

Appendix. Solent Case Study

A high-level review highlighting aspects to be learned from England to which the Solent case study was referred to – to understand the impact this had and what has happened since.

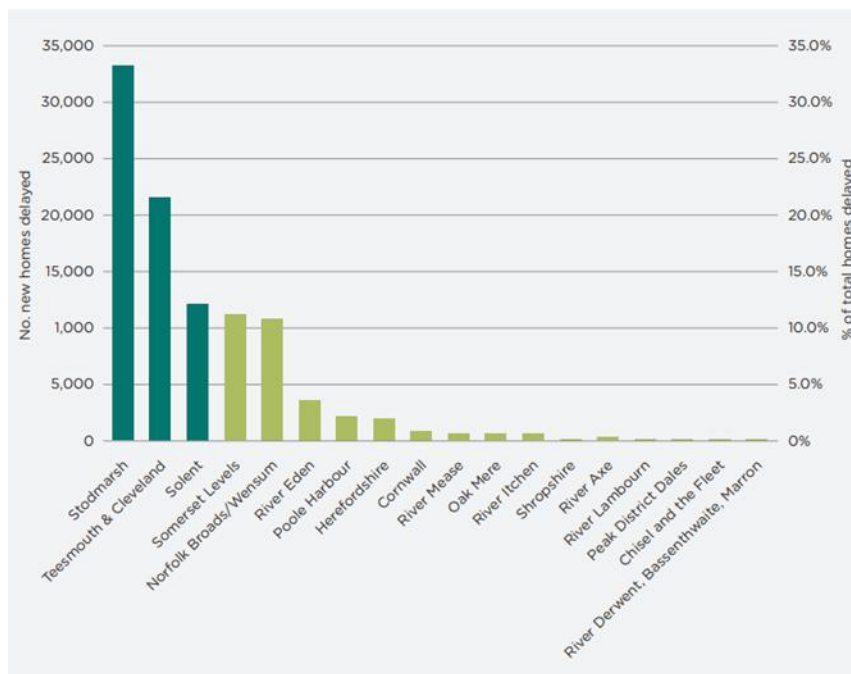
Nutrient Neutrality in the Solent — Summary

1. Context

- The Solent's harbours and estuaries (e.g. Langstone, Chichester, Portsmouth) are designated habitats vulnerable to nutrient enrichment.
- Excess nitrogen & phosphorus cause algal blooms and habitat degradation. Since 2019, **Natural England advice has required nutrient neutrality** for new development in affected catchments.
- This triggered widespread planning **delays** for housing projects until mitigation schemes became available.

2. Construction Sector Impacts

- **Homes delayed:** HBF/Lichfields estimated **c.66,500 homes delayed nationally**, with the Solent one of the worst affected catchments.



- **Regional backlog:** Solent-specific outstanding demand for mitigation ~5,500 dwellings (PfSH 2024).

- **Economic impact:** Each new home contributes ~£268k construction output; the paused 5,500 homes represent ~£1.48bn output and **13k–19k job-years** supported.

| Construction Impacts | |
|--|-----------------|
| Construction value | £13,810,156,000 |
| Total construction jobs (direct and indirect jobs; person years) | 490,500 |
| Economic outputs (Construction GVA + Supply Chain GVA) | £29,923,948,000 |
| Expenditure Impacts | |
| First occupation expenditure | £550,000,000 |
| Jobs (via first occupation expenditure) | 4,900 |
| Resident expenditure p.a. | £1,418,338,000 |
| Jobs (via resident expenditure) | 18,400 |

- **Who is hit hardest:** Small and medium housebuilders and their supply chains (sub-contractors, materials, consultants) — less able to absorb delays.

3. Solutions Implemented

Strategic Mitigation & Trading

- **Nutrient trading pilot (DEFRA, PFSH):** Farmers retire land from intensive agriculture → converted to wetlands/woodlands. Nitrogen credits are calculated (NECR459 methodology).
- **Mitigation credits market:** Developers buy credits; proceeds fund land-use change, creating long-term nutrient reduction.
- **Warblington Farm (Havant):** Converted to a mitigation site — actively enabling stalled development.

Nature-Based Engineering

- **Constructed wetlands** (in situ bioremediation, water treatment) provide dual benefit: pollutant removal & biodiversity uplift.

