



2021

Annual review





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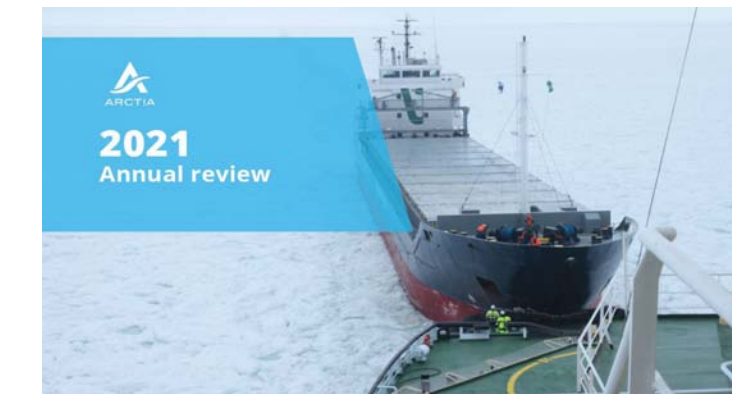
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Annual report 2021

The Arctia Group's annual report 2021 consists of the annual review, the corporate governance and remuneration statement, the report on corporate responsibility, and the financial statements. The reports are published on the company's website at www.arctia.fi/en

ANNUAL REVIEW



CORPORATE GOVERNANCE AND REMUNERATION STATEMENT



CORPORATE RESPONSIBILITY



FINANCIAL STATEMENTS



Picture: Samu Palanen, Tommy Berg, Arctia Ltd



Reliable services in challenging conditions

Arctia enables safe, smooth and environmentally friendly water transport. We produce added value for our customers by combining different services into comprehensive service concepts in an innovative way.

The Group has three business areas: icebreaking, fairway maintenance, and hydrographic surveying. The business areas include a huge amount of experience and expertise, e.g. in oil spill preparedness and response, hydraulic engineering, pipe and cable laying, towing tasks, and the manufacture of plastic spar buoys and other buoys.

Arctia Ltd is a limited company wholly owned by the State.





