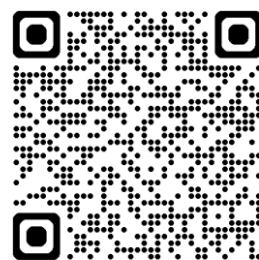




LeapSpace

<https://www.sciencedirect.com/leapspace>



快速使用指南



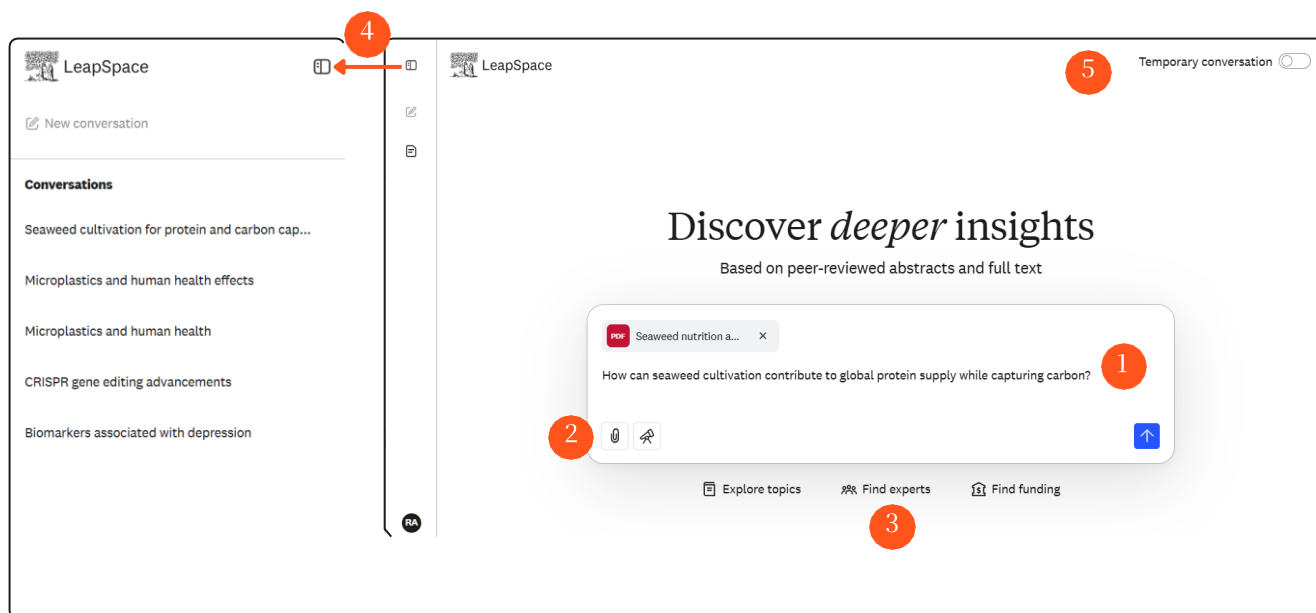
ELSEVIER

Advancing Human Progress Together

目录

1. 开始检索	3
2. 分析检索结果	4
3. 在文献中构建证据对比表	5
4. 浏览“参考文献详情”面板并核验论断	6
5. 在整个研究领域中验证洞见	7
6. 寻找专家与潜在合作者	8
7. 探索资助机会	9
8. 生成研究发现报告	10
9. 生成深度研究报告	11
10. 使用写作助手（Writing Coach）撰写初稿	12
11. 通过对话完善初稿	13
12. 核验初稿中的论断	14

1. 开始检索



1. **开始检索：**只需以自然对话的方式提出问题或描述您的需求（支持中文）。LeapSpace支持包括跨学科领域在内的复杂研究。
2. **添加您自己的文件：**每次对话最多可上传五个文件，AI 的回复既基于您的工作，也基于已发表的文献。支持PDF、Word文档及其他文本格式。
3. **选择检索类型：**默认检索是探索某个主题，但您也可以发起检索以寻找该主题领域的专家或基金来源。
4. **查看历史查询：**对话历史记录会以屏幕左侧标签页的形式，为您提供以往LeapSpace检索的概览。您可以看到最多 10 条最近的检索记录，以及加载更早历史记录选项——LeapSpace总共可保存多达 200 次对话，每次对话最多包含 20 条对话记录。
5. **开始临时对话：**临时对话模式专为进行探索性、敏感性或快速查询而设计，不会保留聊天记录。

2. 分析检索结果

The image displays two screenshots of the LeapSpace interface, illustrating the process of analyzing search results.

Left Screenshot (Step 1): Shows the 'Copilot steps' section. A red circle with the number '1' highlights the first step: 'Creating a plan to respond to your query'. Below this, several steps are listed, including 'Performing keyword search' and 'Performing natural language search', each with a brief description of the search strategy used.

Right Screenshot (Step 2): Shows the 'Seaweed cultivation for protein and carbon capture' report. A red circle with the number '2' highlights the 'How seaweed cultivation can boost global protein supply while capturing carbon' section. The report includes a summary table with three main categories: Protein supply, Carbon capture, and Integrated systems & co-benefits. A red circle with the number '3' highlights the 'Ask a follow-up question' input field at the bottom.

