Concentrated Aquatic Animal Production Industry

Public Meeting

November 6, 2002

Seattle, WA

Background

Aquatic Animal Production selected for rulemaking under Consent Decree

- National wastewater discharge standards previously not developed for this industry
- Shift in priorities from toxic metals and organics to siltation, nutrients, and pathogens, which states cited as the most prevalent water quality impairments

Background (cont.)

On September 12, 2002, EPA published proposed Effluent Limitations Guidelines for this industry, which are:

- National regulations for industrial wastewater discharges
- Technology-based standards
- Numerical limitations for TSS and/or a BMP plan

Overview of the Effluent Guidelines Process

- Define the industry
- Gather technical and economic data
- Develop industry profile
- Develop technology options

Overview of the Effluent Guidelines Process (cont.)

- Estimate pollutant reductions
- Evaluate treatment-in-place and treatment performance from best existing treatment
- Estimate engineering costs
- Estimate environmental benefits of regulation

Overview of the Effluent Guidelines Process (cont.)

- Evaluate non-water quality environmental impacts
- Evaluate economic achievability
- Determine achievable effluent limitations
- Proposal and solicitation of public comment

Defining the Industry

- Facilities that grow, hold or produce aquatic animals
- Existing Regulations - NPDES regulations define Concentrated Aquatic Animal Production (CAAP) Facility
  - By size of operation (production level) and by type of species raised
  - Frequency of discharge (> 30 days of discharge per year)

Gathering Technical and Economic Data

- USDA Census of Aquaculture
- AAP Screener Survey (~ 6,000)
- Literature searches
- Data submitted through JSA Aquaculture Effluents Task Force
- EPA site visits, sampling, and DMR data
- Mailed AAP Detailed Survey to a random sample

Developing the Industry Profile

- Between 3,000 to 4,000 AAP facilities
  - >90% of facilities are small businesses
  - Commercial/Private, Academic/Research, Government, Non-profit
- Species
- Production systems

Evaluating Technology Options

- Treatment in-place
- Advanced treatment technologies used at various facilities
- AAP Screener Survey responses
- Studies/NPDES permits
- Facility sampling
- BMPs

Estimating Pollutant Reductions

- Wastewater characteristics (pollutant concentrations)
- Amount of feed used ("representative feed conversion ratio")
- Amount of feed metabolized
- Amount of solids generated and discharged
- EPA sampling and DMR data
- Treatment performance

Developing Effluent Limits

- EPA sampling data
- DMR/PCS data
- Long-term averages
- Variability factors

Estimating Engineering Costs

- Treatment in-place
- Vendor information and standard engineering estimates
  - Capital costs
  - Operation and maintenance costs (including monitoring)
- Number of facilities with or without technology units (frequency factors)

Evaluating Economic Impacts

- Cost reasonableness – BPT
- Economic achievability – BAT
- Cost of achieving effluent reductions related to effluent reduction benefits

Estimating Benefits

- Based on estimated pollutant reductions
- Water quality modeling – prototype stream impacts
- Assessment of ecological and biological endpoints
- Estimation of monetized benefits

CAAP Proposed Rule

- Published in Federal Register on September 12, 2002 at 67 FR 57871
- Supporting documents
  - Technical Development Document (EPA 821-R-02-016)
  - Economic and Environmental Analysis (EPA 821-R-02-015)
  - Draft Guidance Manual (EPA 821-B-02-002)
- Website
  - www.epa.gov/ost/guide/aquaculture

CAAP Proposed Rule (cont.)

Facilities not subject to the proposal, but still evaluating:

- Ponds
- Lobster pounds
- Crawfish ponds
- Open water production of molluscan shellfish
- Aquariums
- Alligators
- Alaska net pen production of salmon

CAAP Proposed Rule (cont.)

