White Paper / Submission Draft

SORR Gyroid Towed Booms for Surface Algal-Bloom Scum and Foam Capture

Design basis + pilot method for Spencer Gulf (near-shore and open water) and transferable application to Gulf St Vincent

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Scope boundary	Surface scum/foam interception and recovery only

Executive summary (for agency decision-makers)

This paper proposes a **low-risk, reversible pilot** to test **towed surface interception booms** that incorporate **SORR Gyroid capture media** to collect **surface algal scum and foam** during favourable windows in Spencer Gulf (near-shore and open water), with a transferable pathway for Gulf St Vincent.

The concept is grounded in **international oil spill containment and recovery practice**—the closest marine engineering analogue for buoyant surface layers—using conservative rules on **relative flow limits**, **tow speeds**, **draft/freeboard proportioning**, and **deployment geometries** (J-tow and U/V sweep) [3,5,7,9]. The key control rule is that retention deteriorates when the **component of relative flow normal to the boom** approaches approximately **0.7–1.0 knots** due to headwave formation and entrainment/underflow losses [3,4,5,9].

The proposed pilot is designed to:

- Verify practical performance under defined windows
- Quantify recovery per tow hour vs tow load
- Confirm operating envelopes and failure modes
- Provide regulator-relevant evidence for any scale-up decision [3,5]

Key pilot starting parameters (baseline):

- Draft: **0.35 m and 0.55 m** (two settings)
- Tow speed: **0.5 kn and 0.75 kn** (two settings)
- Configurations: **J-tow** (near-shore) and **U/V sweep** (open water) [5,7]
- Sea state: ≤ **1.0 m preferred**; **1.5 m** upper bound for early pilots [3,5,6]
- Monitoring: recovery mass, visual losses, tow tension, simple water-quality proxies

1. Purpose and scope

1.1 Purpose

To present a **design basis** and **pilot method** for a towed boom system using SORR Gyroid as the **active capture element**for surface algal scum and foam interception.

1.2 Scope

Includes:

- System architecture and load paths
- Draft/freeboard starting envelope
- Tow geometry options and speed controls
- Region-specific deployment logic (Spencer Gulf primary; GSV transferable)
- Pilot monitoring plan and risk controls

Excludes:

- Chemical treatment
- Subsurface bloom control
- Seabed disturbance or dredging
- Continuous "all-weather" operations

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2. Problem context and rationale

Surface scums and foams associated with bloom events can concentrate organic material and associated particulates at the air–water interface. Once dispersed by mixing, practical recovery becomes more difficult. **Surface interception** is therefore a targeted mitigation measure to be deployed during favourable windows, complementing upstream nutrient reduction and catchment controls.

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3. Engineering precedent and design principles

3.1 Why oil-spill containment practice is the engineering precedent

Oil-spill response provides the most conservative, field-validated precedent for managing buoyant surface layers because both oil slicks and bloom scums/foams are sensitive to turbulence, concentrate into windrows, and can be lost rapidly if relative flow is excessive [3,5,7,9].

3.2 Core control rule: normal relative flow

Boom containment performance is governed by the **component of relative flow perpendicular to the boom curtain**, not simply vessel speed [3,5]. Loss mechanisms (entrainment/underflow, drainage failure, splash-over) become common as normal relative flow approaches **~0.7–1.0 knots** [3,4,5,9].

Operational rule adopted for this pilot:
Maintain **normal relative flow ≤ ~0.7 knots** where practicable, using low tow speeds, flow-aligned geometry, and tidal windowing [3,5].

3.3 Geometry over speed

Oil-spill operations rely on geometry (J-tow, U/V sweeps) to increase encounter rate while controlling relative flow [5,7]. The same approach is adopted here.

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4. Proposed system (design basis)

4.1 System overview

The system is a **contain-and-capture curtain boom** where:

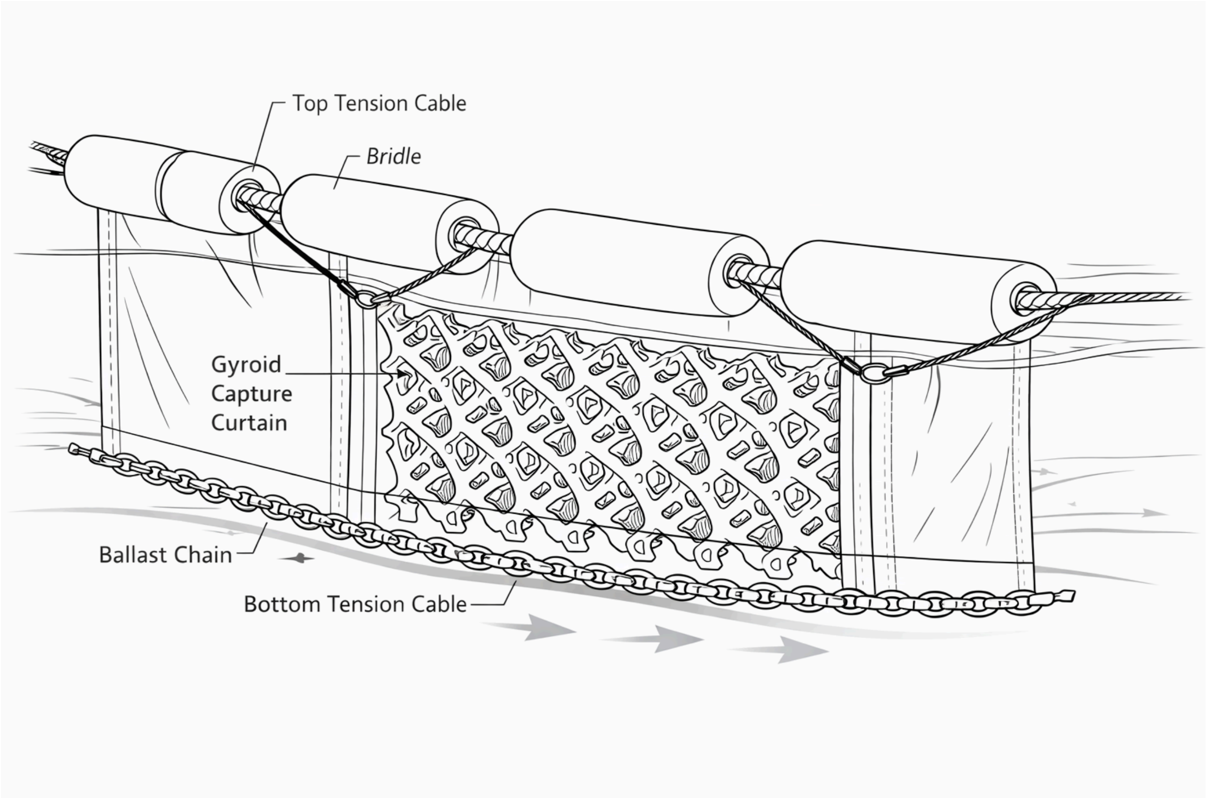
- The **boom body** provides geometry, stability, and load transfer
- The **Gyroid curtain** provides capture/retention

This separation reflects standard boom design practice where skirts are stabilised but not load-bearing [1,3,8].

