

Practice: 399 - Fishpond Management

Scenario: #1 - Invasive Weed Species - Chemical

Scenario Description:

Chemical application to existing fishpond to remove invasive or undesired vegetation. Typically use Diquat dibromide or other appropriate herbicide. Chemical control will be applied by a certified pesticide applicator per state code. Resource concerns addressed include: Degraded Plant Condition - Excessive plant pest pressure; Degraded Plant Condition - Inadequate structure and composition; Inadequate Habitat for Fish and Wildlife - Habitat degradation.

Before Situation:

Existing fishpond is negatively impacted by invasive vegetation. Invasive vegetation is reducing availability of resources for desired fish species.

After Situation:

Chemical application has been completed to manage the invasive vegetation. Resource concerns have been addressed. Participant will follow Operation and Maintenance guidance to ensure control has been achieved through regular monitoring and will address any negative impacts to ensure an invasion does not occur again within the lifespan of the practice.

Scenario Feature Measure: Acre of pond managed

Scenario Unit: Acre

Scenario Typical Size: 1

Scenario Cost: \$315.26

Scenario Cost/Unit: \$315.26

Cost Details (by category):

| Component Name | ID | Component Description | Unit | Price (\$/unit) | Quantity | Cost |
|-------------------------------|------|---|--------|-----------------|----------|----------|
| Equipment/Installation | | | | | | |
| Truck, Pickup | 939 | Equipment and power unit costs. Labor not included. | Hour | \$39.91 | 2 | \$79.82 |
| Labor | | | | | | |
| Skilled Labor | 230 | Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc. | Hour | \$27.06 | 4 | \$108.24 |
| Materials | | | | | | |
| Herbicide, Diquat dibromide | 1820 | Aquatic herbicide and plant growth regulator. Refer to WIN-PST for product names and active ingredients. Includes materials and shipping only. | Gallon | \$127.20 | 1 | \$127.20 |

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Scenario: #2 - Habitat Structures

Scenario Description:

Fishpond lacks a diversity of habitat to provide adequate habitat for desired fish species. Creation of habitat structures as recommended by conservation planner or other individual with appropriate credentials. Suggested improvements will determine type of structure needed, number of structures, density and location of structures. Habitat structures are typically submerged or emergent. Structures may include log cribs, rock piles, log and rock cribs, pipe and limber cribs, conifer cribs, PVC-tree structures, gravel spawning beds, catfish cages, concrete blocks stacked and filled with sticks or cuttings or plastic barrels filled with sand and sticks. Resource Concerns addressed include: Inadequate Habitat for Fish and Wildlife - Habitat degradation. Practice installation may also address: Water Quality Degradation - Elevated water temperatures.

Before Situation:

Existing fish pond lacks sufficient habitat diversity to provide optimum conditions for desired fish species.

After Situation:

Habitat structures within fishpond are appropriate for desired fish species. Typical installation in 1 ac pond: 12 structures of 24 concrete blocks stacked and wired together, with sticks placed within blocks. Resource concerns have been addressed. Participant will follow Operation and Maintenance guidance to ensure created habitat is maintained and continues to provide the benefits to the resources.

Scenario Feature Measure: Acre of pond managed

Scenario Unit: Acre

Scenario Typical Size: 1

Scenario Cost: \$1,585.35

Scenario Cost/Unit: \$1,585.35

Cost Details (by category):

| Component Name | ID | Component Description | Unit | Price (\$/unit) | Quantity | Cost |
|-------------------------------|------|--|------|-----------------|----------|----------|
| Equipment/Installation | | | | | | |
| Truck, Pickup | 939 | Equipment and power unit costs. Labor not included. | Hour | \$39.91 | 6 | \$239.46 |
| Labor | | | | | | |
| General Labor | 231 | Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc. | Hour | \$18.92 | 27 | \$510.84 |
| Materials | | | | | | |
| Block, concrete | 253 | Concrete block, hollow, normal weight, 3500 psi. Includes both full and partial sizes. Material only | Each | \$1.92 | 144 | \$276.48 |
| Mobilization | | | | | | |
| Mobilization, small equipment | 1138 | Equipment <70 HP but can't be transported by a pick-up truck or with typical weights between 3,500 to 14,000 pounds. | Each | \$186.19 | 3 | \$558.57 |

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Scenario: #3 - Aerator, surface

Scenario Description:

Aerator added to existing fishpond to obtain desired oxygen levels. Typically 1 aerator needed per pond. Certain oxygen levels in the fishpond are needed for optimum vegetation, habitat and water quality. Oxygen levels and size of aerator needed are determined by a conservation planner, engineer or per existing supported data. Aerator planning and placement specifications can be found in "AEN-3: Aeration of ponds used in aquaculture". Resource concerns addressed include: Inadequate Habitat for Fish and Wildlife - Habitat degradation; Water Quality Degradation - Elevated water temperature.