Covers a subset of facilities that are defined as CAAP

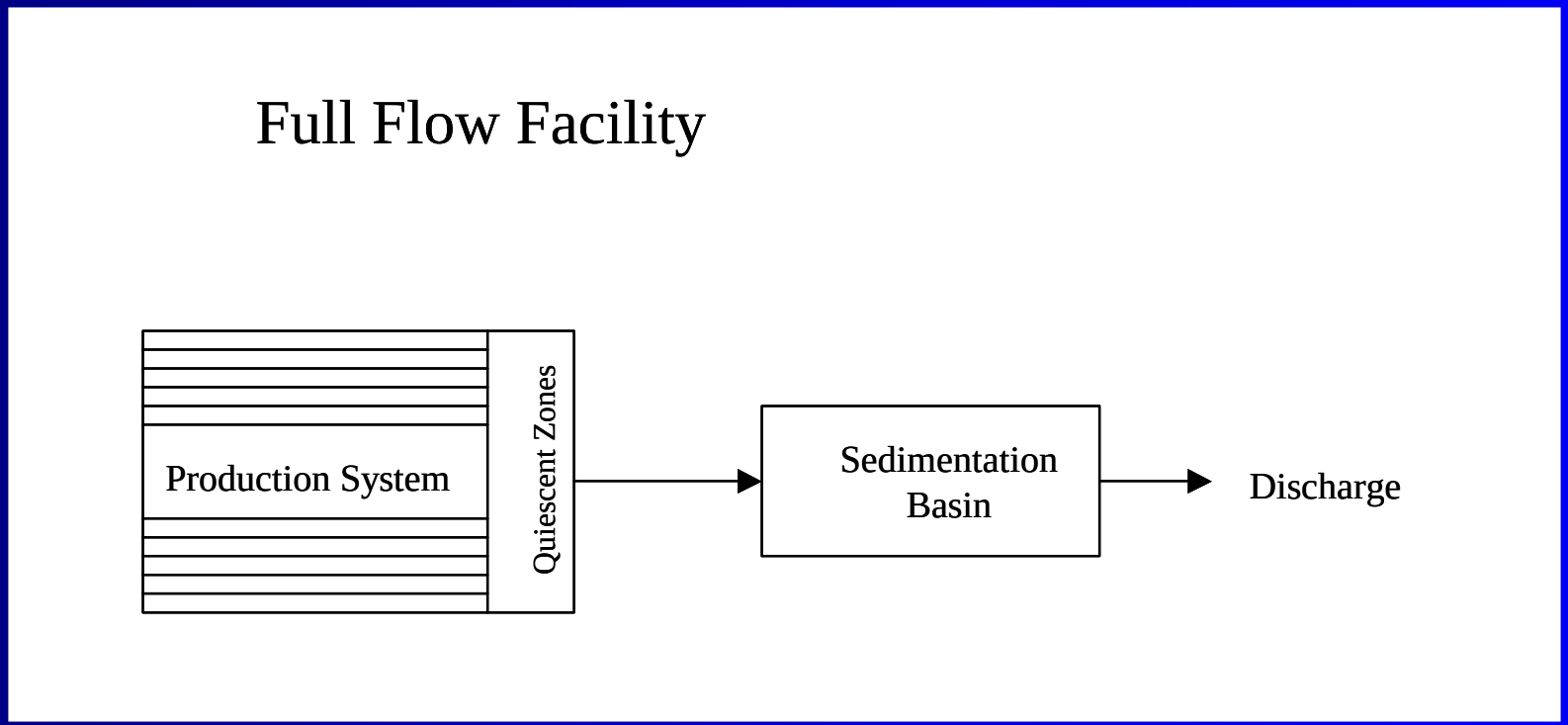
- Flow- through systems (FTS)
  - 100,000 – 475,000 lbs of aquatic animals produced annually
  - > 475,000 lbs of aquatic animals produced annually
- Recirculating (100,000 lbs and above annually)
- Net pens (100,000 lbs and above annually)
- Once a facility meets the ELG CAAP production threshold, it continues to be in scope