4.2 Boom body components (structural + hydrodynamic)

- Segmented flotation (wave following)
- Controlled freeboard to reduce wash-over
- Ballast chain/weighted foot to stabilise curtain and reduce flutter [1,3,8]
- Dual tension members (top and bottom) to carry tow loads [1,3]
- Distributed bridles connecting into tension members (not the Gyroid curtain) [1,3,8]
- Streamlined connectors (minimise discontinuities) [1,3]

Figure 1

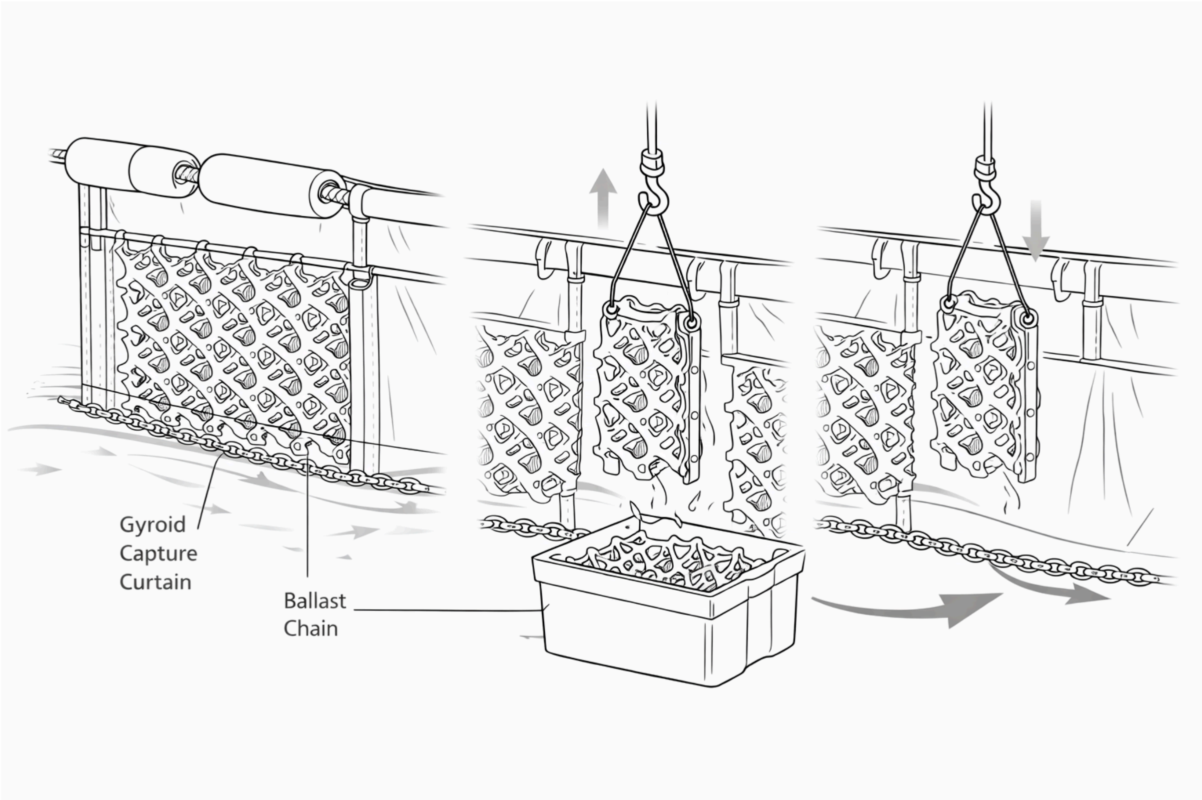


Cross-section schematic of boom body + Gyroid curtain + tension members + ballast chain.

4.3 Gyroid capture curtain (active media)

- Porous modular Gyroid panels / lattice modules mounted as a capture curtain
- Rapid swap-out approach (loaded modules to deck bins; clean modules redeployed)
- Curtain is explicitly **non-structural** (no tow loads) [1,3]

Figure 2



Gyroid module mounting and swap-out concept.

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5. Draft and freeboard (starting envelopes)

5.1 Baseline draft range

Oil-spill experience shows deeper skirts increase drag and can worsen underflow/entrainment risk [3,5,9]. For scum/foam capture concentrated at the surface, a moderate draft is preferred.

Pilot draft settings:

- **0.35 m** (lower drag; best for calm water / pure surface foam)
- **0.55 m** (improved retention under light chop) [3,5,9]

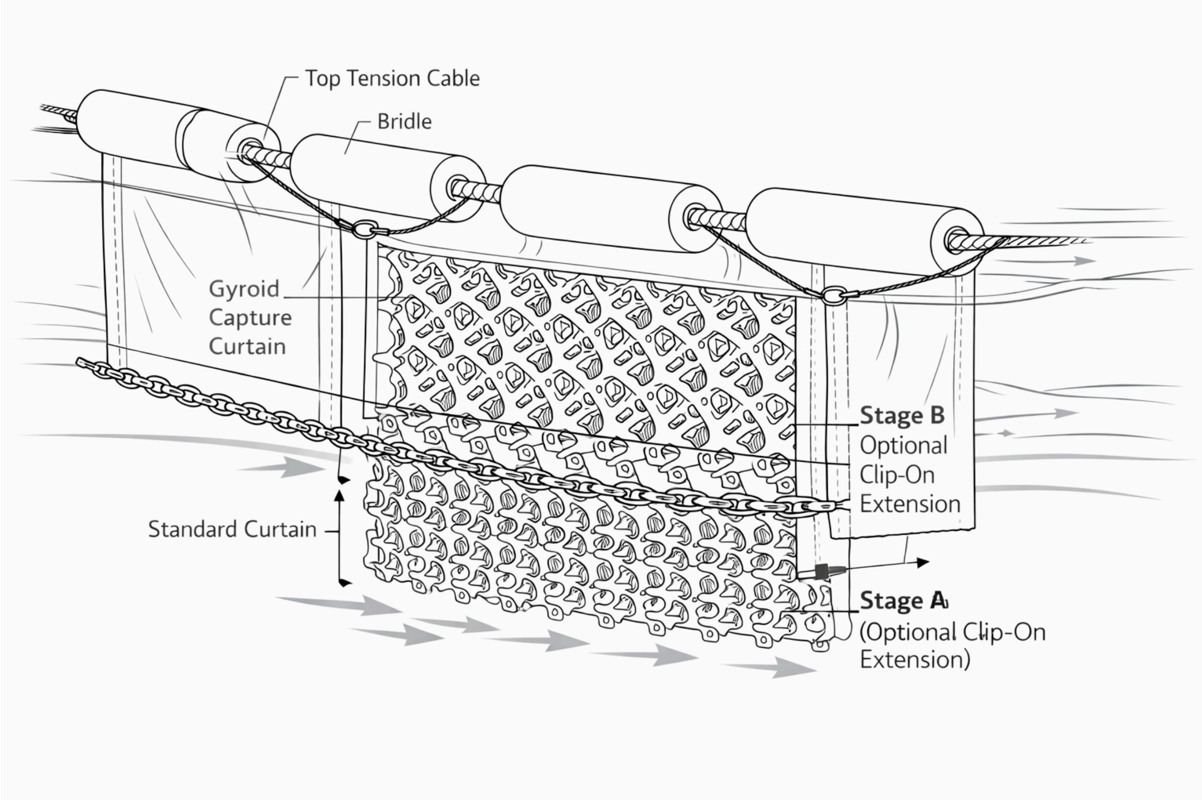
Freeboard baseline: 0.20–0.40 m to reduce wash-over risk [1,3,8].

