# Structural Falsification, Scientific Silence, and a New Research Strategy

A Critical Reconstruction of the Hector's and Māui Dolphin Case

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PROBLEM

# The exclusion of relevant evidence

Technical investigations documented contamination in 1995–1996.

The paper reconstructs decades of exclusion from dolphin research.

The 2024 release changed the evidence available for testing.

An unchanged research programme requires an explanation.

# The chronology of delayed recognition

**1995–1996** Technical investigations and the report of 4 July 1996

**2024** Public release, as reconstructed in the paper

**2026** Critical reconstruction and a demand for a revised programme

Creation, public availability and scientific use have different dates.

# Structural falsification

**Long-term exclusion of evidence distorts the scientific picture.**

Individual measurements can remain accurate.

The research framework omits critical causal connections.

The authors' term describes a system-level failure of knowledge.

# Critical reconstruction as a method

Read technical reports together with the conservation literature.

Locate each observation within the environmental causal chain.

Trace document access, citations and changes in research design.

Compare the evidence investigators developed for each hypothesis.

# What the technical archive changes

## Archive evidence

Contaminated land and groundwater
Chlorophenols and phenoxy compounds
Pesticides and solvents
Possible migration pathways

## Links still requiring tests

Transport into marine food webs
Potential for Dolphin exposure
Biological effects in exposed animals
Contribution to population decline

**The archive strengthens the source and pathway investigation.**

# Unequal development of the hypotheses

| Research component | Fisheries programme | Chemical programme |
|---|---|---|
| Evidence production | Documented bycatch, fishing effort and spatial overlap | Fragmented technical and biological records |
| Causal reconstruction | Direct mortality enters population models | Source, transport and exposure need integration |
| Evaluation problem | Extensive cumulative research | Limited development can appear as weak evidence |

Assessment in Gibbs and Nikolaenko (2026): research effort shapes visibility.

# Scientific silence has observable tests

Did reviews incorporate the newly available technical archive?

Did researchers reconstruct transport into the coastal environment?

Did models examine chemical effects on reproduction and survival?

Which published changes followed the release?

# How exclusion weakens a causal test

Omitted source records weaken the reconstruction of exposure.

Missing exposure reconstruction restricts biological testing.

Restricted biological testing leaves population effects unresolved.

The programme then reports uncertainty that its own design sustains.

# A complete source and pathway reconstruction

Digitise every sample with location, depth, date and analytical limits.

Reconstruct groundwater, drainage, outfalls and coastal transport.

Investigate historic sediments and prey within relevant dolphin habitats.

Compare chemical profiles across sources, marine media and tissues, where available.

# Biological and population consequences

Link tissue chemistry to the same animal's pathology and life history.

Test reproductive impairment, calf survival and immune effects.

Model sublethal effects alongside direct fisheries mortality.

Specify results that would strengthen or weaken each explanation.

# An audit of scientific recognition

Reconstruct creation, restricted access and public release dates.

Trace extraction and use of the records in reviews and models.

Document research priorities, funding and methodological changes.

Publish an open register of evidence, exclusions and responses.

# Key takeaways

Exclusion of relevant evidence is a substantive scientific failure.

An untested chemical pathway cannot serve as a rejected pathway.

The archive requires a specific programme of causal reconstruction.

Scientific recognition and its failures belong inside the investigation.

# Selected references

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# Discussion

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**Which observations would change the research programme?**

Who will make those tests possible?

Full paper and references

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