

CONSERVATION PRACTICE PHYSICAL EFFECTS WORKSHEET

STATE	Pennsylvania	FIELD OFFICE	Any	DATE	
PRACTICE: Aquaculture Ponds 397		Baseline Setting:			
		Appropriate Land Use(s): Headquarters			
RESOURCES, CONSIDERATIONS AND CONCERNS	PHYSICAL EFFECTS	RATIONALE			
SOIL - EROSION					
Sheet and Rill	Not Applicable	Not applicable.			
Wind	Not Applicable	Not applicable.			
Ephemeral Gully	Not Applicable	Not applicable.			
Classic Gully	Not Applicable	Not applicable.			
Streambank	Not Applicable	Not applicable.			
Shoreline	Not Applicable	Not applicable.			
Irrigation Induced	Not Applicable	Not applicable.			
Mass Movement	Not Applicable	Not applicable..			
Road, Roadsides, and Construction Sites	Not Applicable	Not applicable.			
SOIL – CONDITION					
Organic Matter Depletion	Not Applicable	Not applicable.			
Rangeland Site Stability	Not Applicable	Not applicable.			
Compaction	Not Applicable	Not applicable.			
Subsidence	Not Applicable	Not applicable.			
Contaminants:					
<ul style="list-style-type: none"> • Salts and other Chemicals 	Neutral	If pond waters are released to surrounding lands, potential salinity increases may occur, especially if aquaculture of freshwater shrimp is the objective.			
<ul style="list-style-type: none"> • Animal Waste and other Organics - N 	Not Applicable	Not applicable.			
<ul style="list-style-type: none"> • Animal Waste and other Organics - P 	Not Applicable	Not applicable.			
<ul style="list-style-type: none"> • Animal Waste and other Organics - K 	Not Applicable	Not applicable.			
<ul style="list-style-type: none"> • Commercial Fertilizer - N 	Not Applicable	Not applicable.			
<ul style="list-style-type: none"> • Commercial Fertilizer – P 	Not Applicable	Not applicable.			
<ul style="list-style-type: none"> • Commercial Fertilizer – K 	Not Applicable	Not applicable.			
<ul style="list-style-type: none"> • Residual Pesticides 	Not Applicable	Not applicable.			
Damage from Sediment Deposition	Not Applicable	Not applicable.			
WATER – QUANTITY					
Rangeland Hydrologic Cycle	Not Applicable	Not applicable.			
Excessive Seepage	Not Applicable	Not applicable.			
Excessive Runoff, Flooding, or Ponding	Not Applicable	Not applicable.			
Excessive Subsurface Water	Not Applicable	Not applicable.			
Drifted Snow	Not Applicable	Not applicable.			
Inadequate Outlets	Not Applicable	Not applicable.			
Inefficient Water use on Irrigated Land	Not Applicable	Not applicable.			
Inefficient Water use on Non-Irrigated Land	Not Applicable	Not applicable.			

