**August 1990 to May 1992: Dunn Engineers, Inc.**  
Construction Representative.

17 years of professional experience.

**PROJECT  
EXPERIENCE**

Responsibilities include all aspects of field construction and observation from commencement of construction through project start-up. Maintains field diaries and construction log books; monitors shop drawing approvals and fabrication schedules; observes field testing of completed work; verifies contractor's periodic payment requests; verifies completed site work for as-built drawings; attends construction progress meetings; and updates clients on project progress.



**PHILLIP A. WARNOCK, NCARB, AIA**  
**Project Architect**

**EDUCATION**

The University of Tennessee, BArch, 1995

**REGISTRATION**

Architect, West Virginia, 2003  
NCARB Certified Architect, 2002

**PROFESSIONAL  
HISTORY**

**September 2003 to Present: Chapman Technical Group**  
Project Architect.

**June 2002 to July 2003: ZMM**  
Architect.

**June 1995 to May 2002: Lockwood Greene**  
Intern Architect.

**August 1991 to July 1993: Omni Associates**  
Architectural Draftsman.

14 years professional experience with additional experience in construction, interior design and developing.

**PROJECT  
EXPERIENCE**

**Assembly Occupancy Facilities:** Projects include community centers, gymnasiums, a swimming pool bathhouse, and mail centers.

**Aviation Facilities:** Projects include air maintenance facilities, aviation education classrooms, master planning, and non-hub airport terminal additions and renovations.

**Educational Facilities:** Projects include a 400 student elementary school, additions and renovations to high schools, accessibility assessments and implementations, a facilities building, reroofing projects, kitchens and support area renovations.

**Government:** Projects include GSA courthouse studies, Navy air maintenance hangers, National Guard Armories and HUD elderly and disabled care facilities.

**Health Care:** Projects include hospice housing, adaptive re-use of an historic building for a psychiatric health center, housing for the elderly, mental and physically challenged, and a medical center library.

**Housing Authorities:** Projects include new multi-family dwelling developments, residential accessibility and modernization renovations, apartment complexes, independent living and staffed care facilities for HUD, HOPE Homes and Ridgeview Psychiatric.

**Industrial Facilities:** Projects include pharmaceutical, food, steel, automobile, brake, tire, bicycle tube and aluminum manufacturing facilities including research and development laboratories and industrial park master planning.

**Master Planning:** Projects include master planning for McGhee Tyson Airport, Nissan Automotive, Bush Beans, Inc., and the Oak Ridge Horizon Center Industrial Park.

**Office/Commercial:** Projects include speculative office buildings and complexes, pharmaceutical production offices, industrial complex offices, research and development centers, and corporate headquarter facilities.

**AFFILIATIONS**

National Council of Architectural Registration Boards (NCARB)  
American Institute of Architects (AIA)



**DALE E. WITHROW, AIT**  
**Project Coordinator, Department Manager**  
**Architecture**

**EDUCATION**

West Virginia Institute of Technology, AS, Drafting and Design, 1975.

**PROFESSIONAL  
HISTORY**

**November 2000 to Present: Chapman Technical Group**  
Project Coordinator/Department Manager.

**March 1993 to August 2000: The HDMR Group, Inc.**  
Project Coordinator.

**February 1990 to March 1993: AFAB Services**  
Owner/Designer - Drafter.

Prior to 1990 Mr. Withrow worked with several architectural and engineering firms as an employee and independent consultant.

From 1987 to 1997 he was a Facilities Planner for the Kanawha County Board of Education.

Mr. Withrow is a Project Coordinator involved in all aspects of a wide variety of architectural projects. He is also Manager of the Architecture Group.

32 years professional experience.

**PROJECT  
EXPERIENCE**

**Project Design and Management:** Experience ranges from drafting, detailing and design through construction observation and project management of numerous building projects in West Virginia, Kentucky and North Carolina including:

- Residential/Housing
- Governmental Facilities
- Hospital/Healthcare Facilities
- Public School Facilities
- College Athletic Facilities
- Hotel/Hospitality Facilities
- Airport Support Facilities
- Military Support Facilities/Armories
- Grocery and Drug Chain Stores
- Industrial Plant/Laboratory Facilities
- Office Buildings
- Banking Facilities
- Americans with Disabilities Act Assessment and Implementation

