Supporting nature positive outcomes

SHARED ENVIRONMENTAL ANALYSIS AND REPORTING

The Western Australian Biodiversity Science Institute

Western Australian Marine Science Institution

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Acknowledgement of Country

We acknowledge the traditional custodians throughout Australia and their continuing connection to, and deep knowledge of, the land and waters. We pay our respects to Elders both past and present.

The Western Australian Biodiversity SCIENCE INSTITUTE

WESTERN AUSTRALIAN MARINE SCIENCE INSTITUTION

Foreword

New challenges in environmental assessment have added to the imperatives for better information systems. The Australian Government has committed to nature-positive outcomes as part of its environmental policy reforms. Amendments to the Western Australian Environmental Protection Act require greater consideration of cumulative impacts. Corporate Australia is increasingly making commitments to account for, and report on, their environmental performance. Associated demands for increased assurance, transparency and accountability invoke a parallel need for improved information.

To help meet these challenges, The Western Australian Biodiversity Science Institute and the Western Australian Marine Sciences Institution, in collaboration with over 60 partner organisations across industry and government, have developed the concept of a Shared Environmental Analytics Facility – moving from collecting data to delivering robust, repeatable and trusted assessment tools and reports for regulators, proponents, industry and community. This approach will create real impact, translating science knowledge and data analytics into timely, practical outputs whilst delivering significant economic, environmental and social benefits.

This report summarises the value and impact of this opportunity, and how it might be delivered. I thank the many collaborators for the immense and sustained effort that have brought forward this opportunity to revolutionise a key component in environmental protection and commend this report to all those who share in that challenge.

Matthew Tonts

CHAIR,
ENVIRONMENTAL PROTECTION AUTHORITY
OF WESTERN AUSTRALIA

Introduction

In June 2023, The Western Australian Biodiversity Science Institute (WABSI) and the Western Australian Marine Science Institution (WAMSI) released *A Shared Environmental Analytics Facility* (SEAF): *Unlocking value from shared data and analytics to improve environmental outcomes*[1].

The publication highlighted the urgent action required to respond to changing societal expectations and regulatory requirements in lifting environmental outcomes. In Australia in particular, there is increasing expectation among industry stakeholders, governments, Traditional Owners and the wider community that the information used in environmental decision-making needs to be more comprehensive, transparent and assured. Each new decision that might impact on our environment must be better placed in a context of the cumulative impacts of previous and foreseeable developments, and a sound and contemporary characterisation of its current state.

[1] https://wabsi.org.au/wp-content/uploads/2022/12/SEAF-Unlocking-value_June-2022.pdf

SUPPORTING NATURE POSITIVE OUTCOMES

This document builds on the work done so far in developing the rationale and extends the case for how shared environmental analytics, operationalised through an independent Shared Environmental Analytics Facility (SEAF), can support nature positive outcomes. It is underpinned by a feasibility study and roadmap prepared by WABSI and WAMSI through consultation with more than 60 end users.

The feasibility study progressed shared environmental analytics from a project based, bespoke model to a shared operational model that is **robust**, **repeatable** and **sustainable**. The SEAF model is custom designed to bridge knowledge gaps, create analytic and science products and packages utilising current, accessible, integrated and trusted information. It will enable government, industry, regulators, scientists, Traditional Owners and the wider community to make more informed decisions for supporting nature positive outcomes.

A scoping study published in August 2023 by the global Taskforce on Nature-related Financial Disclosures (TNFD) explored the feasibility of a global nature-related public data facility[2].

It highlighted the value of nature-related data as a global public good and the case for it to be accessible to a broad range of stakeholders, rather than being locked up in proprietary systems. Importantly, the study explored connecting and expanding existing data platforms at a national and sub national level, with options for better scaling, connecting and funding nature-related data improvements. It highlighted SEAF as a leading global example, enabling end users to access environmental data and analytics through a shared and open platform.

These global findings strengthen the case for investing in a progressive, innovative and independent data analytics facility in Australia.

The pressure for reform

Community expectations are driving changes in the way governments and industry invest, undertake planning and development, and report on their activities. The community now demands greater transparency in decisions and greater accountability in protecting natural assets and biodiversity conservation. Several changes are underway nationally and globally including:

- Reforms to the Environmental Protection Act in Western Australia[3]
- Development of National Environmental Standards[4]
- Establishment of an independent National Environmental Protection Agency[5]
- Development of a global standard for risk management and disclosures framework by the Taskforce for Nature-related Financial Disclosures (TNFD)[6]

[2] https://tnfd.global/news/tnfd-publishes-scoping-study-data-facility/

[3] https://www.wa.gov.au/service/environment/business-and-community-assistance/amendments-the-environmental-protection-act-1986#:~:text=The%20Environmental%20Protection%20Amendment%20Act,Act%201986%20(EP%20Act).

