

Jeanine Townsend - OTC Policy Comments

From: Joanna Jensen
To: Jeanine Townsend
Date: Wednesday, September 23, 2009 2:56 PM
Subject: OTC Policy Comments
Attachments: Steinbeck-9-16-09.pps

Hi Jeanine,

These attached comments were submitted at the 9-16-09 Hearing by:

John Steinbeck

Tenera Environmental

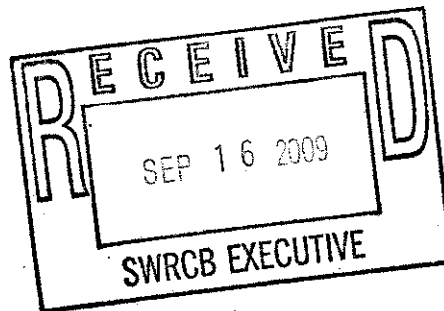
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Benefits of Reducing OTC

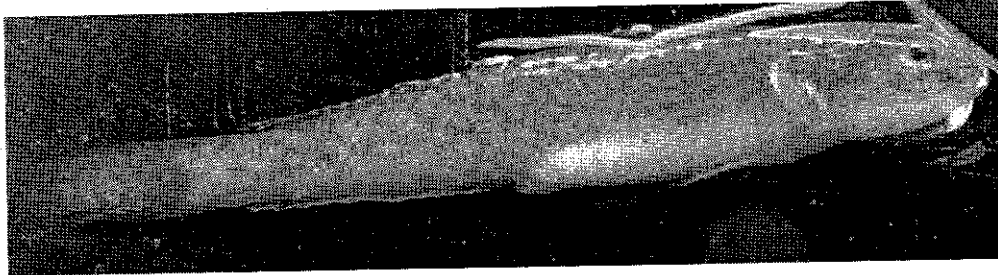
- No documentation of benefits provided in Draft Policy other than tables showing the large numbers of impinged and entrained fish and shellfish
- Any real benefits from reducing or eliminating entrainment due to OTC might only apply to a few species under a extremely narrow set of conditions

What is Entrained?

- Varies among locations – ex. 20 groups of fishes at South Bay Power Plant in San Diego Bay to 178 groups at the Diablo Canyon Power Plant
- Overall, various species of gobies make up approximately 40 percent of the total entrainment throughout the state*

* - no data from Pittsburg, Contra Costa, Mandalay, and Ormond Beach

Gobies?



- Most abundant is the arrow goby shown here
- Grows to ~2 inches
- Lifespan of less than 3 years
- Inhabits burrows in sand and mudflats in embayments throughout CA

Impacts on Gobies

- Impingement impacts are minimal since fishes live on bottom
- Larvae entrained in large numbers but adapted to high mortality rate because tidal currents flush most of the larvae out to sea where they are lost to the population

Impacts on Gobies – South Bay

- At South Bay Power Plant entrainment estimates separated by ~20 years were essentially equal indicating no change in spawning population
- Verified by independent studies of fishes in San Diego Bay showing increasing abundances of gobies over the study period 1995-1999 when the plant was operating

Impacts on Gobies - Encina

- If there is any location where we should see impacts on resident fish populations, such as gobies, it would be in Agua Hedionda Lagoon
- OTC volume for Encina Power Station is largest in the state relative to the volume of the source water. Results in turnover of entire volume of Agua Hedionda Lagoon in less than two days

Agua Hedionda Lagoon Example

- Concentrations of goby larvae over 5x higher in recent entrainment studies compared to 20 years previous
- Fish composition similar to other embayments with no power plant intakes
- Sampling in mudflats showed strong recruitment of juvenile gobies to adult habitat and adult densities similar to areas with no power plant intakes

Why?

Well documented that many fishes limited by available habitat – only so many gobies burrows will fit into an area of mudflat

Therefore,

- Increasing supply of larvae will not affect the population in these and many other fishes
- Benefits to these fishes from reducing or eliminating OTC will be limited
- Changes in policy to encourage habitat restoration and preservation will provide greater benefits