Proposed Rule – Flow-through Subcategory

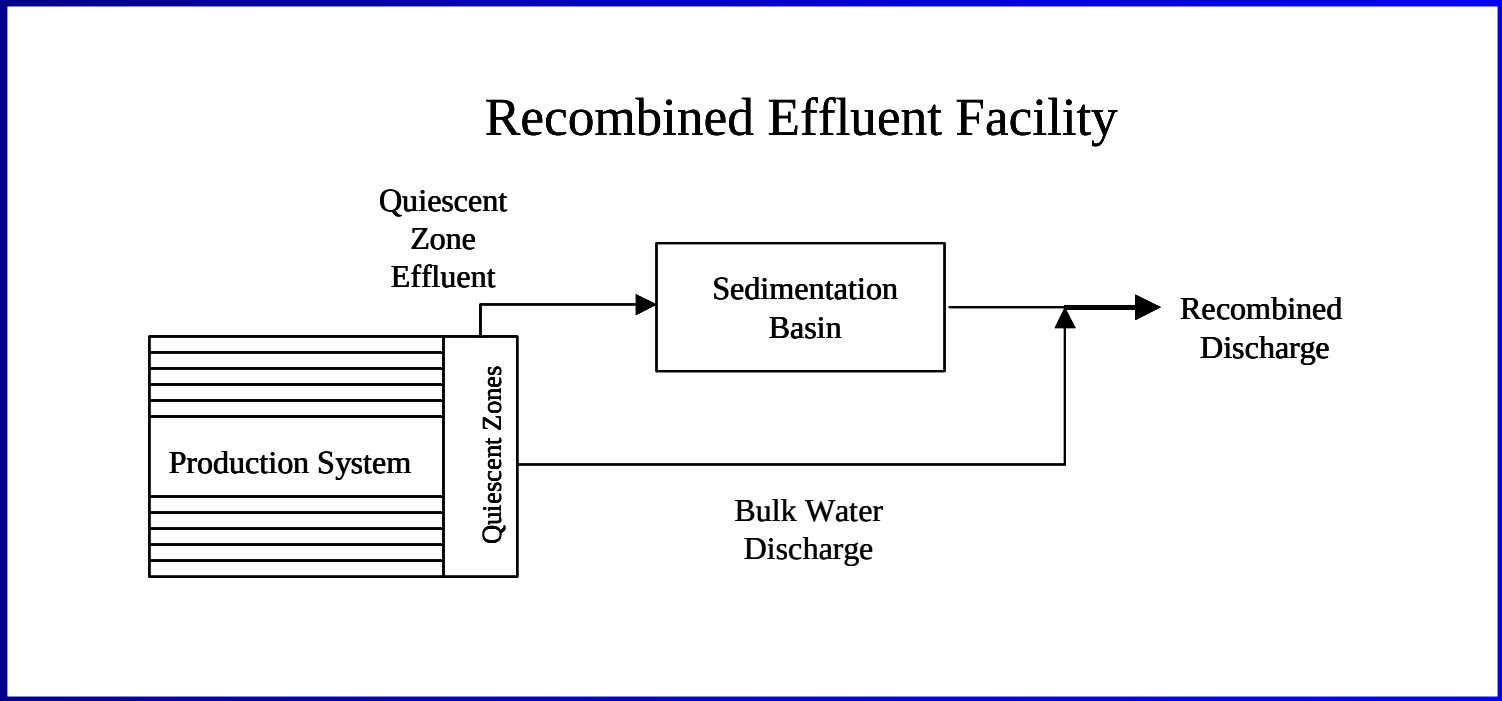
Facilities subject to the proposed rule:

- Medium Facilities (100,000 lbs up to 475,000 lbs per year)
  - Full-flow or recombined effluent
  - Segregated waste stream
- Large Facilities (475,000 lbs or more per year)
  - Full-flow or recombined effluent
  - Segregated waste stream

