MONTANA POLLUTANT DISCHARGE ELIMINATION SYSTEM (MPDES) PERMIT

FACT SHEET

Concentrated Aquatic Animal Production (CAAP) General Discharge Permit

FACILITY:	Concentrated Aquatic Animal Production (Fish Farms)
PERMIT NO.:	MTG130000
LOCATION:	Statewide
CONTACT:	Applicant
RECEIVING WATER:	Statewide
FEE INFORMATION:	
Type:	Fish Farm
Number of Outfalls:	One (1) or more

I. Permit Status

The Concentrated Aquatic Animal Production (CAAP) Facilities Permit (MTG130000) was originally issued in 1977 as the Fish Farm General Permit and has been renewed approximately every five years. The permit is currently referred to as the Concentrated Aquatic Animal Production/ Fish Farm General Permit. For the purposes of this renewal it will be referred to as the CAAP permit to maintain consistency with the definition in the administrative rules at ARM 17.30.1331.

The most recent renewal of the CAAP permit became effective on June 1, 2006 and expires on May 31, 2011.

II. Description of Discharge and Discharging Facilities

CAAP facilities feed fishes for commercial, restocking, or other purposes. These facilities use raceways, tanks, ponds, and/or other types of water containment structures to raise fish. Currently, there are 13 facilities with authorizations to discharge under the CAAP. Nine are state-owned fish production facilities, operated by the Montana Department of Fish Wildlife and Parks (FWP), two are United States Fish and Wildlife Service (USFWS) cold-water fish hatcheries and one is a USFWS research facility.

Discharge rates at the 13 facilities vary from 300 gallons per minute (gpm) to 22,000 gpm. Discharges are typically from multiple outfalls to the same receiving water. They are considered as one discharge for calculating effluent limits and for fee purposes.

Production rates vary depending on available water volume, fish species, and management objectives. Generally however, production is most closely related to water volume with production increasing as water volume increases.

All of the current facilities are flow-through operations where source water is pulled from nearby springs or wells, directed through the fish rearing units and then discharged into the receiving water. The primary waste in the discharges consists of solids in the form of metabolic wastes and uneaten food that yield high concentrations of suspended solids (TSS), nutrients, ammonia, biological oxygen demand (BOD) and low dissolved oxygen levels. Residual concentrations of drug and chemical treatments may also be present in CAAP discharges.

At those facilities where it is required, wastewater treatment is commonly accomplished by settling of the solids in basins or in raceway quiescent zones with subsequent removal using vacuum equipment. Collected solids remain on site in the settling basins or in other dedicated solids storage areas and are removed periodically for disposal.

The facilities authorized to discharge under the current permit and their production rates are as follows:

Facility	Authorization	Annual Production (lbs)
Murray Springs Hatchery	MTG130001	32,000
Giant Springs Hatchery	MTG130002	65,000
Big Springs Hatchery	MTG130003	16,000
Big Springs Hatchery	MTG130004	140,000
Bozeman Fish Tech Center	MTG130006	4,000
Creston National Fish Hatchery	MTG130007	61,500
Ennis National Fish Hatchery	MTG130008	75,000
Yellowstone River Hatchery	MTG130011	3,500
Bluewater Hatchery	MTG130012	51,500
Washoe Park Hatchery	MTG130013	13,000
Flathead Lake Hatchery	MTG130014	3,000
Miles City Fish Hatchery	MTG130015	1,000
Fort Peck Fish Hatchery	MTG130017	20,000

III. Coverage

Section 75-5-402 of the Montana Code Annotated (MCA) directs the Department to issue permits to discharge sewage, industrial wastes, or other wastes into state waters, consistently with rules established by the Board of Environmental Review (BER). The BER has adopted rules granting the Department authority to issue or deny general permit authorizations (ARM 17.30.1341). The board has also adopted rules that specifically define Concentrated Aquatic Animal Production facilities as

point sources subject to regulation under the MPDES program (ARM 17.30.1331). For the purposes of this permit, concentrated aquatic animal production facilities are hatcheries, fish farms, or facilities classified under Standard Industrial Classification (SIC) Codes 0273 or 0921 (Office of Management and Budget SIC Manual, 1987) or other facilities that meet the criteria in ARM 17.30.1331 and Appendix C of 40 CFR 122 as follows:

(a) facilities that contain, grow, or hold cold water fish species or other cold water aquatic animals in ponds, raceways, or other similar structures which discharge at least 30 days per year, and produce 20,000 pounds or more harvest weight of aquatic animals per year or feed 5,000 pounds or more of food during the calendar month of maximum feeding;
(b) facilities other than closed ponds which discharge only during periods of excess runoff, that contain, grow, or hold warm water fish species or other warm water aquatic animals in ponds, raceways, or other similar structures , which discharge at least 30 days per year, and produce 100,000 pounds or more harvest weight of aquatic animals per year; or
(c) cold water or warm water facilities that the Department designates as Concentrated Aquatic Animal Production facilities as specified in ARM 17.30.1331(3).