Domain	Key mechanisms	Evidence
Protein supply	• Wastewater/process-water cultivation boosts protein content and yields. • Seaweed can reach high protein levels and serve as alternative protein. • Biorefineries and improved extraction increase protein recoverability.	1, 2, 3, 4, 5
Carbon capture	• Very high primary productivity draws down CO ₂ . • Carbon exported as POC or RDOC becomes long-term storage. • Carbon sink estimates for cultivated systems are large (depending on fate of biomass).	6, 7, 8, 9, 10, 11, 12
Integrated systems & co-benefits	• IKTA systems recycle nutrients and enhance both biomass and carbon capture. • Wastewater-based cultivation removes N/P while producing protein-rich biomass.	13, 14, 15

1. **查看解答步骤：**LeapSpace始终展示其回答问题所采取的步骤。这种透明性构筑信任，并支持人工智能时代的一项核心技能——计算思维，即将问题分解为若干部分并逐步进行逻辑求解。
2. **主题概览：**浏览结构化的主题概览，快速掌握要点。摘要会综合来自相关文档的内容。
3. **提出追问：**您可以使用追问功能，深入阐述报告中的特定要点，重新聚焦查询以探索新的视角，或深入研究某个特定的关注领域。

3. 在文献中构建证据对比表

Microplastics and human health

Confidence Level

High confidence that these themes represent the major open questions, as they appear consistently across numerous reviews that highlight methodological limitations, research gaps, and missing long-term human data.

If you'd like, I can also generate:

- a conceptual diagram of research gaps,
- a prioritized research agenda,
- or a more detailed breakdown of gaps by exposure route, organ system, or particle type.

Show all 33 references [Explore as a table](#) 1

Follow-up Suggestions

- What are the potential pathways through which microplastics may affect human health?
- How do microplastics interact with the human immune system?
- What are the long-term health implications of microplastic exposure in humans?

Ask a follow-up question

LeapSpace is powered by Scopus data and full-text content from Elsevier and other publishers. AI responses may vary in quality. [Share feedback](#)

Methods Results

2

Add a column

Column name

Add column name

Describe what you want this column to do

Add description

Cancel Create column

This is a temporary table and is not being saved

Leaving this page will clear it from your session, to retain a copy, first please export.

Export CSV

Filter

Abstract Methods Results

Add paper(s)

Enter DOI, PMID or EID (add multiple separated by comma)

<https://doi.org/10.1016/j.asr.2025.03.022>, S0014579324001234, 2-e2.0-85123456789

Cancel Add paper(s) +

This is a temporary table and is not being saved

Leaving this page will clear it from your session, to retain a copy, first please export.

Export CSV

1. 将证据提取为结构化视图：点击“以表格形式浏览”，即可将底层参考文献汇入一个对比视图——被引文献成行，关键证据成列。
2. 围绕您的问题定制表格——添加列、细化您想对比的维度，或在各篇论文中检索，以呈现对您的综述至关重要的研究发现。

4. 浏览“参考文献详情”面板并核验论断

The screenshot displays the LeapSpace interface. On the left, a panel titled 'Seaweed cultivation for protein and carbon capture' shows a summary table with three domains: Protein supply, Carbon capture, and Integrated systems & co-benefits. Each domain lists key mechanisms and associated evidence numbers. An orange arrow points from the evidence number '9' in the 'Protein supply' row to the 'Reference details' panel on the right. This panel shows the citation 'Protein from seaweed aquaculture' by Suryaningtyas, I.T., et al. (2023) from Elsevier. It includes a 'Neutral' claim radar, a 'Trust Card' with a snippet of text, and an 'Abstract' section. Red circles with numbers 1 through 4 highlight specific features: 1. Citation information, 2. Export options, 3. Claim Radar, and 4. Trust Card snippet.

Domain	Key mechanisms	Evidence
Protein supply	• Wastewater/process-water cultivation boosts protein content and yields. • Seaweed can reach high protein levels and serve as alternative proteins. • Biorefineries and improved extraction increase protein recoverability.	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
Carbon capture	• Very high primary productivity draws down CO ₂ . • Carbon exported as POC or RDOC becomes long-term storage. • Carbon sink estimates for cultivated systems are large (depending on fate of biomass).	6, 7, 8, 9, 10, 11, 12
Integrated systems & co-benefits	• IMTA systems recycle nutrients and enhance both biomass and carbon capture. • Wastewater-based cultivation removes N/P while producing protein-rich biomass.	13, 14, 15

核验论断并查看来源——点击引文编号将打开参考文献详情面板，其中显示：

1. 参考文献著录信息。
2. 导出参考文献的选项。
3. 主张雷达（Claim Radar）：显示一条论断与其所引来源的吻合程度，并标注为支持、反驳或中立，以回答：“这条论断真的得到了所引来源的支持吗？”
4. 信任卡（Trust Card）：来源中支持该论断的原文段落。

5. 在整个研究领域中验证洞见

The image shows two side-by-side screenshots of the Claim Radar interface. The left screenshot displays a summary table for the domain 'Seaweed cultivation for protein and carbon capture'. The table has three columns: Domain, Key mechanisms, and Evidence. The right screenshot shows the 'Claim Radar' interface with a red circle labeled '1' highlighting the 'Processing steps' section. An orange arrow points from the 'Evidence' column of the table in the left screenshot to the 'Processing steps' section in the right screenshot.

