

Objection to the Appeal

Dr Paul Farrell (Marine Ecologist)

Nitrate budget/guidance is unreliable.

Drainage plan is not proven.

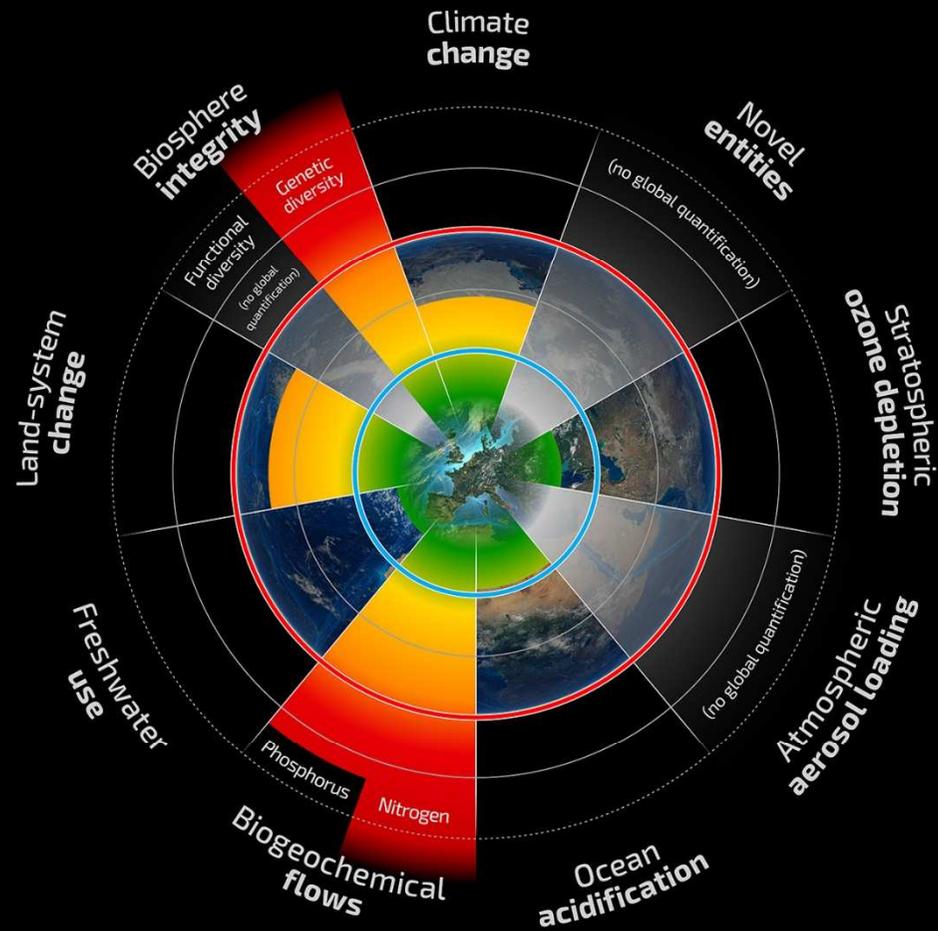
Legal liability if future studies show nitrate emissions too high (Dutch Case).

Even if development could be nitrate neutral, we urgently need to reduce nitrates, not simply remain static. Once lost, the field cannot be used for required future mitigation.

Legal commitment to improve ecological status of waterbodies.
(Nitrates used as indicator of ecological status).

Planetary Boundaries

A safe operating space for humanity



- Beyond zone of uncertainty (high risk)
- In zone of uncertainty (increasing risk)
- Below boundary (safe)
- Boundary not yet quantified

Source: Steffen et al. Planetary Boundaries: Guiding human development on a changing planet, *Science*, 16 January 2015.
Design: Globala

