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To:

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From:

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Re: Public Comment, Desalination Amendment to the Ocean Plan

The proposed Desalination Amendment would clarify the State Water Board's authority over desalination facility intakes and discharges by providing direction to the regional water boards regarding the determination required by California Water Code section 13142.5, subdivision (b) which requires that any "new or expanded coastal power plant or other industrial installation using seawater for cooling, heating or industrial processing" must utilize **"the best available site, design, technology and mitigation measures feasible to minimize the intake and mortality of all forms of marine life"**.

It seems reasonable to assume that we can minimize entrainment and impingement of marine life by drawing marine phreatic water, marine groundwater, from subsurface intakes up to the surface for desalination because we know that there's only microbial marine life in the pore waters below the ocean floor, except for the benthic macrofauna in the upper few meters below the sediment-water interface. The rule as currently stated assumes that installing, operating, and maintaining subsurface intakes for desalination will have zero environmental impact and require no mitigation.

In fact, the rule as written essentially mandates that subsurface seawater intakes be used for all seawater intakes for desalination by requiring they be tested and constructed to full scale unless proved infeasible before any other intake technology is even considered. Due to high cost of permitting and constructing test wells, this mandate, though stated as only a preference, is an absolute mandate, picking on approach to seawater intake for desalination as the ‘winner’, and ruling out and stifling new ideas and innovation of other methods of seawater intake for desalination. It’s simply not only a preference for subsurface intakes, but due to excessive costs that represent revenues to a multi-billion dollar drilling industry who will profit from being selected by the Water Board as the winning technology, rules out any other approach for all intents and purposes.

The rule goes on to say that in the event that regulators agree that subsurface intakes are infeasible after years and millions of dollars paid to the drilling industry who lobbied for the State Board’s subsurface intake selection preference in the rule, all ocean intakes for desalination that are not subsurface are assumed to have environmental impacts that are significant as determined by any detectable level of entrainment and impingement of marine life alone, and no concern is mentioned of other possible environmental impacts. The rule presents a vaguely described Area Production Foregone (APF) methodology for calculating mitigation of the assumed entrainment and impingement of marine life impact by non-subsurface intakes that is widely open to interpretation and controversial.

By contrast, a commonly cited example of subsurface intake is an infiltration gallery which destroys large tracts of benthic habits on the sediment bottom, killing all benthic macrofauna and requires periodic reconstruction due to clogging and further possibilities of unleashing abundant methane seeps such areas as Monterey Bay. Because infiltration galleries fit in the category of a subsurface intake ‘winner’ technology as specified by the rule, there is no discussion about how one would assess the mitigation necessary for an infiltration gallery type of subsurface seawater intake for desalination.

The rule is essentially silent about the whole concept of identifying the best available site, design, technology and mitigation measures feasible to minimize the intake and mortality of all forms of marine life, but only mandates subsurface intake wherever feasible, with no explanation of what feasibility means, and due to the costs and timelines, essentially rules out

any other intake technology or approach that may in fact be more likely the best available site, design, technology and mitigation measures feasible to minimize the intake and mortality of all forms of marine life.

For example, the rule does not discuss how site selection can minimize the intake and mortality of all forms of marine life. California's diverse coastlines hold several unique opportunities for intake site selection that minimize the intake and mortality of all forms of marine life such as the several marine canyons that drop to deep sea depths close to the shoreline, allowing access to deepwater masses nearly devoid of marine life. This rule would require that attempts be made to permit, drill and test subsurface intakes at the mouth of a near shore submarine canyon before the environmental impact of drawing water from the deepwater canyon even be considered. The rule as written assumes there is no mitigation necessary for any subsurface forms of intake. However, I am aware of no data, anywhere suggesting that subsurface seawater intakes have no environmental impact.

Of particular concern is the potential off-gassing of fugitive greenhouse gases from deep subsurface intake slant wells and vertical wells. When ground water is pumped to the surface it is released from pressure like a carbonated soda bottle and off-gasses its dissolved carbon dioxide into the surrounding atmosphere. This fact has been brought to the State Water Board's staff on several occasions, but has been both ignored and fallaciously rebutted. For instance, Dr. William Bourcier, a distinguished groundwater geochemist from Lawrence Livermore National Laboratories in Livermore California, submitted a written comment last August, showing that a 50 MGD desalination plant using subsurface well intakes could off-gas 200,000 tons of carbon dioxide per year. The State Board's written response is that at most it would only off-gas about 100,000 tons of carbon dioxide a year and a desalination plant off-gasses about 80,000 tons a year anyway, so its potential was insignificant. This would in fact more than double the total GHG emission from the desalination plant which is already criticized as being too carbon intensive. In fact, AB 32, California's Global Warming Solutions Act, requires facilities, not excluding desalination facilities, enter a mandatory registry if they are responsible for the emission of more than 10,000 tons of GHGs per year, and are in the Cap-and-Trade system if they are responsible for the emission of more than 25,000 tons of GHGs per year. This is 1/10th the level the State Board is calling insignificant. The State Board's interpretation of the Ocean Plan Amendment would be in direct conflict with AB 32 significance levels.

For the State Water Board officials to say that the GHG potential of 100,000 tons per year is something they considered ‘insignificant’ in their written comments response responding to Dr. Bourcier’s thoughtful comments on the Water Board’s draft Ocean Plan points out the complete lack of concern by the Water Board for making a rule that will identify the best available site, design, technology and mitigation measures feasible to minimize the mortality of all forms of marine life. In fact, climate change may be the largest potential impact to marine life from seawater intake, as has already been demonstrated throughout the literature, and the Ocean Plan’s preference for subsurface intake will only worsen the situation.

Desalination plant proponents that started their projects before AB 32 and general concern for climate change assumed that the State Water Board would be requiring subsurface intakes and have already started the multiple years of testing and failure of subsurface intakes to the benefit of the drilling industry and cost to the people of California trying to follow this already failing draft rule, and it will be difficult for the Water Board to reverse their stand on subsurface intakes after the millions of dollars and years that have been wasted attempting to follow this failing draft rule, but the world has now awoken to climate change and the subsurface intake rule is simply obsolete. The decade-old assumption that subsurface intakes will always draw fresh seawater free of marine life and therefore have no environmental impact despite destroying large tracts of benthic habits and producing very significant GHG emissions simply isn’t true.

Rules need to be technology agnostic, and should not pick a winner as the Ocean Plan does. This rule stifles innovation because the law requires by preference the drilling industry’s products and services, excluding any new ideas or innovations, giving the drilling industry a monopoly on seawater intakes for desalination. The mandate for subsurface intakes need to be removed from the Ocean Plan and replaced by the definition in California Water Code section 13142.5, subdivision (b) which requires that any “new or expanded coastal power plant or other industrial installation using seawater for cooling, heating or industrial processing” must utilize “the best available site, design, technology and mitigation measures feasible to minimize the intake and mortality of all forms of marine life.