Domain	Key mechanisms	Evidence
Protein supply	• Wastewater/process-water cultivation boosts protein content and yields. • Seaweed can reach high protein levels and serve as alternative protein. • Biofertilizers and improved extraction increase protein recoverability.	1, 3, 4, 5
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Summary table

Domain: Seaweed cultivation for protein and carbon capture

Key mechanisms:

1. **High-protein biomass generation**, especially when nutrients are optimized.
2. **Substantial carbon fixation during growth**, with some portion stored long-term as particulate or dissolved organic carbon.
3. **Ecosystem and climate co-benefits** such as nutrient removal, reduced emissions, and low land/water requirements.

How seaweed cultivation can boost global protein supply while capturing carbon

Seaweed cultivation contributes to **protein production** and **carbon capture** through well-documented mechanisms:

Ask a follow-up question

Claim Radar

Processing steps

Identified claim: Wastewater/process-water cultivation boosts protein content and yields.

25 related documents

Support: 17, Mixed: 6, Contradict: 2

8 key insights

Claim asserts wastewater/process-water cultivation raises protein content and yields in biomass.

Do you find Claim Radar helpful? Yes No

17 support 6 mixed 2 contradict

Cultivation in wastewater increases growth and nitrogen content of seaweeds: A meta-analysis

Stedje, K.; Pavlidis, H.; Toth, G.B. *Algal Research* • Journal • 2022

18 citations

Show abstract View at publisher View Scopus document

Cultivation of Ulva fenestrata using herring production process waters increases biomass yield and protein content

Stedje, K.; Gustavsson, O.; Kollander, S.; Toth, G.B.; Pavlidis, H. *Frontiers in Marine Science* • Journal • 2022

17 citations

Show abstract View at publisher View Scopus document

1. 对照更广泛的研究核查论断：主张雷达（Claim Radar）可在整个更广泛的研究领域中验证由 AI 生成的洞见。它能识别回答中可验证的论断，并将其对照超过一亿篇 Scopus 收录的文献中选择最相关的至多 40 个来源进行检验，以显示证据是支持、反驳还是呈现中立的结论，并配以清晰的可视化摘要和可追溯的证据链。它可以回答：“关于这条论断，更广泛的研究是怎么说的？”

6. 寻找专家与潜在合作者

Summary Table: Top Experts by Domain

Domain	Key Experts	Why They're Relevant	Citations
Seaweed Cultivation & Aquaculture	Ni P.D. Kusuma, Pieter Amalo, Rifqah Pratiwi, Adrian K. Macleod	Work on <i>Kappaphycus</i> and <i>Eucheuma</i> cultivation, growth optimization, and sustainable farm design	48 49 50 51
Seaweed Proteins & Extraction Technologies	Diane Purcell, João P. Trigo, Kristoffer Stedt, Jayani Samarathunga, Maria Hayes	Lead research on seaweed protein extraction, functional foods, biochemical profiling	52 53 54 55 56
Macroalgal Carbon Capture & Blue Carbon Modeling	Si Chen, Xiuting Feng, Ruimin Zhang, Ellen Ould, Bin Li	Produce high-impact work on DOC/POC pathways, carbon accounting frameworks, and macroalgal carbon fate	57 58 59 60 61

1. Experts in Seaweed Cultivation and Applied Aquaculture

Ni P.D. Kusuma

Focus on **Kappaphycus** and **Sargassum** cultivation performance, biochemical composition, and bioactivity [48](#).

Pieter Amalo

Ask a follow-up question

LeapSpace is powered by Scopus data and full-text content from Elsevier and other publishers. AI responses may vary in quality. [Share feedback](#)

1. 识别主题专家与潜在合作者：通过向 LeapSpace 提问，识别在该领域工作的关键人物——“提出追问”即可查看顶尖专家，或获得推荐的潜在合作者。

Seaweed cultivation for protein and carbon capture

Experts in Seaweed Cultivation and Marine Protein

Leading Experts on Seaweed Cultivation, Seaweed-Based Protein, and Macroalgal Carbon Capture

Below is a structured synthesis of the most relevant experts identified from the retrieved author data. These individuals have **substantial publication output, citation impact, or specialized expertise** in seaweed cultivation, marine protein, macroalgal carbon sequestration, or carbon-cycle modeling.

Summary Table: Top Experts by Domain

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Seaweed Cultivation & Aquaculture	Ni P.D. Kusuma, Pieter Amalo, Rifqah Pratiwi, Adrian K. Macleod	Work on <i>Kappaphycus</i> and <i>Eucheuma</i> cultivation, growth optimization, and sustainable farm design	48 49 50 51
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Ask a follow-up question

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Author preview

Adrian K. Macleod

Matching documents | h-index | Citations

12 | 11 | 872

[View profile](#)

Matching documents

Production of acetone, butanol, and ethanol by fermentation of *Saccharina latissima*: Cultivation, enzymatic hydrolysis, inhibitor removal, and fermentation

Schultze-Jena, A.; Voon, R.C.; Macleod, A.K.A.; López-Cortés, A.M.; Boon, M.A. *Algal Research* 71 • Journal • 2022

32 citations

Ensilage of sugar kelp biomass for biorefining

Larsen, S.U.; Ma, N.; Hou, X.; Bak, U.G.; Biern, A.B. *Biomass and Bioenergy* 71 • Journal • 2021

11 citations

Is social license to operate relevant for seaweed cultivation in Europe?

