

Biodiversity

The production facilities of **Grupa LOTOS** in Gdańsk occupy land with an area of 234.50 ha, for which there are effective zoning plans in place. In the zoning plans, the land has been designated for production and service facilities, as well as for accommodating depots and storage facilities. The land is of no special natural value and is not subject to any form of nature protection. However, there are areas subject to various forms of protection in the vicinity of the refinery.

Nature reserves:

- "Ptasi Raj", located on the Zatoka Gdańska coastline, at the mouth of the Wisła Śmiała, which an arm of the Vistula River. The reserve encompasses two eutrophic lakes which have gradually been overgrowing with vegetation, and lies along one of the birds' main migration routes. The reserve is located within the boundaries of the "Ujście Wisły" Special Bird Protection Area (PLB220004).
- "Mewia Łacha". The reserve encompasses an alluvial cone in the artificial Vistula River bed (Przekop Wisły), which is characterised by varied floral assemblages and serves as a breeding site for terns and a dwelling place for various species from the charadriidae and anatidae families. Also this reserve is located within the boundaries of the "Ujście Wisły" Special Bird Protection Area (PLB220004).

Landscape parks:

- Trójmiejski Park Krajobrazowy (Tricity Landscape Park) covers a part of the morainic plateau near the Tricity (the Gdańsk-Gdynia-Sopot conurbation). The park is characterised by diversified land relief, and as such it encompasses a variety of habitats and microclimates. Around 90% of its area is covered by woods.
- Park Krajobrazowy Mierzeja Wiślana. The park covers a section of the Mierzeja Wiślana bay-mouth bar from Szutowo to Piaski, with ranges of dunes overgrown with pine forest mixed with oak and beech. All these are 19th century plantings. In 1994, the park was notified for entry in the list of Baltic Sea Protected Areas HELCOM BSPA.

Protected Landscape Areas:

- The Wyspa Sobieszewska Protected Landscape Area, encompassing also a section of the Mierzeja Wiślana bay-mouth bar. In this area we encounter a zonal system of dunal flora, and in the Vistula River mouth - rush-plants and halophyte sites. The coastline section of the Wyspa Sobieszewska Protected Landscape Area has been included in the "Ujście Wisły" bird habitat protection area (PLB 220004).
- The Żuławy Gdańskie Protected Landscape Area, covering the Vistula River mouth plain, which features a complicated washland and gravitation melioration system.

NATURA 2000 areas:

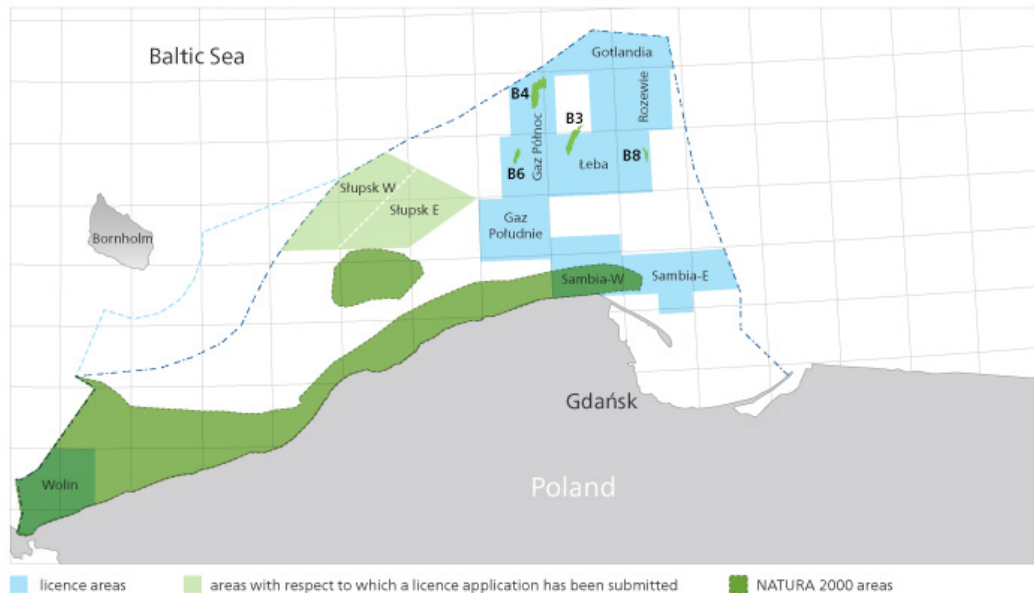
NATURA 2000 areas located closest to Grupa LOTOS' industrial facilities include:

- special bird protection areas: "Ujście Wisły" (PLB220004) and "Zatoka Pucka" (PLB220005),
- special habitats protection areas: "Twierdza Wisłoujście" (PLH220030) and "Ujście Wisły" (PLH220044).

