

CHAPTER 7

ECONOMIC IMPACT RESULTS

Chapter 7 describes the economic impacts that may result from the costs of complying with the proposed concentrated aquatic animal production industry rule. The impacts are estimated using the revenue test described in Chapter 5 and the compliance costs presented in Chapter 6 of this report. The results are presented for each proposed subcategory. Because EPA projects the costs for new sources to be equal to, or less than, those for existing sources and because limited impacts are projected for these existing sources, EPA does not expect significant economic impacts (or barrier to entry) for new sources. EPA is not proposing standards for indirect dischargers, hence, this Chapter does not include a discussion for PSES and PSNS.

7.1 FLOW-THROUGH SYSTEMS (BPT, BCT, BAT, and NSPS)

7.1.1 BPT and BAT

EPA evaluated the impacts on 181 flow-through systems from the estimated costs of implementing Option 1, 2, or 3. Section 7.1.1.1 contains the discussion for the 164 commercial and non-commercial flow-through facilities in the lower 48 states. The remaining seventeen facilities are non-profit establishments in the state of Alaska; these facilities are discussed in Section 7.1.1.2. Table 7-1 summarizes the findings for commercial and non-commercial ownership and for nonprofit facilities in the state of Alaska.¹

¹ Non-commercial facilities include Federal hatcheries, state hatcheries, Tribal facilities, academic/research facilities, and any other nonprofit facilities.

Table 7-1

**Flow-through Systems
Facilities Showing Impacts at 3%, 5%, and 10% Revenue Test Thresholds**

Size	Number of Facilities	Option 1				Option 2				Option 3			
		3%	5%	10%	Proposed	3%	5%	10%	Proposed	3%	5%	10%	Proposed
100,000 - 475,000 pounds Annual Production													
Commercial	78	25	8	0	*	25	15	0		35	23	23	
Non-Commercial ¹	57	0	0	0	*	0	0	0		4	0	0	
Alaska Nonprofit	15	0	0	0	*	0	0	0		0	0	0	
Greater than 475,000 pounds Annual Production													
Commercial	23	0	0	0		0	0	0		0	0	0	*
Non-Commercial	6	0	0	0		0	0	0		0	0	0	*
Alaska Nonprofit	2	0	0	0		0	0	0		1	0	0	*
Total	181	25	8	0		25	15	0		40	23	23	

¹ EPA found one state-owned hatchery in Alaska produces between 100,000 and 475,000 pounds annually. Impacts to this facility were tabulated with other non-commercial facilities in this table.

7.1.1.1 Non-Alaskan Facilities

Of the 164 non-Alaskan facilities identified through the screener survey, 135 produce between 100,000 and 475,000 pounds per year (78 commercial and 57 non-commercial) and 29 facilities produce more than 475,000 pounds annually (23 commercial, six non-commercial).

For facilities with annual production ranging from 100,000 to 475,000 pounds, the largest impacts are expected to be incurred by commercial facilities. For non-commercial facilities, only four of 57 facilities (about 7 percent) incur costs exceeding three percent of revenues for the most stringent option, Option 3. The results indicate that non-commercial facilities are unlikely to incur compliance costs that exceed three percent of revenues for Option 1 or Option 2. In contrast, nearly half of the commercial facilities are expected to incur costs exceeding three percent of revenues under Option 3 (35 of 78 facilities). About one-third of the commercial facilities show impacts at the three-percent-of-revenues threshold for both Option 1 and Option 2 (25 of 78 facilities). However, the number of commercial facilities incurring costs in excess of five percent of revenues drops from 15 under Option 2 to eight under Option 1. (No facility incurs costs in excess of 10 percent of revenues under Option 1 or Option 2.) EPA is proposing Option 1 for flow-through facilities with annual production between 100,000 pounds and 475,000 pounds.