[4] https://www.dcceew.gov.au/environment/epbc/epbc-act-reform/standards

[5] https://www.dcceew.gov.au/environment/epbc/epbc-act-reform

[6] https://tnfd.global/

SEAF: Lifting collaborative capabilities to accelerate reform and support nature positive outcomes

SEAF brings together disparate environmental data, both public and private, and allows integration through shared science knowledge and digital tools. It has been specifically designed to enable stakeholders to utilise the best possible information for environmental decision-making to assess cumulative impacts of previous and future developments in regions. It does not duplicate what already exists, instead it bridges knowledge gaps, increases access and simplifies the use, interpretation and management of environmental data for both technical and non-technical users.

SEAF is custom designed to meet the challenges triggered by national and global developments and provides robust, repeatable and sustainable outputs to benefit regulators, government, industry, Traditional Owners and the wider community.

Designed as an ongoing and sustainable concept but implemented as a 5-year pilot in Western Australia SEAF can be scaled up and replicated in other jurisdictions and at a national level.

Its key principle focuses on establishing centralised functionality and governance which guides regional activity through local expertise and information and leveraging local stakeholder relationships to deliver immediate and direct benefits to the regions. The concept is built on access to up-to-date shared environmental data through a collaborative information zone containing models and other information that are transparent and trusted by multi-sector stakeholders – a key to genuine collaboration for good decision-making.

SEAF end users benefit from enhanced outputs including:

1. Dynamic cumulative impact assessment with independent regional assessment reports
2. Access to fit-for-purpose analytics and models
3. Shared access point to environmental data that is equitable and transparent
4. Environmental reporting and dashboards for a snapshot of environmental condition

What SEAF looks like

An independent entity: for collaboration and national scalability.

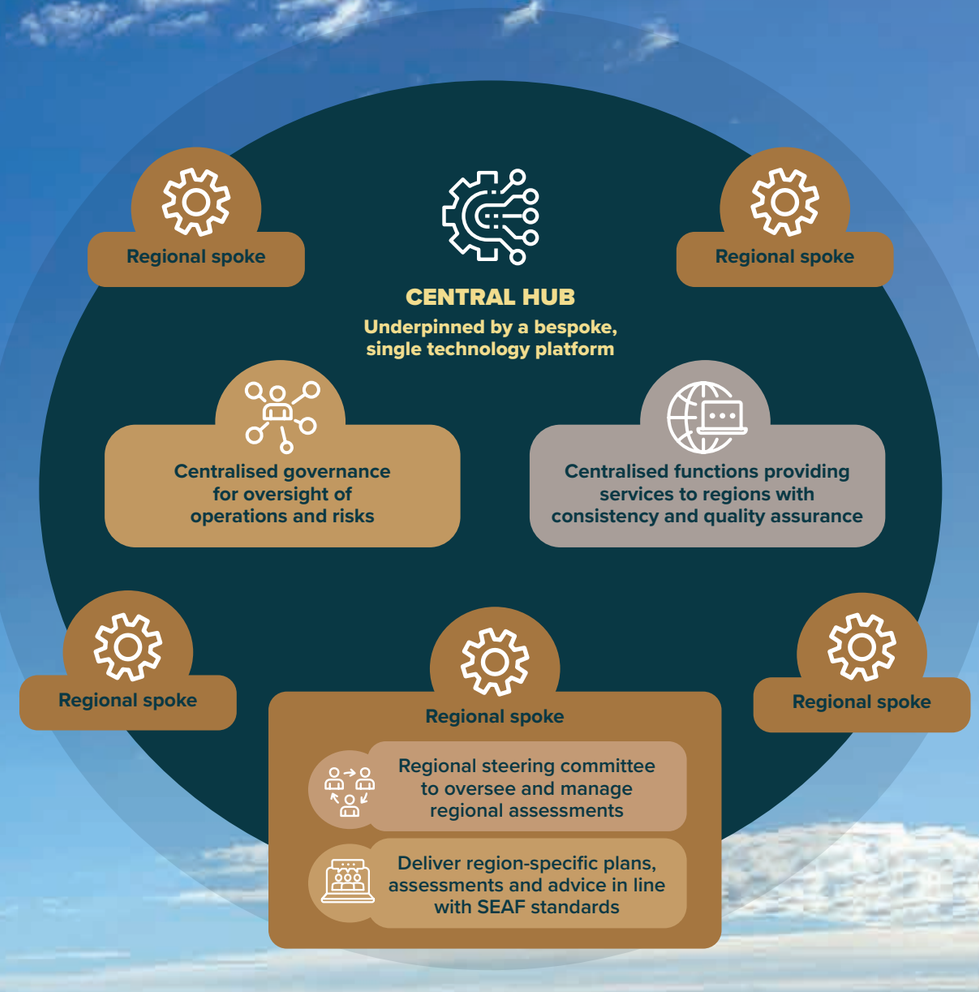
- Enables objectivity and rapid value realisation
- Robust, representative governance