Cold water aquatic animals include but are not limited to the *Salmonidae* family of fish; e.g., trout and salmon. Warm water aquatic animals include but are not limited to the *Cyprinidae*, *Percidae, Esocidae, Acypenseridae, Polyodontidae,* and *Centrarchidae* families of fish; e.g., minnows, walleye and perch, pike, sturgeon, paddlefish, and sunfish, respectively.

IV. Exclusions

Facilities that fall below the production levels specified in Section III and not otherwise designated as such by the Department are not defined as CAAP facilities and therefore are not considered point sources subject to regulation under the MPDES program.

The Department will issue, deny, modify, suspend, or revoke all authorizations under this general permit in accordance with ARM 17.30.1341 and ARM 17.30.1331.

V. Description of Receiving Waters and Applicable Standards

Discharges from CAAP facilities covered under this permit will be to state surface waters. New facilities will be considered for coverage under the General Permit as applications are received. The facilities currently authorized discharge to the following receiving waters:

Facility	Receiving Water	Classification
Murray Springs Hatchery	Lake Koocanusa	B-1
Giant Springs Hatchery	Missouri River	B-2
Big Springs Hatchery (2)	Big Spring Creek	B-1
Bozeman Fish Tech Center	Bridger Creek	B-1
Creston Fish Hatchery	Mill Creek	B-1
Ennis National Fish Hatchery	Blaine Spring Creek	B-1
Yellowstone River Hatchery	Yellowstone River	B-1
Bluewater Hatchery	Bluewater Creek	B-1

Washoe Park Hatchery	Warm Springs Creek	B-1
Flathead Lake Hatchery	Flathead Lake	A-1
Miles City Fish Hatchery	Spotted Eagle Lake	C-3
Fort Peck Fish Hatchery	Fort Peck Dredge Cuts	B-2

The surface water quality standards are composed of the rules in ARM 17.30, Subchapter 6. The provisions of ARM 17.30.635 through 17.30.637, 17.30.640, 17.30.641, 17.30.645, and 17.30.646 apply to all surface waters in addition to the standards for specific receiving water classifications at ARM 17.30.620 through 17.30.629.

VI. Proposed Effluent Limitations and Conditions

A. Technology Based Effluent Limitations

In August 2004 the EPA promulgated national Effluent Limit Guidelines (ELGs) for the Concentrated Aquatic Animal Production Category at 40 CFR Part 451. The ELGs are applicable to facilities that produce 100,000 pounds or more of aquatic animals per year in flow-through or recirculating systems. Any facility that will produce 100,000 pounds or more of aquatic animals per year will be subject to the requirements of 40 CFR Part 451, and the water quality based requirements of either this fact sheet or an individual MPDES permit.

The BPT, BAT, BCT and NSPS requirements of 40 CFR 451 are summarized as follows:

(a) Solids control. The permittee must:

1. Employ efficient feed management and feeding strategies that limit feed input to the minimum amount reasonably necessary to achieve production goals and sustain targeted rates of aquatic animal growth in order to minimize potential discharges of uneaten feed and waste products to water of the U.S.
2. In order to minimize the discharge of accumulated solids from settling ponds and basins and production systems, identify and implement procedures for routine cleaning of rearing units and off-line settling basins, and procedures to minimize any discharge of accumulated solids during the inventorying, grading, and harvesting of aquatic animals in the production system.
3. Remove and dispose of aquatic animal mortalities properly on a regular basis to prevent discharge to state waters, except in cases where the permitting authority authorizes such discharge in order to benefit the aquatic environment.

(b) Materials storage. The permittee must:

1. Ensure proper storage of drugs, pesticides, and feed in a manner designed to prevent spills that may result in the discharge of drugs, pesticides, or feed to state waters.
2. Implement procedures for properly containing, cleaning and disposing of any spilled material.