Before Situation:

Existing fishpond has insufficient levels of oxygen available for desired fish species in pond. Habitat and water quality degraded, as well as health of the fish population.

After Situation:

Aerator sized appropriately for fishpond has been established and oxygen is at an optimum level. Participant will follow Operation and Maintenance guidance to ensure aerator maintained to continually provide appropriate oxygen levels for fishpond.

Scenario Feature Measure: Acre of pond managed

Scenario Unit: Acre

Scenario Typical Size: 1

Scenario Cost: \$1,519.31

Scenario Cost/Unit: \$1,519.31

Cost Details (by category):

| Component Name | ID | Component Description | Unit | Price (\$/unit) | Quantity | Cost |
|-------------------------------|------|--|------|-----------------|----------|------------|
| Equipment/Installation | | | | | | |
| Truck, Pickup | 939 | Equipment and power unit costs. Labor not included. | Hour | \$39.91 | 2 | \$79.82 |
| Labor | | | | | | |
| General Labor | 231 | Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc. | Hour | \$18.92 | 3 | \$56.76 |
| Materials | | | | | | |
| Aerator, pond, 1 hp | 1708 | 1 hp Aerator for pond or tank with less than 10 acres of surface area. Materials only. | Each | \$1,175.40 | 1 | \$1,175.40 |
| Post, Steel T, 1.33 lbs, 10' | 17 | Steel Post, Studded 10' - 1.33 lb. Includes materials and shipping only. | Each | \$10.57 | 2 | \$21.14 |
| Mobilization | | | | | | |
| Mobilization, small equipment | 1138 | Equipment <70 HP but can't be transported by a pick-up truck or with typical weights between 3,500 to 14,000 pounds. | Each | \$186.19 | 1 | \$186.19 |

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Scenario: #4 - Aerator, subsurface

Scenario Description:

Aerator added to existing fishpond to obtain desired oxygen levels. Typically 1 aerator needed per pond. Certain oxygen levels in the fishpond are needed for optimum vegetation, habitat and water quality. Oxygen levels and size of aerator needed are determined by a conservation planner, engineer or per existing supported data. Aerator planning and placement specifications can be found in "AEN-3: Aeration of ponds used in aquaculture". Resource concerns addressed include: Inadequate Habitat for Fish and Wildlife - Habitat degradation; Water Quality Degradation - Elevated water temperature. Associated Practice: Critical Area Planting - 342

Before Situation:

Existing fishpond has insufficient levels of oxygen available for desired fish species in pond. Habitat and water quality degraded, as well as health of the fish population.

After Situation:

Aerator sized appropriately for fishpond has been established and oxygen is at an optimum level. Participant will follow Operation and Maintenance guidance to ensure aerator maintained to continually provide appropriate oxygen levels for fishpond.

Scenario Feature Measure: Acre of pond managed

Scenario Unit: Acre

Scenario Typical Size: 1

Scenario Cost: \$3,771.97

Scenario Cost/Unit: \$3,771.97

Cost Details (by category):

| Component Name | ID | Component Description | Unit | Price (\$/unit) | Quantity | Cost |
|--|------|--|------------|-----------------|----------|------------|
| Equipment/Installation | | | | | | |
| Excavation, Common Earth, side cast, small equipment | 48 | Bulk excavation and side casting of common earth with hydraulic excavator with less than 1 CY capacity. Includes equipment and labor. | Cubic yard | \$2.29 | 8 | \$18.32 |
| Truck, Pickup | 939 | Equipment and power unit costs. Labor not included. | Hour | \$39.91 | 2 | \$79.82 |
| Labor | | | | | | |
| General Labor | 231 | Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc. | Hour | \$18.92 | 3 | \$56.76 |
| Materials | | | | | | |
| Post, Steel T, 1.33 lbs, 10' | 17 | Steel Post, Studded 10' - 1.33 lb. Includes materials and shipping only. | Each | \$10.57 | 2 | \$21.14 |
| Pipe, PVC, 3", SCH 40 | 977 | Materials: - 3" - PVC - SCH 40 - ASTM D1785 | Foot | \$2.80 | 50 | \$140.00 |
| Aerator - subsurface | 1821 | Aeration system, ponds, subsurface air. Includes shipping. | Each | \$2,806.73 | 1 | \$2,806.73 |
| Mobilization | | | | | | |
| Mobilization, small equipment | 1138 | Equipment <70 HP but can't be transported by a pick-up truck or with typical weights between 3,500 to 14,000 pounds. | Each | \$186.19 | 2 | \$372.38 |
| Mobilization, medium equipment | 1139 | Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds. | Each | \$276.82 | 1 | \$276.82 |