Year 2021 in figures

Personnel in total



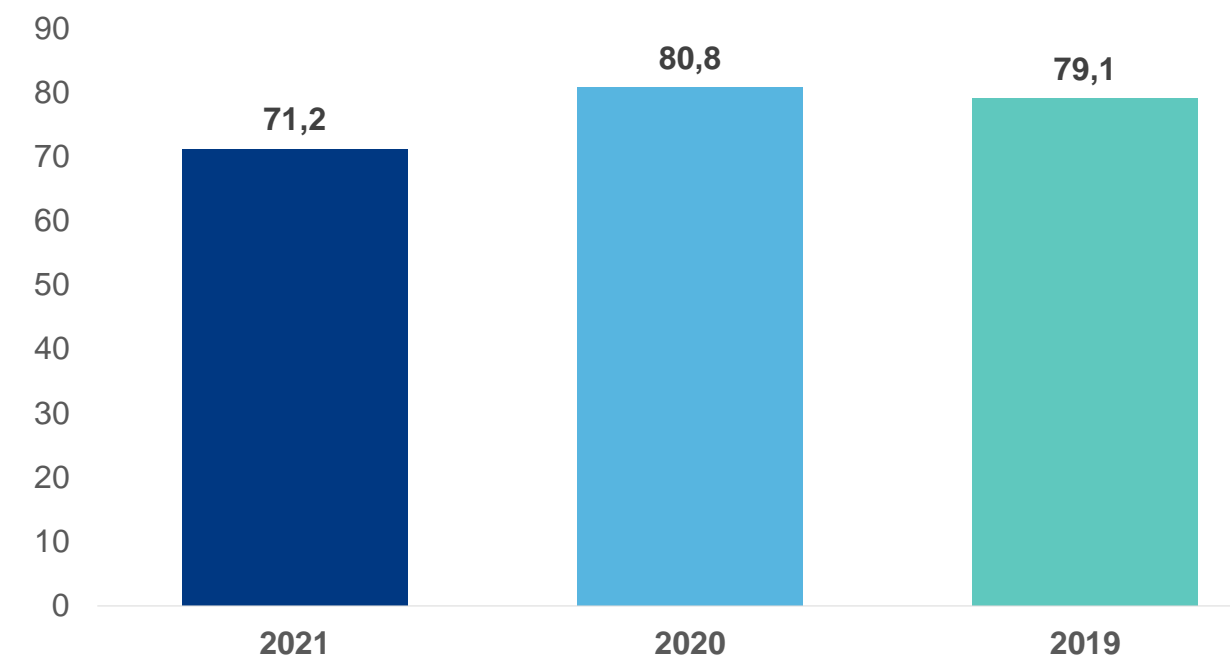
Offshore personnel



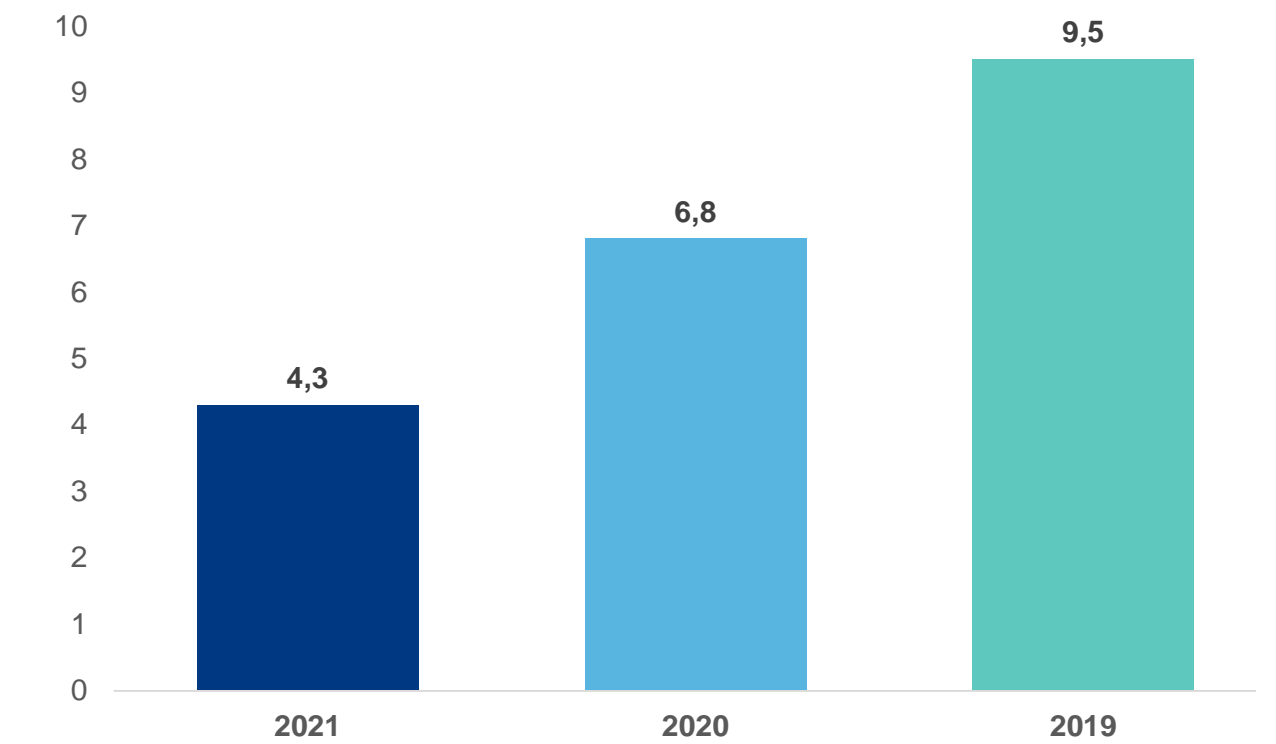
Onshore personnel



Turnover MEUR



Investment MEUR



Result for the financial year MEUR



Operating profit MEUR



Return on capital invested %





CEO'S REVIEW

Arctia ensures safe and smooth waterborne transport

In 2021, we continued our determined work towards a more modern Arctia in accordance with our strategy. The efficiency improvement of internal functions has progressed according to the targets. At the same time, changes in the operating environment have raised more challenges especially in the fairway maintenance and hydrographic surveying. We were successful in the fight against the Coronavirus in the same way as in the previous year without any major issues to our operational activities. Hybrid working is already the new normal for many of our personnel.

The financial results fell short of our targets: the Group's operating profit made a loss of EUR 0.5 million with a turnover of EUR 71.2 million. In icebreaking we exceeded our target slightly due to the harsher than average winter and the efficiency improvements. On the other hand, in fairway maintenance and hydrographic surveying, we fell short of the targets with a clear margin. Simplification of the Group's structure, management system and administration enhancements progressed as planned. In addition, the operational model for fairway maintenance was updated towards the end of the year. The Group's funding was reorganized in the

latter part of the year, resulting in reduced costs and lower financial risks. With these measures, we are more prepared for 2022 as the necessary efficiency and development work continues.

Operational activities continued at a good level, and once again we contributed to safe-guarding safe and smooth waterborne transport. In icebreaking, the winter was slightly harsher than normal, and seven out of eight icebreakers were engaged in assisting duties. In hydrographic surveying, customer satisfaction was at an excellent level. We also signed a new type of cooperation agreement with Finnish Transport and Communications Agency Traficom regarding surveying areas under security classification. We responded to the change in the fairway maintenance tendering and tighter competition by updating our operating model.

The development of corporate responsibility continued on broad range in accordance with the spearhead projects started in 2020. The safety culture of the Group has improved, and although we lagged slightly behind, for example, the strict target of our lost-time injury frequency, we are on a right and promising track. As a part of our environmental program, the Group's first CO2 roadmap was completed in late 2021 at the same

time as the first emissions reduction measures have been carried out. No serious occupational accidents or environmental damage took place in the Group.

