

16 April 2021

Southern Water,
WATER FOR LIFE – HAMPSHIRE,
PO BOX 5215

Submitted via email to:
WFLH@southernwater.co.uk

Our Ref: 14.20.2



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Dear Southern Water,

Hampshire & Isle of Wight Wildlife Trust is concerned about Southern Water's "Base Case" proposals to install a 75 million litres per day desalination plant at Fawley and the impacts it would have on important designated sites and marine wildlife.

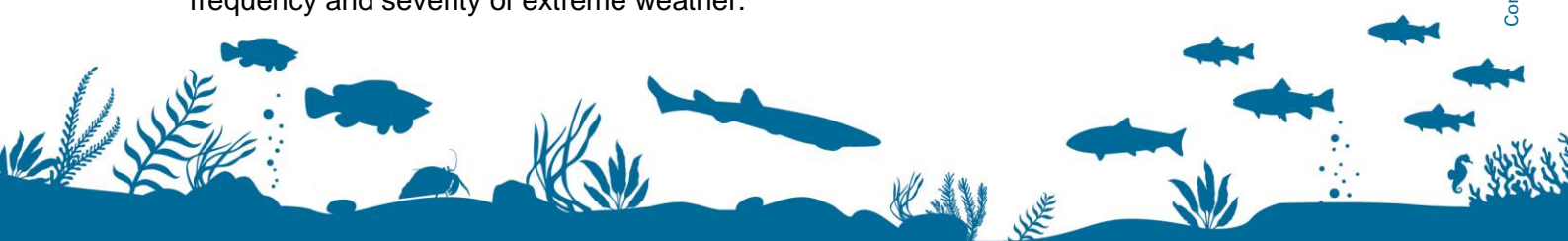
We have serious concerns on the impact of the brine discharge will have on wildlife and the designated areas of the Solent. The consultation document proposes the release of brine in 'deeper waters' but elsewhere makes clear that this is at a minimum of 3 – 5 m in all tidal conditions. The Solent is a shallow estuary with tidal 'West-to-East' hydrodynamic conditions that may not promote the 'flushing' and dilution of these hypersaline plumes of brine to deeper water effectively from proposed near-shore locations. Brine release should be conducted at greater depths and further from shore to ensure dispersal.

As a result, we are concerned about the impacts of increased salinity on the designated areas in close proximity to the brine discharge. The proposal indicates that the water abstraction and brine discharge points will both lie within the Solent and Dorset Coast Special Protection Area (SPA) and close to three other designated sites and their underlying SSSI Features; the Solent and Southampton Water SPA, the Solent Maritime Special Area of Conservation (SAC) and the Yarmouth to Cowes Marine Conservation Zone (MCZ).

The increased salinity of the brine could cause changes to the chemical composition of the surrounding water impacting a wide range of marine species and potentially impacting the passage of migratory fish species into nearby river catchments.

Unlike estuarine species, many marine species of both plants and animals are stenohaline, they are unable to tolerate changes in salinity. The increase in salinity, therefore, has metabolic impacts which can be lethal, or sublethal. Sublethal impacts are particularly hard to predict as they may affect long term survival and reproductive success, and thus be harder to detect in the short term.

More saline water is also less able to absorb oxygen, reducing the amount available for plants and animals, coupled with the similar negative relationship between water temperature and oxygen carrying capacity, we are concerned that this will increase periods of oxygen stress, particularly in the warmer months. This probability and severity of such impacts is only likely to increase with the combined effects of global warming and increased frequency and severity of extreme weather.



Brine discharge may also stimulate undesirable biological processes, such as algal blooms that can have devastating impacts on shallow coastal systems. Given the already eutrophic and nitrate-enriched nature of the Solent's waters, additional stimuli to excessive algal growth are particularly unwelcome and potentially damaging.

Furthermore, it is well documented that direct impingement and entrainment of marine organisms occurs at seawater intake systems associated with desalination installations. As a breeding and nursery ground for species like seabass and cuttlefish, species which migrate as relatively small juveniles, we feel that entrainment represents a real risk to populations for these and other species. Impacts on plankton and fish and invertebrate juveniles, ultimately affects stocks, productivity and the availability of food for important species within the local Marine Protected Areas.

We are concerned about such impacts in the relatively enclosed and shallow waters of the Solent. We understand that risks of impingement and entrainment may be reduced by situating intakes far from shore and in water depths of greater than 20 m.

In addition, construction of the abstraction and discharge pipelines would cause physical destruction of the seabed in the SPA, SAC and Ramsar site and disturbance of sea grass beds near Calshot. Although some impacts may be restricted to the construction period, others, including damage to seagrass meadows, which are known to be very slow to recover, if at all, cannot be assumed to be short-lived.

A reduction in the negative impacts of desalination installations depends, fundamentally, on two conditions being met; that the abstraction and discharge pipelines are situated far from shore and that the abstraction and discharge pipelines are situated at depth. Neither of these conditions can be met with the shallow, enclosed constraints of the Solent, particularly at the narrower western end.

We feel strongly that there are significant risks to protected habitats and species within the differently designated Marine Protected Areas this proposal will affect as well as for the wider Solent environment. The Solent is already stressed and the unfavorable condition of its protected habitats such as seagrass has been attributed, in great part, to the impacts of poor water quality. The operation of a desalination facility abstracting and discharging into the Solent will do nothing to improve water quality and is highly likely to reduce it further, adding to the pressures on the marine environment.

We strongly urge Southern Water to reconsider this proposal, to accelerate the reduction in water loss through leakage and to invest in water treatment plants which will allow for the reuse of wastewater to supply drinking water and denitrify all wastewater inputs to the Solent.

Yours Faithfully,



Dr Tim Ferrero
Senior Specialist – Marine Conservation