5.2 Adaptive depth (optional)

Two-stage curtain concept:

- Stage A (always): 0.35–0.55 m primary capture zone
- Stage B (optional clip-on): extend to 0.8–1.0 m for mixed events in calm conditions only (not routine) [3,5]

Figure 3



Two-stage curtain (base + clip-on extension).

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6. Tow speed and deployment geometry

6.1 Tow speed limits

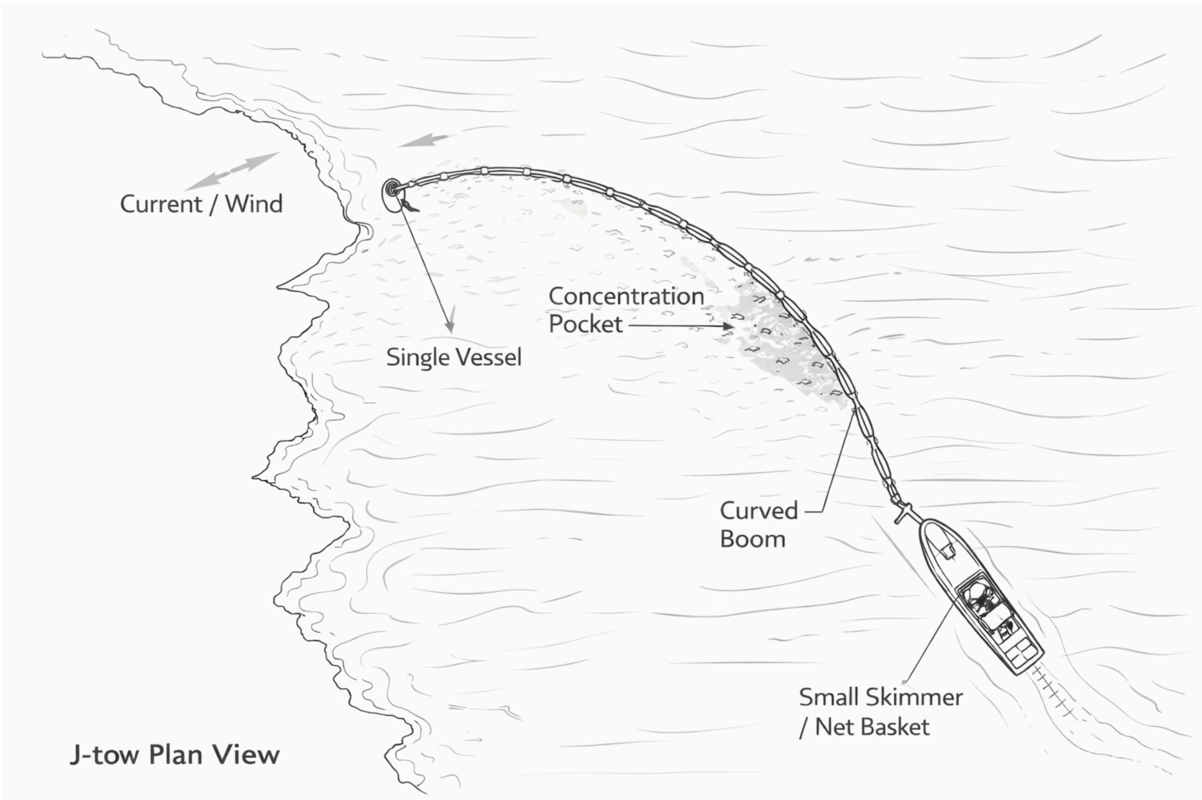
Target: 0.5–0.75 knots through water (typical for effective containment/recovery operations) [5,6,7].
Avoid operating regimes where normal relative flow approaches **~0.7–1.0 knots**, due to entrainment/underflow losses [3,4,5,9].

Where currents exist, reduce the **normal component** by:

- Angling boom 15–45° to prevailing flow
- Selecting slack tide / lower current windows [3,5]

