Forskningsrådet

Evaluation of Life Sciences 2022-2024

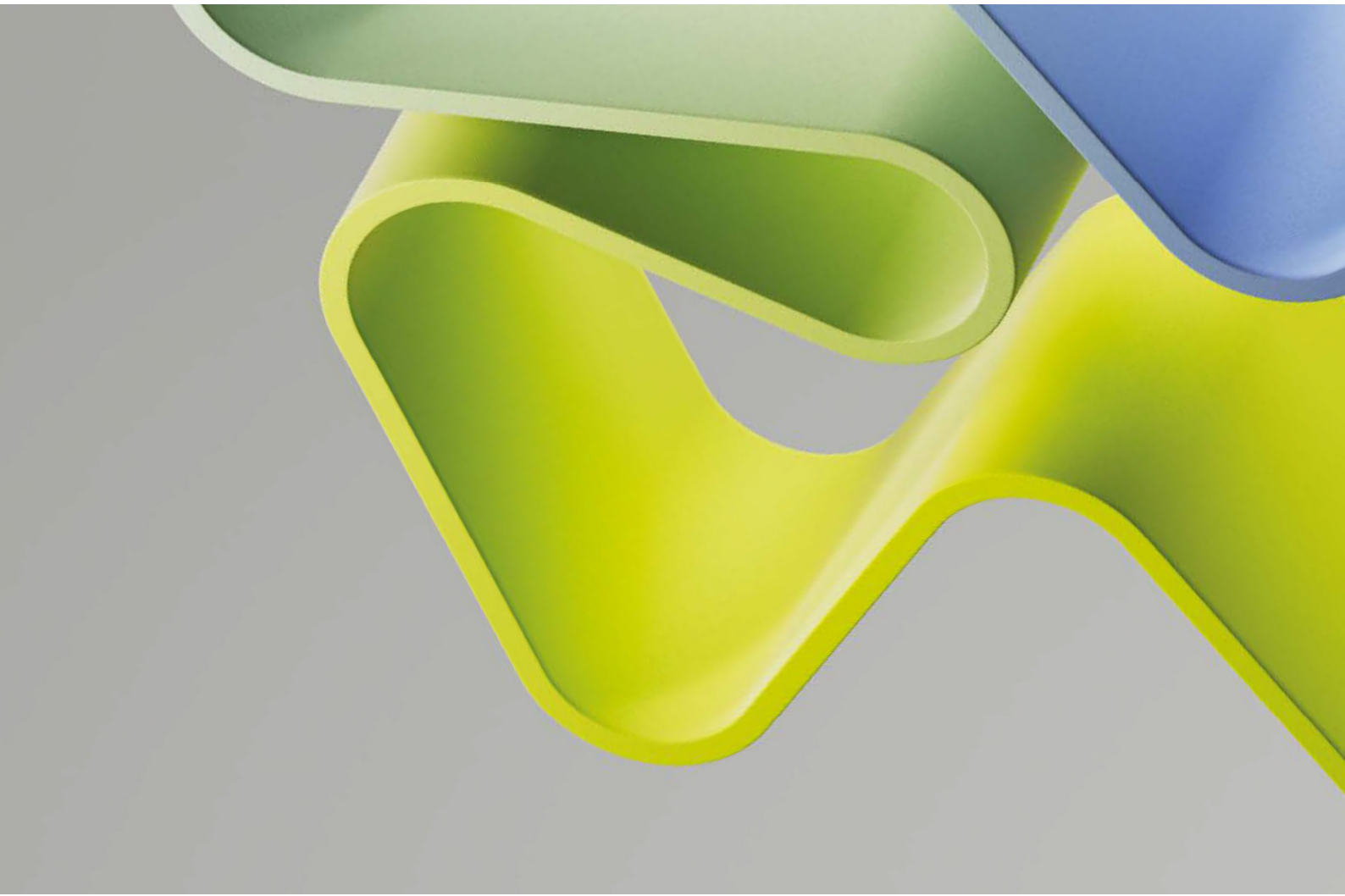
Evaluation of Biosciences 2022-2023

Evaluation report

Advisory and Research Program Unit

Institute of Marine Research (IMR)

December 2023



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Statement from Evaluation Committee 3

This report is from Evaluation Committee 3 which evaluated the following administrative units representing the institute sector in the Evaluation of Biosciences 2022-2023:

- Institute of Marine Research, Havforskningsinstituttet
- Norwegian Institute for Nature Research, NINA
- Norwegian food research institute, Nofima
- Norwegian Polar Institute, NPI
- Biotechnology and Nanomedicine (BTN), SINTEF Industry

The conclusions and recommendations in this report are based on information from the administrative units (self-assessment), digital meetings with representatives from the administrative units, bibliometric analysis and personnel statistics from the Nordic Institute for Studies of Innovation, Research, and Education (NIFU) and Statistics Norway (SSB), and selected data from Studiebarometeret and the National Teacher Survey (Norwegian Agency for Quality Assurance in Education [NOKUT]). The digital interviews took place in Autumn 2023.

This report is the consensus view from committee 3. All members of the committee have agreed with the assessments, conclusions and recommendations presented here.

Evaluation committee 3 consisted of the following members:

Visiting professor
Collin Moffat (chair),
Robert Gordon University

Professor
Barbara König,
University of Zurich

Professor
Bengt Persson,
Uppsala University & Karolinska Institute

Professor
Douglas McMillian
University of Kent

Geert van der Veen, Managing Partner, Technopolis Group, was the committee secretary.

Oslo, December 2023

Profile of the administrative unit

The Institute of Marine Research (IMR) is an independent research institute under the Ministry of Trade, Industry and Fisheries (NFD), with 1,100 employees. As of 2021, the unit had 891 personnel assigned to projects in 22 research groups (162 principal scientists, 184 senior scientists (PhD or higher), 67 post-doctoral workers, 29 PhD candidates, 267 senior engineers, 88 engineers, 17 administrative staff and 77 temporary staff). Of the scientific personnel, 46% were women.

This evaluation has assessed nine research groups: Barents Sea and Arctic Ocean (BRA), Coastal Ecosystems (CES), Environmental Impacts of Aquaculture (EnvAqua), Future Aquaculture (FutAqua), Global Development, Marine Processes and Human Impacts (MarPro), Norwegian Sea (NOR), North Sea (NS), and Safe and Healthy Seafood (SHS).

IMR delivers expertise and knowledge on the management of marine living resources and seafood, both in Norway and internationally. It provides research, data, public administration support and knowledge to be used for national monitoring and emergency responses. The four core research areas are: 1) Sustainable harvest, 2) Sustainable aquaculture, 3) Ecosystem state and human impacts, and 4) Healthy and safe seafood. IMR's main fields and overall focus are outlined in key documents given by the Ministry of Trade, Industry and Fisheries (NFD). These are 1) The Mission statement (Hovedinstruks) and 2) The Annual Commissioning Letter (Tildelingsbrev). IMR's entire project portfolio (>500 projects) includes knowledge-based advice, research, and research data (monitoring, experiments, mapping and modelling). To this end IMR runs a range of cross-disciplinary data and research projects for advice. The project portfolio of IMR is built up of contributions from the 22 research groups and IMR's large supporting research infrastructure.

As a governmental research institute, IMR strives to meet four goals: 1. maintain a sound academic level, documented through scientific publications in recognised journals, 2. obtain competitive national and/or international research funding grants, 3. conduct contract research for private and/or public clients and 4. demonstrate robustness by having a reasonable number of researchers allocated to each research field. IMR's activities are aimed at achieving sector-specific objectives focused on developing a research platform for public policy decisions. IMR contributes to achieving sustainable solutions to societal challenges by giving research-based advice in the thematic areas of Fisheries, Aquaculture, Seafood and Ecosystem state and processes. To this end, the unit conducts both extensive data collection and dedicated research in all the areas mentioned. The mandate and responsibilities are given through its Mission statement (Hovedinstruks) defining IMR's roles and responsibilities and The Annual Commissioning Letter (Tildelingsbrev) from the NFD. The IMR advice process is founded on sound academic research, both its own and the peer reviewed publications from their partners and other national and international sources.

Based on its self-assessment, IMR in the future might take advantage of its highly skilled experts covering a broad range of disciplines in ocean sciences and its excellent research infrastructure (covering state of the art research vessels, experimental facilities, laboratories, field stations, data storage and computation), but also the increasing demand for science-based ocean knowledge and the increased use of machine learning.

Overall assessment

The Institute of Marine Research (IMR) is a governmental institute under the Ministry of Trade, Industry and Fisheries (NFD) with considerable research autonomy. IMR aims to be a leading provider of knowledge on the management of marine living resources and seafood and the whole food chain from the sea to the table (IMR's mission). The Institute has noticeable societal impact. With 1,100 employees, 22 research groups, and more than 500 projects (covering monitoring, experiments, mapping, modelling), IMR is a very large institute in Norway (with headquarters in Bergen) and one of Europe's largest marine research institutes. It manages considerable research infrastructure (research vessels, experimental facilities, laboratories, research and field stations), as well as data and computing infrastructure, with a total turnover of 1,145 million NOK (in 2021).

The administrative unit IMR comprised 9 Advisory and Research Programmes (ARPs) which provide clear structure for research and data collection. Despite its large size and complex mission, IMR's policy of a "matrix structure" when setting up programmes or projects within their 9 ARPs allows for flexibility as well as multidisciplinarity, combining a large range of technologies, methodologies and scientific responsibilities (in physics, chemistry, biology, welfare and health).

IMR provides research-based service to Norwegian ministries, other research institutions, industry and society in accordance with priority knowledge areas specified annually by the government (NFD) within IMR's four core areas of fisheries, aquaculture, seafood and ecosystems. In parallel, IMR initiates its own projects of importance for Norwegian ecosystems and future societal development. The Evaluation Committee felt that ARPs partly lack coherence in their research strategy and are not always well structured. The Evaluation Committee also noticed increased IMR research attention towards climate change. Nevertheless, overall strategic management has to be strengthened and better focussed to allow solving the big problems that Norway is facing, such as anthropogenic erosion of ecosystems and biodiversity loss. The potential to apply for external funding and to participate in international, competitive programmes is not extensively used, although some groups work on important topics of international relevance and produce significant long-term data sets. IMR clearly falls within the Norwegian Government's long-term plan for research in enhancing competitiveness and innovation, environmental sustainability, high quality and accessible research. In terms of thematic priorities, IMR adds to knowledge on oceans and coastal areas, health, climate, the environment and energy, as well as through innovative methodology. IMR's societal impact further contributes to trust building between society and government.

Although IMR has 1,100 employees, only approximately one third of the staff (31.45%), those classified as Principal Scientists or Senior Scientists, are required to publish. In this context, the number of publications per Principal / Senior scientist is 1.28. Author shares, an indicator of research collaboration, are high at IMR, but IMR involvement in mentoring or supervising of PhD students is low and should be increased. Nine out of 22 IMR research groups were evaluated according to their quality and output. Those groups' societal impact was generally highly rated (scores 4 to 5; with 5 the highest score), higher than their scientific output which was considered good to very good (scores 3-4).