A central hub with regional spokes: for centralised efficiency with regional autonomy and benefits.

- A central hub with oversight of operations and risk and centralised functions
- Regional spokes with regionally specific governance
- Autonomy to undertake regional assessments and regional management of data and tools

Built on a cloud-based, bespoke technology platform: for bringing together disparate information sources.

- Drives standards and consistency
- Enables a trusted, shared point of access for analytics and predictive models



The value

SEAF enables accelerated implementation and adoption of national reform through shared data and analytics

Reforms	What will SEAF provide to help accelerate reform?	Key SEAF benefit
Nature repair market	• A robust and independently assured baseline of the state of the environment • An ability to monitor regional trends and impacts • Forecasts to identify future risks to biodiversity • Measurable ecological outcomes on biodiversity stewardship sites	Ensures that certificates represent provable biodiversity gains
National Environmental Standards	• The ability to share best available information to defined technical standards	Accelerates implementation of new standards
Nature-related financial disclosure reporting	• Reporting that is centralised and robust • Transparent, reputable, and science-based shared data	Enhances investment confidence through operational efficiency and accelerated adoption

The impact

SEAF creates impact, translating science knowledge and data analytics into timely outputs for addressing end user needs for cumulative impact assessments

Benefits for a range of end users

REGULATORS: **Lifting confidence for the development of recommendations**

To inform assessment report for a minister, the Western Australian Environmental Protection Authority reviews the information, data and modelling utilised by an industry participant in an EIA submission. This includes reviewing impact of proponent's current activities and dynamic cumulative environmental impact assessment for the region.

Unlike working with current disparate data sets and technologies, SEAF users will be able to see what data and models are utilised, if they are aligned with assessment criteria and up-to-date dynamic regional assessment. A streamlined process will lift confidence in recommendations.

- SEAF will make the flow of data, information, trusted and agreed models transparent and easily available, generating user-friendly outputs and reports, aligned with assessment criteria. A streamlined process will allow sensitivity analysis to support decision making and will help lift confidence for developing recommendations. SEAF will enable a regional cumulative environmental impact review for proposed developments.

GOVERNMENT: Dynamic, transparent and reliable information for non-technical specialists

State or Commonwealth government departments ensure that proponents and state governments meet their obligations in regard to matters of state and national environmental significance. This is undertaken through dynamic cumulative environmental assessments to understand how regional activity and results align with mitigations put in place as part of environmental approvals.

Unlike working with current disparate data sets and technologies, SEAF users will access an interactive interface, see when data was last updated, structure outputs against review requirements and have greater confidence to determine regional environmental performance, enabling issues to be more promptly addressed.