(c) Structural maintenance. The permittee must:

1. Inspect the production system and the wastewater treatment system on a routine basis in order to identify and promptly repair any damage.
2. Conduct regular maintenance of the production system and the wastewater treatment system in order to ensure that they are properly functioning.

(d) Recordkeeping. The permittee must:

1. In order to calculate representative feed conversion ratios, maintain records for aquatic animal rearing units documenting the feed amounts and estimates of the numbers and weight of aquatic animals.
2. Keep records documenting the frequency of cleaning, inspections, maintenance and repairs.

(e) Training

1. In order to ensure the proper clean-up and disposal of spilled material adequately train all relevant facility personnel in spill prevention and how to respond in the event of a spill.
2. Train staff on the proper operation and cleaning of production and wastewater treatment systems including training in feeding procedures and proper use of equipment.

B. Water Quality Based Effluent Limitations

Pollutants present in CAAP discharges include TSS, BOD, nutrients, and low dissolved oxygen concentrations. Variation in pH, elevated metals concentrations, and bioconcentrating parameters like polychlorinated byphenyls (PCBs) are also of concern. Feed is the primary source of pollutants to CAAP systems (EPA, 2004) and minimizing the discharge of waste solids is the most efficient method of controlling pollution from CAAP facilities.

ARM 17.30.1344(2)(b) incorporates by reference 40 CFR 122.44 which requires permits to include technology-based and/or water-quality based effluent limits (WQBEL). WQBEL are required when the Department determines a discharge has the reasonable potential to exceed any state water quality standard.

The Department has determined that a Best Management Practice (BMP) approach, which minimizes the discharge of waste solids from CAAP facilities, will best protect the beneficial uses and water quality standards of the receiving waters. The current permit requires the development and implementation of BMP plans at all CAAP facilities and further requires effluent treatment at those facilities with a production capacity greater than 20,000 pounds per year. These requirements will be maintained in this permit renewal as follows:

Facilities producing less than 20,000 pounds of fish per year will be required to utilize Best Management Practices (BMPs) to minimize the generation and discharge of waste solids. These small facilities will also be subject to a numeric limit on the discharge of PCBs. Authorizations at facilities producing 20,000 pounds or more of fish per year will include a numeric limit on the

discharge of PCBs, BMPs that include a prohibition on the direct discharge of wastes, and monitoring for TSS.

1.) Best Management Practices

ARM 17.30.1344 adopts 40 CFR 122.44(k) by reference and authorizes the Department to employ BMPs in permits to control or abate the discharge of pollutants when the practices are "reasonably necessary to achieve effluent limitations and standards or to carry out the purposes and intent of the CWA". ARM 17.30.1304(9) defines BMPs as "schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of state waters."

Therefore, to comply with the requirements of ARM 17.30.637(1)(a) and 17.30.621 through 17.30.629 all facilities covered under the CAAP general permit will be required to develop and submit to the Department for approval a BMP plan that addresses feed management and solids handling, as well as the management of drugs and chemicals. The requirements below closely follow the ELG requirements for CAAP facilities at 40 CFR 451. The plan shall be developed and submitted to the Department within 90 days of the date on the authorization letter. Thereafter, the permittee must update the plan by January 31st of each calendar year. The permittee must maintain a copy of the updated BMP plan onsite that has been signed and dated by the facility manager. BMP plans shall address, at a minimum, the following areas:

a. A plan for the efficient feeding of the fish in the facility that will maximize feed conversion and minimize the amount of metabolic wastes and uneaten food produced in the hatchery, and still allow the achievement of production goals. This plan could include, but is not limited to, the following: projected annual production, feeding methods that will be used, appropriate record-keeping of feed consumption, feed storage and handling methods to minimize 'fines' in the feed, and any other means employed to minimize waste food and excess metabolic wastes.

b. A description and schedule of cleaning and maintenance activities that will minimize the amount of waste discharged from the facility at any one time. This must include, at a minimum, the weekly cleaning of raceways, unless otherwise approved for a specific fish species' rearing requirements in an approved BMP plan. Records of raceway cleaning must be maintained on site.

c. A description, including dosage rates, total quantity used, and calculated concentrations, of all drugs and chemicals that will be used routinely in hatchery operations.