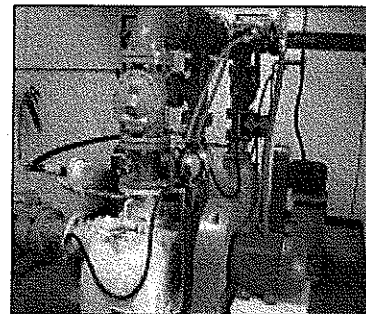
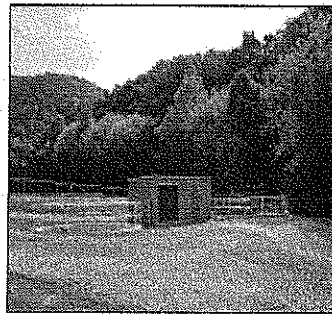
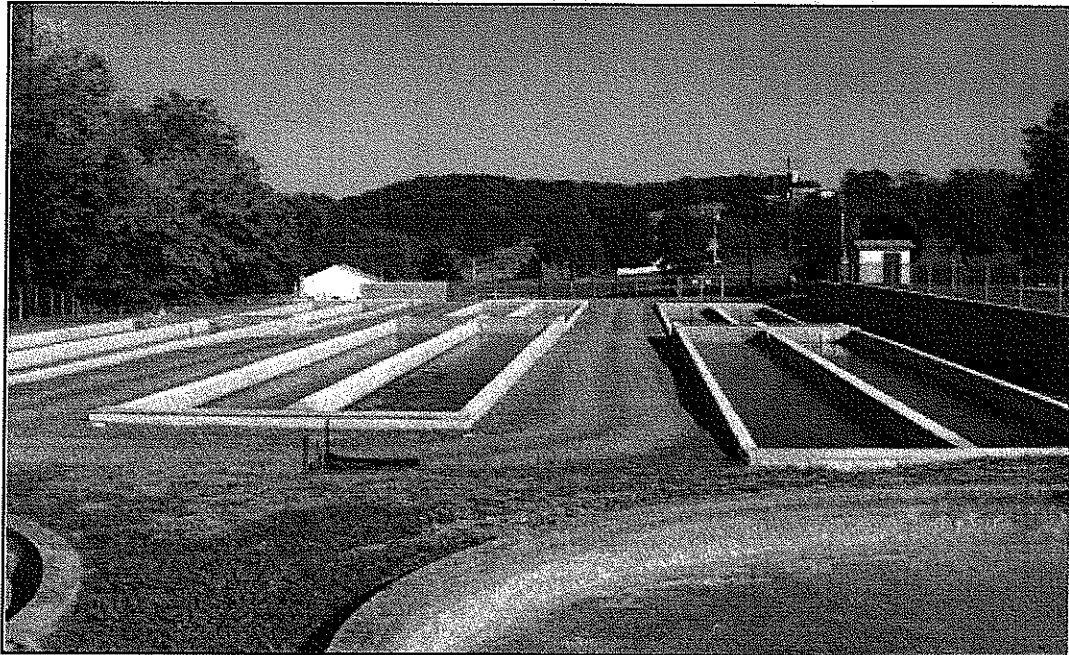
**AFFILIATIONS**

Certified Architect-in-Training, State of Arizona  
Read Aloud WV of Kanawha County  
Member, Curriculum Advisory Board - WVU Institute of Technology



## Spring Run Fish Hatchery - Wastewater System Improvements

04053



**Spring Run Fish Hatchery**  
HC33, Box 3055  
Dorcas, West Virginia 26847  
Construction Cost: \$3,000,000

Chapman Technical Group provided design and construction observation services for the Spring Run Fish Hatchery project that was completed in 2007. The project consisted of one (1) 25'-0" diameter batch clarifier; one (1) 20'-0" diameter sludge holding tank; sludge transfer pump station with two (2) 350 GPM self priming, centrifugal solids handling pumps; new effluent composite sampling and flow measurement system; new outfall structure; 860 linear feet of 12" 15" and 18" HDPE/DIP gravity sewer pipe; 1,000 linear feet of 8", 10" 12" and 16" DIP waterlines; (27) 8", 10", 12" and 16" gate valves; 13 pre-cast concrete manholes; structural crack repairs to existing raceways; piping modifications to existing raceways; removal of two existing concrete rearing ponds and associated electrical work; three (3) new 2 pass concrete raceways and associated piping; and site work and access road improvements.



## Mason County Fish Hatchery

00010



*Above: The Mason County Fish Hatchery building houses fish rearing facilities as part of WVDNR's hatchery operations at the Robert C. Byrd Locks and Dam. Right: Piping manifolds will distribute both well water and reservoir water to a variety of fish tanks.*

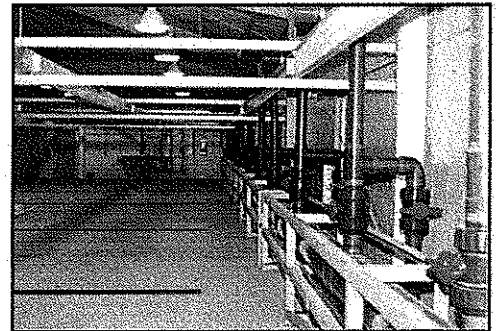
### Mason County Fish Hatchery West Virginia DNR Apple Grove, West Virginia

Located at the Robert C. Byrd Locks and Dam at Apple Grove, West Virginia, the Mason County fish hatchery building is the final component to the hatchery complex that also includes a series of fish rearing ponds and a reservoir to supply the ponds. The project also included the design and construction of two residences to be used by hatchery personnel.

The 9,200 square-foot fish hatchery building is a masonry and steel structure housing the actual hatching components, as well as offices and other support facilities. More than half of the building is open space to accommodate the fish hatching egg rack and a variety of rearing tanks that hold the fish until they are mature enough to be transferred to ponds. The tanks are fed from either reservoir

water or directly from well water which first passes through a degassing head tank. As water flows continuously through the tanks from an overhead distribution system, it is collected in a series of trench drains in the hatchery floor and eventually makes its way back to the Ohio River.