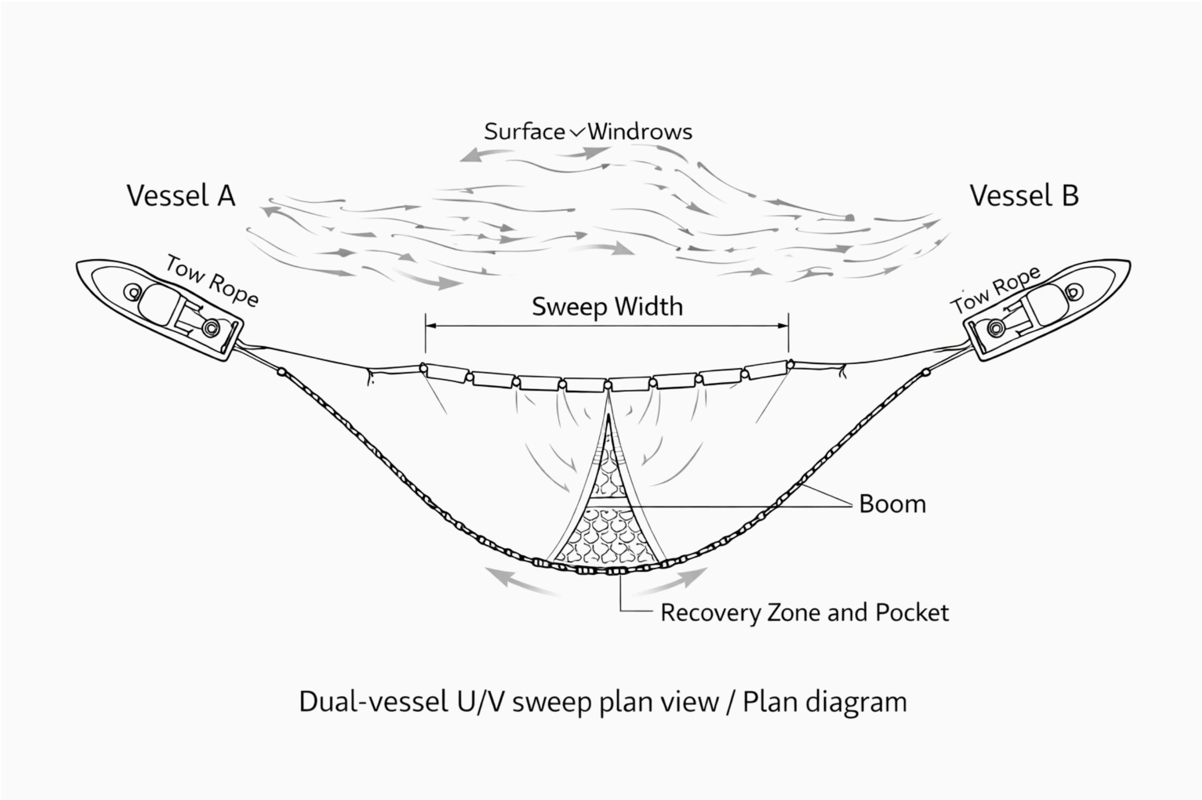
6.2 Deployment geometry options

Option A — Single-vessel J-tow (near-shore / controlled areas)
Concentrates material to a pocket for recovery with reduced logistics [5,7].
Figure 4



J-tow plan view (pocket and recovery point).

Option B — Dual-vessel U/V sweep (open water / higher encounter rate)
Maximises sweep width; requires conservative speed and window selection [5,7].
Figure 5



U/V sweep plan view (sweep width and pocket).

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7. Spencer Gulf operating envelopes (primary focus)

Spencer Gulf is influenced by tidal currents, wind-driven chop, and windrow formation, requiring strict adherence to windowing and the normal flow control rule [11,12].

7.1 Near-shore (Spencer Gulf) — preferred pilot start

- Configuration: **J-tow**
- Length: **80–150 m**
- Draft: **0.35–0.45 m**
- Tow speed: **0.4–0.7 kn** through water (maintain normal component within retention threshold) [3,5]
- Sea state: **≤1.0 m preferred** [3,5,6]

7.2 Open water (Spencer Gulf) — conditional pilot extension

- Configuration: **dual-vessel U/V sweep**
- Length: **200–350 m**
- Draft: **0.45–0.55 m**
- Tow speed: **0.5–0.8 kn** through water *only where normal flow constraint can be maintained* [3,5]
- Sea state: **≤1.0 m preferred; ≤1.5 m upper bound** for early pilots [3,5,6]

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8. Gulf St Vincent applicability (transfer pathway)

Gulf St Vincent is typically best suited to:

- Near-shore interception adjacent to sensitive receiving environments and urban influence zones
- Selective offshore sweeps only in calm windows
- Current-aware geometry consistent with the normal flow constraint [3,5,11,12]

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9. Pilot method statement (deployment + recovery)

9.1 Pilot approach

A staged pilot designed to validate operating envelope and performance quickly, consistent with oil spill guidance emphasising verification under realistic conditions before scale-up [3,5].

9.2 Test matrix (minimum defensible trial set)

Four core runs (repeatable):

1. Draft 0.35 m @ 0.5 kn
2. Draft 0.35 m @ 0.75 kn
3. Draft 0.55 m @ 0.5 kn
4. Draft 0.55 m @ 0.75 kn

Run in both: calm and light-chop windows where possible.

9.3 Recovery method (pocket operations)

At the concentration pocket:

- Net basket / skimmer head / vacuum option (selected to match foam viscosity and solids loading) [5,7]
- Offload into sealed bins/totes for weighing and sampling

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10. Monitoring, QA/QC, and evidence plan

10.1 Core performance metrics

- **Recovered mass per tow-hour** (wet mass and dewatered mass)
- **Visual loss mechanisms** (underflow, wash-over; recorded)
- **Tow tension vs speed** (load cell)
- Simple water-quality proxies at pocket and outside control points (e.g., turbidity; chlorophyll proxy where practical)

10.2 Sampling and chain of custody

- Labelled sample containers
- Date/time/GPS, tow condition notes, and photo log
- Secure storage and transport documentation
- Waste classification and disposal pathway consistent with local requirements (see Section 11)

10.3 Decision rule (pilot outcome)

Select configuration that maximises:

- **kg recovered per tow-hour per kN tow load**
  while minimising underflow/entrainment indicators [3,5].

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11. Waste handling and disposal (biomass + captured particulates)

Captured material is expected to be water-rich biomass/foam potentially containing fine particulates. Pilot handling should include:

- Containment in sealed bins
- Dewatering method selection (as needed)
- Disposal pathway consistent with local waste rules and any required testing

This section is intentionally conservative and designed to be updated with EPA guidance on classification requirements.

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12. Risk register (pilot-phase)

Risk	Cause	Consequence	Controls
Underflow /entrainment losses	Normal relative flow too high	Poor recovery; dispersed material	Tow ≤0.75 kn; angle to flow; window selection; hard stop if losses visible [3,5,9]
Wash-over	Excessive freeboard/wave interaction	Loss over boom	Freeboard setpoints; sea-state go/no-go [3,6]
Connector turbulence	Discontinuities	Localised losses / snag	Streamlined connectors; minimise discontinuities [1,3,8]
Excessive tow loads	High speed/draft	Gear failure; safety risk	Dual tension members; conservative speed; load cell monitoring; abort criteria [1,3]
Crew safety (handling loaded modules)	Mass, slip hazards	Injury	Handling plan, PPE, lift aids, stop-work authority
Wildlife interactions	Towing operations	Harm or regulatory issues	Observers where required; avoidance; stop if interaction risk identified
Navigation/port conflicts	Traffic	Incident	Notify VTS/Ports; exclusion zones; appropriate lighting/signals

13. Conclusion

This white paper presents a **conservative, evidence-led pilot concept** for SORR Gyroid towed booms for surface scum/foam capture, explicitly grounded in recognised oil spill containment and recovery practice. The approach is **low-risk, reversible, and windowed**, and is designed to generate regulator-relevant evidence for any scale-up decision [3,5,7,9].