In addition to the above requirements facilities that produce 20,000 pounds or more of fish per year shall include the following in their BMP plan:

d. A report of the total pounds of food fed for the previous calendar year, the total weight gain of all fish in the hatchery the previous calendar year and the corresponding feed conversion ratio (FCR). Feed conversion ratios may be calculated for individual lots of fish, providing all fish produced are accounted for.

e. Practices such as the removal or lifting of dam boards or standpipes in raceways or ponds, which allow accumulated solids to discharge to state waters without treatment, are prohibited.

f. Sweeping accumulated solids from raceways or ponds to state waters without treatment is prohibited.

g. The annual BMP plan must include a description of the methods for cleaning accumulated wastes from settling basins or other treatment units and the method of final disposal. The plan must also document that final disposal of accumulated wastes will occur in such a manner that they will not reach state waters.

2.) Total Suspended Solids (TSS)

TSS self-monitoring will be required at facilities with production rates of 20,000 pounds per year or more. Monitoring results will be used to evaluate the effectiveness of each facility's BMP plan and to ensure compliance with the applicable suspended sediment/settleable solids standards at ARM 17.30.621 through 17.30.629. Monitoring shall be conducted semi-annually during the month of maximum feeding in each monitoring period. Samples shall be grab samples from each discharge point during the cleaning of the rearing units corresponding to that discharge point. Additionally, a sample shall be collected from the overflow of any settling basin or other treatment unit that discharges to state waters. The overflow sample must be collected while cleaning wastes are being discharged to the settling basin or treatment unit. If all discharges from raceways or other rearing units are directed to a settling basin or treatment unit during cleaning operations the only required sample location is from the treatment unit overflow. In cases where samples are collected from multiple locations, sample volumes shall be flow proportioned and all samples shall be combined into one common sample for analysis.

3.) PCBs

The Food and Drug Administration permits fish feed to contain PCBs up to a concentration of 0.2 mg/L. A study conducted by the Pennsylvania Cooperative Fish and Wildlife Research Unit at the Pennsylvania State University showed that hatchery fish fed food containing PCBs assimilated 87%, on average, of the PCBs in the diet. The remaining 13% was eliminated in the feces. Thus, the metabolic wastes and waste feed are potential sources of PCBs in hatchery discharges.

The human health standard for PCBs in surface water is 0.00064 ug/L, and the bioconcentration factor is 31,200 (DEQ-7, August 2010). The water quality standards in ARM 17.30.621 through 17.30.629 prohibit the discharge of any carcinogenic, bioconcentrating, toxic, or harmful parameters which would remain in the water after conventional treatment in excess of the standards set forth in Department Circular WQB-7. Therefore, PCBs will be limited at all facilities covered under this permit. Although the limit will be the standard of 0.00064 ug/L, this value is well below the Required Reporting Value (RRV) of 1 ug/L in DEQ-7; any analysis below 1 ug/L should be reported as zero on the DMR and will be considered in compliance with the WQBEL. Monitoring shall be

conducted semi-annually, during cleaning operations and during the month of maximum feeding in each monitoring period.

4.) Drugs and Chemicals

Drugs and chemicals approved by the Food and Drug Administration for use in aquaculture may be used in accordance with label requirements. Pesticides must be registered for use in Montana by the Montana Department of Agriculture. Any extra-label use of approved drugs and chemicals or use of unapproved drugs and chemicals will require case-by-case approval by the Department prior to the discharge to state waters. All drug and chemical use must be documented in the annual BMP plan submitted to the Department.

5.) Other Pollutants

The water quality standards at ARM 17.30.22 through 17.30.629 and ARM 17.30.637(1)(e) apply to BOD, dissolved oxygen, nutrients, and variations in pH. While these pollutants are present in CAAP discharges, they are closely associated with the solids discharged by these facilities. Given this relationship it is believed that the control of solids via BMPs and TSS monitoring will be protective of these standards.

VII. Final Effluent Limits and Conditions

A. Facilities that produce less than 20,000 pounds of aquatic animals per year:

1.) Develop and implement a Best Management Practices plan that addresses feed and waste management and drug and chemical use. The plan shall be developed and submitted to the Department for review and approval, postmarked within 90 days of the date on the general permit authorization letter. Thereafter the plan shall be updated annually and a copy, dated and signed by the facility manager, shall be kept onsite and be available for inspection.

2.) PCBs – No discharge of PCBs above 0.00064 µg /L in any sample. Analytical results less than the RRV of 1 µg /L will be reported as a zero on the DMR and will be in compliance with this limit.