LOTOS Petrobaltic owns two land properties. The first one with an area of 25,630 sq m accommodates the company's onshore base. The second one with an area of 24,025 sq m accommodates the gas-fired power plant in Władysławowo, operated by Energobaltic. Within Poland's offshore territory, the company currently holds seven licences to explore for and extract crude oil and natural gas.

In December 2011, LOTOS Petrobaltic filed two applications to be granted oil and gas exploration and appraisal licences covering the "Słupsk E" block with an area of 1,139.10 sq km and the "Słupsk W" block with an area of 1,021.20 sq km, concurrently requesting to be awarded mining usage rights over those areas.

General map of area of operations of LOTOS Petrobaltic.



These areas are adjacent to NATURA 2000 sites, but the operations for which licences have been requested by LOTOS Petrobaltic will have no impact on the protected areas, as clearly demonstrated in the "Environment Impact Assessment Report for the Project Consisting in Exploration for Crude Oil and Natural Gas in Baltic Sea Licence Areas A1, A2, A3, A4, and A5".

The report, prepared by the Gdańsk Submarine Geology Division of the National Geological Institute – National Research Institute, served as the basis for the environmental decision issued by the Regional Environmental Protection Directorate of Gdańsk. Currently, LOTOS Petrobaltic is awaiting a decision from the Ministry of Environment regarding its licence and mining usage rights applications.

In 2011, LOTOS Petrobaltic commenced activities aimed at developing the B8 field and prepared for performing offshore seismic surveys within the "Gaz Południe" licence area, which ultimately ended in submitting an investment project application. Currently, only one licence area ("Sambia W") is adjacent to or overlaps with coastal zones of the Baltic Sea protected under the Birds Directive.

The areas in which LOTOS Petrobaltic holds licence interest are not characterised by any considerable biodiversity, and the impact of the company's operations on these areas is negligible.

In Lithuania, some of the oil production facilities are immediately adjacent to, or lie in close vicinity of, NATURA 2000 sites. However, the National Authority for Protected Areas has not identified any negative impacts from industrial operations on the protected areas. The heat and power plant in Władysławowo is located in an industrial/port zone, on a parcel of land with an area of 24,025 sq m. This land is owned by the State Treasury and is held by Energobaltic in perpetual usufruct. It covers the topmost part of the Hel peninsula, and is located within the Nadmorski Park Krajobrazowy landscape park protection zone.

The licence areas in which LOTOS Petrobaltic has the right to conduct operations are generally situated outside the Baltic Sea Protected Areas. The only licence area located entirely within the boundaries of a protected area was the Wolin Licence, which expired in October 2011 pursuant to a decision by the Ministry of Environment.

LOTOS Asphalt' production operations are carried out at three sites, which also accommodate storage and distribution facilities. They are located on the refinery premises in Gdańsk, Jasło and Czechowice-Dziedzice.

The company also holds industrial land in perpetual usufruct or under lease agreements, whose area is approximately 234.5 ha in Gdańsk (property of Grupa LOTOS), approximately 13.4 ha in Jasło (property of LOTOS Jasło) and approximately 2 ha in Czechowice (property of LOTOS Czechowice).

There is no form of nature protection applying to land controlled by LOTOS Asphalt or to areas in its immediate vicinity. The installations held by the company in Gdańsk and in Jasło require an integrated permit, and as such should meet all the environmental requirements associated with the use of best available techniques, in particular they must not cause the relevant emission limits to be exceeded. To note, observing the emission limits implied by the use of best available techniques does not release an entity from the obligation to meet the applicable environmental standards.

LOTOS Oil has production sites located in Gdańsk, Czechowice-Dziedzice and Jasło. The company also operates a Distribution Centre in Piotrków Trybunalski. The production site in Gdańsk is located within Grupa LOTOS' premises. The land is not located within protected zones, or within areas of high biodiversity value outside protected areas.

Another production site is situated in Czechowice-Dziedzice, in Silesia Province. The land, along with the structures and installations it accommodates, is situated within the premises of a former oil refinery, built at the turn of the 19th and 20th centuries, and is not located within any protected areas.

The nearest NATURA 2000 site is the "Dolina Górnej Wisły" Upper Vistula Valley Special Bird Protection area, located about two kilometres away from the production site's location. The protected area covers the Goczałkowickie Lake, numerous fish pond clusters and forested areas. Most bird species having their habitats within the area are rare, including species listed in

the European Commission's Directive.

The third production site is located within the premises of a former oil refinery in Jasło, in the Province of Rzeszów. This land is not located within a protected area or an area of high biodiversity, either.

In the case of **LOTOS Paliwa's** business, which is conducted via a chain of service stations, an environmental impact assessment report is drafted already at the construction planning stage, in order to assess the potential impacts on adjacent areas that the planned facility would generate, with a special emphasis on protected areas and areas of high biodiversity value.