In terms of the personnel, job satisfaction continued at a good level, with the purpose of work being the greatest strength – Arctia's employees feel that they are doing an extremely important work. As a result of the Group's efficiency programs, co-operation negotiations were carried out in the company. We were able to avoid most of the so-called hard methods with the aid of reassignments and changes in job descriptions. The personnel's shift and cross-use trials have continued promisingly in order to gain a genuine mutual advantage. In addition to annual refresher qualification trainings, we started the development of supervisory work. Eleven collective agreements were renewed during the year.

In summary, during 2021 the Group's development continued on broad scale while the changes in the operating environment introduced more challenges. From this starting point, we will continue tackling the challenges of structural profitability together with our employees.

I wish to extend my warmest thanks to all Arctia's employees for your work, your good attitude towards the changes we carry out together and especially for the excellent performance in combatting COVID-19. Special thanks are also to all our clients and stakeholders for their confidence and good cooperation.

Maunu Visuri
President and CEO





OPERATING ENVIRONMENT

Unique expertise throughout the year

Arctia's operational activities are divided into ice-breaking, fairway maintenance and hydrographic surveying. In addition to the above-mentioned operations, the business units also include harbour icebreaking, towing operations, manufacture of spar buoys and navigational aids,

development of digital tools, management of canals, structural surveying of ports, cable and pipe measurement, oil spill preparedness and response services, and tailored service solutions.

Arctia has developed a comprehensive service concept where the customer can choose the

services they need for the management of water areas from a diverse selection. The customers can focus on their core business with the service solutions that are tailored to their unique customer need.

In addition to the company's largest customer, the Finnish Transport Infrastructure Agency, we also provide services for, e.g. Traficom, the Finnish Border Guard, ports, enterprises, towns, municipalities, and international customers.

The number of icebreaking assistances in the Baltic Sea area is estimated to increase in the medium term as a result of the growing volume of maritime transport, bigger vessel sizes, and especially the vessels' diminished performance in ice. The reformed environmental standards and legislation will accelerate this development. The maintenance of sufficient icebreaking capacity safeguards winter navigation that serves the needs of trade and industry. As the current fleet ages and the operational needs change, there is pressure to renew Arctia's icebreaking fleet in

the form of either life-span extensions or new builds.

The operating environment of fairway maintenance is transforming along with the change in tendering models. In addition, the utilisation of digitalisation will increase in addition to the maintenance of traditional safety devices. The expansion of remote monitoring and management of safety devices to new sea routes continues, and the further development of smart safety devices and systems is carried out actively. New service solutions ensure safe and smooth navigation while municipalities, towns, ports and private operators outsource the maintenance work of their water areas in a more comprehensive way.

In hydrographic surveying, the volume of international work is estimated to grow as the plans for and use of sea areas increases. There is also plenty to survey in the Finnish sea areas for several years to come. In addition to hydrographic surveying, wider utilisation of data will play a significant role in the future.





STRATEGY

We want to be a partner that provides the most added value to our customers

During 2021, the strategy that was completed in late 2020 was put into practice. Arctia's core task is clear and its mission is bright. Arctia's task is to safeguard winter navigation serving the transport needs of the Finnish trade and industry and to ensure safe and smooth water transport throughout the year. The high-quality services and smart solutions produced by Arctia promote the sustainable use of waters. In addition, Arctia provides hydrographic surveying services related to the contingency planning and preparedness of the Finnish Navy.

Arctia's vision is to be a partner that provides the most added value to its customers. The company offers the most cost-effective icebreaking services in the Baltic Sea area, it produces maritime service concepts as the market leader, and it is a provider of and forerunner in marine data and maritime digitalisation. The cornerstones of the strategy are bringing profitability to a sustainable level, managed

growth, added value to the customer, and working together in a responsible way. Bringing profitability to a sustainable level means that all business units must be made structurally profitable. In order to support this work, Arctia has launched four spearhead projects that focus on, e.g. increasing the efficiency of work, the development of technical services, enhanced administrative operations, and the improvement of operational management on the basis of real-time situational picture. In addition to organic growth, managed growth includes utilisation of digitalisation and the opportunities of commercialising information management. Providing added value to the customer relies partly on partnership thinking where we deepen our current customer relationships with the Finnish Transport Infrastructure Agency and Traficom and also develop our service concepts. Working together in a responsible way is down to us at Arctia: responsible, safe and environmentally friendly conduct in our everyday tasks.





A winter of seven icebreakers

The ice winter 2020–2021 was average compared to the previous winter, and during the period seven icebreakers were assisting merchant vessels.

Compared with the previous season, the ice-breaking season 2020–2021 was average, lasting from Christmas to mid-May. At times,

the Bay of Bothnia was completely covered by ice. However, with mainly light winds, the ice situation remained relatively easy. The most exten-

sive area with ice cover was 127,000 km² on 15 February.