From ocean to ozone: status of Earth's life-support systems

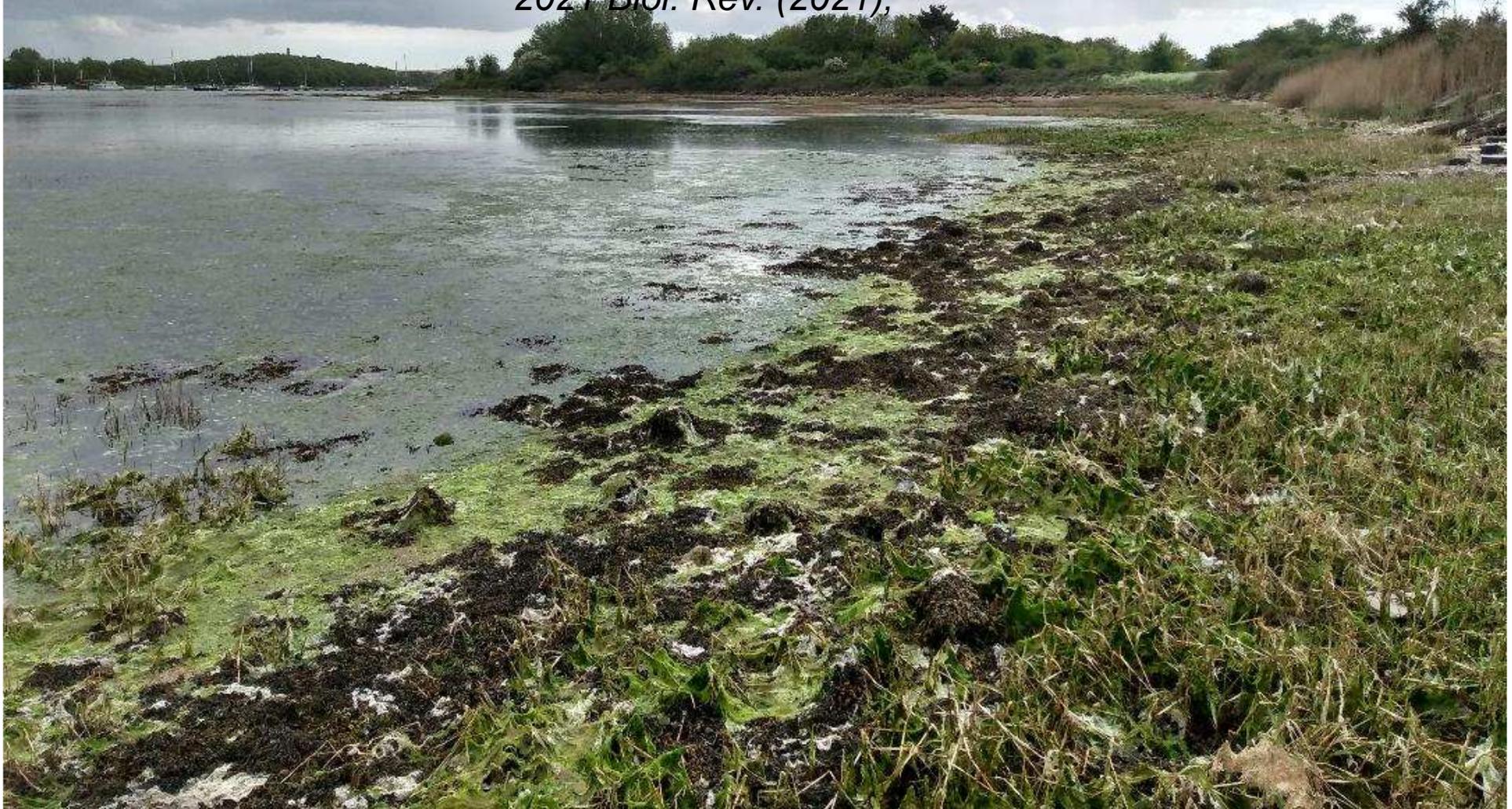
In an open letter to UN secretary general António Guterres more than 150 scientists from 35 countries are calling for “urgent action on nitrogen pollution, to tackle the widespread harm it is causing to humans, wildlife and the planet”, and for a halving of nitrogen waste from all sources globally by 2030.

Steffen et al. 2015

THE NITRATE PROBLEM

Ecological damage to Portsmouth harbour and wider Solent will only get worse unless we REVERSE IT.

“Nitrogen and phosphorus enrichment cause declines in invertebrate populations: a global meta-analysis”, M. Nessel et al., Biological Reviews 2021 Biol. Rev. (2021),



algal mats smothering salt marsh, sea grass and perennial macroalgae; **which are important carbon sinks and ecosystem foundations, habitats, nurseries, roosts and nesting sites.**

meta-analysis of over 200 nutrient enrichment studies shows that combined N+P inputs result in lower invertebrate numbers, concluding that nutrients contribute to global invertebrate decline

asson, Kerstin et al. (2017).
eutrophication decreases salt marsh resilience through proliferation of algal mats. *Biological Conservation*. 212. 1-



Why the nitrate budget is unreliable.

EA admits (clause 1.4) itself its guidance on calculations has been rushed and likely lacking, so advise local authorities a worst case, “precautionary approach” should be taken.

They have completely omitted to consider N emissions from the construction phase, which can be significant. Wakida, F.T. and Lerner, D.N. (2006), Potential nitrate leaching to groundwater from house building. Hydrol. Process., 20: 2077-2081. <https://doi.org/10.1002/hyp.6143>

Is the value for current N leaching used accurate? (higher figure for cereal crops used vs general cropping). Future N applications allowed will only reduce going forward. (INMAP 2021). **Individual field assessment is required** (Dybowski, Dawid et al. 2020)

Figure used for urban development N emissions is unreliable (EA advice based on US studies).

Wastewater emissions into Solent from WWT, huge amounts of consented discharges extra unconsented discharges, leaks, failures. (Southern Water history of failure).

“offsetting” in IOW not proven. “precautionary approach”

In short, unless a development can be **proven** to be nitrate neutral, planning permission cannot legally be granted. (Existing and future legal challenges)

Drainage plan

The sewage is going to Peel, an overall increase in N of ~10 mg/l of sewage will follow. (**assuming treatment works correctly!**) Offsetting on IOW will not reduce load on Northern coast of Solent, no proof it will “**precautionary principle**”.

Surface water- **Nitrate in groundwater infiltration and runoff**. Over- reliance on infiltration, there is no storage or exceedance overflow.

The retention/infiltration ponds located at the SW corner of the site have been sized only to cope with 3/4 of the estimated storm run off, the remainder must be accommodated by soakaways constructed at each property or group of properties. The calculations for the size of the retention ponds are based, in part, on the assumed infiltration rate of 1.797×10^{-5} m/s. This is overly optimistic according to drainage experts I consulted on the original plans.

The Soils Limited site investigation was carried out in Summer! When water table is low. Yet in winter the water table is much higher and the field regularly floods near football ground. After heavy rainfall events, ponds will fill and overflow, leading to flooding of site and football stadium. The infiltration method is not sufficient, leading to Nitrate contamination of a triple designated site!

If there was a pond and an outfall this would need to demonstrate N removal, I believe, developers have gone down this route to avoid questions of N in runoff.



Vest field flooding



Main field, proposed development site flooded