The effects of economies of scale in the costing models are evident for facilities with production of 475,000 pounds or more per year. The results indicate that these facilities are not likely to incur impacts at the three-percent threshold even under the most stringent option, Option 3. EPA is proposing Option 3 for flow-through facilities with an annual production of 475,000 pounds or greater.

7.1.1.2 Alaskan Facilities

EPA used information provided by the state on production and revenues to evaluate impacts on nonprofit facilities in the state of Alaska. Production level was used to determine those facilities within scope of the proposed rule and to estimate facility-level compliance costs. EPA identified 15 nonprofit

Alaskan facilities that produce between 100,000 pounds and 475,000 pounds annually, and two nonprofit facilities that produce more than 475,000 pounds annually.²

Alaskan facilities perform ocean ranching where salmon smolts are released to the ocean. The members of the nonprofit corporation are allowed to harvest adult fish that return to that region. These are reported as operator revenues. In addition, nonprofit hatcheries may allow region permit holders to vote for a self-imposed “enhancement tax” on the value of fish caught in that region (i.e., by member and non-member fishermen). EPA used the sum of operator-reported revenues and the enhancement tax (where applicable) income as the revenues against which compliance cost impacts are measured. Revenues and enhancement tax income are reported at the level of the nonprofit association, which may own more than one hatchery. EPA estimated facility level revenues based on the facility’s percentage of total association production. The 17 nonprofit facilities that exceed 100,000 pounds in annual production are owned by nine associations.

The projected impacts on the 17 Alaskan nonprofit facilities are reported in Table 7-1. No facilities with annual production ranging from 100,000 to 475,000 pounds are expected to incur costs exceeding three percent of revenues. One facility with annual production in excess of 475,000 pounds is projected to incur costs exceeding the three percent threshold under Option 3.

7.1.2 BCT

EPA’s methodology for evaluating candidate BCT technologies is discussed in Section 5.3 of this report. EPA is establishing BPT limitations for flow-through facilities with an annual production of 100,000 pounds. A BCT test can be performed for the category with 100,000 to 475,000 in annual production. (EPA is proposing the most stringent option for facilities with 475,000 and greater in annual production. Hence, there is no more stringent option to be considered for BCT for this group.) For purposes of this analysis, EPA is assuming that the proposed BPT limits are the baseline. Thus, EPA is considering only Options 2 and 3 as BCT candidate options.

² In addition, EPA found one state-owned hatchery in Alaska produces between 100,000 and 475,000 pounds annually. Impacts to this facility were tabulated with other non-commercial facilities in Table 7-1.

Table 7-2 presents the calculations for the BCT cost test. The cost per pound to upgrade from secondary to advanced secondary treatment is less than \$0.65 for Option 3, so Option 3 passes the first of the two-part test. However, the cost per pound to go from raw wastewater to BPT is \$0.20; therefore, the ratio of the cost per pound to go from BPT to BCT divided by the cost per pound to go from raw wastewater to BPT for the industry is 2.08 and Option 3 fails the second part of the test. Based on these results, EPA is proposing that BCT be set equal to BPT.

Table 7-2
POTW Cost Test Calculations for Flow-through Systems
(100,000-475,000 Pounds in Annual Production)

Option	Incremental Conventional Pollutants Removed (lbs.)	Incremental Pre-tax Total Annualized Costs (Millions, 2000\$)	Ratio of Costs to Removals (POTW Test)	Pass POTW Test?	BPT-BCT Raw-BPT Ratio (Industry Test)	Pass Industry Test?
2	0	\$0.03	undefined	no	NA	NA
3	874,136	\$0.37	0.42	yes	2.08	no

7.1.3 NSPS

EPA is proposing new source performance standards that are identical to those proposed for existing dischargers that meet the 100,000 pound production threshold. Thus, new facilities with annual production ranging from 100,000 to 475,000 pounds will be required to meet Option 1 standards, and new facilities with annual production in excess 475,000 pounds will be required to meet Option 3 standards. Engineering analysis indicates that the cost of installing pollution control systems during new construction is no more expensive than the cost of retrofitting existing facilities and is frequently less expensive than the retrofit cost. Because EPA projects the costs for new sources to be equal to or less than those for existing sources and because limited impacts are projected for these existing sources, EPA does not

expect significant economic impacts (or barrier to entry) for new sources that meet the 100,000 pound production threshold.