Billow, S.L.; Bostan, J.; Teti, B.; Macleod, A. *Aquaculture* 71 • Journal • 2021

42 citations

Effects of seeding method, timing and site selection on the production and quality of sugar kelp, *Saccharina latissima*: A Danish case study

Bodenkov, T.; Nielsen, M.M.; Baasmussen, M.B.; Sloth, J.J.; Rindén, A.

2. 查看活跃研究者名单：LeapSpace 会生成一份名单，列出该主题领域的研究者。
3. 深入了解专家详情：您可以深入剖析名单中的任何作者，以查看其经验与过往工作成果。这些数据来源于 Elsevier 的 Scopus 数据库（收录1900万+作者档案）。

7. 探索资助机会

How can seaweed cultivation contribute to global protein supply while capturing carbon?

Copilot steps >

Seaweed cultivation for protein and carbon capture

How seaweed cultivation can boost global protein supply while capturing carbon

Seaweed cultivation contributes to **protein production** and **carbon capture** through well-documented mechanisms:

1. **High-protein biomass generation**, especially when nutrients are optimized.
2. **Substantial carbon fixation during growth**, with some portion stored long-term as particulate or dissolved organic carbon.
3. **Ecosystem and climate co-benefits** such as nutrient removal, reduced emissions, and low land/water requirements.

Summary table

Domain	Key mechanisms	Evidence
Protein supply	• Wastewater/process-water cultivation boosts protein content and yields. • Seaweed can reach high protein levels and serve as alternative protein. • Biorefineries and improved extraction increase protein recoverability.	1 , 2 , 3 , 4 , 5
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Integrated systems & co-benefits	• IMTA systems recycle nutrients and enhance both biomass and carbon capture. • Wastewater-based cultivation removes N/P while producing protein-rich biomass.	13 , 3 , 14 , 15

What funding opportunities exist in the U.S. for this topic?

1

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1. **咨询资助情况：**若要了解谁在资助该主题的研究，请使用“提出追问”功能。

Seaweed cultivation for protein and carbon capture

Funding opportunities for seaweed cultivation and carbon capture

U.S. Funding Opportunities Relevant to Seaweed Cultivation, Marine Protein, and Ocean-Based Carbon Capture

Below is a **focused synthesis** of the funding opportunities from your search that meaningfully support work on seaweed aquaculture, blue carbon, marine biomass, sustainable marine protein, or enabling technologies for carbon removal and aquaculture systems. Only opportunities with **direct or enabling relevance** are included.

Summary Table: Most Relevant Opportunities

Opportunity	Funder	Amount	Why It's Relevant	Citations
VentureWell Ocean Enterprise Accelerator	VentureWell	\$140,000	Supports ocean-data tech and innovations; strong fit for MPR, carbon accounting, seaweed-farm monitoring	29 30 31
NIST: Water Quality & Health in Aquaculture	NIST	\$85,764	Directly supports aquaculture R&D including nutrient dynamics important to seaweed and IMTA	32 33
NOAA: Population Assessment Modeling for Marine Aquaculture	NOAA	Not listed	Supports ecological modeling for aquaculture; relevant for seaweed-ecosystem interactions	34
BARD Aquaculture & Desert Farming Program	BARD (US-Israel)	\$600,000	Funds algae, seafood, and aquaculture protein research; requires US-Israel partnership	41 42
NRL Seawater Carbon Capture & Hydrogen Production	U.S. Naval Research Lab	\$104,401	Strong thematic link to ocean carbon pathways; enabling carbon-capture tech	43
NOAA: Inter-Ocean	NOAA	Not listed	Supports foundational	39

Who are the experts on this topic?

2

Leadspace is powered by Scopus data and full-text content from Elsevier and other publishers. AI responses may vary in quality. [Share feedback](#)

Funding preview

3

Funding Institutional Funding opportunity

Measurement Science to Promote Water Quality and Health in Aquaculture

National Institute of Standards and Technology USA
mary.bedner@nist.gov

Awarded amount: \$85764 USD Type: Individual fellowships
[Apply for funding](#)

Summary Eligibility details

NIST, in collaboration with the Institute of Marine and Environmental Technology (IMET), is seeking a post-doctoral scientist to participate in measurement science research to support the development of sustainable aquaculture in the US. The research will be accomplished through the complementary capabilities or both organizations including advanced analytical capabilities at NIST (e.g., LC-HRMS and LC-MS/MS, GC-MS) and a state-of-the-art aquaculture research center at IMET. Potential research areas of interest include the development of sensitive and selective methods for determining organic contaminants, such as hormones, metabolites, and feed by-products in recirculating aquaculture systems (RAS); evaluation of passive sampling devices for mimicking the bioaccumulation of targeted organic contaminants in RAS; study of antibiotics used as food supplements in aquaculture, particularly transport through the water, metabolic by-products, and development of novel treatment approaches; development of analytical capabilities for off-flavor detection in water and fish tissue, including the development and evaluation of novel technology for off-flavor removal; measurement approaches for understanding contaminant remediation by oysters and other filter feeders in marine aquaculture; and determination of the impact of current-use pesticides on aquaculture animals and water.