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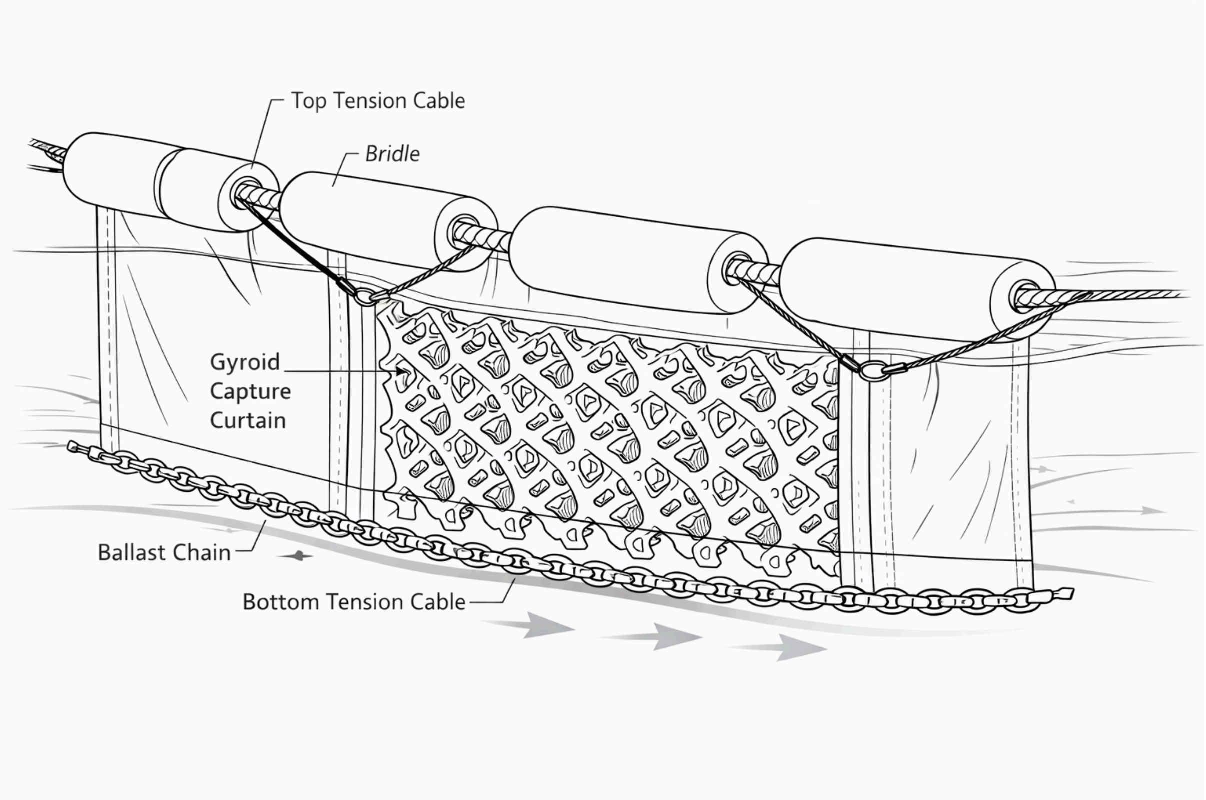
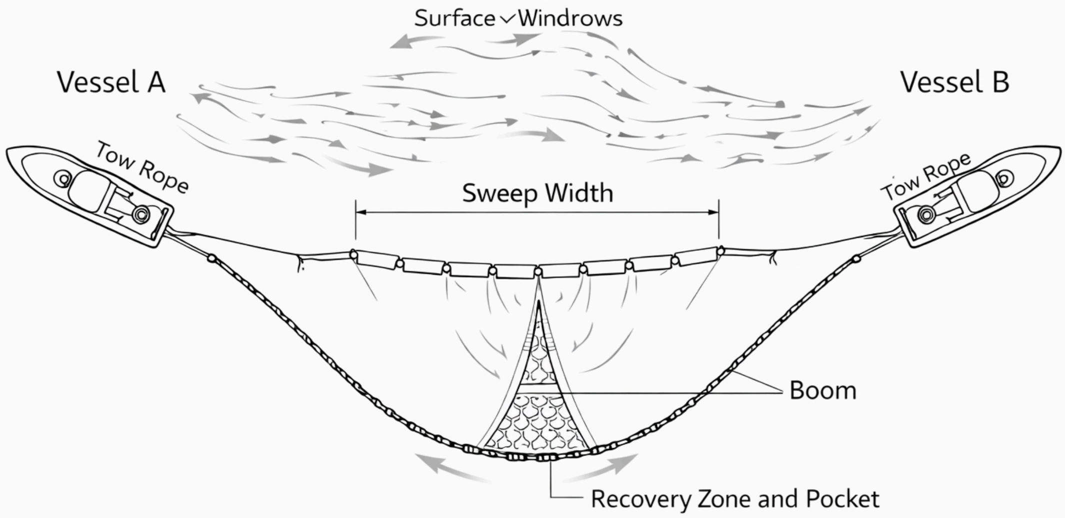
14. References (numbered)

1. ASTM International (2019). *ASTM F1523/F1523M – Standard Guide for Selection of Booms in Oil Spill Response*. ASTM International.
2. ASTM International (2017). *ASTM F715 – Standard Test Methods for Coated Fabrics Used for Oil Spill Control and Storage*. ASTM International.
3. ITOPF (2014). *Use of Booms in Oil Pollution Response*. ITOPF.
4. ITOPF (2011). *Oil Spill Response in Fast Currents*. ITOPF.
5. NOAA OR&R (2015). *Open Water Oil Containment and Recovery*. NOAA.
6. NOAA OR&R (2013). *Mechanical Containment and Recovery (Response Strategies)*. NOAA.
7. IPIECA / IMO / IOGP (2016). *Oil Spill Response in the Marine Environment*.
8. Cedre (2010). *Booms: Containment, Protection and Recovery*. Cedre.
9. Fingas, M. (2011). *Oil Spill Science and Technology*. Elsevier.
10. Lee, K. & Nedwed, T. (2016). “Operational limits of oil spill containment and recovery systems.” *Marine Pollution Bulletin*.
11. SARDI (various). *Two Gulfs Model: Spencer Gulf and Gulf St Vincent Hydrodynamics*. Govt of SA.
12. Bureau of Meteorology (2020–2025). *SA Coastal Waters Marine Data*. Australian Government.