7.2 RECIRCULATING SYSTEMS (BPT, BCT, BAT, and NSPS)

EPA evaluated impacts on 21 recirculating systems, all of which are commercial and have annual production in excess of 100,000 pounds. EPA found 13 facilities with annual production ranging from 100,000 to 475,000 pounds, and eight facilities with annual production in excess of 475,000 pounds. No recirculating facilities are projected to incur costs exceeding three percent of revenues under any option. EPA is proposing Option 3 for recirculating facilities with production of 100,000 pounds per year or greater for BPT.

EPA is proposing the most stringent option for facilities with recirculating systems. Hence, there is no more stringent option to be considered for BCT, so BCT is set equal to BPT. The technology options EPA considered for BAT are identical to those it considered for BPT. Because EPA projects limited economic impacts associated with the BPT requirements, EPA does not expect significant economic impacts for BAT. Because EPA projects the costs for new sources to be equal to or less than those for existing sources and because limited impacts are projected for these existing sources, EPA does not expect significant economic impacts (or barrier to entry) for new sources that meet the 100,000 pound production threshold.

7.3 NET PEN SYSTEMS (BPT, BCT, BAT, and NSPS)

EPA evaluated impacts on 20 facilities with net pen systems, all of which are commercial and have annual production in excess of 475,000 pounds. None of the facilities shows impacts under the most stringent combination of technologies and thresholds, i.e., 3 percent with Option 3. EPA is proposing Option 3 for net pen facilities as BPT.

EPA is proposing the most stringent option for facilities with net pen systems. Hence, there is no more stringent option to be considered for BCT, so BCT is set equal to BPT. The technology options

EPA considered for BAT are identical to those it considered for BPT for existing dischargers. Because EPA projects limited economic impacts associated with the BPT requirements, EPA does not expect significant economic impacts for BAT. Because EPA projects the costs for new sources to be equal to or less than those for existing sources and because limited impacts are projected for these existing sources, EPA does not expect significant economic impacts (or barrier to entry) for new sources that meet the 100,000 pound production threshold.

7.4 OTHER ECONOMIC IMPACTS

7.4.1 Firm-Level Impacts

For the final rule, EPA intends to conduct an analysis of firm-level impacts with the detailed survey data. No firm-level analysis is possible at this time due to data constraints that arise from the predominance of privately-held (i.e. firm not required to file financial information with the Securities and Exchange Commission) and foreign-held firms. The salmon industry, for example, is predominantly foreign-held. Due to differences in accounting standards, EPA does not routinely consider foreign firms in its financial analysis. EPA also intends to examine the potential cumulative impacts on non-commercial concentrated aquatic animal production facilities, such as state and Federal hatcheries, using information collected in the detailed survey.

7.4.2 Community-level Impacts

EPA did not identify any data source with detailed employment information for the aquatic animal production industry. Given that the scope of the proposed regulation is focused on a limited number of larger facilities, EPA believes that is not likely to cause severe community impacts. EPA intends to examine community-level impacts based on detailed survey data.

7.4.3 Foreign Trade Impacts

EPA believes that proposed regulations will have little, if any, impact on foreign trade. Several species, including striped bass, tilapia, trout, and salmon, face significant foreign competition. However, no facilities in the striped bass sector are expected to incur compliance costs that exceed the 1 percent revenue threshold, and no tilapia or salmon facilities are expected to incur compliance costs that exceed the 3 percent revenue threshold. EPA used its regulatory flexibility and proposed different options for different levels of production for the system most commonly used to raise trout (i.e., flow-through) to mitigate potential adverse impacts.