B. Facilities that produce 20,000 pounds or more of aquatic animals per year

1.) Develop and implement a Best Management Practices plan that addresses feed management, solids handling, drug and chemical use, and eliminates the direct discharge of waste solids to state waters. The plan shall be developed and submitted to the Department for review and approval, postmarked within 90 days of the date on the general permit authorization letter. Thereafter the plan shall be updated annually and a copy, dated and signed by the facility manager, shall be kept onsite and be available for inspection.

2.) PCBs – No discharge of PCBs above 0.00064 µg /L in any sample. Analytical results less than the RRV of 1 µg /L will be reported as zero on the DMR and will be in compliance with this limit.

VIII. Monitoring and Reporting Requirements

Self-Monitoring Requirements

Parameter	Frequency	Type[1]	RRV
Flow Rate (gpm)[2]	Monthly [3]	Instantaneous	NA
PCBs µg/L	Semi-Annual	Grab	1 µg/L
Fish Food Fed (lbs/day)	Daily [4]	Measured	NA
Total Suspended Solids[5] (mg/L)	Semi-Annual	Grab	1 mg/L

(1) See the definitions in Part I.A. of the permit.
(2) Flow rate may be established via either influent or effluent flow.
(3) Both the average flow during the monitoring period and the highest average monthly flow shall be reported.
(4) Both the average daily feeding rate during the monitoring period and the maximum daily feeding rate shall be reported.
(5) TSS monitoring is only required at facilities with production greater than or equal to 20,000 pounds per year

Discharge monitoring for TSS and PCBs shall be conducted at the end of pipe, prior to discharge to the receiving water. Samples from multiple discharge pipes shall be flow proportioned and composited prior to analysis.

All monitoring shall be reported semi-annually on Discharge Monitoring Report (DMR) forms.

IX. Mixing Zone

Mixing zones will be established in accordance with ARM 17.30.501-518, Mixing Zones in Surface and Ground Water; no mixing zone is granted in this general permit.

X. Nondegradation

Existing facilities permitted prior to April 29, 1993 are not subject to the nondegradation requirements unless production capacity increased after that date. In such cases nondegradation would apply to the increased capacity only. New facilities must meet the requirements of ARM 17.30.715 for significance criteria to qualify for coverage under the General Permit.

XI. Total Daily Maximum Loads (TMDL)

On September 21, 2000, a U.S. District Judge issued an order stating that until all necessary total maximum daily loads (TMDLs) under Section 303(d) of the Clean Water Act are established for a particular water quality limited segment (WQLS), the State is not to issue any new permits or increase permitted discharges under the MPDES program. The order was issued in the lawsuit Friends of the Wild Swan v. U.S. EPA, *et al.*, CV 97-35-M-DWM, District of Montana, Missoula Division.

The DEQ finds that the renewal and re-issuance of this proposed General Permit does not conflict with the order, because: (1) it is not a new permit; (2) it does not allow any increase in the level of pollutants in the discharges covered by the General Permit.

XII. Information Sources

(1) ARM Title 17, Chapter 30, Sub-chapter 5 - Mixing Zones in Surface and Ground Water.

(2) ARM Title 17, Chapter 30, Sub-chapter 6 - Surface Water Quality Standards.

(3) ARM Title 17, Chapter 30, Sub-chapter 7 - Nondegradation of Water Quality.

(4) ARM Title 17, Chapter 30, Sub-chapter 13 - Montana Pollutant Discharge Elimination System (MPDES) Standards.

(5) CFR, (2010), 40 CFR Part 451, Effluent Limitations Guidelines and New Source Performance Standards for the Aquatic Animal Production Point Source Category.

(6) Carline, Robert F., (2001), Accumulation of PCBs in Hatchery Trout, Pennsylvania Fish and Boat Commission Website; http://www.fish.state.pa.us/images/fisheries/fcs/pcbrpt1.pdf , accessed April 15, 2011

(7) Environmental Protection Agency, (2004), Technical Development Document for the Final Effluent Limitations Guidelines and New Source Performance Standards for the Concentrated Aquatic Animal Point Source Category

(8) Miller, Dan, et. al., (2002), Waste Management in Aquaculture, West Virginia University Aquaculture Information Series, Publication AQ02-1.

(9) Montana Water Quality Act, MCA 75-5-101 et. seq.

(10) MPDES Permit File No. MT-G130000.

PREPARED BY Jeff May, April, 2011