Reduced Capacity of Conveyances by Sediment Deposition	Not Applicable	Not applicable.
Reduced Storage of Water Bodies by Sediment Accumulation	Not Applicable	Not applicable.
Aquifer Overdraft	Slight Worsening	Water needs for fish production could result in aquifer overdraft during dry seasons.
Insufficient Flows in Water Courses	Slight to Moderate Worsening	Water needs for fish production could result in withdrawal from streams and subsequent insufficient flows during dry seasons.
WATER – QUALITY		
In Groundwater:		
• Harmful Levels of Pesticides	Not Applicable	Not applicable.
• Excessive Nutrients and Organics	Slight to Moderate Worsening	Wastewater discharge from ponds could result in groundwater contamination.
• Excessive Salinity	Not Applicable	Not applicable.
• Harmful Levels of Heavy Metals	Not Applicable	Not applicable.
• Harmful Levels of Pathogens	Not Applicable	Not applicable.
• Harmful Levels of Petroleum	Not Applicable	Not applicable.
In Surface Water:		
• Harmful Levels of Pesticides	Not Applicable	Not applicable.
• Excessive Nutrients and Organics	Slight to Moderate Worsening	Discharge of wastewater from these ponds can result in the contamination of surface water with nutrients and organics.
• Excessive Suspended Sediment and Turbidity	Not Applicable	Not applicable.
• Excessive Salinity	Not Applicable	Not applicable.
• Harmful Levels of Heavy Metals	Not Applicable	Not applicable.
• Harmful Temperatures	Slight to Moderate Worsening	Pond water discharges will be warmer than ambient temperature of receiving waters.
• Harmful Levels of Pathogens	Slight to Moderate Worsening	Fish pathogens from facility wastewater could be discharged into surface waters and infect wild fish
• Harmful Levels of Petroleum	Not Applicable	Not applicable.
AIR – QUALITY		
Particulate Matter less than 10 Micrometers in Diameter (PM 10)	Not Applicable	Not applicable.
Particulate Matter less than 2.5 Micrometers in Diameter (PM 2.5)	Not Applicable	Not applicable.
Excessive Ozone	Not Applicable	Not applicable.
Excessive Greenhouse Gas:		
• CO ₂ (Carbon Dioxide)	Not Applicable	Not applicable.
• N ₂ O (Nitrous Oxide)	Not Applicable	Not applicable.
• CH ₄ (Methane)	Not Applicable	Not applicable.
Ammonia (NH ₃)	Not Applicable	Not applicable.
Chemical Drift	Not Applicable	Not applicable.
Objectionable Odors	Not Applicable	Not applicable.

Reduced Visibility	Not Applicable	Not applicable.
Undesirable Air Movement	Not Applicable	Not applicable.
Adverse Air Temperature	Not Applicable	Not applicable.
PLANTS – SUITABILITY		
Plants not Adapted or Suited	Not Applicable	Not applicable.
PLANTS - CONDITION		
Productivity, Health, and Vigor	Not Applicable	Not applicable.
Threatened or Endangered Plant Species:		
<ul style="list-style-type: none"> Plant Species Listed or Proposed for Listing Under the Endangered Species Act 	Not Applicable	Not applicable.
<ul style="list-style-type: none"> Declining Species, Species of Concern 	Not Applicable	Not applicable.
Noxious and Invasive Plants	Moderate to Substantial Improvement	Aquatic vegetation is managed to control undesired species.
Forage Quality and Palatability	Not Applicable	Not applicable.
Wildfire Hazard	Not Applicable	Not applicable.
ANIMALS - FISH AND WILDLIFE		
Inadequate Food	Not Applicable	Not applicable.
Inadequate Cover/Shelter	Not Applicable	Not applicable.
Inadequate Water	Slight Improvement	Ponds may provide incidental use by wildlife.
Inadequate Space	Not Applicable	Not applicable.
Habitat Fragmentation	Not Applicable	Not applicable.
Imbalance Among and Within Populations	Neutral	Escapement of aquacultured species will affect wild species and their habitats.
Threatened and Endangered Fish and Wildlife Species:		
<ul style="list-style-type: none"> Fish and Wildlife Species Listed or Proposed for Listing Under the Endangered Species Act 	Neutral	Activities are designed, installed, and mitigated to an extent to maintain or enhance species of concern.
<ul style="list-style-type: none"> Declining Species, Species of Concern 	Neutral	Activities are designed, installed, and mitigated to an extent to maintain or enhance species of concern.
ANIMALS – DOMESTIC		
Inadequate Quantities and Quality of Feed and Forage	Not Applicable	Not applicable.
Inadequate Shelter	Not Applicable	Not applicable.
Inadequate Stock Water	Not Applicable	Not applicable.
Stress and Mortality	Not Applicable	Not applicable.
HUMAN – ECONOMICS		
Land - Change in Land Use	Not applicable.	Not applicable.
Land – Land in Production	Slight decrease	
Capital – Change in Equipment	Negligible	
Capital - Total Investment Cost	Moderate to substantial.	
Capital – Annual Cost	Moderate increase.	
Capital – Credit and Farm Program Eligibility	Situational.	