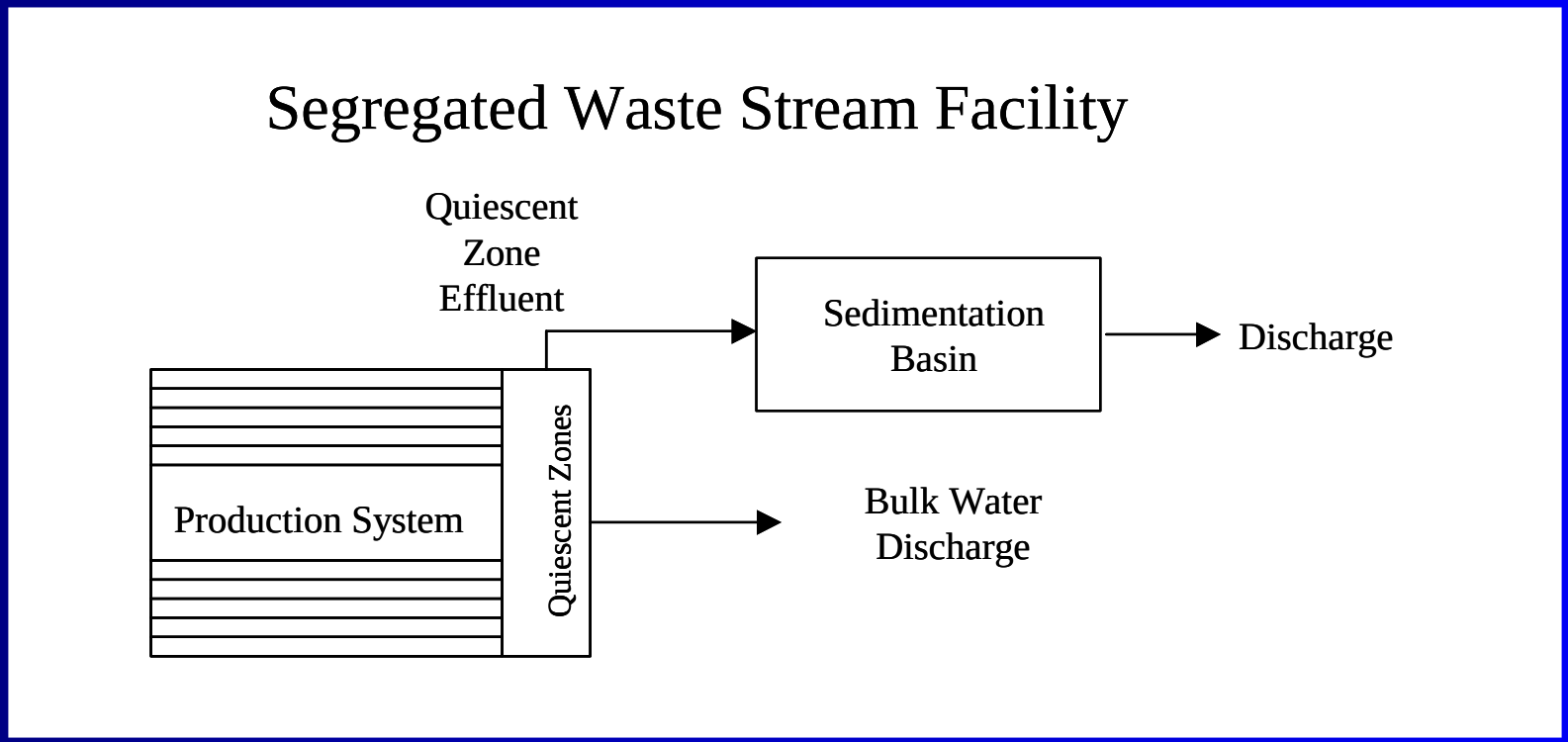
Schematic Diagram of Flow-through System



Schematic Diagram of Flow-through System (cont.)



Schematic Diagram of Flow-through System (cont.)



Medium Flow-through Facilities

Full-flow or recombined effluent

- Meet the net TSS maximum daily (11 mg/L) and monthly average (6 mg/L) limits or Alternative Compliance Provision

AND

- Develop O&M BMP Plan
- No reporting requirements for drugs and chemicals

BMP Alternative Compliance Provision

For Flow-through and Recirculating Systems:

- Develop and implement a BMP plan to address solids in lieu of monitoring for TSS limits
- Subject to permit authority approval and determination that BMPs will achieve numeric limits

Operation & Maintenance BMP Plan

- Proper O&M of facility
  - Structural maintenance
  - Materials storage
  - Removal and proper disposal of mortalities
- Ensure staff are familiar and trained in BMPs
- Certify BMP plan

Medium Flow-through Facilities (cont.)