Recommendations

1. Strengthen the process of overall strategic planning and develop future opportunities to stress the importance of the management of marine living resources and seafood to solve the biodiversity crises and climate change challenges.
2. Make sure that research groups, especially when very large, maintain coherence in their mission. Research groups should develop a more distinct research strategy to make better use of the wealth of data that is collected from the monitoring programmes.
3. Several ARPs collect immensely valuable, long-term data sets. Researchers should make better use of such unique data by targeting better cited journals that publish innovative topics of broader relevance.
4. Increase competitive international funding by proposing large projects in international calls e.g. Horizon Europe. Consider hiring scientific staff with experience in drafting and executing such international projects (besides their competence according to the needs of a programme).
5. Improve scientific output (number of refereed publications, PhD defences, target better cited journals of broader relevance in their field). Strive to belong to the leading providers of knowledge on the management of marine living resources and seafood not only nationally, but internationally.
6. Increase the involvement and number of PhD students and post-doctoral workers; improve PhD mentoring, strengthen IMR's role in education generally.

1. Strategy, resources and organisation of research

1.1 Research Strategy

IMR research strategy provides expertise and knowledge on the management of marine living resources and seafood. It does so through:

- Research-based advice to the Ministry of Trade, Industry and Fisheries (NFD), Directorate of Fisheries, the Norwegian Food Safety Authority and other governmental agencies related to the management and use of ocean and coastal biological resources. In an Annual Commissioning Letter, NFD specifies priority knowledge areas for a given year within IMR's four core areas fisheries, aquaculture, seafood and ecosystems.
- Making data and research results known and available to the government, other research institutions, industry and society at large.
- Research-based contribution to industrial development. An inspiring example is the "traffic light system" in aquaculture which ensures sustainable growth of the Norwegian salmon farming sector, based on data collected by IMR on wild salmon mortality from sea lice.

The IMR programme board, research leaders and key scientists have autonomy in developing projects within the core areas, either in dialogue with the IMR directors, the NFD, or according to national contract research (such research is mainly done outside the budget for priority areas formulated in the Annual Commissioning Letter). Future research fields are determined in regular discussions with programme or projects leaders at different levels and on internal evaluation. Scientific competence development at IMR is done at the level of research groups. Strong overall strategic management is required to fulfil the IMR mission and to ensure that scientists who collaborate in a given Advisory and Research Programme (ARP) but are based in different research groups, know and follow strategic decisions. Proactive and transparent communication on how projects contribute to IMR's mission will build up trust among employees and their sense of identity with the Institute. IMR considers collaboration with NFD as mutualistically beneficial, the Evaluation Committee nevertheless encourages the administrative unit to take an even stronger role in introducing or promoting projects of highest future relevance for Norway, such as projects covering biodiversity loss or climate change.

1.2 Organisation of research

IMR consists of 9 ARPs, each headed by a Programme Director (PD), that cover the full scope of the Institute's mission. Four ARPs have a geographic scope (Barents Sea and Arctic Ocean, Norwegian Sea, North Sea, and Coastal Ecosystems), five programmes have a thematic scope (Aquaculture, Fish Nutrition, Centre for Development Cooperation in Fisheries, Marine Processes and Human Impacts, and Safe and Healthy Seafood). The head of an ARP (PD) is responsible for the programme's project portfolio and for drafting Advice outputs (to be approved by IMR's Advisory Committee). Project leaders (PL) are responsible for the day-to-day management of a project, the deliverables and for supervising / training staff and PhD students. IMR's total portfolio encompasses over 500 projects, under the headline of four major research areas (irrespective of an ARP's geographic or thematic scope):

- Sustainable harvest
- Sustainable aquaculture
- Ecosystem state and human impacts
- Healthy and safe seafood

IMR is organised in a "matrix" arrangement. Employees are linked to specific research groups and are assigned to ARPs according to their skills or competences. The programmes thus use resources

from different groups within research laboratories, research stations, research vessels, IT, administrative support, communication and public relations, allowing for multidisciplinary research and advice. Not explicitly mentioned in the IMR Self-Assessment is who decides on matching supply (available capacity in the research groups) and demand (capacity needs for research projects in the ARPs) when setting up new projects or programmes. The Evaluation Committee appreciates IMR's "matrix structure" as an important component that allows innovation and flexibility. Still, this arrangement requires a strong combined, overall research strategy at IMR to successfully fulfil its contract and this overall strategy was difficult to perceive from the information provided to the Evaluation Committee.

1.3 Research funding

Total IMR turnover in 2021 was 1,145 million NOK (approximately 1 million NOK per employee and year). Funding mainly comes from the NFD which covered 743 million NOK in 2021. In addition, IMR received national contract grants from the public and the industry (375 million NOK during the reporting time-period from NORAD, The Ministry of Foreign Affairs, The Norwegian Food Safety Authority, and The Directorate of Environment), and 8.7 million NOK from the international industry. The amount of competitive international funding from the European Union was 17.8 million NOK. IMR's success in securing competitive grants has improved recently, with a respectable average success rate of 34% for EU research programs and 24% for RCN. Nevertheless, given the large number of IMR scientists and a relatively low annual public gross revenue per employee, competitive international funding (as for example by participating in projects such as Horizon Europe) has to be increased.

IMR is responsible for an extensive national research infrastructure (see 1.4) and is performing long-term monitoring programmes. Such resources are important for IMR to fulfil its contract. Substantial and reliable government funding is therefore of utmost importance for IMR to manage such infrastructure, given that it is implemented in IMR's mission.

1.4 Use of infrastructures

IMR manages impressive research infrastructure, and hosts or participates at various important national and international infrastructures. Researchers at IMR have access to research vessels, research stations, field stations and laboratories. Research vessels are crucial for major parts of IMR's mission (mapping and monitoring of the marine ecosystems as for example fish stocks which is done on a long-term basis). They are also very expensive in operations and upkeep. Data infrastructure includes the Norwegian Marine Data Centre (NMDC). The infrastructure is generally of high international standard, state-of-the-art, and well equipped to fulfil the tasks given by NFD. Nevertheless, it is unclear for the Evaluation Committee whether, at the moment, the right balance is achieved between costs and benefits. As long as the public benefits outweigh the costs it is important that sufficient governmental support is provided for maintenance of the needed infrastructure.

IMR participates in several national infrastructures listed in the Norwegian roadmap for research infrastructures (e.g. Elixir). IMR further leads the initiative «Coastwatch». All such institutions and programmes are central to IMR's mission and deliverables (covering bioresources, climate and environment, or e-infrastructure). Internationally, IMR participates in European infrastructures (ESFRI; two in Climate and the Environment, two in Biology and Medicine (Life Sciences)), in the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) that provides research-based advice for conservation measures in the Antarctic. To fulfil their mission concerning sustainable seafood, IMR cooperates with the European Reference Laboratory (EURL) and is part of the Nordic Baltic Committee on Food Analysis (NMKL, provides e.g. advice on the export of seafood).

1.5 National and international collaboration

IMR has established partnerships, nationally and internationally, that are of importance for its mission. Extensive collaboration between disciplines and sectors are crucial to allow for applied research on a specific topic and to provide knowledge and advice to international forums. Partnerships include national partner institutions (e.g. Norwegian Computing Centre, Directorate of Environment, Norwegian Food Safety Authority), collaborations comprise the Norwegian Institute for Nature Research (NINA), Norce (an independent research institute), and commercial fishing vessels.

IMR collaborates with several universities in Norway in a range of projects on healthy and sustainable food, on climate science, climate change and climate modelling, holistic Arctic research, coastal research and monitoring welfare systems. Several senior research staff hold professorships in universities and supervise MSc and PhD students. Bibliometric statistics on co-authorships on scientific publications for 2019-2021 reflect IMR's successful research collaborations. Author shares (an expression of IMR's shares of publication authorship according to relative contribution) increased since 2019 and at 162 is relatively high (international standard). Besides co-publishing with various colleagues from Norwegian universities, IMR researchers frequently co-authored papers with international institutions in Europe (Denmark, France, Germany) or in Australia, Canada and the USA.

1.6 Research staff

IMR has a large proportion of highly qualified staff. In 2021, IMR's 22 research groups encompassed 891 scientific personnel, allocated to the projects, of which 184 were senior scientists (PhD or higher) and 162 principal scientists. IMR had 29 PhD students and 67 post-doctoral workers. It is important to emphasise that IMR programmes benefit from the input of highly skilled engineers (262 senior engineers). Recruitment of new research staff is under the responsibility of research groups and can be permanently employed. A mentoring system helps foreign scientists to establish themselves and their families in Norway.

In collaboration with national universities, IMR staff educates and tutors Master and PhD students. Some IMR research groups are well integrated into PhD programmes of local universities. Postdoctoral workers are a vital part of many research groups. Integration into IMR programmes allows young scientists to develop skills important not only for an academic career but also for positions in industrial or governmental institutions that foster or rely on applied research. The Institute has its own "IMR academy" to discuss the needs of PhD students and postdoctoral workers, to secure competence building, and ensure training in governmental regulations, e-learning and open access policies. The academy further promotes networking, both within and over disciplines, since most IMR projects are interdisciplinary. The Evaluation Committee considers the number of IMR PhD students as rather low and encourages the Institute to aim for higher integration of graduate students. When hiring scientific staff, IMR might further consider the candidates' potential to apply for competitive grants (besides their competence according to the needs of a programme), which might be crucial for developing the long-term research agenda and the Institute's potential to react to new challenges (climate change, biodiversity loss etc.).

2. Research production, quality and integrity

The IMR publishes some very good research that is well cited. In 2021, IMR researchers published on average1.28 per Principal / Senior scientist. It has to be considered, that several ARPs provide applied and/or service functions, and that IMR scientific personnel includes 30% senior engineers who are central for IMR's technological themes and whose work might not necessarily be published, especially when involved in industrial research. IMR researchers published mainly in specialised journals, but also contributed to very well cited papers in journals of an internationally high standard. A publication in "Nature Climate Change", for example, illustrates the Institute's leading role with 2 out of 3 authors being IMR researchers. Another very highly cited publication in "Cell Host & Microbe", on the other hand, lists only 1 IMR author among a total of 27. Overall, IMR's scientific impact (citation score) is very good with a share of 17.7% of their papers among the top-cited publications (10% most cited) in 2021. IMR leadership and role in monitoring of various elements of the ecosystem (sea and coast) is very good to outstanding. Such monitoring provides important and far-reaching results and allows valuable societal advice. Large amounts of data are generally quickly made publicly available. The Evaluation Committee recommends that IMR researchers aim to publish in journals of broader relevance and of higher impact in their fields of competence, given such valuable large data sets collected under IMR responsibility (e.g., IMR analysed over 13,000 farmed salmon in addition to wild fish stocks for unwanted substances and nutrients in 2021).

2.1 Research quality and integrity

Nine out of 22 research groups (assigned to 9 ARPs) were assessed for their scientific output in this evaluation (scores ranged between 1=lowest and 5=highest). The research quality of those groups was considered as good to very good (scores ranged between 3 and 4; 2 groups were clearly scored 4). The societal impact of the groups was generally scored higher.