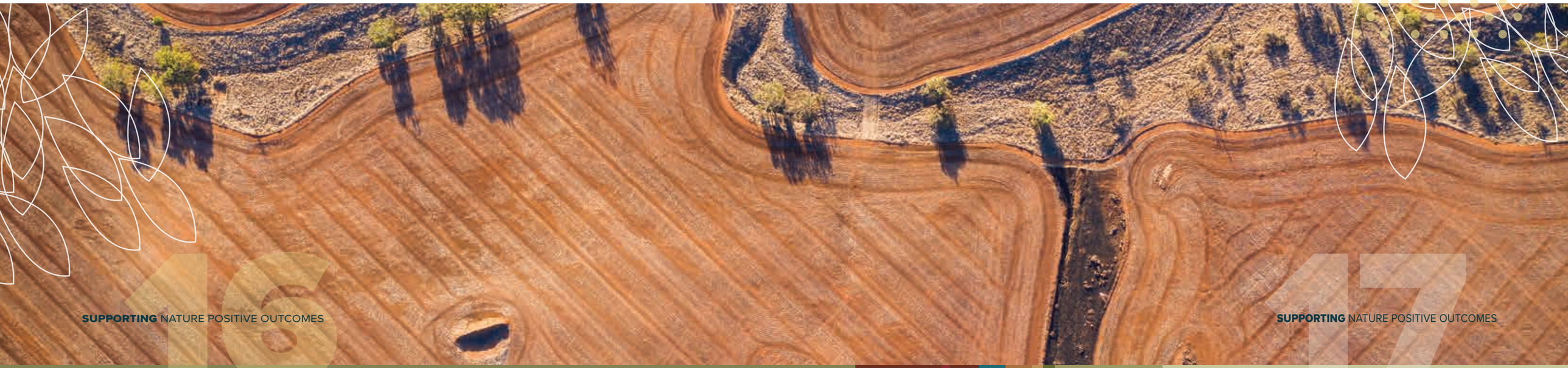
- SEAF will enable dynamic regional cumulative environmental assessment utilising the most recent information and models, ensuring there are no material gaps in data provided to inform the models. The shared, collaborative SEAF technology platform will make information available in a simple and understandable format that can be utilised by non-technical specialists to quickly and accurately assesses the impact of operations in a region. SEAF will allow transparent, robust and reliable information to inform the State of the Environment Report.

INDUSTRY: Access to models trusted by regulators to maximise EIA submission outcomes

When assessing potential for a major proposed development, a company looks for information to inform decision-making: is the site viable, is it likely to receive approval and what information is available to support an Environmental Impact Assessment submission (EIA).

SEAF allows for private, collaboration and constrained data zones to ensure sensitivity of information when developing cumulative EIAs.

- SEAF will make data and information easily accessible, accurate and up-to-date. Regional cumulative environmental impact for the proposed development can be considered, utilising models trusted by decision makers in government, assisting with obtaining community support for the development. It will enable streamlined, transparent and collaborative approach to EIA submission development and EPA assessment.



SCIENCE AND RESEARCH: Enabling a pathway to impact

Researchers and other organisations that provide data and models for the development and assessment of EIA submissions need confidence to ensure that data controls are in place, so that robust and transparent analysis and decisions can be made on the information they have provided.

SEAF enables clear expectations for delivery of data, with a streamlined process for submission and review of information.

- SEAF allows data confidentiality or data anonymity requirements so that data is only shared with appropriate users, in a user-friendly way, providing support where required, to address any issues.

REGIONAL PROJECT TEAMS: Meaningful planning at regional scale

Teams that work with industry, researchers and others with data, information and models to support regional cumulative impact assessment look for data quality assurance and need easy access to geographically-based information, with minimal gaps.

SEAF analysis tools, project templates and outputs are trusted; the end to end process is transparent and able to be easily verified.

- SEAF will enable seamless access to information enabling project teams to quickly identify any gaps or issues, support connectivity between data sources and models and allow integration with project templates to develop robust analysis tools to ensure timely delivery.

The opportunity

Investing in a robust, repeatable and sustainable model will deliver significant economic, environmental and social benefits

In light of global and national pressures for reform, now is the right time to invest in a sound concept that at its core, is designed to deliver immediate regional benefits and long-term national benefits. Access to shared data, information and models that are current, easily accessible, able to be interpreted and most importantly, trusted by all stakeholders provides greater certainty in decisions. This lifts investor confidence and enables the delivery of a range of economic, environmental and social benefits. The SEAF hub and spoke model is custom built for scaling up to address local needs in areas that are prioritised for development. A central hub provides oversight and sustainable management, and regional spokes address local issues and deliver direct regional benefits for efficiency, commercial environmental and social gains.