Keywords:

2. **查看资助来源：**您可以看到该研究领域主要资助来源的列表。
3. **识别具体的资助机会：**您可以深入了解每个资助方背后的具体资助机会，这些可能会成为您的资助来源。

8. 生成研究发现报告

Experts in Seaweed Cultivation and Marine Protein

Leading Experts on Seaweed Cultivation, Seaweed-Based Protein, and Macroalgal Carbon Capture

Below is a structured synthesis of the most relevant experts identified from the retrieved author data. These individuals have **substantial publication output, citation impact, or specialized expertise** in seaweed cultivation, marine protein, macroalgal carbon sequestration, or carbon-cycle modeling.

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1. Experts in Seaweed Cultivation and Applied Aquaculture

Ni P.D. Kusuma

Focus on *Kappaphycus* and *Sargassum* cultivation performance, biochemical composition, and bioactivity [48](#).

Pieter Amalo

Can you make a short report for my team about this and include diagrams? **1**

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1. 生成报告：使用“提出追问”功能创建报告，与团队分享关键发现。

Seaweed cultivation for protein and carbon capture

3. Diagram: Protein & Carbon Pathways in Seaweed Cultivation

```
graph TD; Nutrients --> Growth; Growth --> Biomass; Biomass --> Protein; Biomass --> Carbon_fixation[Carbon fixation]; Carbon_fixation --> POC_export[POC export]; Carbon_fixation --> RDOC_formation[RDOC formation]; POC_export --> Long_term_storage[Long term storage]; RDOC_formation --> Long_term_storage;
```

Figure 1: Seaweed nutrient uptake drives biomass formation, protein yield, and carbon pathways **1** **3**

Matching documents

Production of acetone, butanol, and ethanol by fermentation of *Saccharina latissima*: Cultivation, enzymatic hydrolysis, inhibitor removal, and fermentation
[Schultze-Jena, A.](#) ; [Vroon, B.C.](#) ; [Macleod, A.K.A.](#) ; [López-Contreras, A.M.](#) ; [Boon, M.A.](#)
Algal Research 71 • Journal • 2022
32 citations

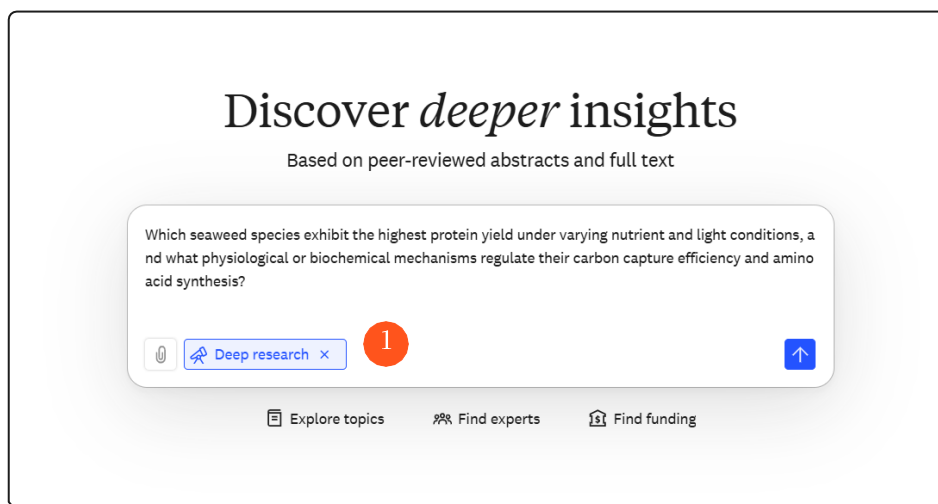
Ensilaging of sugar kelp biomass for biorefining
[Larsen, S.U.](#) ; [Ma, N.](#) ; [Hou, X.](#) ; [Bak, U.G.](#) ; [Bjerre, A.-B.](#)
Biomass and Bioenergy 71 • Journal • 2021
11 citations

Is social license to operate relevant for seaweed cultivation in Europe?
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Effects of seeding method, timing and site selection on the production and quality of sugar kelp, *Saccharina latissima*: A Danish case study
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Algal Research 71 • Journal • 2021
11 citations

2. 分析报告：LeapSpace 以先前的对话轮次作为上下文，生成包含图表的结构化报告。它还会从早前步骤中提取相关参考文献——将所有发现汇集于一处。

9. 生成深度研究报告



1. **撰写全面、论证严谨的报告：**深度研究让您的探索更进一步——在数分钟内生成全面、论证严谨的报告。当您提出一个问题时，深度研究不仅仅是总结现有信息，它会制定一份详细的研究计划，在 LeapSpace 精选的文献中进行广泛检索，并在新的洞见浮现时不断优化其研究方法。

Seaweed species protein yield and mechanisms

Which seaweed species exhibit the highest protein yield under varying nutrient and light conditions, and what physiological or biochemical mechanisms regulate their carbon capture efficiency and amino acid synthesis?