Research group: Barents Sea and Arctic Ocean (BRA)

Overall assessment:
The Advisory and Research Programme Barents Sea and Arctic Ocean (BRA) Group from the Institute of Marine Research (IMR) is a very large Group which was created in 2006. It is a very useful group for monitoring the under-pressure ecosystems and characterising the long-term evolution and consequences of pressure and for advising authorities about such issues. The self-assessment report clearly states their utility for decision and understanding global change effects. They also play a key role in international fora on these subjects. They benefit from excellent facilities. However, the activity of the Group is not mainly driven by research questions.

The Group is very large with a lot of people involved being only partially affiliated to the BRA Group. This implies the need for a strong effort by the internal organisation to maintain the coherence of such a Group, but information is missing on the internal organisation. Another weakness is the lack of PhD mentoring and of proposing large projects in competitive international calls.

The main strength of the BRA Group is in producing unique data series from the ecosystem monitoring. Based on these, they developed strong international collaborations and interdisciplinarity linking ecosystem-based monitoring to physical and chemical characterisation. Another strength is the junction between this monitoring and end-to-end modelling of social ecosystems.

Research group: Coastal Ecosystems (CES)

Overall assessment:
The CES Group presents a number of strong points. The Group plays a pivotal role in the delivery of advice to central and regional administrations and to establishing the science to base this advice on. They are part of IMR which provides very good support and infrastructure to realise good research and monitoring.

The research goals of the CES Group are highly dependent on the commissioning letter delivered by the administration. The main priority is to ensure the perennialisation of the long-term time series. This unique production of time-series is realised at an outstanding level. They also produce excellent outreach activities and are very influential, both locally and nationally, as well at an international level.

On the other hand, several weak points can also be identified. The mentoring of PhD students is extremely low. Significant benefits could be realised if PhD mentoring is developed by the Group. The second weak point is the lack of involvement of non-academic stakeholders within the whole process of science development.

Research group: Environmental Impacts of Aquaculture (EnvAqua)

Overall assessment:
EnvAqua holds a key role in providing science-based advice to governmental institutions and the Norwegian seafood industry. Given the size of the economic impact, the group is well positioned in serving the Norwegian society. The group is large and has a network type structure with many members affiliated with other groups and institutions. The infrastructure is excellent and serves the goals and ambitions. The scientific output quantity and quality are very good, though top-ranking papers were not presented in the assessment. The group is also well integrated into PhD and post-doctoral training, which is an example of a fruitful cooperation with the University of Bergen.

Research group: Future Aquaculture (FutAqua)

Overall assessment:
FutAqua is a well-structured RG, with qualified and adequate human resources and a good research infrastructure. A diverse funding portfolio that includes competitive and internal funds provides appropriate support for the development of the main scientific areas of the RG in the scope of aquaculture activities. There is good scientific production but with no outstanding publications being indicated in the list provided in the self-assessment report of the RG.

The RG is aware of the major threats and challenges to the group, which positions them favourably to be able to react to future changes related to retirement, priorities for research and development and modifications in the funding model.

The RG performs very well at the societal level, by promoting activities with the aquaculture sector and outreach activities through committees and meetings, although the involvement of stakeholders in the research is not so clear.

Research group: Global Development

Overall assessment:
The Global Development group plays a key role in Norway's contribution to global development. The organisational dimension was viewed as adequate for supporting the production of excellent research. However, slightly surprising was the listing of only peer reviewed publications and two, very recent, defences of PhDs. Although some of the papers were published in high impact factor journals, the contribution of IMR in a Nature paper with 28 authors of which one was from IMR seems to be limited based on the information provided in Form 4. In addition, different geographies are being explored and there will be an impact on the geographic areas that are studied. The different types of knowledge transfer are not well articulated. The self-assessment states that knowledge transfer is part and parcel of what Global Development is all about, but the opportunity to expand and present on this is not taken up. There is no real reflection as is requested in the outline for the self-assessment.

Research group: Marine processes and human impact (MarPro)
Overall assessment:
MarPro is a large association of researchers, with an overall goal to support the sustainability of the Norwegian fisheries industry through science-based advice, develop and provide high-tech support for other IMR programs, and deliver high quality science on all aspects of marine processes. Yet the internal structural organisation of the group, and the strategic goals, are described in a convoluted way in the self-assessment. The resource base and infrastructure are excellent, the institutional support is adequate. The research output is very good, including a good level academic publications, as well as considerable development of methods and instruments. The societal impact is emphasised by participation in high level international organisations (e.g., Intergovernmental Panel on Climate Change (IPCC) and the International Council for the Exploration of the Sea (ICES)), the development and maintenance of digital products, but foremost is the science based advise to governmental bodies and the fisheries industry in Norway. Stakeholder and public engagement in research planning and activities is not explicitly described in the self assessment.

Research group: Norwegian Sea (NOR)

Overall assessment:
Based on the information provided the panel find the Norwegian Sea group (NOR) has an organisational environment that is adequate for the advice-oriented science that they conduct. The group has a prominent role in monitoring, which overshadows their scientific endeavours. A positive aspect is the development of innovative monitoring technologies, their actions are timely and contribute to sustainable fisheries and animal welfare. The group responds to IMR management, government ministries and international working groups (e.g. the International Council for the Exploration of the Sea (ICES)) and contributes extensively to the development of Norway and has international visibility.

Research group: North Sea (NS)
Overall assessment:
The NS Group of the IMR is an outstanding group for leading monitoring of various elements of the ecosystems of the North Sea and beyond. They play a key role in the technical development of different aspects of monitoring, produce outstanding data-series, and produce very useful advice for governmental / regulatory authorities, nationally as well as Internationally.

Research group: Safe and Healthy Seafood (SHS)

Overall assessment:
The Safe and Healthy Seafood group, part of the Institute of Marine Research (IMR), provides an essential service which makes a significant contribution to ensuring the safety of Norwegian seafood. The science required must be exacting and reproducible year-on-year which requires a particular type of dedication and commitment.

The threats to the group are well identified, and clearly there is a tension between the statutory role, the increased volume of screening and the availability for original research – this needs to be considered. Loss of key personnel has weakened the Safe and Healthy Seafood group, but seeking more collaborations to improve competitive funding income is positive.

It is clear that the Safe and Healthy Seafood group conducts a fundamentally crucial role but, needs to consider a greater outward focus and developing a more strategic research base that encompasses a PhD training programme which should also help with the potential loss of key Personnel.

2.2. Open Science

IMR supports and strongly encourages an open science policy. The unit has open access agreements with international publishers and established a fund to cover expenses for publications in open access journals. In 2021, 81.6% of IMR publications were open access (either through archiving in depositories or published in “gold” open access journals). The Evaluation Committee recommends increasing that proportion. IMR’s open access policy further emphasises the use of open-source software, to share its own software on hosting platforms, as well as an open-data policy for all mapping and monitoring data. The unit participates at various open science projects and developed a public service dedicated to citizen open science.

3. Diversity and equality

IMR has an extended equality concept of diversity (gender, age, functional ability, ethnicity, nationality, family situation, social class, place of education, outlook on life, sexual orientation, political orientation, and personal interests). As an example, for the unit’s intersectional approach for equality work, IMR lists a policy document against discrimination. This “Handlingsplan” (Form 8) is an important document given to all IMR staff. Since IMR employs also non-Norwegian citizens, an English translation should be provided (which is unavailable at the moment). Of the scientific personnel, 46% were female. When analysed by position, female principal scientists were underrepresented (25%). Among post-doctoral workers, PhDs, senior engineers or engineers, over 50% (54-62%) were women. In administration, the share of women was 59%.

4. Relevance to institutional and sectorial purposes

IMR is a research platform for public policy decisions, by providing solutions to national and international societal needs. The unit does predominantly advise in the areas of fisheries, aquaculture, seafood and ecosystems. Advice is based on extensive monitoring or data collection and on research. In this way IMR has built a strong knowledge position and has a large impact on

the management of marine resources. Advice provided to the Directorate of Fisheries on fishing quotas for example impacted national legislation on use of fishing gear. Another example is that Norwegian's export of seafood is possible because of rigorous screening of its quality by IMR.

IMR collaborates with several Norwegian centres for research innovation (CRI, until 2018; CRISP, until 2018; CRIMAC, ongoing since 2020). As part of such collaborations IMR developed substantial innovations, by providing technologies, test protocols, assessment tools, restoration tools, software, or harvest models. Some examples are:

- A web interface to model coastal currents and spreading of particles
- An ecosystem-based model for sustainable fishing of *Calanus* (marine Copepods)
- An optical device for trawlers to minimize by-catch
- An oil spill risk assessment tool
- A restoration tool to combat kelp forest decline

Commercialisation and patents are not explicitly included in the IMR mandate and responsibility. Nevertheless, the unit holds a patent for a process for making modified fish zygotes and early-stage fish embryos. By being host institution for other infrastructures IMR helps the international community, since the unit provides access to research vessels, research stations, or laboratories.

5. Relevance to society

IMR is of highest societal relevance because of its influence on sustainable management of resources in marine ecosystems, both nationally and internationally, and its involvement in the whole food chain from the sea to the table. IMR plays a key role in giving advice on complex issues related to seafood safety or marine ecosystem management. A recent example is Norway's offshore wind parks. The Government followed IMR's advice to avoid areas where the marine and coastal ecosystems would have been severely impacted. IMR further provides knowledge for the governance of industries of high economic importance for Norway, such as the seafood industry. As an applied research organisation IMR collaborates and participates in projects where the end product can be innovative. The following case studies illustrate how IMR research or data collection impact political decision making.

Comments to impact case 1
Securing the pelagic large fish populations in the Northeast Atlantic - the mackerel story
The impressive monitoring data set allowed for a broad and holistic approach that resulted in international recommendations for sustainable management of mackerel. The project is based on general ecological concepts and models, and contributes with its own statistical programmes to the development of the field. Pronounced impact both on ecological modelling as well as on international management of fish populations.

Comments to impact case 2
From risk assessment to a system for regulation of salmon farming in Norway (the Traffic Light System)
Infection of wild salmonids with parasites from farmed fish is of major concern, mainly for ecological and environmental reasons, but also for economic reasons. IMR has evaluated since 2011 the impact of a parasitic salmon louse along the coast of Norway as a basis for yearly risk assessments of Norwegian aquaculture. Their models incorporate life history aspects of lice and salmon, their population dynamics and biophysical as well as hydrodynamic aspects of the water as a basis for estimating the parasite's impact and risk for the environment. The project can be considered an IMR "lighthouse project" that fundamentally contributes to the Norwegian "Traffic Light System", introduced in 2017, regulating the environmentally sustainable growth of the salmon industry. The project's importance and impact on society is outstanding.

Comments to impact case 3
Safe and healthy seafood
Since the middle of the last century, IMR (with "Norwegian Fisheries Investigations" as its predecessor) generates high quality and reliable data on the nutrient content and contaminants of seafood which allows for example Norwegian health authorities to formulate dietary recommendations to the public. Monitoring and data collection require collaboration between scientists and technicians, and up-to-date (and partly rather costly) research infrastructure and analytical instrumentation and methodology. Some of the methods established at IMR (e.g. the detection of nematodes in fishery products) are currently considered of international standard.

