

# Environmental management

The management of the environmental impacts of our operations with excellence is a key component for the success of our business. In addition to complying with legal requirements and fulfilling licensing conditions, we strive for efficiency and safety in our activities.

The processes and tools for managing environmental aspects are centralized in the IMS, and certification according to the ISO 14001 standard ensures that we are up to date in terms of the use of best practices. Continuous monitoring of the equipment we use in the Atlanta Field, with regular

maintenance activities, seeks to ensure excellent performance.

The engagement of employees and outsourced workers guarantees the standardization of processes to minimize environmental impacts. To do this, we rely on the Workers' Environmental Education Project (PEAT), in which we carry out training actions for professionals involved in the Atlanta Field operation on the environmental characteristics and impacts of the activities, as well as actions for mitigation and control.

- ✓ **+ R\$25 million** invested in generating scientific knowledge and environmental preservation
- ✓ **ZERO** sites with significant impact on biodiversity
- ✓ In 2021, our **Waste Utilization Index (WUI)** reached **95%**
- ✓ **82.5%** reduction in the volume of effluents discharged at the Atlanta Field, in the annual comparison

# Water quality

The correct disposal of effluents, within the parameters established by legislation, is one of the main environmental aspects managed in our activities. We comply with Resolution No. 393/2007, of the National Environment Council (CONAMA), which addresses the disposal of water produced in offshore oil and natural gas platforms.

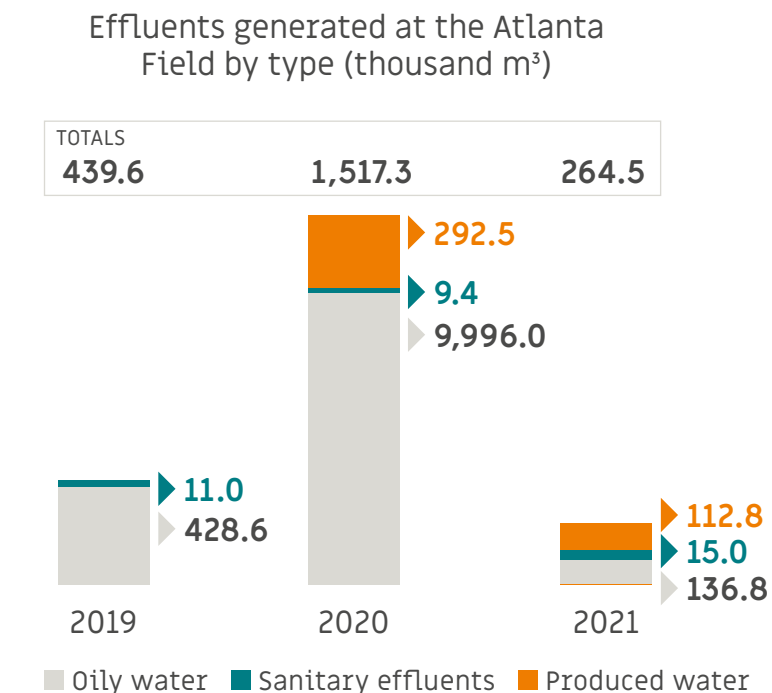
Produced water occurs naturally in the operation of oil fields and is required to undergo treatment before being discharged into the sea. At FPSO Petrojarl I, we have a treatment plant and a laboratory to analyze the quality of this type of effluent before its disposal. Each day, we perform at least four tests before disposal, in order to ensure compliance with legislation.

Until 2019, the Atlanta Field operation did not generate produced water. As of 2020, with the increase of produced water along with oil production, the produced water treatment plant was commissioned, and it was possible to adapt this effluent to the parameters established by the current environmental legislation, discharging it into the sea.

Another piece of equipment we have is a digital analyzer of Oil and Grease Content (OGC) to evaluate the quality of treated produced water. When the system detects

that the OGC (in mg/liter) is out of specification, the water cannot be discarded into the sea, being forwarded to the slop tanks, where it is stored until it is treated and reaches adequate levels for disposal.