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Scenario: #5 - Planting Native Vegetation

Scenario Description:

Native, aquatic vegetation will be established by plugs and or tubers. Both emergent and submerged vegetation will be established using hand tools or other small equipment as needed. Vegetation will be established to ensure appropriate cover for desired fish species. Plants will be established at a rate, location and density as prescribed by the conservation planner or other resource. A typical setting will plant between 2-5 aquatic plants per 10 SF. This scenario may include replacing of non desired plants with appropriate native plants. Resource Concerns addressed include: Degraded Plant Condition - Excessive plant pest pressure; Inadequate Habitat for Fish and Wildlife - Habitat degradation. Practice installation may also address: Water Quality Degradation - Elevated water temperatures.

Before Situation:

Established fish pond which has had insufficient vegetation for desired fish species. Vegetation consists either primarily of non-desired plants or is not of a density to provide adequate cover for fish species. Fishpond is typically 1 acre in size, 1/4 acre of fishpond will receive native vegetation restoration.

After Situation:

Vegetation in fishpond is of a density and composition that is suitable for desired fish species. Vegetation is native plants. Resource concerns have been addressed. Participant will follow Operation and Maintenance guidelines to ensure established plants will thrive. If plant die-off occurs prior to lifespan of practice, participant is required to re-establish vegetation to NRCS Standards and Specifications.

Scenario Feature Measure: Acre of vegetation planted

Scenario Unit: Acre

Scenario Typical Size: 1

Scenario Cost: \$1,328.13

Scenario Cost/Unit: \$1,328.13

Cost Details (by category):

| Component Name | ID | Component Description | Unit | Price (\$/unit) | Quantity | Cost |
|--|------|--|------|-----------------|----------|----------|
| Equipment/Installation | | | | | | |
| Truck, Pickup | 939 | Equipment and power unit costs. Labor not included. | Hour | \$39.91 | 2 | \$79.82 |
| Labor | | | | | | |
| General Labor | 231 | Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc. | Hour | \$18.92 | 36 | \$681.12 |
| Materials | | | | | | |
| Native Aquatic Plants, Emergent or Submerged | 2336 | Native aquatic emergent or submerged. All required materials for establishing vegetation. Includes material and shipping. | Each | \$1.27 | 300 | \$381.00 |
| Mobilization | | | | | | |
| Mobilization, small equipment | 1138 | Equipment <70 HP but can't be transported by a pick-up truck or with typical weights between 3,500 to 14,000 pounds. | Each | \$186.19 | 1 | \$186.19 |

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Scenario: #6 - Depth Management

Scenario Description:

Management of existing fishpond by excavation or placement of material to create deep open water or littoral shelves. Fishpond currently does not provide optimum habitat for desired species. Excavated material will either be relocated within fish pond, or sited appropriately so as to not cause any negative environmental effects. Changes to depth will be based upon recommendations by conservation planner or other individual with appropriate credentials. Resource Concerns addressed include: Inadequate Habitat for Fish and Wildlife - Habitat degradation. Practice installation may also address: Water Quality Degradation - Elevated water temperatures. Associated Practice (if required): Critical Area Planting - 342

Before Situation:

Existing fish pond lacks sufficient depth, diversity of depth or desired bottom structure to provide optimum habitat for desired fish species.

After Situation:

Depth and bottom structure of fishpond are appropriate for desired fish species. Resource concerns have been addressed. Participant will follow Operation and Maintenance guidance to ensure created habitat is maintained and continues to provide the benefits to the resources.

Scenario Feature Measure: Acre of pond managed

Scenario Unit: Acre

Scenario Typical Size: 1

Scenario Cost: \$232.20

Scenario Cost/Unit: \$232.20

Cost Details (by category):

| Component Name | ID | Component Description | Unit | Price (\$/unit) | Quantity | Cost |
|-----------------------|------|---|------|-----------------|----------|----------|
| <i>Materials</i> | | | | | | |
| Aggregate, river rock | 1834 | Well graded, rounded mineral substrates derived from local riverine settings. Includes materials and local delivery | Ton | \$23.22 | 10 | \$232.20 |