[Constructed Wetlands - Water Design Engineers - Water Features, Pools and Water Treatment Systems](#)

- **Sustainable Drainage Systems (SuDS), bio-retention** — reduce site-level nutrient outflows.

Wastewater Infrastructure

- **WWTW upgrades:** Significant N & P load reductions achieved (e.g. Langstone Harbour saw 49% N load reduction and 75% P load reduction since 1990s).

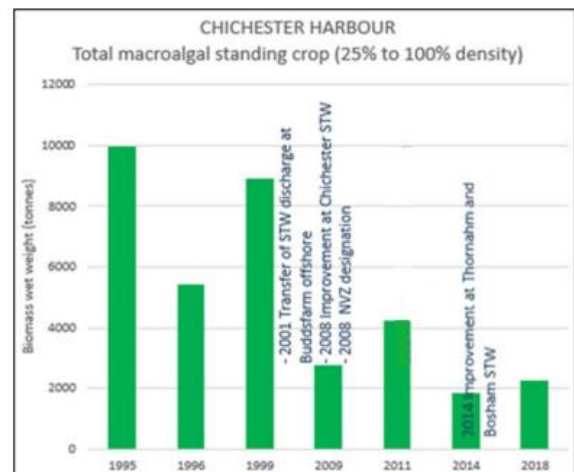
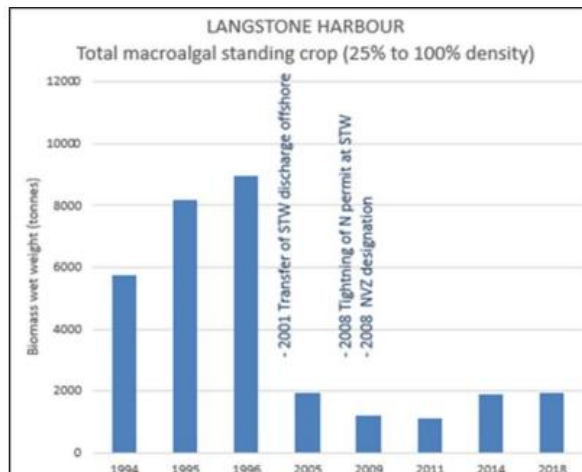
Policy & Governance

- PFSH partnership and Solent Nutrient Market have created a functioning credit marketplace.

- **New Government (2024–25):** Exploring a **national rollout of strategic mitigation**, a nutrient taskforce, and temporary measures to accelerate housing delivery.

4. Evidence of Environmental Gains

- **EA Monitoring (Overview_of_Solent_Eutrophication_and_Recovery, 2023):**
 - Graphs show declining macroalgal biomass in Langstone & Chichester Harbours.



- Long-term data demonstrate ~50%+ reductions in nutrient loads since mitigation measures and WWTW upgrades.
- This is **proof that mitigation strategies are delivering real ecological recovery**, while still allowing development to move forward when offset.

5. Future Implications

- **Short-term:**
 - Credit markets have enough supply to meet short–medium-term housing demand in the Solent (PfSH Dec 2024 note).
 - Developers face additional costs per dwelling (credit purchase, SuDS design).
- **Medium-term (5–10 years):**
 - WWTW upgrades continue to reduce baseline nutrient loads, decreasing reliance on land-based credits.
 - Constructed wetlands and nature-based systems mature, increasing efficiency.
- **Long-term:**
 - If national rollout proceeds, consistency in nutrient neutrality delivery could unlock **100,000+ homes** across England while safeguarding protected habitats.
 - Ongoing challenge: managing **legacy nitrogen** (stored in soils & groundwater), which delays full recovery.

6. Integration of Bioremediation & Constructed Wetlands

- **Constructed wetlands** = engineered, nature-based bioremediation solutions.

- Provide **cost-effective, scalable** nutrient removal, suitable for retrofitting near development zones or agricultural runoff points.
- Engineering firms in the UK (e.g. Water Design Engineers) are actively designing **multi-purpose wetlands** for water treatment, flood management, and biodiversity uplift.
- These systems align with Government & DEFRA emphasis on **sustainable catchment-scale solutions** and provide a blueprint for long-term nutrient neutrality schemes.