BPH GLOBAL LTD
ACN 009 104 330

30 July 2025

Company Announcements Platform
Australian Securities Exchange

Final Assay Results Confirm Metal Uptake Potential of Seaweed Species *Sesuvium portulacastrum*

Highlights

- **Final assay results confirm *Sesuvium portulacastrum* is a hyperaccumulator of key metals including gold, silver, copper, and lithium, with concentrations up to 81.32 mg/kg of dry biomass.**
- **R&D program confirms metal uptake is significantly higher in seaweed grown in polluted/brackish water compared to clean marine environments.**
- **Attempts to extract specific metals using conventional chemical methods were unsuccessful due to the complex multi-metal profile of the biomass.**
- **Biomass now classified as "bio-ore", with the next phase of research to focus on biological (microbial) extraction techniques.**
- **New six-month R&D program under negotiation with TPIH, involving a specialist biology team to lead development of selective extraction processes.**
- **Seaweed species found to be resilient and widely adaptable, supporting future potential for scalable deployment across diverse marine environments.**

The Board of **BPH Global Ltd (ASX: BP8)** (Company), is pleased to announce the successful completion of the Company's initial six-month research and development (R&D) program into the identification and potential extraction of precious and rare earth minerals from seaweed. The program was conducted by **Temasek Innovation Holdings Pte Ltd (TPIH)**, an operating company of Temasek Polytechnic in Singapore, in collaboration with the Company's Singapore-based R&D consultant **Gaia Mariculture Pte Ltd** (Gaia Mariculture).

Managing Director Matthew Leonard said: "The final assay results from Phase 2 confirm that *Sesuvium portulacastrum* is a hyperaccumulator of several high-value metals, including gold, silver, copper and lithium. These metals were consistently detected in moderately high to high concentrations across four separate samplings, with levels ranging between 5.23 and 81.32 milligrams per kilogram of dry

biomass. This is a significant milestone for our R&D program and supports our vision of scalable seaweed cultivation in targeted environments for the potential extraction of precious metals. The findings also confirm the robust adaptability of Sesuvium, capable of thriving in a broad range of salinity and habitat conditions, which bodes well for future deployment across diverse coastal regions."

Summary of Final R&D Findings

The final report delivered by TPIH provides a comprehensive overview of the mineral uptake capacity of *Sesuvium portulacastrum*, a halophytic seaweed species, in polluted marine environments. Key findings include:

- Detection of 28 metal species in the weed tissue, based on available analytical reagent standards.
- Notably high concentrations of gold, silver, copper and lithium, suggesting the plant acts as a hyperaccumulator for these and other metals.
- Concentration range for the four metals of interest averaged between 5.23 and 81.32 mg/kg dry biomass.
- Confirmation that *Sesuvium* is resilient and adaptable, capable of surviving in salinity conditions ranging from brackish inland waters to full-strength marine environments.
- Potential applicability across the Indonesian archipelago and similar coastal regions, where the species' environmental tolerance could be leveraged for scalable deployment.

Background and R&D Program Summary

As detailed in the Company's announcements dated 21 February 2025, 7 March 2025 and 1 April 2025, the R&D program was structured in two key phases:

- **Phase 1** involved cultivating *Sesuvium portulacastrum* under laboratory conditions using clean, filtered seawater sourced from Sentosa Island, Singapore, to establish baseline mineral absorption.

Phase 2 assessed seaweed samples collected from brackish, industrially impacted waters in Johor, Malaysia, to test the hypothesis that polluted or mineral-rich waters enhance metal uptake in the seaweed through a "sponge" effect.

The combined assay results from Phase 2 validate the Company's hypothesis, demonstrating meaningful increases in metal concentration levels in seaweed samples grown in polluted conditions when compared to the baseline established under clean water conditions in Phase 1.

Challenges in Mineral Separation and Path Forward

While metal uptake by the biomass has been confirmed, the second objective - the separation and extraction of specific metals from the dissolved biomass—has proven more complex.
Using conventional chemical reagent-based techniques to isolate and extract gold from the aqueous solution produced by dissolved seaweed was unsuccessful. Although a metallic precipitate was formed, it consisted of a mixed metal compound rather than purified gold. The presence of multiple

interfering metals within the biomass appears to limit the effectiveness of traditional chemical extraction methods.