The FPSO and the support vessels in the Atlanta Field are also equipped with effluent treatment stations (ETEs) to ensure the correct destination of sanitary effluents.



## Water consumption

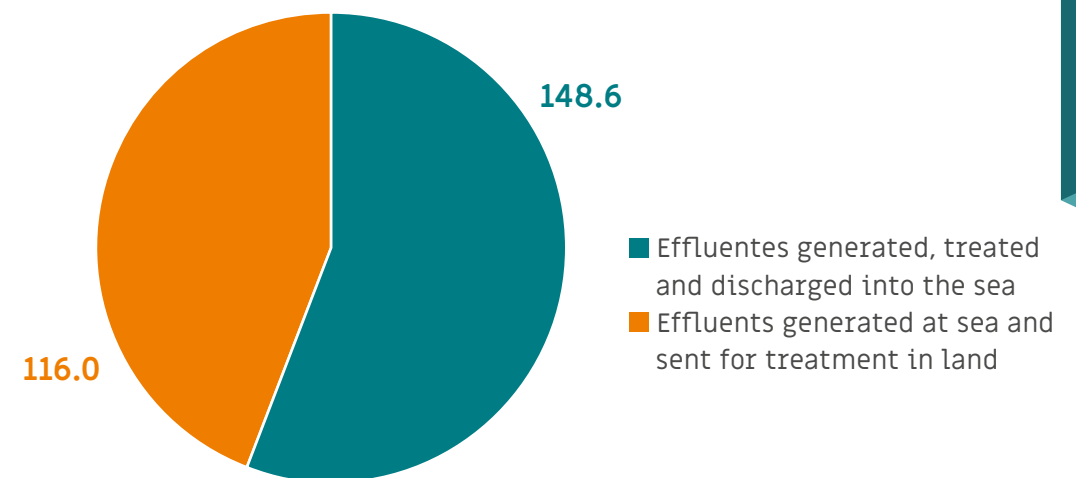
The production processes of the Atlanta Field do not require the capture of fresh water for their execution. Therefore, water consumption in our company is intended solely for the service of employees and service providers in the offices and support bases, without a significant environmental impact.

All water used in these units is supplied by the public supply network. On support

vessels and on the FPSO, water for human consumption is transported from the mainland.

The water used in operational processes on the FPSO, such as cleaning vessels and cooling equipment, is taken directly from the sea and desalinated. Thus, the Atlanta Field operation has no impact on water bodies located in areas under any type of water stress.

Effluents generated at the Atlanta Field in 2021 by disposal (thousand m<sup>3</sup>)



# Waste

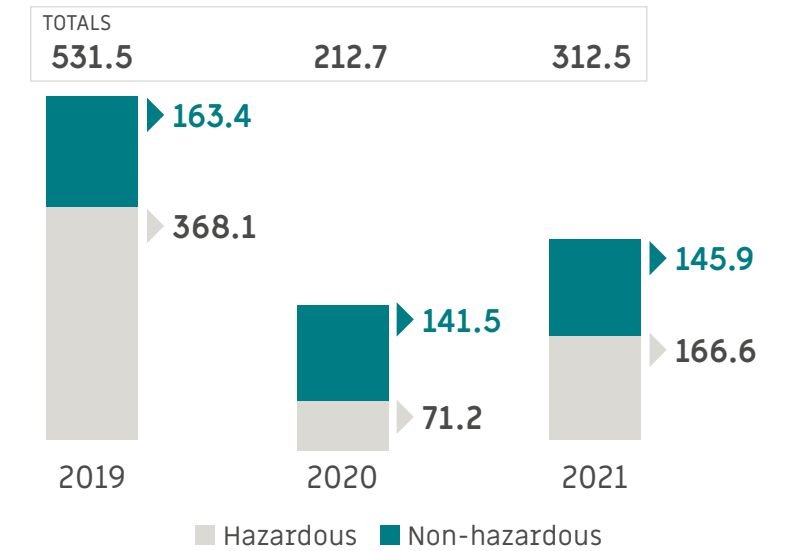
The treatment and disposal of waste generated in the Atlanta Field is also managed with excellence. The materials to be discarded are classified according to legal requirements and sent to the mainland by means of vessels from suppliers, which are duly approved and authorized to provide this type of service.