Segregated Waste Stream

- Meet net TSS maximum daily (87 mg/L) and monthly average (67 mg/L) limits for discharges from separate offline settling or Alternative Compliance Provision

AND

- Develop O&M BMP Plan
- Develop Solids Control BMP Plan for bulk discharge
- No reporting requirements for drugs and chemicals

Large Flow-through Facilities

Full-flow or recombined effluent

- Meet the net TSS maximum daily (10 mg/L) and monthly average (6 mg/L) limits or Alternative Compliance Provision

AND

- Develop O&M BMP Plan
- Reporting requirements for drugs and chemicals
- Practices to minimize escapes

Large Flow-through Facilities (cont.)

Segregated Waste Stream

- Meet net TSS maximum daily (69 mg/L) and monthly average (55 mg/L) limits for discharges from separate offline settling or Alternative Compliance Provision

AND

- Develop O&M BMP Plan
- Develop Solids Control BMP Plan for bulk discharge
- Reporting requirements for drugs and chemicals
- Practices to minimize escapes

Proposed Rule – Recirculating System Subcategory

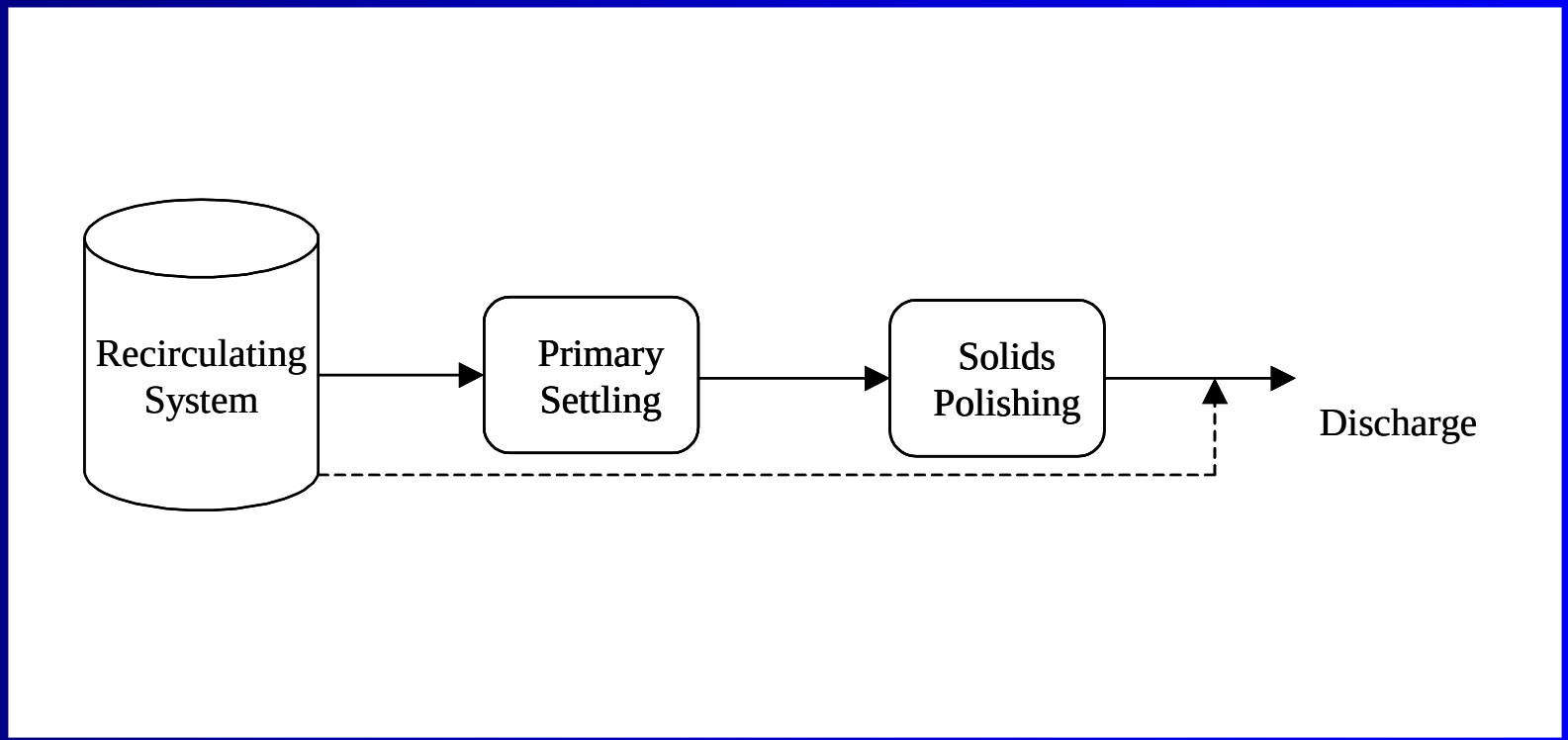
Facilities that produce 100,000 lbs or more per year

