

aquatic animals a year and for recirculating systems that produce more than 100,000 pounds of aquatic animals a year. For the 31 facilities with TSS data, the number of effluent measurements per facility ranged from 424 to 2, with the average for all 31 facilities being 68 measurements. EPA compared facility TSS monitoring data with the proposed limits for similar types of discharges and found:

- Recombined effluent—Two of the three facilities in this category exceeded the proposed daily maximum limit of 11 mg/L in 28 of 178 reported measurements. We did not find monthly average measurements for this group

- Full flow settling basin discharges—Two of six facilities exceeded the proposed daily maximum limit of 11 mg/L in 15 of 110 reported measurements, and exceeded the proposed monthly average limitation of 6 mg/L in 10 of 113 reported measurements

- Bulk flow effluent—One of three facilities exceeded the proposed daily maximum limit of 11 mg/L in four of 104 reported measurements and exceeded the proposed monthly average limitation of 6 mg/L in six of 104 reported measurements

- Offline settling basins—Neither of the two facilities with TSS data exceeded the proposed daily maximum limit of 87 mg/L or the proposed monthly average limitation of 67 mg/L in 81 reported measurements

- Recirculating system combined effluent—The one facility with reported TSS data exceeded in one of nine reported measurements the proposed daily maximum limit of 50 mg/L, and they exceeded in three of 87 reported measurements the proposed monthly average limitation of 30 mg/L.

EPA found that all of the reported TSS measurements that exceeded the proposed limits occurred in the earlier data reported by an individual facility. The time periods varied by facility from 1990 through 2001 for the data used to compare proposed limits with reported monitoring data. Facility data in the most recent year were all within the proposed TSS limits for the corresponding outfall type. The record discusses the analysis in these data (*see* DCNs 62641 and 31137).

EPA also compared sampling data from the four sampling episodes with the proposed daily maximum limits and found:

- Full flow settling basin discharges—Neither of the two facilities with full flow discharges exceeded the proposed daily maximum limit of 11 mg/L in any of the 10 sample measurements.

- Bulk flow effluent—One facility with a bulk discharge did not exceed the proposed daily maximum limit of 11 mg/L in any of five sample measurements.

- Offline settling basins—One of three facilities with offline settling basins exceeded the proposed daily maximum limit of 87 mg/L in four of the total 21 sample measurements taken at the three facilities.

- Recirculating system combined effluent—The one facility sampled exceeded the proposed daily maximum limit of 50 mg/L in one of five reported measurements.

H. Feed Conversion Ratios

Improving the conversion of feed to live weight positively affects water quality, generating less wastes by reducing the amount of uneaten feed. Some commenters raised a concern about the feed conversion ratios (FCRs) EPA assumed in the cost model and the frequency factor adjustment (*see* Section III.I.). The FCR is the weight of feed used to produce a unit weight of aquatic animals. Commenters said the FCRs we used for proposal were too high, and most facilities are achieving better feed conversion ratios than assumed.

Many facilities responding to the detailed survey estimated their FCR or submitted detailed information on feed use and production. EPA found reported FCRs to be quite variable, even among facilities with similar systems, ownership-types, and species. EPA calculated FCRs facility-by-facility from the detailed survey to estimate possible load reductions. For the purpose of estimating costs and pollutant load reductions, EPA assigned target FCRs as the 25th percentile value for facilities in each combination of species, production system, and ownership type group. EPA does not currently plan to establish any limits on FCRs. We used facility-specific FCRs to estimate baseline loads and compare them to the target FCR to estimate possible load reductions from implementation of solids control BMPs.

In comparing FCRs with effluent concentration data on a facility basis, EPA found that the raw wastewater pollutant loading at a facility is still largely linked with feed inputs. To address comments about the impact of the FCR values, EPA will perform sensitivity analyses to compare the target FCR and resulting pollutant load reduction estimates.

I. Cost Analyses

Comments stated that the proposed model facility approach used was not adequate. Many of the comments suggested that EPA's cost estimates were

not accurate, but only a few commenters (*e.g.*, JSA AETF, NASAC, and the U.S. Trout Growers Association) provided detailed cost data. These commenters also suggested that EPA's model facilities were an inaccurate representation of the industry because the model facilities do not capture the diversity of actual facilities. One commenter stated that the labor rates for managers and laborers were too low. To address these concerns, EPA used facility-specific information from the detailed survey to perform the analyses for the NODA. *See* Section V.A.2.

Commenters also criticized our use at proposal of the frequency factor approach to major national estimates. For this approach, EPA applied a "frequency factor" to the cost for each model facility to estimate the national cost for all facilities represented by the single model facility. EPA estimated frequency factors based on these sources: EPA site visits, screener surveys, observations by industry experts, USDA's 1998 Aquaculture Census, USDA APHIS National Animal Health Monitoring System, and State regulatory programs. Commenters argued that the frequency factors underestimated compliance costs, so EPA may have underestimated impacts.

For the NODA, EPA changed its approach by using data from the detailed survey to estimate facility-level compliance costs and associated loads. Instead of applying the frequency factors used at proposal, we applied statistically-derived weights from the survey design to scale detailed survey facility estimates to national estimates based on the probability that a facility was selected for the detailed survey sample. Because not all sampled facilities would be within the scope of the rule, we used a subset of the detailed survey sample to estimate national CAAP costs for industry sectors affected by the proposed rule (*see* Section II.D. for a description of the survey weights and the subset).

IV. Regulatory Options Considered for the Proposal and Modifications Being Considered for the Final Rule

A. Proposed Regulatory Options

In subcategorizing the industry for the proposal, EPA considered several factors (*e.g.*, age of the equipment and facilities, location, processes employed, and the available types of treatment technology.) We identified the types of production systems (*e.g.*, flow-through systems, recirculating systems, net pens) to create subcategories with similar operating practices, quality and quantity