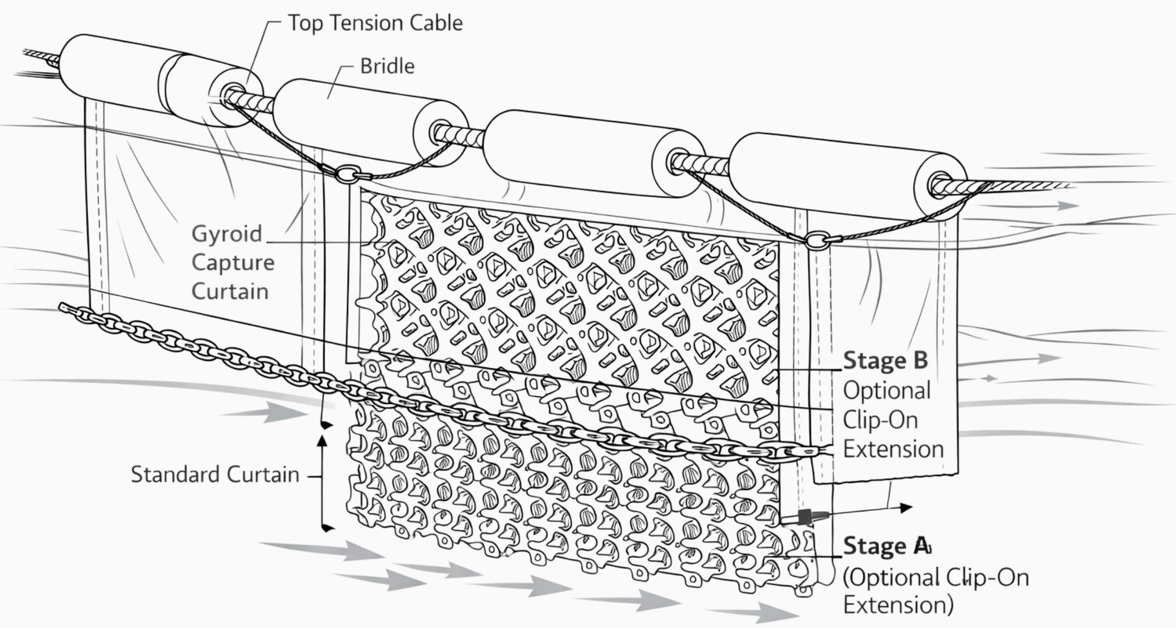
Figure list

- **Figure 1:** Boom cross-section (freeboard, draft, ballast, tension members, Gyroid curtain)
- **Figure 2:** Gyroid module mounting and swap-out concept
- **Figure 3:** Two-stage curtain (base + clip-on extension)
- **Figure 4:** J-tow plan view (near-shore deployment)
- **Figure 5:** Dual-vessel U/V sweep plan view (open-water deployment)





Dual-vessel U/V sweep plan view / Plan diagram



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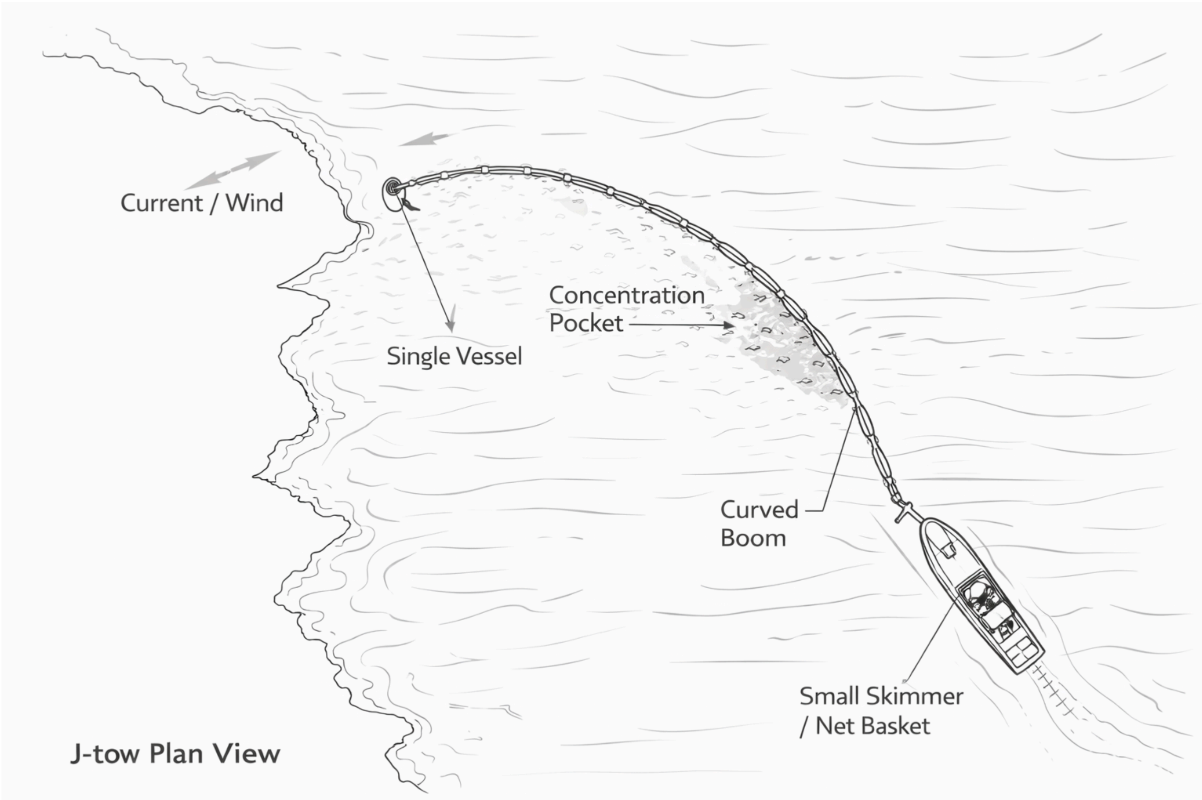