Comments to impact case 4
Cumulative anthropogenic pressures on coastal and oceanic ecosystems – Avenues to sustainable blue growth
This long-term monitoring, mapping and modelling project allows the development of holistic ecosystem management plans aiming at sustainable blue growth and a green transition. For the Baltic Sea, IMR contributes (based on joint monitoring with Russia) one of the most comprehensive marine ecosystem surveys in the world, providing the basis for understanding recent changes and modelling future developments of the ecosystem. The outcome of these survey data impact political decision making, as assessment of the environmental value, vulnerability and risks from cumulative anthropogenic pressures of specific areas along Norway's coast or, catch quota for fish and marine mammals.

Comments to impact case 5
Global sustainable ocean management
This project illustrates how IMR research has a significant impact on the development of sustainable ocean management globally. Modalities of the impact include capacity and institution building in partner countries, science support to international ocean management bodies and agenda setting for global ocean science and ocean policy. Two examples of global IMR engagement: First, IMR is since 1975 involved in the United Nations' Nansen Programme and provides data on seafood nutrients and contaminants that contribute to implementing an ecosystem approach to marine fisheries in developing countries (32 partners in Africa and the Bay of Bengal). Second, IMR scientists chair working groups in international commissions (e.g. UNESCO, Ocean Panel, International Council for the Exploration of the Sea (ICES), Convention for the Conservation of Antarctic Marine Living Resources (CCAMLR)) that publish technical reports on the sustainable ocean economy, on environmental impacts of fisheries and aquaculture and other human activities (oil, gas, shipping, offshore wind, anthropogenic noise), or on establishing marine protected areas.

Appendices

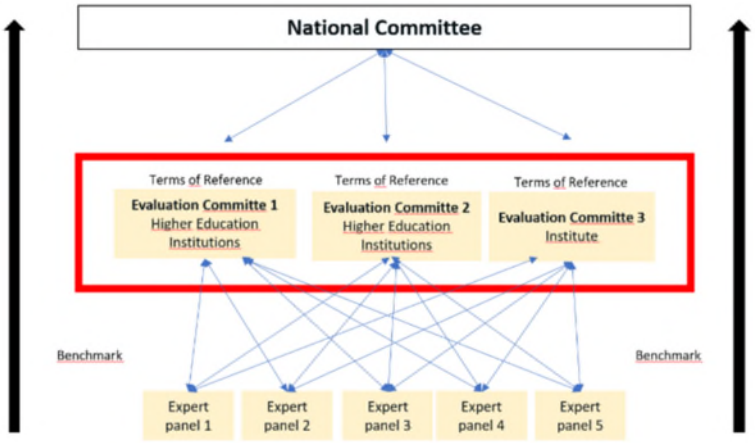
Evaluation of Biosciences 2022-2023

By evaluating Norwegian research and higher education we aim to enhance the quality, relevance, and efficiency. In accordance with the statutes of the Research Council of Norway (RCN), the RCN evaluates Norwegian professional environments to create a solid and up-to-date knowledge base about Norwegian research and higher education in an international perspective.

The evaluation of life sciences is conducted in 2022 - 2024. The evaluation of biosciences takes place in 2022 - 2023, and the evaluation of medicine and health is carried out in 2023-2024. The primary aim of the evaluation of life sciences is to reveal and confirm the quality and the relevance of research performed at Norwegian Higher Education Institutions (HEIs), the institute sector and the health trusts. The evaluation shall result in recommendations to the institutions, the RCN and the ministries.

Evaluation of biosciences (EVALBIOVIT) 2022-2023
The evaluation of biosciences includes twenty-two administrative units (e.g., faculty, department, institution) which are assessed by evaluation committees according to sectorial affiliation and/or other relevant similarities between the units. The administrative units enrolled their research groups (97) to five expert panels organised by research subjects or themes and assessed across institutions and sectors.

Organisation of evaluation of biosciences research 2022 - 2023



The institutions have been allowed to adapt the evaluation mandate (Terms of Reference) to their own strategic goals. This is to ensure that the results of the evaluation will be useful for the institution's own strategic development. The administrative unit together with the research group(s) selects an appropriate benchmark for each of the research group(s).

The Research Council of Norway has commissioned an external evaluation secretariat at Technopolis Group for the implementation of the evaluation process.

Each institution/administrative unit is responsible for following up the recommendations that apply to their own institution/administrative unit. The Research Council will use the results from the evaluation in the development of funding instruments and as a basis for advice to the Government.

The web page for the evaluation of biosciences 2022-2023:
https://www.forskningsradet.no/en/analysis-numbers/evaluations/subject-theme/biosciences/

Til innmeldte administrative enheter til
fagevaluering av biovitenskap (EVALBIOVIT)

Vår saksbehandler/tlf.	**Vår ref.**	**Oslo,**
Hilde D.G. Nielsen/4092 2260	21/10653	21.04.2022
	Deres ref.	

Fagevaluering av biovitenskap (EVALBIOVIT) 2022 – 2023

Vi viser til invitasjonsbrev om å delta i fagevaluering av biovitenskap (EVALBIOVIT) datert 11.11.2021 og til informasjonsmøte med innmeldte administrative enheter 15.12.2021.

Porteføljestyret for livsvitenskap vedtok evalueringsprotokollen for fagevaluering av biovitenskap 05.04.2022 (vedlegg 1). Protokollen beskriver roller, prosesser og ansvarsfordeling i evalueringsarbeidet og er i tråd med forslaget til nytt nasjonalt rammeverk for evaluering av forskning og høyere utdanning utarbeidet i regi av Kunnskapsdepartementet.

Forskningsrådet har mottatt innmelding av 37 administrative enheter til EVALBIOVIT. Disse vil bli fordelt på sektorspesifikke evalueringskomitéer: 1-2 evalueringskomité/er for administrative enheter som tilhører instituttsektoren og 1-2 evalueringskomité/er for administrative enheter som tilhører UH-sektor. Universitetsmuseene vil bli evaluert samlet i én evalueringskomité for UH-sektor.
Det skal i tillegg opprettes internasjonale fagekspertpaneler etter faglig eller tematisk likhet på tvers av sektorer. Ekspertpanelene skal evaluere forskergruppene som de administrative enhetene melder inn. Evalueringskomitéene og ekspertpanelene skal vurdere de innsamlede dataene og gi anbefalinger til den enkelte institusjon, til Forskningsrådet og til departementene.

Tilpasning av mandat (vedlegg 1)

Forskningsrådet ber med dette administrative enheter om å tilpasse mandatet (vedlegg 1) til de lokale forhold ved egen institusjon. Tilpasningen gjøres ved å fylle inn de åpne punktene i malen (Appendix A). Utfylt skjema sendes på epost til evalbiovit@forskningsradet.no *innen 30. september 2022.*

Innmelding av forskergrupper (vedlegg 2a og 2b)

Forskningsrådet ber administrative enheter om å melde inn forskergrupper i tråd med forskergruppedefinisjonen beskrevet i kapittel 1.2 i evalueringsprotokollen. Det bes også om at forskergruppene innplasseres i den tentative fagpanelinndelingen for EVALBIOVIT (vedlegg 2a). Utfylt regneark (vedlegg 2b) sendes til evalbiovit@forskningsradet.no *innen 31. mai 2022.*

Forskningsrådet vil ferdigstille panelstruktur og avgjøre den endelige fordelingen av forskergruppene på fagpaneler *etter* at alle forskergrupper er meldt inn.

Norges forskningsråd/
The Research Council of Norway
Drammensveien 288
Postboks 564
NO–1327 Lysaker

Telefon +47 22 03 70 00
post@forskningsradet.no
www.forskningsradet.no
Org.nr. 970141669

Invitasjon til å foreslå eksperter (vedlegg 3a og 3b)

Forskningsrådet inviterer administrative enheter til å spille inn forslag til eksperter som kan inngå i evalueringskomitéene og i ekspertpanelene (vedlegg 3a). Hver evalueringskomité skal bestå av 7-9 komitémedlemmer. Hvert ekspertpanel skal bestå av 5-7 eksperter. Utfylt regneark (vedlegg 3b, fane 1 og fane 2) sendes til evalbiovit@forskningsradet.no *innen 31. mai 2022.*

Forskningsrådet v/porteføljestyret for livsvitenskap vil oppnevne leder og medlemmer til evalueringskomitéene og til ekspertpanelene.

Data og datainnsamling

Forskningsrådet har nå ute et oppdrag for analyse av data om personal og forskningsproduksjon. Analysen skal i hovedsak baseres på data i DBH, NIFUs forskerpersonaleregister og Cristin. Analysene vil inkludere indikatorer som skal brukes for evaluering av alle institusjoner.

Videre vil institusjonene få et ansvar for innsamling av data til en egenevaluering som skal inngå i vurderingsgrunnlaget for evalueringskomiteene. For å sikre at evalueringen blir nyttig for forskningsinstitusjonenes utvikling, vil Forskningsrådet også invitere institusjonene til å delta i utvelgelse av relevante evalueringsdata og indikatorer som kan danne grunnlag for vurdering opp mot institusjonens egne strategiske mål og sektormål. På bakgrunn av dette har Forskningsrådet en forventning om at institusjonene som deltar i evalueringen stiller med nødvendige ressurser gjennom hele evalueringsprosessen.

Forskningsrådet har, etter en anbudskonkurranse om sekretariatstjenester, inngått en avtale med Technopolis Group som skal bistå Forskningsrådets administrasjon i arbeidet med EVALBIOVIT. Sekretariatet skal blant annet koordinere datainnsamlingen fra institusjonene og systematisere det innsamlede materialet for vurdering i ekspertpaneler og evalueringskomitéer.

Endring av administrativ enhet

For noen få tilfeller kan det være behov for å gjøre noen endringer i forhold til den administrative enheten[1] som allerede er innmeldt til EVALBIOVIT. For eksempel kan et fakultet som ble meldt inn samlet til EVALBIOVIT i desember 2021 finne det mer hensiktsmessig å heller melde inn fakultetets institutter som egne administrative enheter. Hvis man ønsker å endre på den administrative enheten må dette meldes Forskningsrådets administrasjon så fort som mulig, men ikke senere enn 31.05.2022. Melding om endring sendes på epost til: evalbiovit@forskningsradet.no.

Informasjonsmøte 9. mai 2022 og nettside for EVALBIOVIT

Forskningsrådet arrangerer 09.05.2022 kl. 12.00-12.45 et informasjonsmøte for alle som deltar i EVALBIOVIT. Møtet vil foregå digitalt (Zoom). Vi vil i møtet bl.a. gå gjennom evalueringsprotokollen samt at det vil være mulig å stille spørsmål. Påmelding til evalbiovit@forskningsradet.no *innen 07.05.2022.*

Forskningsrådet har opprette en egen nettside hvor informasjon om EVALBIOVIT vil bli publisert fortløpende. Lenke til nettsiden finner dere her: https://www.forskningsradet.no/statistikk-evalueringer/biovitenskap-2022-2023/.

[1] Med administrativ enhet menes en organisatorisk enhet på nivå 2 eller 3 i organisasjonsstrukturen til DBH for UH sektor eller NIFUs organisasjonsregister for institutt- og helsesektoren.

Spørsmål som gjelder fagevalueringen kan sendes på epost til evalbiovit@forskningsradet.no eller ved å kontakte Hilde Dorthea Grindvik Nielsen på epost hgn@forskningsradet.no /mobil 40 92 22 60.