Temasek's report notes:
"Biomasses typically contain many more metal species than mined earthen ores, and the abundance of metal types interferes with conventional chemical separation techniques. While we managed to precipitate a lump of metallic compound, it was not pure gold, but a mixed metal matrix."
As a result, the Company and TPIH will now treat the seaweed biomass as "bio-ore", with plans to shift focus to biological extraction techniques. Microorganisms, with their narrow-range affinities for specific metals, may offer a more targeted and selective extraction mechanism than chemical methods.
To support this shift, a new six-month R&D program is being negotiated with TPIH, with research to be conducted by a new biology-focused team possessing the requisite expertise in biometallurgy, microbial metal uptake, and biologically-assisted leaching. This next phase aims to test the feasibility of biological methodologies for the isolation and refinement of selected metals from the seaweed-derived solution.

Next Steps

The Company's key forward initiatives include:

- Finalisation of a new six-month R&D agreement with TPIH focused on biological extraction;
- Deployment of a new research team within TPIH with appropriate biological and microbiological expertise;
- Initial testing of microbial-assisted extraction processes on Sesuvium biomass samples;
- Exploration of potential partnerships or commercial interest in "bio-ore" solutions for metal recovery;
- Continuation of seaweed sourcing from strategic locations with known mineral-rich marine waters.

Further updates

The Company will continue to update shareholders regarding the Initial testing of microbial-assisted extraction processes on Sesuvium biomass samples and associated research and development.

This announcement has been approved for release by the Board of Directors.

- END -

For further information, please visit our website at www.bp8global.com or contact:

Mr Paul Stephenson
BPH Global Limited
Chairman
E: pauls@bp8global.com

Appendix 1: Disclosure Table providing key details of assay results of Phase Two

Activity	Description
Cultivation & Harvest Site:	The biomass samples of *Sesuvium portucalastrum* seaweed were harvested from the Straits Of Johor coastline, nearshore.
Cultivation Date:	The harvested seaweed was naturally occurring in the area (Johor, Malaysia)
Harvest Date:	10:30am on 24 March 2025
Post harvest storage pending transport to TPIH:	The samples were stored in 3 separate large low density polyethylene bags, making up a total of more than 5kg in weight.
Mode and duration of transport from harvest site to TPIH:	The bagged samples were transported by vehicle to the testing facility at TPIH and arrived at 14:00pm on 24 March 2025..
Moisture content in seaweed on arrival at TPIH:	85.4%
Processing method and Assay equipment:	The seaweeds were left to air-dry overnight (~16 hours) to remove surface water. A small sample was taken for moisture and metal content determination. The remainder, some of which were sampled for assay testing, (approximately 3kg) were then mass grinded and laid out on pans for oven drying at 70°C for 1 week (25 Mar-1 Apr 2025). Seaweeds which were not processed immediately were stored in the cold room at 4 degrees Celsius. The samples from Phase Two that were allocated to assaying for metal content were selected on a random basis. These selected samples were digested using concentrated nitric acid and hydrogen peroxide. Between 30-35g of these samples, randomly selected, were dried, and subsequently one (1)g of the dried samples, again randomly selected, were used for metal quantification.

	The one (1)g of the dried samples were then filtered and diluted to facilitate metal determination using Inductively Coupled Plasma– Mass Spectrometry (ICP-MS). The one (1)g of the dried seaweed samples were digested using 15 ml of concentrated nitric acid at 80°C for two (2) hours. Five (5) ml of hydrogen peroxide (15 %) was then added, and the mixture was maintained at 80°C for another two (2) hours. The mixture was then cooled to room temperature and filtered. The filtrate was diluted to enable metal determination using Inductively Coupled Plasma – Mass Spectrometry (ICP-MS). Digestion of samples using nitric acid and hydrogen peroxide is a commonly used procedure for metal extraction from seaweed biomasses. ICP-MP is the standard instrumentation used for metal detection and quantification.
Initial Processing date:	25 March 2025