2

Show deep research steps - Processed for 1m 57s

Deep research report View Deep research response as PDF

This report may contain inaccuracies. Please verify the information independently.

Protein Yield, Carbon Capture, and Amino Acid Synthesis in High-Protein Seaweeds: Species Comparisons and Environmental Regulation

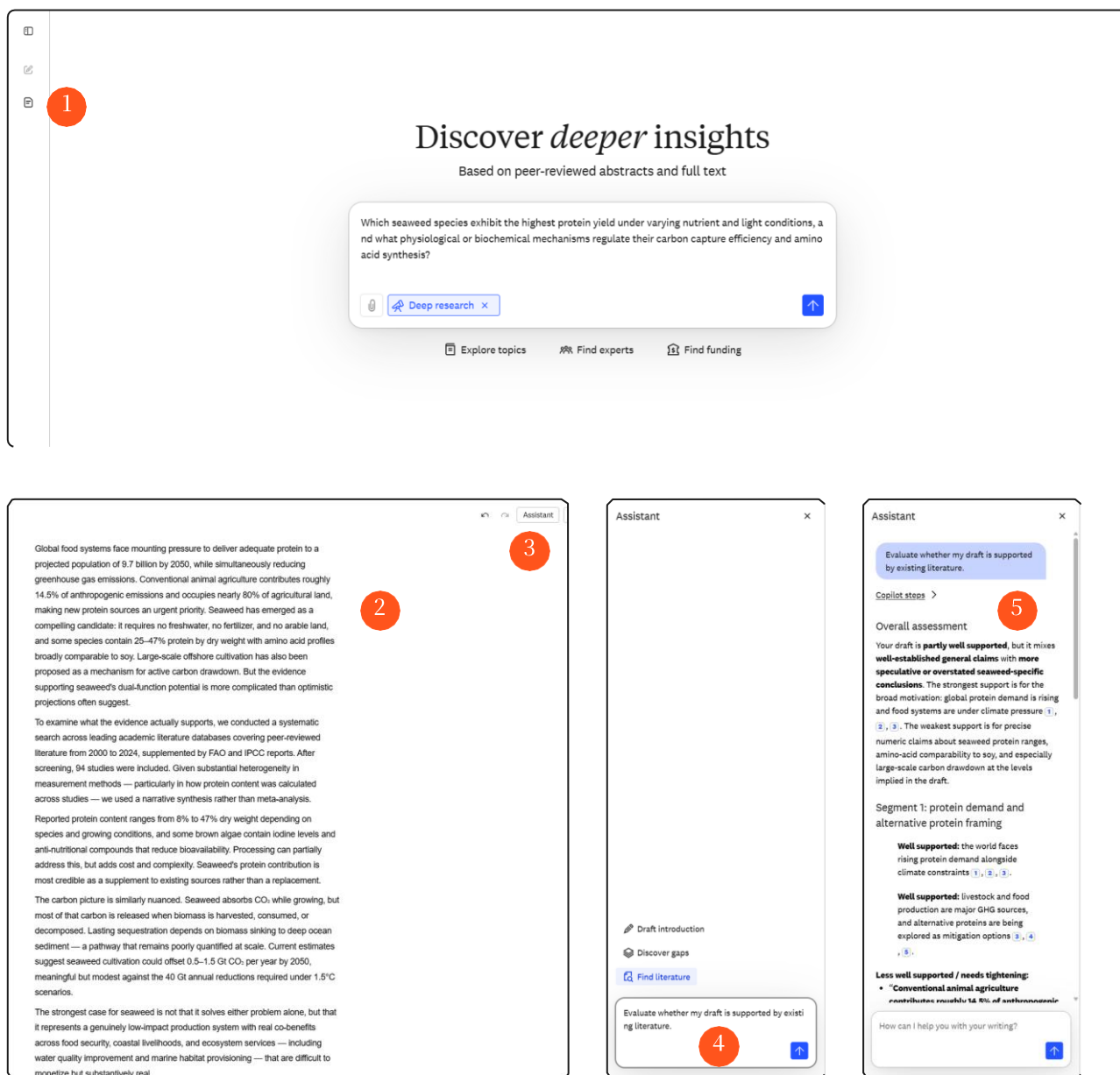
Quick Reference

Key Findings Table

Species/Group	Max Protein Yield (% DW)	Optimal Conditions	Key Mechanisms for Carbon Capture & Amino Acid Synthesis	Notable References
Ulva fasciata	24.5	High nutrients, high light	Robust CCMs, boundary-layer acidification, GS/GOGAT, PII/NAGK	1 2 3
Ulva prolifera	Highest in Ulva group	400 $\mu\text{mol m}^{-2} \text{s}^{-1}$, 25°C, high N	CCM flexibility, strong N assimilation, GS/GOGAT	4 5
Porphyra/Pyropia spp.	30–47	Winter/spring, high nutrients	Efficient Rubisco, GS/GOGAT, PII/NAGK	6 7