Med vennlig hilsen
Norges forskningsråd

Ole Johan Borge
avdelingsdirektør
Avdeling for helseforskning og helseinnovasjon

Hilde G. Nielsen
spesialrådgiver
Avdeling for helseforskning og helseinnovasjon

Vedlegg

1. Evalueringsprotokoll for fagevaluering av biovitenskap 2022-2023
2a. Tentativ fagpanelinndeling for evaluering av forskergrupper
2b. Skjema for innmelding av forskergrupper
3a. Invitasjon til å foreslå eksperter og informasjon om evalueringskomitéer og ekspertpaneler
3b. Skjema for å foreslå eksperter til evalueringskomitéer og ekspertpaneler

The Research Council of Norway

Evaluation of life sciences in Norway 2022-2023

LIVSEVAL protocol version 1.0

By decision of the Portfolio board for life sciences April 5., 2022

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The report can be downloaded at
www.forskningsradet.no/publikasjoner

Oslo, 5 April 2022

ISBN 978-82-12-Klikk her for å fylle ut (xxxxx-x). (pdf)

1 Introduction

Research assessments based on this protocol serve different aims and have different target groups. The primary aim of the evaluation of life sciences is to reveal and confirm the quality and the relevance of research performed at Norwegian Higher Education Institutions (HEIs), and by the institute sector and regional health authorities and health trusts. These institutions will hereafter be collectively referred to as Research Performing Organisations (RPOs). The assessments should serve a formative purpose by contributing to the development of research quality and relevance at these institutions and at the national level.

1.1 Evaluation units

The assessment will comprise a number of *administrative units* submitted for evaluation by the host institution. By assessing these administrative units in light of the goals and strategies set for them by their host institution, it will be possible to learn more about how public funding is used at the institution(s) to facilitate high-quality research and how this research contributes to society. The administrative units will be assessed by evaluation committees according to sectoral affiliation and/or other relevant similarities between the units.

The administrative units will be invited to submit data on their *research groups* to be assessed by expert panels organised by research subject or theme. See Chapter 3 for details on organisation.

Administrative unit	An administrative unit is any part of an RPO that is recognised as a formal (administrative) unit of that RPO, with a designated budget, strategic goals and dedicated management. It may, for instance, be a university faculty or department, a department of an independent research institute or a hospital.
Research group	Designates groups of researchers within the administrative units that fulfil the minimum requirements set out in section 1.2. Research groups are identified and submitted for evaluation by the administrative unit, which may decide to consider itself a single research group.

1.2 Minimum requirements for research groups

1) The research group must be sufficiently large in size, i.e. at least five persons in full-time positions with research obligations. This merely indicates the minimum number, and larger units are preferable. In exceptional cases, the minimum number may include PhD students, postdoctoral fellows and/or non-tenured researchers. *In all cases, a research group must include at least three full-time tenured staff*. Adjunct professors, technical staff and other relevant personnel may be listed as group members but may not be included in the minimum number.

2) The research group subject to assessment must have been established for at least three years. Groups of more recent date may be accepted if they have come into existence as a consequence of major organisational changes within their host institution.
3) The research group should be known as such both within and outside the institution (e.g. have a separate website). It should be able to document common activities and results in the form of co-publications, research databases and infrastructure, software, or shared responsibilities for delivering education, health services or research-based solutions to designated markets.
4) In its self-assessment, the administrative unit should propose a suitable benchmark for the research group. The benchmark will be considered by the expert panels as a reference in their assessment of the performance of the group. The benchmark can be grounded in both academic and extra-academic standards and targets, depending on the purpose of the group and its host institution.

1.3 The evaluation in a nutshell

The assessment concerns:

- research that the administrative unit and its research groups have conducted in the previous 10 years
- the research strategy that the administrative units under evaluation intend to pursue going forward
- the capacity and quality of research in life sciences at the national level

The Research Council of Norway (RCN) will:

- provide a template for the Terms of Reference[1] for the assessment of RPOs and a national-level assessment in life sciences
- appoint members to evaluation committees and expert panels
- provide secretarial services
- commission reports on research personnel and publications based on data in national registries
- take responsibility for following up assessments and recommendations at the national level.

RPOs conducting research in life sciences are expected to take part in the evaluation. The board of each RPO under evaluation is responsible for tailoring the assessment to its own strategies and specific needs and for following them up within their own institution. Each participating RPO will carry out the following steps:

1) Identify the administrative unit(s) to be included as the main unit(s) of assessment
2) Specify the Terms of Reference by including information on specific tasks and/or strategic goals of relevance to the administrative unit(s)

[1] The terms of reference (ToR) document defines all aspects of how the evaluation committees and expert panels will conduct the [research area] evaluation. It defines the objectives and the scope of the evaluation, outlines the responsibilities of the involved parties, and provides a description of the resources available to carry out the evaluation.

3) The administrative unit will, in turn, be invited to register a set of research groups that fulfil the minimum criteria specified above (see section 1.2). The administrative unit may decide to consider itself a single research group.
4) For each research group, the administrative unit should select an appropriate benchmark in consultation with the group in question. This benchmark can be a reference to an academic level of performance or to the group's contributions to other institutional or sectoral purposes (see section 2.4). The benchmark will be used as a reference in the assessment of the unit by the expert panel.
5) The administrative units subject to assessment must provide information about each of their research groups, and about the administrative unit as a whole, by preparing self-assessments and by providing additional documentation in support of the self-assessment.

1.4 Target groups

- Administrative units represented by institutional management and boards
- Research groups represented by researchers and research group leaders
- Research funders
- Government

The evaluation will result in recommendations to the institutions, the RCN and the ministries. The results of the evaluation will also be disseminated for the benefit of potential students, users of research and society at large.

This protocol is intended for all participants in the evaluation. It provides the information required to organise and carry out the research assessments. Questions about the interpretation or implementation of the protocol should be addressed to the RCN.

2 Assessment criteria

The administrative units are to be assessed on the basis of five assessment criteria. The five criteria are applied in accordance with international standards. Finally, the evaluation committee passes judgement on the administrative units as a whole in qualitative terms. In this overall assessment, the committee should relate the assessment of the specific tasks to the strategic goals that the administrative unit has set for itself in the Terms of Reference.

When assessing administrative units, the committees will build on a separate assessment by expert panels of the research groups within the administrative units. See Chapter 3 'Evaluation process and organisation' for a description of the division of tasks.

2.1 Strategy, resources and organisation

The evaluation committee assesses the framework conditions for research in terms of funding, personnel, recruitment and research infrastructure in relation to the strategic aims set for the administrative unit. The administrative unit should address at least the following five specific aspects in its self-assessment: 1) funding sources, 2) national and international cooperation, 3) cross-sector and interdisciplinary cooperation, 4) research careers and mobility, and 5) Open Science. These five aspects relate to how the unit organises and actually performs its research, its composition in terms of leadership and personnel, and how the unit is run on a day-to-day basis.

To contribute to understanding what the administrative unit can or should change to improve its ability to perform, the evaluation committee is invited to focus on factors that may affect performance.

Further, the evaluation committee assesses the extent to which the administrative unit's goals for the future remain scientifically and societally relevant. It is also assessed whether its aims and strategy, as well as the foresight of its leadership and its overall management, are optimal in relation to attaining these goals. Finally, it is assessed whether the plans and resources are adequate to implement this strategy.

2.2 Research production, quality and integrity

The evaluation committee assesses the profile and quality of the administrative unit's research and the contribution the research makes to the body of scholarly knowledge and the knowledge base for other relevant sectors of society. The committee also assesses the scale of the unit's research results (scholarly publications, research infrastructure developed by the unit, and other contributions to the field) and its contribution to Open Science (early knowledge and sharing of data and other relevant digital objects, as well as science communication and collaboration with societal partners, where appropriate).

The evaluation committee considers the administrative unit's policy for research integrity and how violations of such integrity are prevented. It is interested in how the unit deals with research data, data management, confidentiality (GDPR) and integrity, and the extent to which independent and critical pursuit of research is made possible within the unit. Research integrity relates to both the scientific integrity of conducted research and the professional integrity of researchers.

2.3 Diversity and equality

The evaluation committee considers the diversity of the administrative unit, including gender equality. The presence of differences can be a powerful incentive for creativity and talent development in a diverse administrative unit. Diversity is not an end in itself in that regard, but a tool for bringing together different perspectives and opinions.

The evaluation committee considers the strategy and practices of the administrative unit to prevent discrimination on the grounds of gender, age, disability, ethnicity, religion, sexual orientation or other personal characteristics.

2.4 Relevance to institutional and sectoral purposes

The evaluation committee compares the relevance of the administrative unit's activities and results to the specific aspects detailed in the Terms of Reference for each institution and to the relevant sectoral goals (see below).

Higher Education Institutions

There are 36 Higher Education Institutions in Norway that receive public funding from the Ministry for Education and Research. Twenty-one of the 36 institutions are owned by the ministry, whereas the last 15 are privately owned. The HEIs are regulated under the Act relating to universities and university colleges of 1 August 2005.

The purposes of Norwegian HEIs are defined as follows in the Act relating to universities and university colleges[2]

- provide higher education at a high international level;
- conduct research and academic and artistic development work at a high international level;
- disseminate knowledge of the institution's activities and promote an understanding of the principle of academic freedom and application of scientific and artistic methods and results in the teaching of students, in the institution's own general activity as well as in public administration, in cultural life and in business and industry.

In line with these purposes, the Ministry for Research and Education has defined four overall goals for HEIs that receive public funding. These goals have been applied since 2015:

1) High quality in research and education
2) Research and education for welfare, value creation and innovation
3) Access to education (esp. capacity in health and teacher education)
4) Efficiency, diversity and solidity of the higher education sector and research system

The committee is invited to assess to what extent the research activities and results of each administrative unit have contributed to sectoral purposes as defined above. In particular, the committee is invited to take the share of resources spent on education at the administrative units into account and to assess the relevance and contributions of research to education, focusing on the master's and PhD levels. This assessment should be distinguished from an

[2] https://lovdata.no/dokument/NLE/lov/2005-04-01-15?q=universities

assessment of the quality of education in itself, and it is limited to the role of research in fostering high-quality education.

Research institutes (the institute sector)

Norway's large institute sector reflects a practical orientation of state R&D funding that has long historical roots. The Government's strategy for the institute sector[3] applies to the 33 independent research institutes that receive public basic funding through the RCN, in addition to 12 institutes outside the public basic funding system.

The institute sector plays an important and specific role in attaining the overall goal of the national research system, i.e. to increase competitiveness and innovation power to address major societal challenges. The research institutes' contributions to achieving these objectives should therefore form the basis for the evaluation. The main purpose of the sector is to conduct independent applied research for present and future use in the private and public sector. However, some institutes primarily focus on developing a research platform for public policy decisions, others on fulfilling their public responsibilities.

The institutes should:

- maintain a sound academic level, documented through scientific publications in recognised journals
- obtain competitive national and/or international research funding grants
- conduct contract research for private and/or public clients
- demonstrate robustness by having a reasonable number of researchers allocated to each research field

The committee is invited to assess the extent to which the research activities and results of each administrative unit contribute to sectoral purposes and overall goals as defined above. In particular, the committee is invited to assess the level of collaboration between the administrative unit(s) and partners in their own or other sectors.