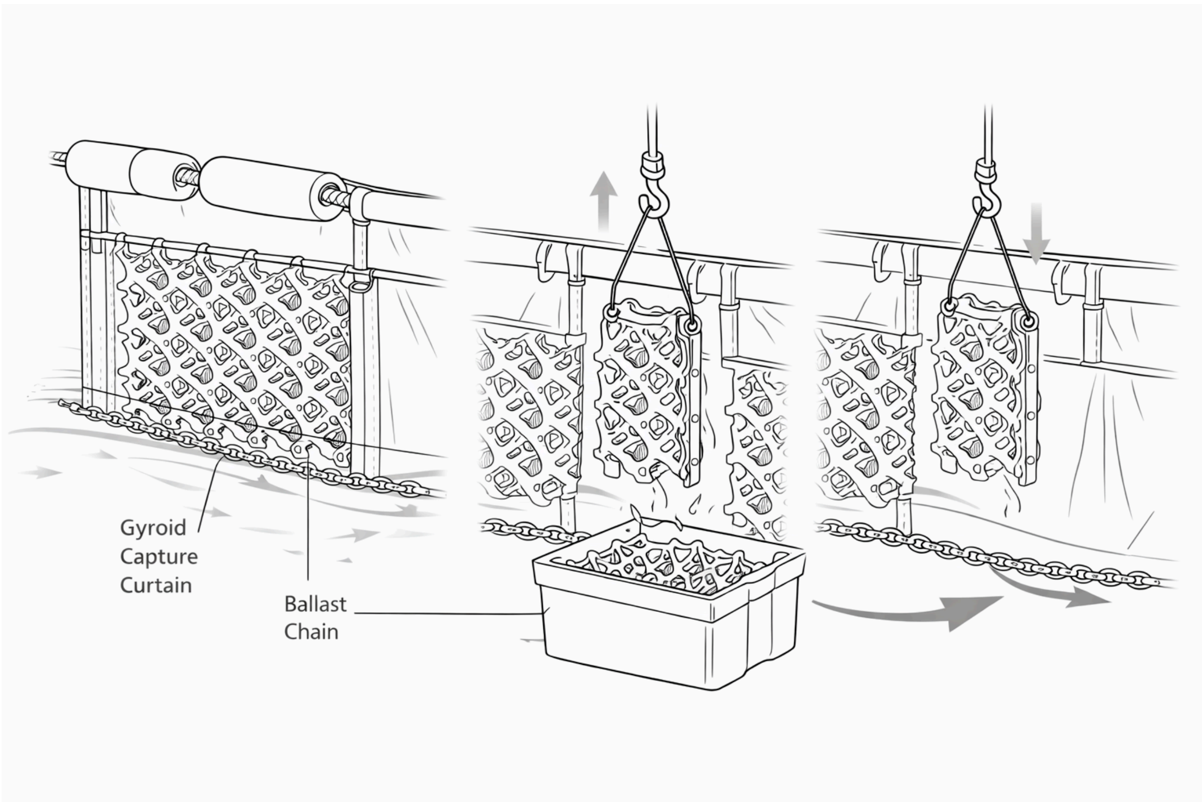

Appendix A

Engineering Precedent and Design Basis: Application of Oil Spill Containment and Recovery Principles to Surface Algal-Bloom Interception

A1. Purpose of Appendix A

This appendix sets out the **engineering precedent and technical basis** underpinning the proposed SORR Gyroid towed boom system for surface algal-bloom scum and foam interception.

Its purpose is to demonstrate that the proposed approach:

- Is derived from **established, internationally accepted marine engineering practice**
- Operates within **known performance limits and failure thresholds**
- Is **conservative, reversible, and predictable** in behaviour
- Represents an **adaptation of proven oil spill containment and recovery methods**, rather than an experimental or untested intervention

Appendix A is intended to support **technical and regulatory confidence** in the suitability of the proposal for pilot-scale trials.

A2. Why Oil Spill Containment and Recovery Is the Correct Engineering Analogue

Surface algal scums and foams exhibit physical behaviour that closely aligns with floating oil and oil–water emulsions, rather than with suspended biomass. In particular, both are:

- Buoyant or semi-buoyant surface layers
- Highly sensitive to turbulence and shear
- Concentrated into surface windrows and slicks by wind and surface convergence
- Rapidly lost from containment when relative flow velocities become excessive

For these reasons, **oil spill containment and recovery engineering provides the most conservative and field-validated design precedent** for surface interception of algal scum and foam [3,5,7,9].

This precedent has been developed through decades of offshore and near-shore deployment under regulatory oversight and forms the basis of internationally recognised guidance documents.

A3. Critical Operating Principle: Relative Flow Normal to the Boom

Oil spill guidance consistently demonstrates that containment effectiveness is governed not by absolute vessel speed, but by the **component of water velocity normal (perpendicular) to the boom curtain** [3,5].

When this **normal relative flow** approaches a threshold of approximately **0.7 knots**, containment effectiveness deteriorates rapidly due to the formation of a headwave and associated turbulence [3,4,5,9].

A3.1 Primary failure mechanisms

Documented oil-boom failure modes include:

- **Entrainment:** turbulence drives droplets or surface material beneath the skirt
- **Drainage failure:** retained material thickens, accelerating underflow
- **Splash-over / wash-over:** surface material is forced over the freeboard in waves

These mechanisms are well characterised in oil spill response literature and are directly applicable to algal scum and foam interception [3,5,9].

A3.2 Application to HAB interception

Accordingly, the proposed SORR Gyroid boom system adopts the same conservative control rule:

The normal component of relative flow at the boom curtain should be maintained at or below approximately 0.7 knots wherever practicable.

This rule governs:

- Tow speed selection
- Deployment geometry
- Tidal and current windowing
- Go / no-go operational decisions

A4. Geometry Over Speed: Proven Containment Configurations

Oil spill recovery practice demonstrates that **geometry is more effective than speed** in increasing encounter rate while maintaining containment [5,7].

A4.1 Single-vessel J-tow (near-shore precedent)

The J-tow configuration:

- Uses a single vessel towing a curved boom
- Concentrates surface material into a controlled pocket
- Is widely used in near-shore and protected waters

This configuration offers high control of relative flow and is well suited to coastal embayments, port approaches and near-shore environments [5,7].

A4.2 Dual-vessel U/V sweep (open-water precedent)

The U- or V-sweep configuration:

- Uses two vessels towing boom ends
- Maximises sweep width and encounter rate
- Is the standard offshore oil recovery geometry

This approach is effective in open water but is more sensitive to sea state and current conditions, reinforcing the need for conservative operating windows [5,7].

The same geometries are adopted in the proposed HAB interception system.

A5. Structural Design Lessons from Oil Spill Booms

Oil spill containment experience shows that **structural failures most often occur at load paths and connectors**, not flotation elements [1,3,8].

Key engineering lessons applied directly to the SORR Gyroid system include:

- **Tow loads must be carried by dedicated tension members**, not by skirts or capture media
- **Curtains must be stabilised (ballast)** but isolated from tensile forces
- **Distributed bridles** reduce point loading at tow connections
- **Connector discontinuities** are known hydrodynamic weak points and must be minimised

These principles are explicitly embedded in the proposed design [1,3,8].

A6. Curtain Depth Optimisation: Oil Spill Trade-offs Applied

Oil spill literature clearly establishes that **deeper skirts do not automatically improve containment** and may, under some conditions, reduce performance by:

- Increasing drag loads
- Accelerating underflow velocity
- Promoting entrainment and drainage failure

Optimal draft selection is therefore a balance between retention and hydrodynamic stability [3,5,9].

A6.1 Translation to HAB surface scum and foam

Because algal scum and foam are concentrated in the **upper centimetres to decimetres**, the proposed system adopts:

- **Moderate draft as the baseline (0.35–0.55 m)**
- Optional, removable extensions for calm, mixed-layer events
- Avoidance of excessive routine draft that would increase drag and turbulence

This mirrors best-practice oil boom design philosophy [3,5].