During the season, seven of Arctia's eight fairway icebreakers were in operation. In the Bay of Bothnia, merchant vessels were assisted by Kontio, Otso, Polaris, Sisu and Urho, and Voima and Fennica were assisting in the Gulf of Finland. A similar capacity was previously in use in winter 2017-2018 when there were eight icebreakers in assistance. There were four offhire days during the season.

In the same way as in 2020, COVID-19 resulted in extra work and challenges also in 2021, but we tackled these challenges very well and managed the operations as agreed.

Of the icebreakers, Otso, Voima and Polaris were docked at Turku Repair Yard in Naantali in August. The docking took about three weeks. The vessels underwent, e.g. basic maintenance and inspections.

Icebreaking



Picture: Arctia Ltd

Operating days in total



627 322
547

Assistance tasks in total



1 501 696
1 709

2021

2020

2019



HARBOUR ICEBREAKING AND ESCORT TUG SERVICES IN THE BALTIC SEA

Arctia Karhu Ltd is an enterprise jointly owned by Arctia (90%) and Kemin Satama Oy (10%), offering harbour icebreaking services widely in the Bay of Bothnia and the entire area of the Baltic Sea. In addition to harbour icebreaking, the company's services include towing and assisting ships, cargo transport and other functions in support of waterborne transport in Finland and abroad. In 2021, Arctia Karhu's harbour icebreaker Ahto assisted ships in Ajos in Kemi and the harbour icebreaker Jääsalo provided assistance to ships in the Port of Röyttä in Tornio. The harbour icebreaker Ulla served as a backup vessel.

The winter of the 2021 season in the Bay of Bothnia was normal, and therefore there was plenty of harbour icebreaking and assistance in the ports. Especially in the port of Ajos, assistance operations were very active in the winter season. COVID-19 did not impact the number of vessel calls in the Bay of Bothnia during 2021 and there was even a slight increase in traffic volumes.

In the open water season, we succeeded in selling our services evenly throughout the year. Especially the Tornio LNG terminal was visited by an LNG tanker regularly throughout the year. The number of calls by the LNG tanker has risen constantly, and this trend is expected to continue in 2022.

Various loads to Ajos with respect to wind farm projects also provided a significant amount of work for the company's vessels. Transport of crew to the Ajos wind turbines was continued with the RIB boat in the same way as in the previous year.

The company's oil spill preparedness and response agreement with the Emergency Service of Lapland was extended until spring 2022. An oil spill preparedness and response drill in icy conditions will be held in cooperation with the Emergency Service of Lapland in spring 2022.

In terms of the future, shipping operations are expected to decrease at first due to the decommissioning of the Veitsiluoto plant of Stora Enso in 2021, and then again to increase considerably as from 2024 with the commissioning of the bio-product mill of Metsä Fibre in Kemi.



Picture: Wärtsilä



Business operations faced challenges as a result of changes in the operating environment

Traditional fairway maintenance is reformed along with a change in operating models and the expansion of digitalisation

The new tendering models in fairway maintenance changed the operating environment of fairway maintenance. This resulted in measures to increase the efficiency of working time, which were carried out during the year on fairway vessels and in fairway maintenance with the objective of improving competitiveness. The first contract tendered with the new model in 2021 was the fairway maintenance of the Gulf of Finland where we were awarded with the implementation of fault repairs in maritime safety devices, as well as buoyage at springtime. The fairway maintenance contract for the Gulf of Bothnia was put out to tender in late 2021 as maintenance management contract.

The Finnish Border Guard put the oil spill preparedness and response in Kvarken out to tender, and we were able to sign a five-year contract with them concerning the preparedness service. The period of preparedness will be eight months each year, between 1 April and 30 November.

Arctia has a wide range of equipment suitable for fairway maintenance, from large fairway vessels to hovercraft. The vessels are largely aging. Reliability is maintained through renovations and investments.

In order to better respond to market demands, Arctia has developed a service entity where the services in the use and maintenance of water areas were conceptualised into solutions that are more suitable for different customer segments and customer needs. During the past year, we signed 15 multi-annual service and framework contracts with various ports, for example, with the ports of Oulu, Pori, Kaskinen and Hanko. The development of the service agreement package, which has continued for about five years, has brought a total of 43 service and framework agreements and revenue growth from the third sector.

The expansion of remote monitoring and management of maritime safety devices is a sig-

nificant improvement in terms of the users of the fairway, the customers and the company. Access to real-time information about the status of maritime safety devices increases fairway safety and improves predictability in the maintenance of the fairway infrastructure. The ability to predict maintenance visits reduces the travel miles of vessels attending to fairway maintenance which, in turn, decreases the environmental load and that way contributes to achieving the environmental targets of the company and Finland in the future.

Remote monitoring and management of maritime safety devices includes a total of 2,001 safety devices, with 1,605 illuminated and 396 non-illuminated devices. The number increased by about 200 new safety devices during 2021.