The hospital sector

There are four regional health authorities (RHFs) in Norway. They are responsible for the specialist health service in their respective regions. The RHFs are regulated through the Health Enterprises Act of 15 June 2001 and are bound by requirements that apply to specialist and other health services, the Health Personnel Act and the Patient Rights Act. Under each of the regional health authorities, there are several health trusts (HFs), which can consist of one or more hospitals. A health trust (HF) is wholly owned by an RHF.

Research is one of the four main tasks of hospital trusts.[4] The three other mains tasks are to ensure good treatment, education and training of patients and relatives. Research is important if the health service is to keep abreast of stay up-to-date with medical developments and carry out critical assessments of established and new diagnostic methods,

[3] Strategy for a holistic institute policy (Kunnskapsdepartementet 2020)

[4] Cf. the Specialist Health Services Act § 3-8 and the Health Enterprises Act §§ 1 and 2

treatment options and technology, and work on quality development and patient safety while caring for and guiding patients.

The committee is invited to assess the extent to which the research activities and results of each administrative unit have contributed to sectoral purposes as described above. The assessment does not include an evaluation of the health services performed by the services.

2.5 Relevance to society

The committee assesses the quality, scale and relevance of contributions targeting specific economic, social or cultural target groups, of advisory reports on policy, of contributions to public debates, and so on. The documentation provided as the basis for the assessment of societal relevance should make it possible to assess relevance to various sectors of society (i.e. business, the public sector, non-governmental organisations and civil society).

When relevant, the administrative units will be asked to link their contributions to national and international goals set for research, including the Norwegian Long-term Plan for Research and Higher Education and the UN Sustainable Development Goals. Sector-specific objectives, e.g. those described in the Development Agreements for the HEIs and other national guidelines for the different sectors, will be assessed as part of criterion 2.4.

The committee is also invited to assess the societal impact of research based on case studies submitted by the administrative units and/or other relevant data presented to the committee. Academic impact will be assessed as part of criterion 2.2.

3 Evaluation process and organisation

The RCN will organise the assessment process as follows:

- Commission a professional secretariat to support the assessment process in the committees and panels, as well as the production of self-assessments within each RPO
- Commission reports on research personnel and publications within life sciences based on data in national registries
- Appoint one or more evaluation committees for the assessment of administrative units.
- Divide the administrative units between the appointed evaluation committees according to sectoral affiliation and/or other relevant similarities between the units.
- Appoint a number of expert panels for the assessment of research groups submitted by the administrative units.
- Divide research groups between expert panels according to similarity of research subjects or themes.
- Task the chairs of the evaluation committees with producing a national-level report building on the assessments of administrative units and a national-level assessments produced by the expert panels.

Committee members and members of the expert panels will be international, have sufficient competence and be able, as a body, to pass judgement based on all relevant assessment criteria. The RCN will facilitate the connection between the assessment levels of panels and committees by appointing committee members as panel chairs.

3.1 Division of tasks between the committee and panel levels

The expert panels will assess research groups across institutions and sectors, focusing on the first two criteria specified in Chapter 2: 'Strategy, resources and organisation' and 'Research production and quality' The assessments from the expert panels will also be used as part of the evidence base for a report on Norwegian research within life sciences (see section 3.3).

The evaluation committees will assess the administrative units based on all the criteria specified in Chapter 2. The assessment of research groups delivered by the expert panels will be a part of the evidence base for the committees' assessments of administrative units. See figure 1 below.

The evaluation committee has sole responsibility for the assessments and any recommendations in the report. The evaluation committee reaches a judgement on the research based on the administrative units and research groups' self-assessments provided by the RPOs, any additional documents provided by the RCN, and interviews with representatives of the administrative units. The additional documents will include a standardised analysis of research personnel and publications provided by the RCN.

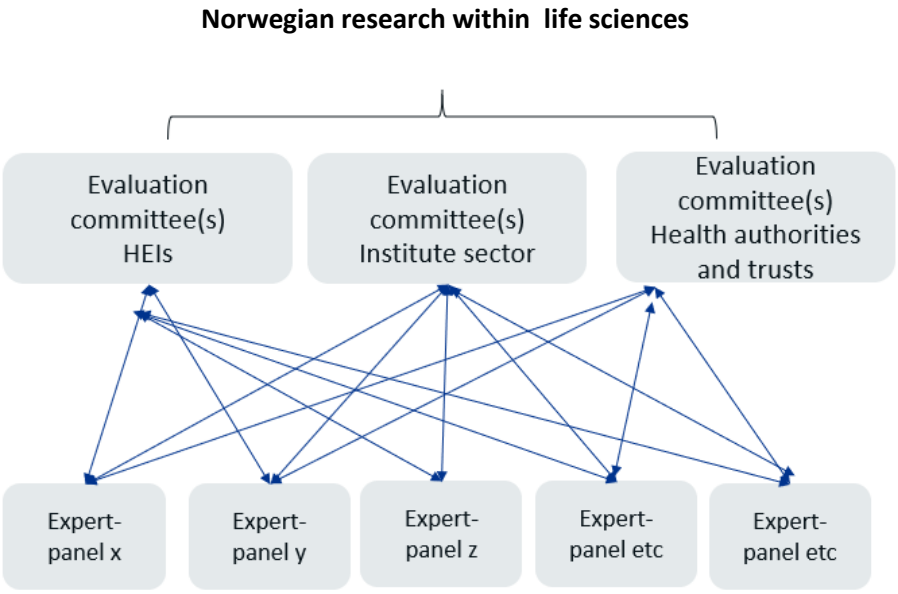

Figure 1. Evaluation committees and expert panels

The evaluation committee takes international trends and developments in science and society into account when forming its judgement. When judging the quality and relevance of the research, the committees shall bear in mind the specific tasks and/or strategic goals that the administrative unit has set for itself including sectoral purposes (see section 2.4 above).

3.2 Accuracy of factual information

The administrative unit under evaluation should be consulted to check the factual information before the final report is delivered to the RCN and the board of the institution hosting the administrative unit.

3.3 National level report

Finally, the RCN will ask the chairs of the evaluation committees to produce a national-level report that builds on the assessments of administrative units and the national-level assessments produced by the expert panels. The committee chairs will present their assessment of Norwegian research in life sciences at the national level in a separate report that pays specific attention to:

- Strengths and weaknesses of the research area in the international context
- The general resource situation regarding funding, personnel and infrastructure
- PhD training, recruitment, mobility and diversity
- Research cooperation nationally and internationally
- Societal impact and the role of research in society, including Open Science

This national-level assessment should be presented to the RCN.

Appendix A: Terms of References (ToR)

[Text in red to be filled in by the Research-performing organisations (RPOs)]

The board of [RPO] mandates the evaluation committee appointed by the Research Council of Norway (RCN) to assess [administrative unit] based on the following Terms of Reference.

Assessment
You are asked to assess the organisation, quality and diversity of research conducted by [administrative unit] as well as its relevance to institutional and sectoral purposes, and to society at large. You should do so by judging the unit's performance based on the following five assessment criteria (a. to e.). Be sure to take current international trends and developments in science and society into account in your analysis.

a) Strategy, resources and organisation
b) Research production, quality and integrity
c) Diversity and equality
d) Relevance to institutional and sectoral purposes
e) Relevance to society

For a description of these criteria, see Chapter 2 of the life sciences evaluation protocol. Please provide a written assessment for each of the five criteria. Please also provide recommendations for improvement. We ask you to pay special attention to the following [n] aspects in your assessment:

1. …
2. …
3. …
4. …

…

[To be completed by the board: specific aspects that the evaluation committee should focus on – they may be related to a) strategic issues, or b) an administrative unit's specific tasks.]

In addition, we would like your report to provide a qualitative assessment of [administrative unit] as a whole in relation to its strategic targets. The committee assesses the strategy that the administrative unit intends to pursue in the years ahead and the extent to which it will be capable of meeting its targets for research and society during this period based on available resources and competence. The committee is also invited to make recommendations concerning these two subjects.

Documentation
The necessary documentation will be made available by the life sciences secretariat at Technopolis Group.

The documents will include the following:

- a report on research personnel and publications within life sciences commissioned by RCN
- a self-assessment based on a template provided by the life sciences secretariat
- [to be completed by the board]

Interviews with representatives from the evaluated units
Interviews with the [administrative unit] will be organised by the evaluation secretariat. Such interviews can be organised as a site visit, in another specified location in Norway or as a video conference.

Statement on impartiality and confidence
The assessment should be carried out in accordance with the *Regulations on Impartiality and Confidence in the Research Council of Norway*. A statement on the impartiality of the committee members has been recorded by the RCN as a part of the appointment process. The impartiality and confidence of committee and panel members should be confirmed when evaluation data from [the administrative unit] are made available to the committee and the panels, and before any assessments are made based on these data. The RCN should be notified if questions concerning impartiality and confidence are raised by committee members during the evaluation process.

Assessment report
We ask you to report your findings in an assessment report drawn up in accordance with a format specified by the life sciences secretariat. The committee may suggest adjustments to this format at its first meeting. A draft report should be sent to the [administrative unit] and RCN by [date]. The [administrative unit] should be allowed to check the report for factual inaccuracies; if such inaccuracies are found, they should be reported to the life sciences secretariat no later than two weeks after receipt of the draft report. After the committee has made the amendments judged necessary, a corrected version of the assessment report should be sent to the board of [the RPO] and the RCN no later than two weeks after all feedback on inaccuracies has been received from [administrative unit].

Appendix B: Data sources

The lists below shows the most relevant data providers and types of data to be included in the evaluation. Data are categorised in two broad categories according to the data source: National registers and self-assessments prepared by the RFOs. The RCN will commission an analysis of data in national registers (R&D-expenditure, personnel, publications etc.) to be used as support for the committees' assessment of administrative units. The analysis will include a set of indicators related to research personnel and publications.

- **National directorates and data providers**
- Norwegian Directorate for Higher Education and Skills (HK-dir)
- Norwegian Agency for Quality Assurance in Education (NOKUT)
- Norwegian Agency for Shared Services in Education and Research (SIKT)
- Research Council of Norway (RCN)
- Statistics Norway (SSB)

National registers

1) R&D-expenditure
    a. SSB: R&D statistics
    b. SSB: Key figures for research institutes
    c. HK-dir: Database for Statistics on Higher Education (DBH)
    d. RCN: Project funding database (DVH)
    e. EU-funding: eCorda
2) Research personnel
    a. SSB: The Register of Research personnel
    b. SSB: The Doctoral Degree Register
    c. RCN: Key figures for research institutes
    d. HK-dir: Database for Statistics on Higher Education (DBH)
3) Research publications
    a. SIKT: Cristin - Current research information system in Norway
    b. SIKT: Norwegian Infrastructure for Bibliometrics
    (full bibliometric data incl. citations and co-authors)
4) Education
    a. HK-dir/DBH: Students and study points
    b. NOKUT: Study barometer
    c. NOKUT: National Teacher Survey
5) Sector-oriented research
    a. RCN: Key figures for research institutes
6) Patient treatments and health care services
    a. Research & Innovation expenditure in the health trusts
    b. Measurement of research and innovation activity in the health trusts
    c. Collaboration between health trusts and HEIs
    d. Funding of research and innovation in the health trusts
    e. Classification of medical and health research using HRCS (HO21 monitor)

Self-assessments

1) Administrative units
    a. *Self-assessment covering all assessment criteria*
    b. Administrative data on funding sources
    c. Administrative data on personnel
    d. Administrative data on the division of staff resources between research and other activities (teaching, dissemination etc.)
    e. Administrative data on research infrastructure and other support structures
    f. SWOT analysis
    g. Any supplementary data needed to assess performance related to the strategic goals and specific tasks of the unit

2) Research groups
    a. *Self-assessment covering the first two assessment criteria (see Table 1)*
    b. Administrative data on funding sources
    c. Administrative data on personnel
    d. Administrative data on contribution to sectoral purposes: teaching, commissioned work, clinical work [will be assessed at committee level]
    e. Publication profiles
    f. Example publications and other research results (databases, software etc.) The examples should be accompanied by an explanation of the groups' specific contributions to the result
    g. Any supplementary data needed to assess performance related to the benchmark defined by the administrative unit

The table below shows how different types of evaluation data may be relevant to different evaluation criteria. Please note that the self-assessment produced by the administrative units in the form of a written account of management, activities, results etc. should cover all criteria. A template for the self-assessment of research groups and administrative units will be commissioned by the RCN from the life sciences secretariat for the evaluation.