A sound return on investment

	Environmental Impact Assessment (EIA) enabling benefits	Environment, Social and Governance (ESG) enabling benefits	Broader reporting enabling benefits
Efficiency benefits	Reduced duplication and inefficiency in the EIA process, for example: • Reduced survey costs • Reduced delay costs due to seasonality	A more consolidated approach to ESG, resulting from factors including: • Avoided additional survey costs • Improved organisational reporting capability	Further efficiency in broader reporting due to: • Reductions to specific survey costs due to existing business as usual body of work
Commercial benefits	Project benefits resulting from a more expedient EIA process, for example: • Earlier realisation of benefits due to project acceleration and reduced cost of delays • Reduced relocation costs	Greater investment confidence in ESG, resulting from factors including: • Centralised and more complete reports	Improved risk management resulting from: • More consistent and consolidated data
Environmental benefits	More favourable environmental outcomes from the EIA process, including: • Reduced or more awareness of, risk of • environmental harm from greater data availability in relation to project • Enhanced ability to assess cumulative impacts	Reduced overall risks of environmental harm and improved environmental outcomes, for example: • Improved assessment and understanding of cumulative impacts	Reduced overall risks of environmental harm and improved environmental outcomes, for example: • Improved assessment and understanding of cumulative impacts
Social benefits	More favourable social outcomes from the EIA process, including: • During the public comment / consultation processes the public is able to provide informed and favourable perspectives	Benefits to industry in addressing social responsibility and environmental consciousness objectives from: • Improved sentiment from investors as a result of more transparent reporting	Broader social benefits in reporting resulting from: • Improved public sentiment

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The ‘how’

Setting up SEAF: Central hub with regional spokes

A STATE CENTRAL HUB WITH REGIONAL SPOKES

Example: Five-year SEAF pilot in Western Australia — State hub and two regional spokes

HOW WOULD YOU SET UP A STATE HUB IN WESTERN AUSTRALIA?

Bring together disparate sources of private and public data from existing systems and platforms

1. Establish an independent legal entity
2. Establish perennial governance representative of all stakeholders
3. Operationalise centralised functions that balance consistency with regional flexibility
4. Establish a customised cloud-based technology platform for data sharing and collaboration

HOW WILL IT WORK?

1. In years 1–2, the hub will leverage WABSI and WAMSI management capacity and expertise
2. In years 2–5, the hub is ready to support regional WA spokes and identify future needs

WHAT WILL IT COST?

1. Total investment to establish and operationalise a WA hub $1.3m

A detailed cost structure is available on request

WA REGIONAL SPOKE 1 — Pilbara

The Pilbara has extensive Native Title, cultural and economic significance, contributing to 78% of State and 32% of national export revenue. It has a complex array of mines, processing plants, ports, and linear infrastructure with interdependency and cumulative impact on the landscape and threatened species. Creating, assessing and approving environmental approvals for further development are challenging due to the region's environmental impacts and significant cultural heritage value.

WHAT IS REQUIRED TO SET UP A PILBARA SPOKE?

1. **Regional governance**
2. **Regional assessments**
3. **Analysis of regional needs**
4. **Leverage local stakeholder forums**

WHAT WILL IT DO?

Regional assessments from shared data and analytics.

Science and analytic products that are regionally specific:

- Regional map of flora, vegetation, fauna habitat and fauna distribution
- Regional flora species habitat suitability model
- Regional fauna Habitat connectivity map/model
- Population viability model
- Integrated groundwater dataset
- Integrated catchment scale groundwater modelling

WHAT WILL IT COST?

Total: ~$33.8m

- Comprising analytic products and science packages
- In 2 years to 6 years

Product packages to build essential, shared tools ~$16.3m

- Reporting, decision support, prediction for industry, government, community

Science packages to continuously improve knowledge and tools: ~$17.5m

- Pipeline from science to operations and back, with science underpinning dependencies and impacts, enabling continuous improvement

Identified by 60+ end users across government, regulators, industry and science

A detailed cost structure is available on request

WHAT DIRECT REGIONAL BENEFITS WILL BE DELIVERED?

$1.4b Net Present Value (NPV) in quantified benefits over 10 years

Critical environmental benefits that arise from enhanced data and a whole-of-environment view

1. **NATURE REPAIR MARKET:** Benefits from access to timely data and analytics will provide measurable ecological outcomes on biodiversity stewardship sites to ensure that certificates represent provable biodiversity gains
2. **NATIONAL ENVIRONMENTAL STANDARDS:** An accelerated process for implementing the National Environmental Standards will be achieved through a shared analytics facility that collects, curates, integrates and shared best available information
3. **TASKFORCE ON NATURE BASED FINANCIAL DISCLOSURES (TNFD):** Shared regional analytics will support economy-wide adoption and take-up for TNFD reporting. In addition to the TNFD adoption benefits, greater investor confidence could be generated through a centralised and more robust reporting approach

WA REGIONAL SPOKE 2

Cockburn Sound

Cockburn Sound supports vital industrial complexes, trade networks, water and wastewater utilities. The marine systems are highly valued by the community for recreation and tourism and have cultural significance for Traditional Owners. Industrial operations and ecosystem resilience are at risk from climate change, economic and social change.