The share of remote management of safety devices expanded when the Kokkola and Vuosaari fairways were included in remote management. The positive feedback from pilots



Picture: Arctia Ltd



concerning the benefits of remote management has had a profound impact on the expansion. According to the feedback, the perception and navigability of the fairway in adverse weather conditions improves considerably when the luminosity of the fairway can be adjusted according to the weather conditions. In terms of remote management, there is also ongoing significant development work where the control of luminosity will be developed to be based more on automatics, i.e. on AIS targets and visibility values. The technology is piloted and its production started in part during 2022.

In 2021, Arctia managed the fairway maintenance contract areas that were put out to tender by the Finnish Transport Infrastructure Agency in the Bay of Bothnia, the Vaasa and Kokkola areas, the Archipelago Sea, the Bothnian Sea, the Åland Sea, and partly in the Gulf of Finland. In addition, the company is responsible for fairway maintenance of the government of Åland. In the inland waterways, the company managed the Lappeenranta, Kuopio and Keitele fairway maintenance areas.

Operational activities in all fairway management services continued uninterrupted despite the COVID-19 pandemic.

ARCTIA MAINTAINS A KEY WATERWAY FROM LAKE SAIMAA TO THE SEA

Arctia operates the Saimaa Canal and its seven movable bridges and manages the canal's electrical, construction and mechanical maintenance.

Seven of the eight locks of the canal are operated from the remote control centre located in Mälkiä in Lappeenranta. In addition to the Mälkiä remote control centre, the Brusnitchnoe lock located in the leased area of the Saimaa Canal is manned. The service contract tendered by the Finnish Transport Infrastructure Agency concerning the operation and maintenance of the Saimaa Canal is valid until the end of January 2024.

In addition to the Saimaa Canal, Arctia manages in the inland waterways the shallow waterway canals and their moveable bridges on the routes of Rautalampi-lisalmi, Heinävesi-Tahko and Varistaipale-Taivallahti, as well as the canals along the River Kokemäenjoki route. The contract with the Centre for Economic Development, Transport and the Environment concerning the operation and maintenance of dams in North Ostrobothnia also continues.

CHALLENGING YEAR IN HYDRAULIC ENGINEERING SERVICES

It is an indication of the diversity of hydraulic engineering that the hydraulic engineering sites implemented last year were very different from each other, and they were also carried out in conditions that were very challenging and hard to navigate. In 2021, contracts were carried out on a lighthouse, a sector light, a daymark, on docks, leading marks and edge marks, and we implemented, e.g. the painting of the Härkmeri

daymark, the repair of Ukko-Pekka dock and the works on leading marks in Kristiinankaupunki.

VIITTATEHDAS HAD A BUSY YEAR IN PRODUCT DEVELOPMENT

Viittatehdas in Joensuu manufactures spars and buoys made from HD polyethylene. In 2021, they were delivered to Canada, Sweden and Latvia in addition to Finland. Products were also exported to Norway through Sabik Marine Oy.

In terms of product development in 2021, Viittatehdas invested in, e.g. the development of anchor buoys and a buoy equipped with traffic lights. In addition, the commercialisation of digitalisation was promoted by testing a remote control feature attached to the buoy afterwards. The development of buoys in the Intelligent Sea project was continued and the first buoys equipped with integrated solar panels were implemented.



Picture: Pavel Sarantsin, Arctia Ltd



Year 2021 in hydrographic surveying was divided in two

Hydrographic surveying

Hydrographic surveying projects were postponed due to the COVID-19 pandemic and, as a result, we had to implement layoffs of personnel. The work situation picked up since summer 2021.

Arctia's strategic task is to provide hydrographic surveying services related to the contingency planning and preparedness of the Finnish Navy under all conditions. In accordance with the

Territorial Surveillance Act, hydrographic surveys in the Finnish territorial waters are subject to a permit. Arctia Meritaito and the Finnish Defence Forces have signed a security agreement com-

mitting to high-security processes and operating models. The audited methods and the security agreement enable fluent permit processes for high-security level hydrographic surveying. Arctia has one of the largest hydrographic survey fleets in Northern Europe. Each year, Arctia surveys thousands of square kilometres of seabed in Finland and in the European waters in accordance with the highest international quality standards.

SUCCESSES IN SAFETY AND CUSTOMER SATISFACTION

Despite the busy end to the year, occupational safety in hydrographic surveying remained at a good level. In the autumn, the milestone of one thousand days without occupational accidents was reached, and the LTIF rate for the entire year was zero for the third year running. Customer satisfaction also improved further. The customer

satisfaction rate was the best in its history, 4.6 (scale of 1-5, target ≥ 4.3).

HYDROGRAPHIC SURVEYING FOR THE FINNISH HYDROGRAPHIC SURVEYING AUTHORITIES

In 2021, Arctia completed the laser scanning (LiDAR2019) of the Archipelago Sea and the Gulf of Finland for the Finnish Transport and Communications Agency Traficom. In addition, a smaller hydrographic surveying project in the Kokkola region (BBKO2021) was also implemented. Measures to ensure the health safety of own personnel related to the Korona pandemic somewhat delayed the processing of classified materials.

