

determining a percent reduction: (1) Consideration of all fish and shellfish species that have the potential to be impinged or entrained, or (2) consideration of fish and shellfish from only a subset of species determined to be representative of all the species that have the potential to be impinged or entrained. For either approach, species impinged or entrained may be measured by counting the total number of individual fish and shellfish, or by weighing the total wet or dry biomass of the organisms. These approaches are described in more detail below. EPA invites comments on these approaches and whether EPA should require facilities to use a specific method or only provide guidance.

All Species Approach

For determining compliance with the impingement mortality and entrainment standards, EPA is considering requiring that all species of fish and shellfish present at the cooling water intake structure and having the potential to be impinged be included in the measurement. Under this approach, the permittee would measure either the total number or the total biomass of the fish and shellfish impinged (without regard to their taxonomic grouping) and use this number to compare to the calculation baseline to determine compliance with the impingement mortality reduction performance standards. This approach would be the simplest conceptually to implement since only the total number or mass of impinged organisms would need to be measured. However, this approach would have the limitation that information on efficacy of the technology related to each species would not be collected, and all species would be treated as equivalent, without regard to their relative ecological, economic, recreational, or cultural importance.

EPA is similarly considering requiring that entrainment losses also be measured by counting the total numbers of organisms entrained. This approach has been commonly used in freshwater rivers and streams and produces either a total number of undifferentiated eggs and larvae entrained, or an identification of the entrained eggs and larvae by species or family. Several commenters emphasized that a permittee should not be required to prove reduced entrainment of every entrained species by at least 60 percent. These commenters also stated that the difficulty and cost of taxonomic classifications makes species-specific monitoring unreasonable, and that

classification is not possible for early life stages of some species.

If EPA were to require the use of an approach that considers the total number of all fish and shellfish that have the potential to be impinged or entrained, regardless of species, language similar to the following would be added at proposed § 125.94(b)(5):

(5) Compliance with impingement mortality and entrainment performance standards in paragraphs (b)(1) through (4) above must be determined based on a comparison of the enumeration of all fish and shellfish impinged and killed and entrained with those estimated to be impinged and killed and entrained at the calculation baseline.

EPA requests comment on the approach of enumerating all fish and shellfish, regardless of their taxonomy in determining compliance with the performance standards for impingement mortality and entrainment and the regulatory language above. EPA is also accepting comment on the advantages and disadvantages of using the absolute number of organisms impinged or entrained as opposed to using wet or dry total weights of biomass.

For measuring compliance with the entrainment reduction performance standard, several commenters suggested that the entrained biomass could be measured by collecting entrained organisms from the outfall or other appropriate monitoring location where a representative sample can be taken. This mass would then be compared to the mass of eggs and larvae that would have been entrained at the calculation baseline to determine if there is a 60 percent reduction or better. However, EPA is concerned that if a facility uses biomass, the weights may not be substantial enough to yield useable data since most entrained organisms are at the egg or larval stage. EPA requests comment on the feasibility of using biomass for measuring compliance with the entrainment reduction standard.

Representative Species Approach

Another approach to determine compliance with the impingement mortality and entrainment performance standard involves considering a subset of the species that are representative of all species that are susceptible to impingement or entrainment in the waterbody that needs to be protected. This approach would require the permittee to identify representative important/indicator species (RIS), as opposed to considering all species present at the cooling water intake structure, for use in calculating compliance with the performance standards. If this approach were

allowed, EPA is considering requiring that the list of RIS be developed by the facility, in consultation with the Director and Federal, State and Tribal fish and wildlife management agencies using available data. EPA might also require the concurrence of the Director.

Historically, the term RIS has been defined in different ways. EPA's 1977 Draft Guidance for Evaluating the Adverse Impact of Cooling Water Intake Structures on the Aquatic Environment: Section 316(b) P.L. 92-500 uses the concept of "critical aquatic organisms." This term is used in a manner similar to RIS. The 1977 Guidance states that "critical aquatic organisms" are "those species which would be involved with the intake structure and are: (1) Representative, in terms of their biological requirements, of a balanced, indigenous community of fish, shellfish, and wildlife; (2) commercially or recreationally valuable (e.g., among the top ten species landed—by dollar value); (3) threatened or endangered; (4) critical to the structure and function of the ecological system (e.g., habitat formers); (5) potentially capable of becoming localized nuisance species; (6) necessary, in the food chain, for the well-being of species determined in 1–4; (7) one of 1–6 and have high potential susceptibility to entrapment-impingement and/or entrainment; and (8) critical aquatic organisms based on 1–7, are suggested by the applicant, and are approved by the appropriate regulatory agencies" (see DCN 4-0006).

In EPA's section 316(a) regulations, the term "representative important species (RIS)" is used and defined as "species which are representative, in terms of their biological needs, of a balanced, indigenous community of shellfish, fish and wildlife in the body of water into which a discharge of heat is made" (see 40 CFR 125.71). Under these same regulations, the term "balanced, indigenous community" is defined as "a biotic community typically characterized by diversity, the capacity to sustain itself through cyclic seasonal changes, presence of necessary food chain species and by lack of domination by pollutant tolerant species." (See 40 CFR 125.71). The section 316(a) regulations require that in selecting RIS, special consideration be given to species mentioned in applicable water quality standards. It further requires that after the discharger submits its detailed plan of study, the Director either approve the plan or specify any necessary revisions to the plan (see 40 CFR 125.72).

Other entities, including some States, use the concept of RIS defined as those species selected by a discharger and