In our waste management process, we prioritize methods that allow its reuse; such as recycling, beneficiation and re-refining. All procedures are covered by the Integrated Management System and ensure compliance with applicable legal and regulatory parameters.

| Waste disposed by disposal method (t)*           |       |       |       |
|--|-------|-------|-------|
|  | 2021  | 2020  | 2019  |
| <b>Hazardous</b>                                 |       |       |       |
| Beneficiation                                    | 94.7  | 42.8  | 254.3 |
| Re-regining                                      | 58.3  | 15.6  | 88.8  |
| Cleaning/Decontamination                         | 10.1  | 10.9  | 18.3  |
| Other methods of treatment/reuse                 | 2.5   | 1.6   | 5.2   |
| Incineration and other methods of final disposal | 0.3   | 0.2   | 0.8   |
| Locally stored, waiting destination              | 0.9   | 0.2   | 0.7   |
| <b>Non-hazardous</b>                             |       |       |       |
| Recycling  | 123.9 | 122.7 | 117.6 |
| Landfill   | 17.8  | 16.9  | 33.9  |
| Other methods of treatment/reuse                 | 0.6   | 0.1   | 0.0   |
| Locally stored, waiting destination              | 3.6   | 1.9   | 11.8  |

\*Consider the waste from the Atlanta Field. In addition to these, 2.8 tons of office waste were destined in 2021 (2.5 tons in 2020 and 5.0 tons in 2019).

Waste generated at the Atlanta Field by type (t)



# Biodiversity

The main risk to biodiversity arising from the activities of the oil and gas industry is associated with the occurrence of leaks in the different production and exploration operations. To mitigate this risk, our company adopts the best operational safety practices and continually invests in studies and impact assessments to identify sensitive areas, establish protection and mitigation measures, and build emergency response protocols.

Our absolute priority is to prevent leaks at the Atlanta Field. In 2021, for the third consecutive year, no such occurrence was recorded in the FPSO and offloading operations – transferring the oil produced from the FPSO to a shuttle tanker.

In addition to focusing on safety to prevent leaks, we also act preventively to identify the potential environmental impacts of our activities in the areas in which we operate. This mapping is carried out during the preparation phase of the Environmental Impact Studies of the assets, later submitted to IBAMA, Brazil's government agency responsible for granting environmental licenses.

Whenever possible, we link investment in Research and Development (R&D) projects to the strategy of identifying risks and protecting biodiversity. This was the focus, for example, of the Costa Norte Project, the largest R&D initiative we have carried out in our history, with a total investment of R\$14.2 million.

The main goal of Costa Norte, completed in 2020, was to determine the vulnerability, sensitivity and susceptibility to contamination by pollutants in the mangroves of the Brazilian Equatorial Margin – one of the new frontiers for the oil and gas industry. The research conclusions supported the updating and improvement of the impact studies of our exploration blocks in the Foz do Amazonas and Pará-Maranhão Basins.

Additionally, we participate in a project carried out together with other operators that have exploration blocks in the Equatorial Margin, with the aim of developing a hydrodynamic base that covers all the knowledge needs on the behavior of oil displacement, in the event of a surface leak in the region.



In 2021, we completed an R&D project in partnership with the State University of Rio de Janeiro (UERJ) to determine the contribution of mangrove forests in the state of Rio de Janeiro to the mitigation of global warming.

The research structured a methodology to estimate the carbon stock held in these forests – each hectare of mangrove can store up to 500 metric tons of carbon. The study also analyzed the effectiveness of coastal conservation units to contain the degradation process of mangroves in Rio de Janeiro and, thereby, contribute to carbon storage through avoided emissions.

By investing in research projects, we contribute to expanding knowledge and minimizing risks to biodiversity in sensitive areas

Learn +  [Click here](#) to learn more about the Costa Norte Project