SURVEYS FOR THE NORWEGIAN HYDROGRAPHIC SERVICE

In the summer, Arctia carried out Mareano 2021 hydrographic surveying tasks for the Norwegian Hydrographic Service. The survey areas were



Picture: Jaakko Jaskari



located in the Barents Sea and the surveys were carried out with the vessel Pohjanmeri. The surveys were a success, and the field work was completed earlier than planned. International cable and pipeline measurements were carried out, for example, in the post-measurement of the Baltic Connector gas pipeline project.

SURVEYS, PLANNING AND CONSULTING RELATED TO HYDRAULIC ENGINEERING

In 2021, Arctia implemented several seabed surveys related to hydraulic engineering, e.g. for the City of Helsinki. The surveys supported urban

development. Aquatic structures, piers, canals and dams were modelled for the authorities, municipalities and ports, as well as for energy companies. Fairway planning, and expert and consultancy services were produced in a total of some forty projects. Three persons were also leased to the hydrographic surveying authority for expert tasks.

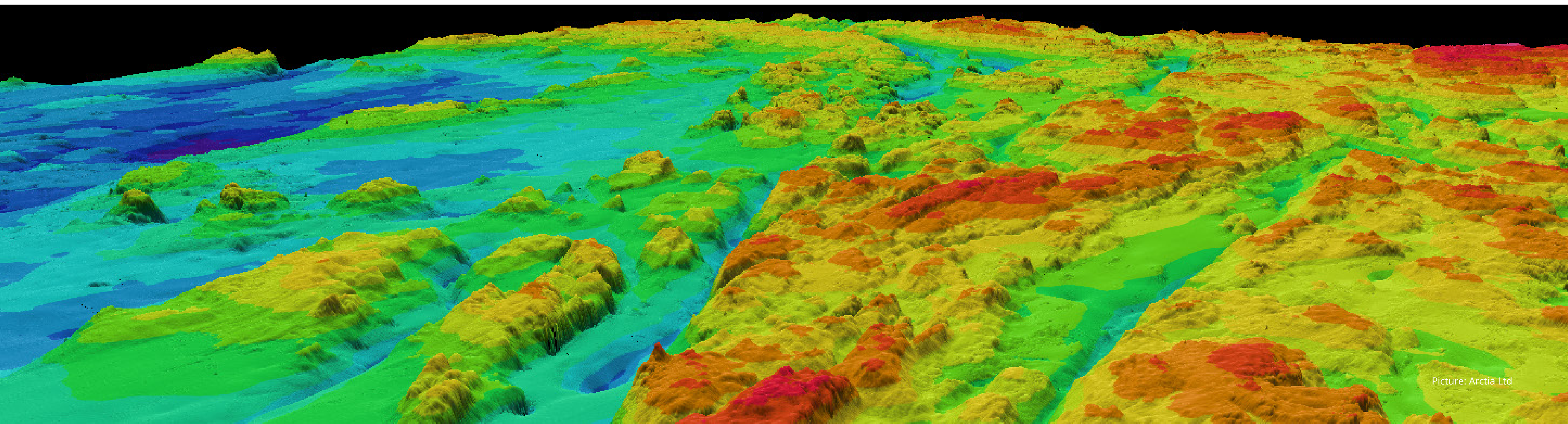
DATA MODELS AND UTILISATION OF DATA

Measured data and plans are presented as different 3D point clouds, data models and plans based on data models, as well as chart mate-

rials. The data models enable electronic processing and updating of data, for example, in different stages of construction. In 2021, Arctia continued the production of a 4D harbour chart in the EU-funded InSea project. The purpose of the project is to provide a precise-scale electronic harbour chart (bENC) in cooperation with the authorities. The chart will include information that helps navigation in the harbour, e.g. with respect to the waters and the pier structures. Arctia's role is to provide the survey and chart materials. The authorities will approve and publish the materials for official ENC distribution.

CLARIFYING THE STRATEGY FOR HYDROGRAPHIC SURVEYING

The business strategy was refined at the end of 2021. The strategy seeks to find solutions especially for the problem of seasonality. One of the measures related to this is the increased transfer of offshore personnel in hydrographic surveying to work on icebreakers for the winter season.