Labor - Labor	Moderate increase.	
Labor – Change in Management Level	Moderate to substantial increase.	
Risk - Yield	Situational	Moderate decrease or increase after aquaculture system is functional, depending on the success or failure of the enterprise.
Risk - Flexibility	Moderate to Substantial Increase	Moderate to substantial increase due to management requirements.
Risk - Timing	Not applicable.	Not applicable.
Risk – Cash Flow	Moderate Increase	Moderate increase due to construction costs.
Profitability – Change in Profitability	Situational	Moderate increase or decrease after aquaculture system is functional, depending on the success or failure of the enterprise.
HUMAN - CULTURAL		
Cultural Resources and/or Historic Properties Present or Suspected to be PRESENT	Slight to Substantial Increase	Construction and setting adverse effects.
HUMAN – ENERGY		
Depletion of Fossil Fuel Resources	No Effect	Pumps, aeration and filtration systems associated with this practice are energy intensive. Energy efficiency depends on the individual system.
Underutilization of Non-Fossil Energy Resources	Slight Decrease	This practice may utilize renewable energy sources, such as hot water from nearby power plants. Also, nutrient-rich effluent from the practice is applied to cropland.

Human Considerations Explanation

Considerations	Physical effects indicate:
Land - Change in Land Use	The degree to which implementing the conservation practice is expected to cause a change from one land use to another.
Land - Land in Production	The degree to which implementing the conservation practice is expected to cause an increase or decrease in the amount of land in production.
Capital - Change in Equipment	The degree to which implementing the conservation practice is expected to cause an increase or decrease in the amount of capital equipment required for farm or ranch operations.
Capital - Total Investment Cost	A qualitative measure of the increase in total investment dollars required in order to implement the conservation practice.
Capital - Annual Cost	A qualitative measure of the expected change in annual capital costs required in order to operate and maintain the conservation practice.
Capital - Credit & Farm Program Eligibility	Included to make conservation planners aware of the potential availability of funding for implementing conservation practices.
Labor – Labor	The degree to which implementing the conservation practice is likely to cause an increase or decrease in the total amount of overall farm or ranch labor required for operations.
Labor - Change in Management Level	The degree to which implementing the conservation practice is likely to cause an increase or decrease in the total amount of required active management on a farm or ranch.
Risk – Yield	The degree to which risk, as related to crop or livestock yields, is expected to increase or decrease as a result of implementing the conservation practice.
Risk – Flexibility	The degree to which risk, as related to the flexibility of farm or ranch operations, is expected to increase or decrease as a result of implementing the conservation practice. For example, converting from flood irrigation to a sprinkler system gives a farmer an increase in flexibility of irrigation, which results in a decrease in the level of risk associated with inflexibility of operations.
Risk – Timing	The degree to which risk, as related to the timing of farm or ranch operations, is expected to increase or decrease as a result of implementing the conservation practice.
Risk - Cash Flow	The degree to which risk, as related to cash flow in farm or ranch operations, is expected to increase or decrease as a result of implementing the conservation practice.
Profitability - Change in Profitability	The degree to which farm or ranch profitability is expected to increase or decrease as a result of implementing the conservation practice.
Cultural Resources and/or Historic Properties Present or Suspected to be Present	The degree to which implementation of the conservation practice is expected to increase or decrease the risk of cultural resource disturbance, degradation, or loss.
Depletion of Fossil Fuel Resources	Inefficient use of fossil-originated energy sources (diesel, gasoline, propane, natural gas, coal), lubricants, and other materials.
Underutilization of Non-Fossil Energy Sources	Available and cost-effective alternative energy sources (solar, wind, biofuel, hydroelectric, geothermal) are not being used or are being used inefficiently.