A7. Sea-State and Windowed Operations

Oil spill doctrine is explicit that **recovery effectiveness collapses beyond defined sea-state thresholds**, even if equipment remains structurally intact [3,5,6].

Typical guidance indicates:

- **Best performance:** ≤1.0 m significant wave height
- **Marginal performance:** 1.0–1.5 m
- **Ineffective recovery:** >1.5–2.0 m

The proposed HAB interception system therefore adopts a **windowed, opportunistic deployment model**, rather than attempting continuous operation. This approach is consistent with accepted marine response practice.

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A8. Why This Precedent Strengthens Regulatory Confidence

By explicitly grounding the proposed system in oil spill containment and recovery precedent, the SORR Gyroid surface interception concept:

- Applies **decades of validated offshore engineering experience**
- Uses **known operating limits**, rather than speculative thresholds
- Anticipates and manages **documented failure modes**
- Employs **deployment geometries trusted by regulators and ports**
- Positions the pilot as a **controlled interception operation**, not an experimental clean-up

This framing is intentional and designed to align with EPA expectations for **risk-managed pilot trials**.

A9. Summary Statement (for EPA reviewers)

The proposed SORR Gyroid surface interception system is an adaptation of established oil spill containment and recovery engineering, applied conservatively to the interception of surface algal scum and foam. Its operating limits, failure modes and deployment geometries are well understood, making it suitable for regulator-guided pilot trials under defined conditions.

Appendix B

Cost–Benefit Assessment – SORR Gyroid Towed Boom Surface Interception Pilots

B1. Purpose of this appendix

This appendix provides a **qualitative and indicative quantitative cost–benefit assessment** of the proposed SORR Gyroid towed boom pilot deployments, to support EPA consideration of trial suitability, proportionality, and value relative to risk.

The assessment is framed to:

- Avoid overstated economic claims
- Focus on **risk reduction, avoided harm, and evidence generation**
- Reflect the **episodic, window-based** nature of surface interception operations
- Align with EPA decision-making thresholds for pilot approvals

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B2. Scope and limitations

This cost–benefit assessment:

- Covers **pilot-scale deployments only**
- Compares **near-shore J-tow** and **open-water U/V sweep** configurations
- Does **not** assume continuous operation
- Does **not** assign speculative dollar values to ecosystem services
- Focuses on **order-of-magnitude costs and benefits**

Accordingly, results should be interpreted as **decision-support information**, not a full economic appraisal.

B3. Cost summary (pilot scale)

Indicative costs are based on comparable marine containment operations and reflect conservative assumptions.

B3.1 Near-shore J-tow (Spencer Gulf / Gulf St Vincent)

Cost element	Indicative range (AUD, ex-GST)
Boom system (80–150 m, incl. Gyroid modules)	$180,000 – $350,000
Vessel (single workboat)	$5,000 – $10,000 / day
Crew (2–3 persons)	$2,000 – $4,000 / day
Monitoring & QA/QC (pilot total)	$10,000 – $25,000
Indicative 3–5 day pilot total	**$220,000 – $420,000**

B3.2 Open-water dual-vessel U/V sweep (Spencer Gulf)

Cost element	Indicative range (AUD, ex-GST)
Boom system (200–350 m)	$350,000 – $650,000
Vessels (2 × workboats)	$12,000 – $25,000 / day
Crew (4–6 persons total)	$4,000 – $8,000 / day

Spreader/paravane equipment (if required)	$20,000 – $50,000
Monitoring & safety support	$15,000 – $40,000
Indicative 3–5 day pilot total	**$420,000 – $850,000**

B4. Benefit categories (EPA-relevant framing)

Benefits are grouped into **direct, indirect, and strategic** categories.

B4.1 Direct environmental benefits

- **Removal of concentrated surface biomass** during bloom events
- **Reduction in shoreline deposition** of scums and foams
- **Interruption of nutrient recycling** associated with surface breakdown
- **Localised protection of sensitive receiving environments** (e.g. aquaculture zones, near-shore habitats)

These benefits are **spatially targeted and time-limited**, consistent with EPA risk-management principles.

B4.2 Avoided impact benefits (non-monetised)

While not monetised, avoided impacts include:

- Reduced clean-up effort following shoreline deposition
- Reduced secondary water quality degradation
- Reduced community and industry disruption during acute events

These avoided impacts are **well-recognised** in oil spill response planning and translate directly to HAB surface events.

B4.3 Evidence generation and regulatory value

A core benefit of the pilot is **credible evidence generation**, including:

- Verified operating envelopes
- Measured recovery rates
- Identification of loss mechanisms
- Practical constraints and go/no-go thresholds

This evidence:

- De-risks future decisions
- Prevents escalation to ineffective large-scale interventions
- Supports proportionate regulatory responses

B5. Cost-effectiveness comparison (relative, not absolute)

Criterion	Near-shore J-tow	Open-water U/V sweep
Cost per pilot	Lower	Higher
Control of conditions	High	Moderate
Sensitivity to weather	Lower	Higher
Capture efficiency per tow	High	Variable
Evidence per dollar	High	Moderate
Regulatory confidence	High	Conditional

Key finding:
Near-shore J-tow deployments provide the **highest benefit-to-cost ratio** for initial EPA-guided pilots.

B6. Comparison to alternative response options

Response type	Relative cost	Risk profile	Reversibility	Evidence yield
Monitoring only	Low	Passive	High	Low
Chemical treatment	Moderate–High	High	Low	Moderate
Mechanical dredging	Very high	High	Low	Low
SORR Gyroid surface interception (pilot)	**Moderate**	**Low**	**High**	**High**

The proposed approach sits in a **favourable middle ground**: proactive but controlled.

B7. Risk-adjusted benefit statement

From an EPA perspective, the proposal:

- Has **bounded and transparent costs**
- Operates within known marine engineering limits
- Is **reversible and non-persistent**
- Can be **terminated immediately** if ineffective
- Produces decision-relevant data even if recovery volumes are modest

This risk-adjusted benefit profile is consistent with best-practice pilot approvals.

B8. Overall cost–benefit conclusion

The proposed SORR Gyroid towed boom pilots represent:

- A **proportionate investment** relative to the scale of potential impacts
- A **low-risk, high-learning** intervention
- A cost structure comparable to marine response exercises already accepted by regulators
- A practical means of testing **prevention-oriented surface interception** without committing to long-term infrastructure

EPA-relevant conclusion:
The anticipated benefits—particularly evidence generation, avoided harm, and protection of high-value near-shore environments—are commensurate with the proposed pilot-scale costs and justify consideration under a controlled trial framework.

B9. Suggested EPA decision statement (optional wording)

“The proposed pilot is considered proportionate, reversible, and consistent with established marine containment practice, and may be supported as a time-limited trial subject to defined operating limits and reporting requirements.”