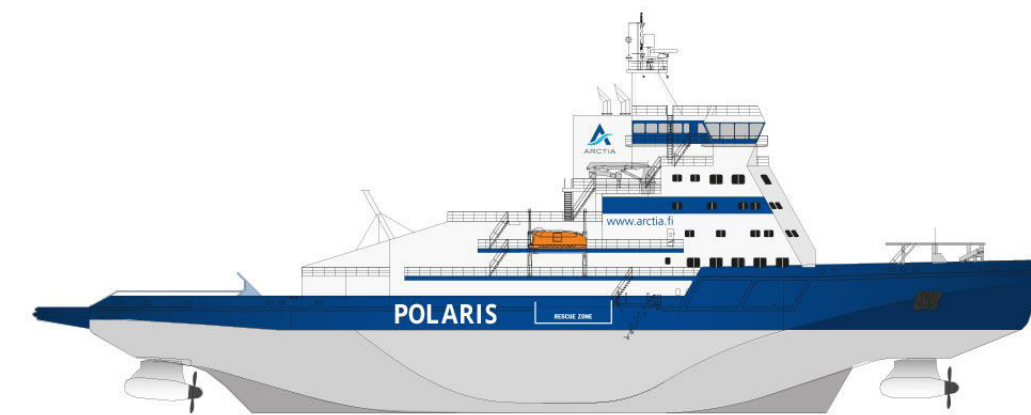


Picture: Arctia Ltd

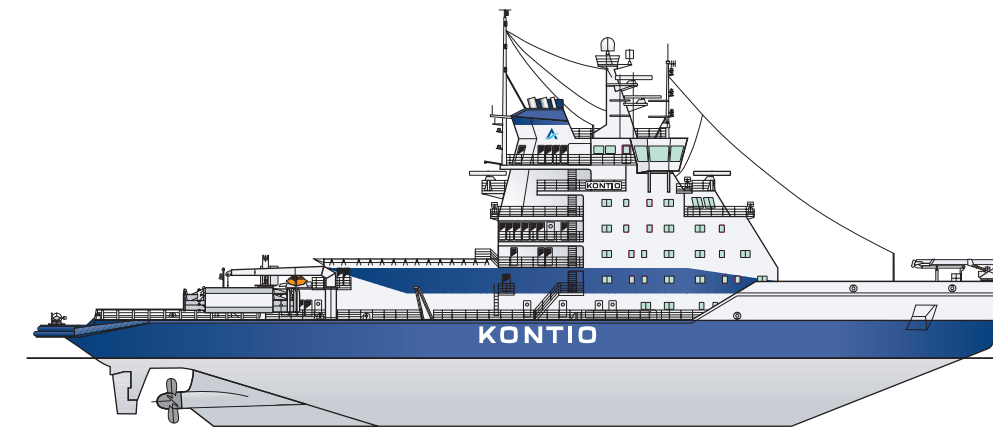


Strong and versatile fleet of special vessels

Arctia's vessels include the conventional icebreakers Voima (commissioned in 1954, refurbished in 1979 and 2016), Urho (1975) and Sisu (1976, refurbished in 2019), Otso (1986) and Kontio (1987), multipurpose icebreakers Fennica (1993) and Nordica (1994), harbour icebreaker Ahto (2014), as well as Polaris (2016).



