

# Water quality and biodiversity

Combine science and engineering expertise with the latest technology for accurate compliance and sustainable ecosystems

## Complete lifecycle management from planning to operational maintenance

**From mitigating the effects of climate change to understanding the impacts of new developments, water quality and biodiversity are integral to any infrastructure project – no matter the size. Moreover, the ways we manage water and biodiversity today will have a significant impact on our society tomorrow, so it's important to get it right first time.**

By combining deep hydrological and biodiversity expertise with the latest data collection technologies, scientific knowledge and assessment tools, we help organisations take a proactive approach to water and ecosystem discovery and planning, shifting organisational mindsets from just basic mitigation to doing things better with the right support.

At Royal HaskoningDHV, we combine science with engineering to cover the entire lifecycle of your project, including planning and initial concept, environmental assessment and approval, design and construction, and operation and ongoing maintenance.

We'll work closely with your team to scope, plan, and execute your needs in a way that not only satisfies development approval conditions, legislative requirements, and regulations. What's more, we'll enable you to take the lead on enhancing water quality and biodiversity values, and help your project and stakeholders prepare for a more climate resilient future.

## Data and expertise-driven solutions for water quality and biodiversity



### Meet increasingly strict environmental laws and regulations

Ensure your projects meet and even exceed the relevant local, national, and international environmental regulations, so you're best placed for any future legislative changes.



### Plan new developments with sustainability at the fore

Create more environmentally-responsible infrastructure with sustainability and climate resilience at heart, taking advantage of our deep cross-industry expertise and multidisciplinary approach to science and engineering.



### Shift from a reactive to proactive approach

Lead the shift from thinking about how we mitigate the effects of climate-related change to instead how we can design, build, and work with nature.

## An Integrated measure for climate adaptation and biodiversity improvement in Waddinxveen

Preparing for climate change impacts often means protecting critical biodiversity and formulating short and long term adaptation and recovery measures.

The Dutch municipality of Waddinxveen needed a way to reverse a possible decline in its land and water ecosystem biodiversity.

Using fact and risk analysis techniques – including GIS and field visits – we created a package of climate adaption and biodiversity recovery actions. Our integrated measures plan gives Waddinxveen the ability to choose the order it implements each step.

- Conducted a fact and risk analysis for seven areas of Waddinxveen
- Identified bespoke options for each area to help protect and enhance water quality and biodiversity values
- Extracted climate adaption measures from policy documents to influence new adaptation measures
- Prepared the municipality and its citizens for future climate change impacts – with the project regarded as a pilot for other local governments



## Going beyond expectations to protect water quality and biodiversity

Maintaining good water quality and healthy biodiversity is critical for ensuring the health of every living thing and the interconnected ecosystems across our planet. We use our 140 years' experience – combined with the latest big data analysis and interpretation techniques – to deliver end-to-end lifecycle processes across a wide range of water quality and biodiversity projects.

We can help you to:

- 1 Conduct environmental studies and assessments** covering environmental science, ecology, and engineering design; multidisciplinary project and team management; environmental monitoring; environmental modelling; and environmental approvals.
- 2 Perform environmental data collection and analysis**, including data collection and management; baseline ecological and impact assessments; baseline hydrological, water quality and sediment quality conditions; and data science, big data and scientific programming and analysis.
- 3 Benefit from the latest water, environmental, and climate science** using computer modelling and simulation covering everything from surface water hydrology and ecohydrology to sediment transport and metocean conditions.
- 4 Create and improve habitats** by implementing nature-based solutions that work with, rehabilitate or restore natural systems to create environments that benefit both people and wildlife.
- 5 Improve water quality** with a range of natural, biological processes and treatment technologies that help protect, preserve or maintain ecosystems and natural habitats.

### SUCCESS STORY

#### Enhancing biodiversity by safeguarding water quality in New South Wales

Recent drought and flood events contributed to widespread acid sulphate soil leaching affecting water quality and biodiversity at Lake Innes and Lake Cathie, a sensitive coastal lagoon. The lagoon is surrounded by wetlands and a nature reserve that contain significant natural and cultural resources. The lakes also provide valuable recreational amenities for local residents and holidaymakers.

We conducted a comprehensive assessment of the estuary, lake system, and open coast responses to possible management options. These included environmental data collection over 12 months and the preparation of an integrated catchment, coastal, and water quality model to improve baseline process understanding of the lake system. Research fields of acid sulphate soil management, biogeochemistry, and climate science were incorporated into the investigations. The study assessed a range of management options and we provided recommendations to improve estuary condition and function.

# We're ready to help

If you'd like to learn more about how Royal HaskoningDHV can support your **water quality and biodiversity** responsibilities and requirements, contact

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 **Royal HaskoningDHV**  
Enhancing Society Together