2. **分析报告：**您将得到一份结构化、标注完整引用的深度研究报告——包括关键发现、对问题的直接解答、研究范围、假设与局限、综合与讨论、未来研究方向、结论以及推荐阅读。

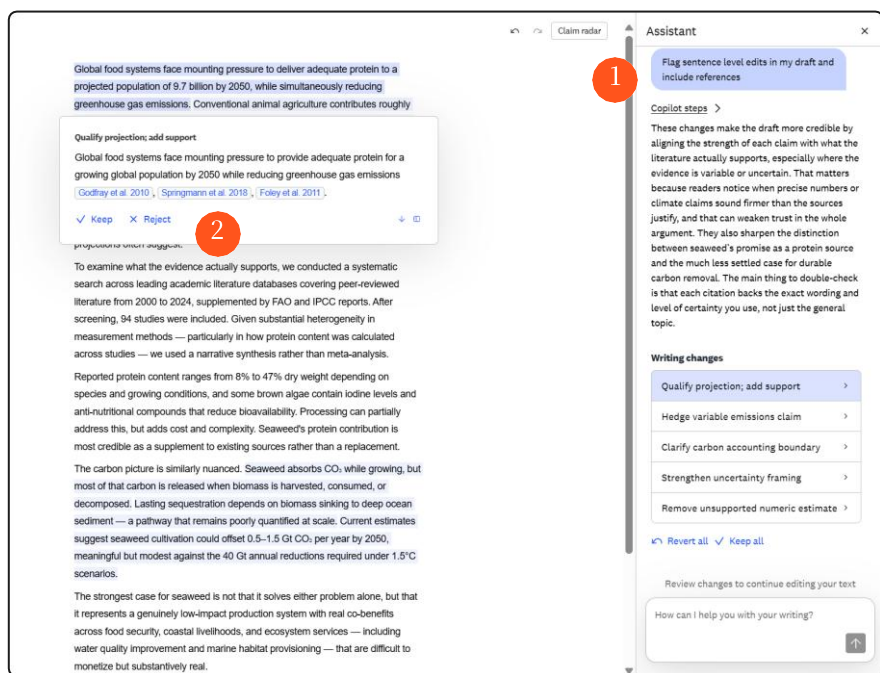
10. 使用写作助手（Writing Coach） 撰写初稿



写作助手（Writing Coach）是一款专为研究人员打造的初稿撰写工具——一个安全且私密的对话式工作空间，可将论证置于具体语境中、强化论据并识别不足之处。

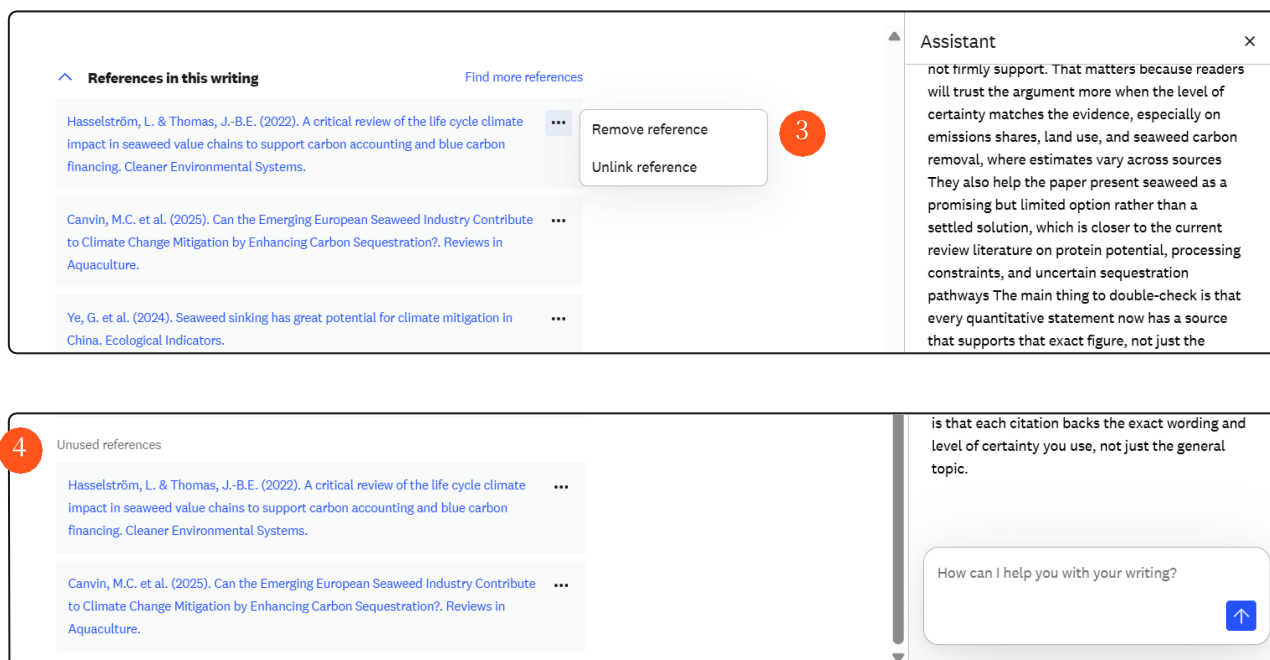
1. 打开写作助手：从LeapSpace主页访问Writing Coach。
2. 添加初稿：将您的初稿输入或粘贴到文档编辑器中。
3. 打开 Assistant 面板：选择“Assistant”图标，弹出右侧的对话面板。
4. 发起对话：开始一段对话。例如，将论据置于更广泛的文献背景中进行考量。
5. 强化与完善：通过基于证据的反复对话强化论据并揭示不足之处。