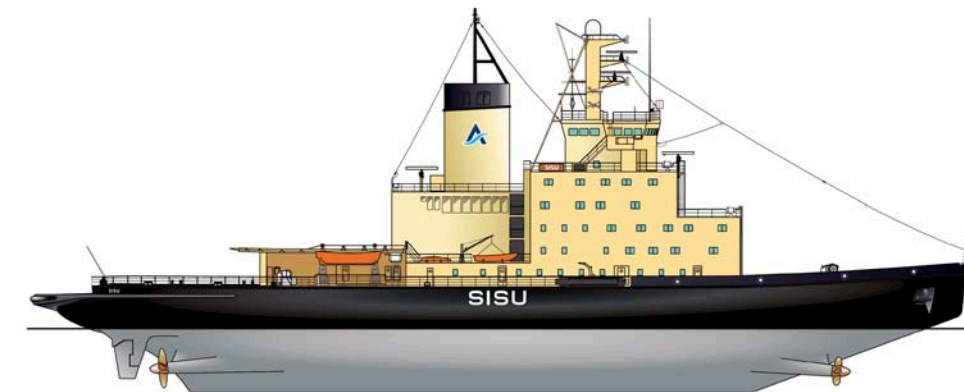
IB POLARIS 110 / 24 / 8.0 / 22,000



IB KONTIO 98.6 / 24.2 / 8.0 / 15,000



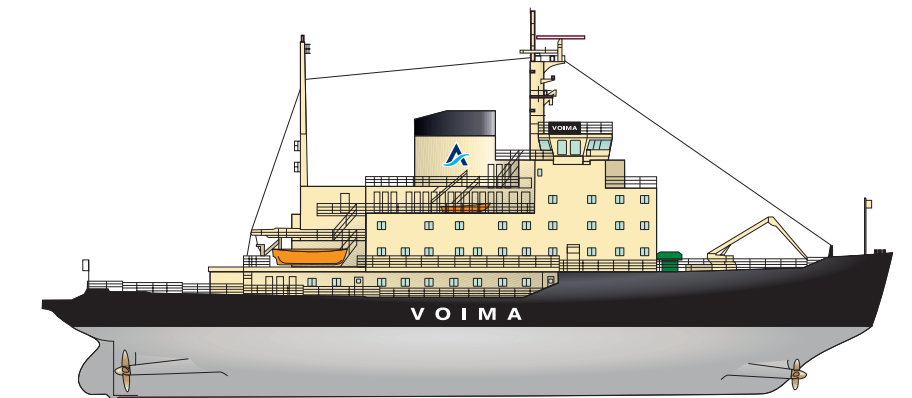
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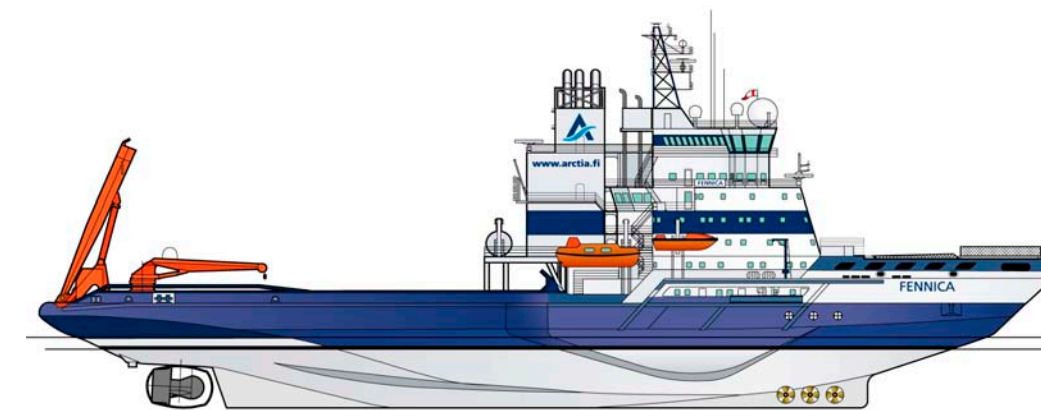
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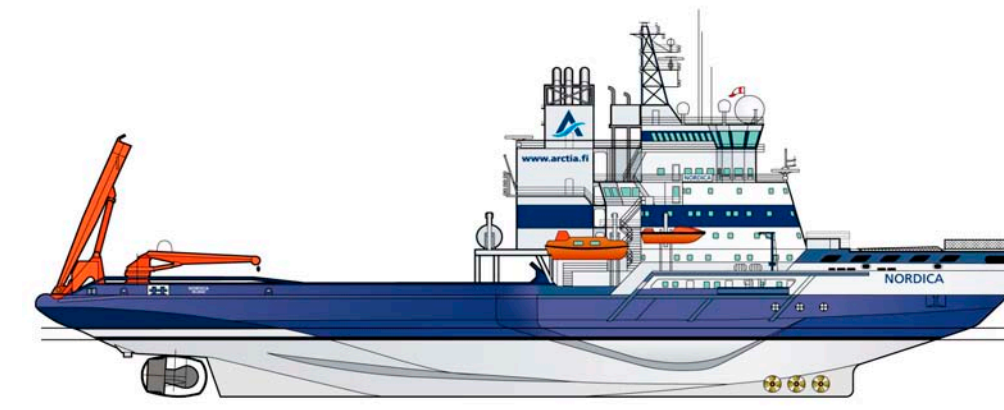
IB URHO 106.6 / 23.8 / 8.3 / 16,200



IB VOIMA 83.5 / 19.4 / 7.0 / 10,200



MTM FENNICA 116.0 / 26.0 / 8.4 / 15,000



MTM NORDICA 116.0 / 26.0 / 8.4 / 15,000



HIB AHTO 40.0 / 12.8 / 5.5 / 3,600

Length, m / Beam, m / Draught, m / Power, kW



Arctia has a large fleet of hydrographic survey, fairway maintenance and hydraulic engineering vessels.

Hydrographic Surveying business unit has seven hydrographic surveying vessels and boats, which are suitable for survey sites in the open sea, on the coast and in inland waterways.

Fairway business unit has four fairway vessels suitable for heavy marine operations, as well as four Oili-class vessels suitable for medium-heavy tasks. The fairway vessels are equipped for oil spill response.

In addition, fairway business unit has several Meri1000, Meri2000 and Meri4000 class fairway maintenance boats and a versatile hydraulic engineering fleet.

Further information about Arctia's fleet is available on the company's website.



MPV Pohjanmeri 78.3 / 11.6 / 3.2



MPV Kaiku 22.5 / 7.0 / 1.3



M/V Keila 13.0 / 3.9 / 0.9



MSV Seili 50.5 / 12.2 / 3.8



MSV Linja 34.9 / 9.0 / 2.8



MSV Oili 25.0 / 6.6 / 2.1



Fairway maintenance vessel ORV1 17.7 / 5.0 / 1.3



Fairway maintenance vessel Meri2000 15.0 / 5.0 / 0.8



Hovercraft Puhuri 5.0 / 2.5

Length, m / Beam, m / Draught, m



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