- Meet the net TSS maximum daily (50 mg/L) and monthly average limits (30 mg/L) or Alternative Compliance Provision

AND

- Develop O&M BMP Plan
- Reporting requirements for drugs and chemicals
- Practices to minimize escapes

Schematic Diagram of Recirculating System



Proposed Rule – Net Pen Subcategory

Facilities that produce 100,000 lbs or more per year (except net pen facilities in Alaska)

- Feed management via real-time monitoring
- Develop and implement BMP Plan
- Reporting requirements for drugs and chemicals
- Practices to minimize escapes

Proposed Rule – Net Pen Subcategory (cont.)

BMP plan

- Minimize discharge of net fouling organisms
- Avoid discharge of blood, viscera, fish carcasses or transport water
- Prohibited discharges: solid waste, cleaning chemicals, and tributyltin compounds
- Certify BMP Plan

Examples of Facilities in Scope of the Proposed Rule

- FTS annually producing 500,000 lbs of trout
- FTS annually producing 75,000 lbs of trout and 30,000 lbs of salmon
- Recirculating system annually producing 300,000 lbs of hybrid striped bass

Examples of Facilities in Scope of the Proposed Rule (cont.)

- Net pen system annually producing 125,000 lbs of salmon
- FTS annually producing 150,000 lbs of hybrid striped bass and a pond annually producing 40,000 lbs of shrimp
- Recirculating systems annually producing 50,000 lbs of tilapia and 60,000 lbs of hybrid striped bass

Examples of Facilities Not in Scope of the Proposed Rule

- FTS annually producing 40,000 lbs of hybrid striped bass
- Recirculating systems annually producing 65,000 lbs of trout
- Net pens annually producing 80,000 lbs of salmon
- Pond systems annually producing 400,000 lbs of catfish

Examples of Facilities Not in Scope of the Proposed Rule (cont.)

- Lobster pounds annually producing 25,000 lbs of lobster
- FTS annually producing 50,000 lbs of trout and a recirculating system producing 35,000 lbs of tilapia
- FTS annually producing 85,000 of trout and a pond annually producing 90,000 lbs of yellow perch

Request for Comments

- Performance and cost information for practices to treat CAAP wastewaters
- Technologies for controlling non-natives, pathogens, antibiotics, and other chemicals
- Establishing a phosphorus (P) limit for CAAP facilities and meeting current limits with low-P feeds or wastewater treatment practices
- Feedback on the proposed BMP plan

Request for Comments (cont.)

- Characterizing and quantifying incidental benefits from controlling non-natives, pathogens, antibiotics, and chemical releases
- Methods for estimating/monetizing rule benefits
- Possibility of not establishing effluent guidelines for CAAP facilities

Submitting Comments and Data

- Electronic form preferred
  - Spreadsheets
  - Databases
- Information to include with data
  - Sample point characteristics
  - Sampling plan procedures
  - Analytical methods

Submitting Comments and Data (cont.)

Provide original and 3 copies, including copies of references to:

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Next Steps

- Additional Public Meeting on November 12, 2002 in Atlanta, GA
- NACE Conference on November 15, 2002 in Rhode Island
- Comment period closes December 11, 2002
- AAP Detailed Survey follow-up, data entry and analysis
- Notice of Data Availability with additional comment period

For More Information

- Technical:
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  - Technical Coordinator: Janet Goodwin (202) 566-1037
- Economic:
  - James Miller (202) 566-2098
- Environmental Assessment:
  - Lisa McGuire (206) 553-0226
- Water Docket:
  - Access to record (202) 566-2426
- www.epa.gov/ost/guide/aquaculture