11. 通过对话完善初稿



1. 在对话与编辑之间切换：您可以在对话继续进行的同时不断完善和雕琢初稿。例如，当您要求对句子进行修改或添加参考文献时，LeapSpace会理解您正在请求对文档进行一项修改，并生成一条内联建议——这使您能够轻松地在讨论与结构化写作之间顺畅切换。

2. 您始终掌握主导权：写作助手不会自动更改您的作品。您可以自行决定要保留还是拒绝建议，从而按自己的方式完善初稿内容。



3. 就地管理参考文献：您可以在初稿底部看到列出的所有已添加参考文献，而且始终可以选择删除参考文献，或在某条参考文献不再相关时解除其链接。

4. 完整可追溯：已删除的参考文献仍会列在下方，以实现完整可追溯。

12. 核验初稿中的论断

Global food systems face mounting pressure to provide adequate protein for a growing global population by 2050 while reducing greenhouse gas emissions (Godfray et al. 2010, Springmann et al. 2018, Foley et al. 2011). Conventional animal agriculture is widely cited as a major contributor to food-related emissions, but precise estimates vary across studies; more broadly, food systems account for a substantial share of global anthropogenic greenhouse gas emissions, and shifts away from animal-source foods can reduce those impacts (Poore & Nemecek 2018, Tilman & Clark 2014, Crippa et al. 2021, Vermeulen et al. 2012, Zhao et al. 2026). Seaweed has emerged as a compelling candidate: it requires no freshwater, no fertilizer, and no arable land, and some species contain 25–47% protein by dry weight with amino acid profiles broadly comparable to soy. Large-scale offshore cultivation has also been proposed as a mechanism for active carbon drawdown. But the evidence supporting seaweed's dual-function potential is more complicated than optimistic projections often suggest.

To examine what the evidence actually supports, we conducted a systematic search across leading academic literature databases covering peer-reviewed literature from 2000 to 2024, supplemented by FAO and IPCC reports. After screening, 94 studies were included. Given substantial heterogeneity in measurement methods — particularly in how protein content was calculated across studies — we used a narrative synthesis rather than meta-analysis.

Reported protein content ranges from 8% to 47% dry weight depending on species and growing conditions, and some brown algae contain iodine levels and anti-nutritional compounds that reduce bioavailability. Processing can partially

Assistant

not firmly support. That matters because readers will trust the argument more when the level of certainty matches the evidence, especially on emissions shares, land use, and seaweed carbon removal, where estimates vary across sources. They also help the paper present seaweed as a promising but limited option rather than a settled solution, which is closer to the current review literature on protein potential, processing constraints, and uncertain sequestration pathways. The main thing to double-check is that every quantitative statement now has a source that supports that exact figure, not just the general idea.

Flag sentence level edits in my draft and include references

Copilot steps >

These changes make the draft more credible by aligning the strength of each claim with what the literature actually supports, especially where the evidence is variable or uncertain. That matters because readers notice when precise numbers or climate claims sound firmer than the sources justify, and that can weaken trust in the whole argument. They also sharpen the distinction

Claim Radar

Select a claim to explore the evidence and research connected to it. Some matches may be imperfect.

Update claims

"Conventional animal agriculture contributes roughly 14.5% of anthropogenic emissions and occupies nearly 80% of agricultural land."

"Seaweed generally requires little or no arable land and freshwater relative to terrestrial protein crops."

"Some species reach high protein concentrations on a dry-weight basis."

"Reported protein content ranges from 8% to 47% dry weight depending on species and growing conditions."

"Some species also present iodine burdens, phenolic compounds, and digestibility constraints that can reduce usable protein, even when amino acid profiles appear favorable"

"Processing can partially address this, but adds cost and complexity."

"Seaweed absorbs CO₂ while growing"

"much of that carbon is subsequently returned to the system when biomass is harvested, consumed, decomposed, or excreted as methane"

Claim evidence

Processing steps

Identified claim

Conventional animal agriculture contributes roughly 14.5% of anthropogenic emissions and occupies nearly 80% of agricultural land.

46 related documents

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Mixed 14

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4 key insights

- Provided abstracts mostly place animal agriculture near the claim's emissions range and land-use dominance.

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Pre- and post-production processes increasingly dominate greenhouse gas emissions from agri-food systems

Tubello, F.N. 가; Karl, K. 가; Flammini, A. 가; Conforti, P. 가; Torero, M. 가

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2. 对照文献核查论断：主张雷达（Claim Radar）显示某项论断在更广泛的文献中是得到支持还是存在争议。
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