Table 1. Types of evaluation data per criterion

Evaluation units / Criteria	Research groups	Administrative units
Strategy, resources and organisation	Self-assessment Administrative data	Self-assessment National registers Administrative data SWOT analysis
Research production and quality	Self-assessment Example publications (and other research results)	Self-assessment National registers
Diversity, equality and integrity		Self-assessment National registers Administrative data
Relevance to institutional and sectoral purposes		Self-assessment Administrative data
Relevance to society		Self-assessment National registers Impact cases
Overall assessment	*Data related to:* *Benchmark defined by administrative unit*	*Data related to:* *Strategic goals and specific tasks of the admin. unit*

The Research Council of Norway

EVALBIOVIT

Self-assessment for administrative units

Version 1.2

Overview

Institution (name and short name):
Administrative unit (name and short name):
Date:
Contact person:
Contact details (email):

1 Introduction

The primary aim of the evaluation is to reveal and confirm the quality and the relevance of research performed at Norwegian Higher Education Institutions (HEIs), and by the institute sector. For the life sciences area, research undertaken by regional health authorities and health trusts is also included. These institutions will henceforth be collectively referred to as research performing organisations (RPOs). The evaluation report(s) will provide a set of recommendations to the RPOs, the Research Council of Norway (RCN) and the concerned ministries. The results of the evaluation will also be disseminated for the benefit of potential students, users of research, and society at large.

You have been invited to complete this self-assessment as an administrative unit. The self-assessment contains questions regarding the unit's research- and innovation related activities and developments over the past 10 years. All the submitted data will be evaluated by evaluation committees (for administrative units) and expert panels (for research groups). Please read through the whole document including all instructions before answering the questions to avoid overlaps.

As an administrative unit, you are also responsible for collecting the completed self-assessment for each of the research groups that belong to the unit. The research groups need to submit their completed self- assessment to the unit no later than the 1st of December 2022. The unit will submit the research groups' completed self-assessments and the unit's own completed self-assessment no later than the 5th of December 2022.

The whole self-assessment shall be written in English.

Please use the following format when naming your document: name of the institution, and name of the administrative unit, e.g. UiO_FacBiosci. Send it to evalbiovit@technopolis-group.com no later than 5th of December 2022.

For questions concerning the self-assessment or EVALBIOVIT in general, please contact RCN's evaluation secretariat at Technopolis Group: evalbiovit.questions@technopolis-group.com.

Many thanks in advance![1]

[1] Personal information will be deleted when evaluation reports are published and no later than 30 April 2024

For more information on how Technopolis Group handles data processing, see: http://www.technopolis-group.com/privacy-policy/

For more information on how the Research Council of Norway handles data processing, see: https://www.forskningsradet.no/en/privacy-policy/

2 Self-assessment for administrative units

Self-assessment guidelines:

- Data on personnel should refer to reporting to DBH on 1 October 2021 for HEIs and to the yearly reporting for 2021 for the institute sector
- Other data should refer to 31 December 2021 if not specified otherwise
- Please read the entire self-assessment document before answering
- Provide information – provide documents and other relevant data or figures about the administrative unit, for example strategy and other planning documents, as well as data on R&D expenditure, sources of income and results and outcomes of research
- Describe – explain and present using contextual information about the administrative unit (most often this includes filling out specific forms) and inform the reader about the administrative unit
- Reflect – comment in a reflective and evaluative manner how the administrative unit operates
- 4000 characters including spaces equals one page

2.1 Strategy, resources and organisation of research

2.1.1 Research strategy

2.1.1.1 Describe the main strategic goals for research and innovation of the administrative unit (1000–4000 characters). How are these goals related to institutional strategies?

- Describe the main fields and focus of research and innovation in the unit
- Describe how you work to maximise synergies between the different purposes of the unit
- Describe the planned research-field impact; planned policy impact and planned societal impact
- Describe how the strategy is followed-up in the allocation of resources and other measures
- Describe the most important occasions where priorities are made (i.e., announcement of new positions, applying for external funding, following up on evaluations)
- If there is no long-term research strategy – explain why

Form 1 *Administrative unit's strategic planning documents*

Instructions: For each category (Research strategy, Research funding, Cooperation policy, Open science policy) present up to 5 documents that according to you are the most relevant. If the administrative unit uses the strategies, policies, etc. of a larger institution, then present these documents. Please use the following formatting: Name of document, Years active, Link to the document.

Example: Norwegian University of Science and Technology Strategy, 2021–2025, hyperlink to the document

2.1.2 Organisation of research

2.1.2.1 Describe the organisation of research and innovation activities at the unit, including how responsibilities for research and other purposes (education, knowledge exchange, patient treatment, training etc) are distributed and delegated (500–1500 characters).

Form 2 *SWOT analysis for administrative units*

Instructions: Please complete a SWOT analysis for your administrative unit. Reflect on what are the major internal Strengths and Weaknesses as well as external Threats and Opportunities for your research and innovation activities and research environment. Assess what the present Strengths enable in the future and what kinds of Threats are related to the Weaknesses. Consider your scientific expertise and achievements, funding, facilities, organisation and management (500–2000 characters per cell).

2.1.3 Research funding

2.1.3.1 Describe the funding sources of the unit and indicate the share of the unit's budget (NOK) dedicated to research compared to other purposes. Shares may be calculated based on full time equivalents (FTE) allocated to research compared to total FTE in unit (500–1500 characters).

2.1.3.2 Describe how successful the administrative unit has been in obtaining competitive regional, national and/or international research funding grants (200–1000 characters).

Form 3 *Funding levels for the administrative unit for 2021*

Instructions: For administrative units in the institute sector receiving basic funding via RCN, funding levels should be provided for 2021 in the funding categories used in the yearly reporting:

a) National grants (NOK) (post 1.1 og 1.2)):

   i) from the Research Council of Norway (NOK) – excluding basic funding

   ii) from the ministries and underlying directorates (NOK)

   iii) from industry (NOK)

   iv) other national grants including third sector, private associations and foundations (NOK)

b) National contract research (post 1.3)

c) International grants (post 1.4)

d) Funding related to public management (forvaltningsoppgaver post 1.5)

For Higher Education Institutions costs covered by external funding sources should be reported according to the same categories as far as possible. Costs may be classified as Other if they cannot be placed in one of the specified categories. Reporting should be based on incurred costs (regnskapstall) for 2021.

2.1.4 Participation in national infrastructures

2.1.4.1 Describe the most important participation in the national infrastructures listed in the Norwegian roadmap for research infrastructures (Nasjonalt veikart for forskningsinfrastruktur) including as host institution(s) (200–1000 characters).

Form 4 *Infrastructures listed in the Norwegian roadmap for research infrastructures (Nasjonalt veikart for forskningsinfrastruktur)*

Instructions: Please present up to 5 participations in the national infrastructures listed in the Norwegian roadmap for research infrastructures (Nasjonalt veikart for forskningsinfrastruktur) for each area that were the most important to your administrative unit. For each category area, please use the following formatting:

Name of research infrastructure, Years when used, Description (100–500 characters) of the engagement with the research infrastructure (reasoning, objectives, expected/actual outcomes).

[2] Excluding basic funding.

[3] For research institutes only research activities should be included from section 1.3 in the yearly reporting

2.1.4.2 Describe the most important participation in the international infrastructures funded by the ministries (Norsk deltakelse i internasjonale forskningsorganisasjoner finansiert av departementene) (200–1000 characters).

Form 5 *Participation in international research organisations*

Instructions: Please describe up to 5 participations in international and European infrastructures (ESFRI) for each area that have been most important to your research unit. When presenting your participation, please use the following formatting:

Name of research infrastructure, Years when used, Description (100–500 characters) of the participation in the research infrastructure (reasoning, objectives, expected/actual outcomes).

2.1.4.3 Describe the most important participation in European (ESFRI) infrastructures (Norske medlemskap i infrastrukturer i ESFRI roadmap) including as host institution(s) (200–1000 characters).

Form 6 *Participation in infrastructures on the ESFRI Roadmap*

Instructions: For each area, please give a description of up to 5 engagements that have been most important to your research unit. When presenting your participation, please use the following formatting: Name of research infrastructure, Years when used, Description (100–500 characters) of the engagement with the research infrastructure (reasoning, objectives, expected/actual outcomes)."

2.1.5 Accessibility to research infrastructures

2.1.5.1 Describe the accessibility to research infrastructures for your researchers. Considering both physical and electronic infrastructure (200–1000 characters).

2.1.5.2 Describe what is done at the unit to fulfil the FAIR-principles[4] (200–1000 characters).

2.1.6 Research staff

2.1.6.1 Describe the profile of research personnel at the unit in terms of position and gender (200–1000 characters).

Form 7 *Administrative data on the division of staff resources for 2021*

2.1.6.2 Describe the structures and practices to foster researcher careers and help early-career researchers to make their way into the profession (200–1000 characters).

2.1.6.3 Describe how research time is distributed among staff including criteria for research leave (forskningsfri) (200–1000 characters).

2.1.6.4 Describe research mobility options (200–1000 characters).

2.2 Research production, quality, and integrity

2.2.1 Research quality and integrity

2.2.1.1 Describe the scientific focus areas of the research conducted at the administrative unit, including the unit's contribution to these areas (500–2000 characters).

2.2.1.2 Describe the unit's policy for research integrity, including preventative measures when integrity is at risk, or violated (200–1000 characters).[5]

2.2.2 Open Science policies at the administrative unit

2.2.2.1 Describe the institutional policies, approaches, and activities to the following Open Science areas (consider each area separately, 500–1000 characters in total):

- Open access to publications
- Open access to research data and implementation of FAIR data principles
- Open-source software/tools
- Open access to educational resources
- Open peer review
- Skills and training for Open Science
- Citizen science and/or involvement of stakeholders / user groups

2.2.2.2 Describe the most important contributions and impact of the unit's researchers towards the different Open Science areas (consider each area separately, 500–1000 characters in total):

- Open access to publications
- Open access to research data and implementation of FAIR data principles
- Open-source software/tools
- Open access to educational resources
- Open peer review
- Skills and training for Open Science
- Citizen science and/or involvement of stakeholders/user groups

2.2.2.3 Describe the institutional policy regarding ownership of research data, data management, and confidentiality (200–1000 characters). Is the use of data management plans implemented at the unit?