The hatchery also includes an office, a bunk room and kitchen for seasonal employees, a brine/shrimp room, and storage and maintenance garages. A mezzanine above the office area provides for additional storage.





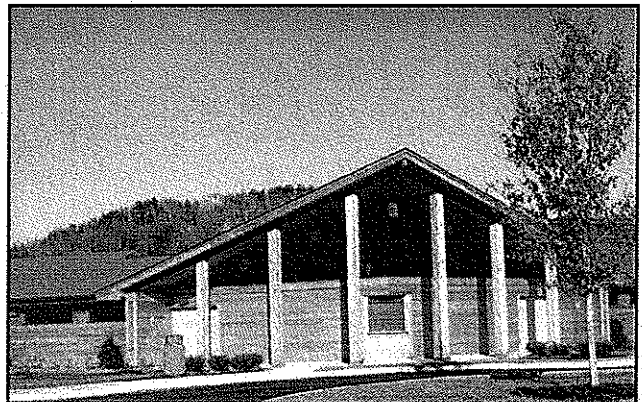
## Beech Fork State Park

97049



**Beech Fork State Park**  
5601 Long Branch Road  
Barboursville, West Virginia 25504

Chapman Technical Group designed \$4.5 million worth of improvements at the state park near Barboursville including a 50-meter swimming pool, bathhouse, six modern cabins, and campground upgrades. With its distinctive high sloped roof, the bathhouse was designed as the architectural centerpiece of the Bowan Day Use area while complementing the architecture of the existing park structures. The cabins provide the warmth of natural materials such as wood and stone, yet are fully equipped with modern conveniences such as air conditioning and microwaves.



## Environmental Capabilities

**HDR | FishPro** has a vast knowledge of environmental engineering issues. Our team works to integrate the environmental processes seamlessly into planning and design of each project. By providing integrated engineering and environmental services, **HDR | FishPro** expedites communication of design and environmental information between our team members. Working together allows us to achieve timely acquisition of permit authorizations, helping move projects forward on schedule. Whether the issue is ongoing compliance, strategic support or an acceptable site for a new facility, **HDR | FishPro** experts can navigate complex regulatory and permitting requirements and provide sound judgment for project issues.

From NEPA compliance to wetland delineation to site permitting our staff has specific project experience that will be at the disposal of WV DNR to successfully guide all projects to completion. In particular, our staff is uniquely versed in regulatory issues pertaining to the construction and operation of fish hatcheries. Members of our team have participated in numerous projects that have required environmental engineering challenges and compliance standards to take fish hatchery projects from a conceptual idea to a functioning facility. These challenges include operational compliance of existing and new facilities in addition to traditional regulatory compliance for construction activities.

Environmental engineering issues on similar fish hatchery projects completed by our staff have included:

- Site permitting for new facilities
- Site permitting for activities at existing facilities
- Hatchery effluent monitoring and compliance
- Round table discussion with regulatory agencies
- White papers on the constituents of hatchery effluent
- Biological effluent modeling and prediction
- Hatchery BMP implementation
- Waste treatment efficiency testing for fish hatcheries
- Erosion control plans
- Wetland delineations
- Mitigation plans
- Avoidance and minimization documentation

The **HDR | FishPro** project team has the environmental capabilities and fish hatchery experience to serve as a reliable advisor to WV DNR.

**Minority Participation**

**HDR | FishPro's** policy toward minority participation in the projects it designs, engineers or for which it administers construction contracts is as follows:

**Internal Policy** - As supported in our policy statement and Affirmative Action Plan, HDR is dedicated to maintaining and improving a work environment that extends equal opportunity to all individuals. HDR policy encourages recruitment and appointment to the work force of qualified minority and female candidates. The employment/recruitment process is supervised by a corporate Human Resources staff to ensure compliance with Affirmative Action.

**External Policy** - As with any project, HDR is committed to implementing an integrated and effective program that fully utilizes certified and qualified M/W/DBE firms and small businesses. Our teams often include firms that bring the best experience and track record, along with the most talent and ambition. HDR is committed to maximizing opportunities for M/W/DBE firms at all levels to ensure both significant participation and development of individual and firm capabilities

**HDR Corporate Engineering**

Due to our size and professional stature, HDR Engineering, Inc., unfortunately has been a target defendant. Litigation usually arises out of a contractor's failure to perform, failure of materials or equipment, or an injury at the job site. Our involvement is due to our role in the planning and design of numerous projects, as well as that of the owner's representative. If required, we would be willing to personally discuss the merits of any court proceeding with the appropriate members of your staff or selection committee.

**HDR | FishPro**

As a company in practice from 1984 until 2006, FishPro / Cochran & Wilken, Inc. was never involved in litigation regarding the planning, design or construction of any fisheries facilities anywhere in the United States.

Statement on Disqualifications

**HDR | FishPro** has never been disqualified from bidding or proposing governmental contracts for the federal government or any state.