WHAT IS REQUIRED TO SET UP A COCKBURN SOUND SPOKE?

1. Regional governance
2. Regional assessments
3. Regional needs analysis
4. Local stakeholder forums leveraged

WHAT WILL IT DO?

Regional assessments from shared data and analytics.

Science and analytic products that are regionally specific:

- Industry operation and growth – single point of reference
- Industrial area groundwater model
- Hydrodynamic and sediment transport models and maps
- Integrated marine ecosystem biogeochemistry and ecological models and maps
- Terrestrial emissions models and maps
- Cockburn Sound DPSIR reporting model

WHAT WILL IT COST?

Total: ~$38.1m

- Comprising analytic products and science packages

Product packages to build essential, shared tools ~$13.8m

- Shared tools for planning and design, operation and decommissioning of projects, to enable regulators to assess compliance (cumulative impact)
- Tools maintained with monitoring data and new data from science packages

Science packages to continuously improve knowledge and tools: ~$24.3m

- Reviews and improves tools to ensure fit for purpose and dynamic to assess trends, impact, improvements and effectiveness

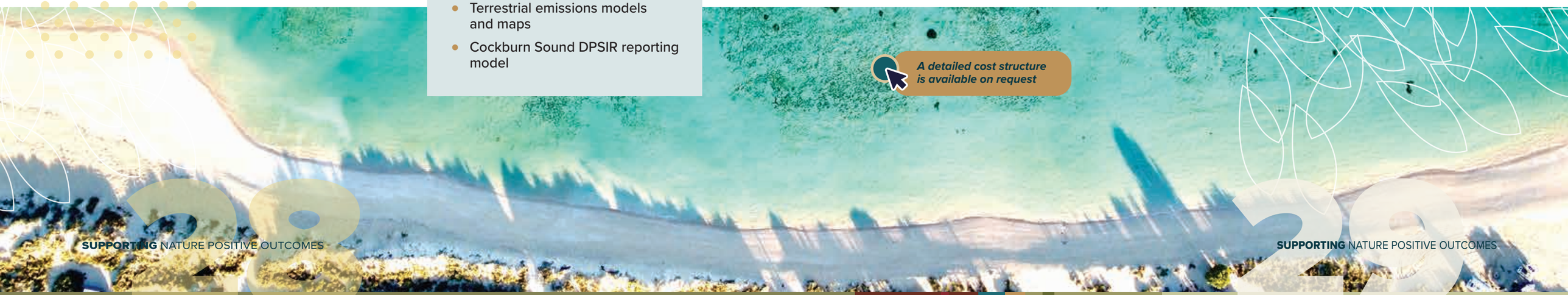
Identified by 60+ end users across government, regulators, industry and science

WHAT DIRECT REGIONAL BENEFITS WILL BE DELIVERED?

$227m NPV in quantified benefits over 10 years

- Enhanced data
- Whole-of-environment view
- Environmental, social benefits
- Understand cumulative impacts to the region
- Create efficiencies for proponents and operators
- Reduce risk
- Improve certainty for environmental approvals

A detailed cost structure is available on request



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OTHER WA REGIONAL SPOKES

Further spokes can be added to work efficiently with a state hub

To set up additional regional spokes, as required, Western Australia will utilise the scalable, repeatable model through:

1. Feasibility studies conducted for priority regions
2. Establishing and operating new spokes aligned with the Western Australian state hub
3. Spokes review and adapt, aligned with regional needs for cumulative impact assessment

Recommendations

1. Strengthen environmental data sharing regulations associated with the WA *Environmental Protection Act (1986)* to ensure proponents cannot opt-out of sharing data collected for environmental assessment and monitoring purposes.

2. Continue to fund and support priority SEAF pilots in Cockburn Sound and the Pilbara and review the feasibility of a Shared Environmental Analytics Facility for a period of 5 years to develop and operationalise prioritised environmental assessment and forecasting tools and reports for regulators and proponents.

3. Link with Commonwealth initiatives piloting trusted national environmental data supply chains to better assess current and future state, condition and environmental trends of matters protected under the Commonwealth Environmental Protection and Biodiversity Conservation Act to streamline bilateral or accredited assessment within Western Australia.

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