2.3 *Diversity and equality*

2.3.1 Diversity and equality practices

2.3.1.1 Describe the policy and practices to protect against any form of discrimination in the administrative unit (200–1000 characters).

Form 8 *Administrative unit's policies against discrimination*

Instructions: Give a description of up to 5 documents that are the most relevant. If the administrative unit uses the strategies, policies, etc. of a larger institution, then these documents should be referred to. For each document use the following formatting: Name of document, Years active, Link to the document

Example: Norwegian University of Science and Technology Strategy, 2021–2025, hyperlink to the document

2.4 Relevance to institutional and sectorial purposes

2.4.1 Sector specific impact

2.4.1.1 Describe whether the administrative unit has activities aimed at achieving sector-specific objectives[6] or focused on contributing to the knowledge base in general. Describe activities connected to sector-specific objectives, the rationale for participation and achieved and/or expected impacts (500–3000 characters).

- Alternatively, describe whether the activities of the unit are aimed at contribution to the knowledge base in general. Describe the rationale for this approach and the impacts of the unit's work to the knowledge base.

2.4.2 Research innovation and commercialisation

2.4.2.1 Describe the administrative unit's practices for innovation and commercialisation (500–1500 characters).

- Describe the interest among the research staff in doing innovation and commercialisation activities
- Describe how innovation and commercialisation is supported at the unit

Form 9 *Administrative unit's policies for research innovation*

Instructions: Describe up to 5 documents of the administrative unit's policies for research innovation, including IP policies, new patents, licenses, start-up/spin-off guidelines, etc., that are the most relevant. If the administrative unit uses the strategies, policies, etc. of a larger institution, then present these documents. For each document use the following formatting: Name of document, Years active, Link to the document

Example: Norwegian University of Science and Technology Strategy, 2021–2025, hyperlink to the document

2.4.2.2 Provide examples of successful innovation and commercialisation results, such as new patents, licenses, etc (500–1500 characters).

Form 10 *Administrative description of successful innovation and commercialisation results*

Instructions: Please describe up 10 successful innovation and commercialisation results at your administrative unit. For each result, please use the following formatting: Name of innovation and commercial results, Year, Links to relevant documents, articles, etc. that present the result, Description (100–500 characters) of successful innovation and commercialisation result.

2.4.3 Collaboration

2.4.3.1 Describe the unit's policy towards regional, national and international collaboration, as well as how cross-sectorial collaboration and interdisciplinary collaboration is approached at the administrative unit (500–1500 characters). Please fill out the forms that match your institution: the institute sector fills out Form 11a and Form 11b; HEIs fill out Form 12.

- Reflect on how successful the unit have been in meeting its aspirations for collaborations

Form 11a (institute sector) *Administrative unit's partnerships ('faktisk samarbeid')*

Instructions: For each of the administrative unit's tender and project-based cooperation (which are not tax deducted) please present up to 5 examples under each category (Collaboration with national public institutions; Collaboration with national private institutions; Collaboration with international public institutions; Collaboration with international private institutions). Please use 100– 500 characters to describe the impacts and relevance of collaboration.

Form 11b (institute sector) *Administrative unit's collaboration*

Instructions: For each of the administrative unit's tender and project-based cooperation please present up to 5 examples under each category (Collaboration with academic partners nationally; Collaboration with non-academic partners nationally; Collaboration with academic partners internationally; Collaboration with non-academic partners internationally). Please use 100–500 characters to describe the impacts and relevance of collaboration.

2.4.3.2 Reflect on the importance of different types of collaboration for the administrative unit (200–1000 characters).

- Regional, national and international collaborations

Collaborations with different sectors, including public, private and third sector

Form 12 (HEIs) *Administrative unit's partnerships" ('faktisk samarbeid')*

Instructions: For each of the administrative unit's tender and project-based cooperation (which are not tax deducted) please present up to 5 examples under each category (Collaboration with national public institutions; Collaboration with national private institutions; Collaboration with international public institutions; Collaboration with international private institutions). Please use 100– 500 characters to describe the impacts and relevance of collaboration.

2.4.3.3 Reflect on the importance of different types of collaboration for the administrative unit, the added value of these collaborations to the administrative unit and Norwegian research system (500–1500 characters).

2.4.4 ONLY for higher education institutions

2.4.4.1 Reflect on how research at the unit contributes towards master and PhD-level education provision, at your institutions and beyond (200–1000 characters).7

2.4.4.2 Describe the opportunities for master and bachelor students to become involved in research activities at the unit (200–1000 characters).

2.4.5 ONLY for research institutes

2.4.5.1 Describe how the research activities at the administrative unit contribute to the knowledge base for policy development, sustainable development, and societal and industrial transformations more generally (500–1500 characters).8

2.4.5.2 Describe the most important research activities including those with partners outside of research organisations (500–1500 characters).

2.5 Relevance to society

2.5.1 Administrative unit's societal impact

2.5.1.1 Reflect on the unit's contribution towards the Norwegian Long-term plan for research and higher education, societal challenges more widely, and the UN Sustainable Development Goals (500–1500 characters).

2.5.1.2 Describe how the administrative unit's research and innovation has contributed to economic, societal and cultural development by submitting one to five impact cases depending on the size of the unit. For up to 10 researchers: one case; for 10 to 30 researchers: two cases; for 30-50 researchers: three cases; for 50-100 researchers: four cases, and up to five cases for units exceeding 100 researchers. Please use the attached template for impact cases. Each impact case will be submitted as an attachment to the self-evaluation. Institutions that submit impact cases do not have to fill in the box below.

Case no. 1

Thank you for completing the self-assessment.

[7] Please note: RCN will provide data from the national student survey (Studiebarometeret) on students' experience with research methods and exposure to research activities. The data will most probably be on an aggregate level but including the unit under assessment.

[8] Strategi for helhetlig instituttpolitikk, Kunnskapsdepartementet, p.4): «Instituttsektoren skal utvikle kunnskapsgrunnlag for politikkutforming og bidra til bærekraftig utvikling og omstilling, gjennom forskning av høy kvalitet og relevans.» (The government's strategy for an independent institute sector).

List of research groups

Institution	**Administrative unit**	**Research group**
Institute of Marine Research	Programdimensjonen	*Barents and Polar Seas*
		Norwegian Sea
		North Sea
		Coastal ecosystems
		Environmental impacts of Aquaculture
		Marine processes
		Future Aquaculture
		Global development
		Safe and healthy seafood

Scales for research group assessment

Organisational dimension

Score	Organisational environment
5	An organisational environment that is outstanding for supporting the production of excellent research.
4	An organisational environment that is very strong for supporting the production of excellent research.
3	An organisational environment that is adequate for supporting the production of excellent research.
2	An organisational environment that is modest for supporting the production of excellent research.
1	An organisational environment that is not supportive for the production of excellent research.

Quality dimension

Score	Research and publication quality	Score	Research group's contribution Groups were invited to refer to the Contributor Roles Taxonomy in their description https://credit.niso.org/
5	Quality that is outstanding in terms of originality, significance and rigour.	5	The group has played an outstanding role in the research process from the formulation of overarching research goals and aims via research activities to the preparation of the publication.
4	Quality that is internationally excellent in terms of originality, significance and rigour but which falls short of the highest standards of excellence.	4	The group has played a very considerable role in the research process from the formulation of overarching research goals and aims via research activities to the preparation of the publication.
3	Quality that is recognised internationally in terms of originality, significance and rigour.	3	The group has a considerable role in the research process from the formulation of overarching research goals and aims via research activities to the preparation of the publication.
2	Quality that meets the published definition of research for the purposes of this assessment.	2	The group has modest contributions to the research process from the formulation of overarching research goals and aims via research activities to the preparation of the publication.
1	Quality that falls below the published definition of research for the purposes of this assessment.	1	The group or a group member is credited in the publication, but there is little or no evidence of contributions to the research process from the formulation of overarching research goals and aims via research activities to the preparation of the publication.

Societal impact dimension

Score	Research group's societal contribution, taking into consideration the resources available to the group	Score	User involvement
5	The group has contributed extensively to economic, societal and/or cultural development in Norway and/or internationally.	5	Societal partner involvement is outstanding – partners have had an important role in all parts of the research process, from problem formulation to the publication and/or process or product innovation.
4	The group's contribution to economic, societal and/or cultural development in Norway and/or internationally is very considerable given what is expected from groups in the same research field.	4	Societal partners have very considerable involvement in all parts of the research process, from problem formulation to the publication and/or process or product innovation.
3	The group's contribution to economic, societal and/or cultural development in Norway and/or internationally is on par with what is expected from groups in the same research field.	3	Societal partners have considerable involvement in the research process, from problem formulation to the publication and/or process or product innovation.
2	The group's contribution to economic, societal and/or cultural development in Norway and/or internationally is modest given what is expected from groups in the same research field.	2	Societal partners have a modest part in the research process, from problem formulation to the publication and/or process or product innovation.
1	There is little documentation of contributions from the group to economic, societal and/or cultural development in Norway and/or internationally.	1	There is little documentation of societal partners' participation in the research process, from problem formulation to the publication and/or process or product innovation.

Methods and limitations

Methods

The evaluation is based on documentary evidence and online interviews with the representatives of Administrative Unit.

The documentary inputs to the evaluation were:

- Evaluation Protocol Evaluation of life sciences in Norway 2022-2023
- Administrative Unit´s Terms of Reference
- Administrative Unit's self-assessment report
- Administrative Unit's impact cases
- Administrative Unit's research groups evaluation reports
- Panel reports from the Expert panels
- Bibliometric data (*NIFU Nordic Institute for Studies of innovation, research and education*)
- Personnel data (*Statistics Norway (SSB)*)
- Funding data – The Research Council´s contribution to biosciences research (*RCN*)
- Extract from the Survey for academic staff and the Student Survey (*Norwegian Agency for Quality Assurance in Education (NOKUT)*)

After the documentary review, the Committee held a meeting and discussed an initial assessment against the assessment criteria and defined questions for the interview with the Administrative Unit. The Committee shared the interview questions with the Administrative Unit two weeks before the interview.

Following the documentary review, the Committee interviewed the Administrative Unit in an hour-long virtual meeting to fact-check the Committee's understanding and refine perceptions. The Administrative Unit presented answers to the Committee's questions and addressed other follow-up questions.

After the online interview, the Committee attended the final meeting to review the initial assessment in light of the interview and make any final adjustments.

A one-page summary of the Administrative Unit was developed based on the information from the self-assessment, the research group assessment, and the interview. The Administrative Unit had the opportunity to fact-check this summary. The Administrative Unit approved the summary without adjustments. The Committee judged the information received through documentary inputs and the interview with the Administrative Unit sufficient to complete the evaluation.

The Committee judged that the Administrative Unit's self-assessment report was insufficient to assess all evaluation criteria fully, and some information gaps remained after the interview with the Administrative Unit.

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