For existing stations, impacts on protected sites are analysed only if required for instance in connection with a planned upgrade, or if a major environmental accident occurs.

Currently, one station located in the immediate vicinity of protected areas has been identified from among those added to the company's chain in 2011. The inventory-taking records relating to stations included in the company's chain in 2010 show that two of those stations, not mentioned in the 2010 report, are located in close vicinity of such areas.

Features	Service station No. 801 Police, Service station No. 802 Łęka (both added in 2010)	Service station No. 807 Wysoka (added in 2011)
Geographical location	NATURA 2000 site – the "Dolina Środkowej Warty" Middle Warta River Valley Special Bird Protection Area, approximately 1 km to the east of the MOP Police Motorway Service Area; site code PLB200002.	Wysoczyzna Łaska (Łask Upland) and Kotlina Szczercowska (Szczerców Basin)
Status relative to protected area	adjacent	adjacent
Type of operations	trading	trading
Size/area of the operating unit in sq km	0.0058	0.0049
Features of protected area	ecosystem – biodiversity	freshwater ecosystem
Protection status	NATURA 2000	NATURA 2000

Based on the opinions obtained from local environmental institutions, the locations of the stations, as well as the technical solutions applied, ensure no adverse impact on protected areas.

Impact of conducted operations on biodiversity

Grupa LOTOS duly performs all its obligations resulting from the environmental protection laws, as well as product quality and labelling requirements. If used correctly, the Company's products do not generate any significant environmental impacts.

The operations conducted by **LOTOS Petrobaltic** in the Baltic Sea consist in the exploration for and extraction of crude oil from the sea floor. Exploration operations may be divided into two stages:

1. performance of seismic surveys, which show where a hydrocarbon accumulation may be located,
2. drilling a trial borehole to make a preliminary estimate of the size of a deposit (the reserves).

Seismic surveys consist in generating acoustic waves, which also affect the sea fauna. The influence is not significant, but before any such survey may be carried out, an Environmental Impact Assessment Report needs to be prepared. The report, along with an application for approval of specific work, is submitted to the Regional Directorate of Environmental Protection, which, having procured an opinion on the report and the application from the Marine Supervision Authority (Urząd Morski), issues an Environmental Decision, in which it specifies the requirements which must be met when conducting the planned work. The second stage of work that must be done before production from a field can be launched, is drilling a trial borehole. Although the oil deposits beneath the Baltic Sea floor are low pressure reservoirs, the possibility of an eruption during appraisal work must be taken into account. Therefore, all the best practice and best technology solutions are employed to prevent an eruption.

The main output of the production process is crude oil, but also some natural gas is produced, with an admixture of small quantities of various types of other hydrocarbons. The gas is sent via a transmission pipeline to Energobaltic, where it is used to generate electricity.

Given the fact that the licence areas in which **LOTOS Petrobaltic** operates are located in zones characterised by limited biodiversity, the impact from the company's operations in those waters is marginal or close to none. If used correctly, the products of **AB LOTOS Geonafta** do not generate any significant environmental impacts, either.

The premises occupied by **Energobaltic** are controlled by a processes and emissions monitoring system, which helps to minimise the environmental impact from the company's installations. In 2011, analyses were carried out of flue gas emissions and underground water quality with respect to compliance with the applicable standards. The analyses were performed by laboratories and measurement teams accredited by the Polish Centre for Accreditation. The flue gases emitted by the CHP plant meet all the emission standards, both those laid down in the environmental laws, and those specified in the permit to release gases and dust into the air issued by the Puck County Governor's Office (Starostwo Powiatowe w Pucku). An investigation made with regard to the monitoring of near-surface waters within the CHP plant's premises has proven that there are no sources of pollution with petroleum related substances.

LOTOS Exploration & Production Norge holds a 20% interest in Yme Development, of which Talisman Energy of Norway is the operator. The company regularly reports the scale and nature of its environmental impact to the Norwegian authorities.



Production platform on the YME field

YME Development takes measures the purpose of which is to minimise the environmental impact of the company's operations. The drilling work completed in 2012 did not result in any oil spills.

The platform operations on the YME field entail air emissions and generation of waste, which is transported to the shore. In this respect, the company operates in compliance with the relevant permit it has obtained.

The environmental report prepared for the Norwegian authorities confirms that the operations of YME Development are conducted in compliance with the environmental standards and pose no risk to the biodiversity of the North Sea.

The operations conducted by **LOTOS Asphalt** do not have any significant impact on the biodiversity of protected areas or areas of high biodiversity value outside protected areas. The emissions released into all parts of the environment meet the applicable legal requirements, as well as the BAT requirements for the refining industry. No environmental quality standards or emission standards are exceeded due to the operation of the company's installations. Energy, water, raw materials and fuels are used in a rational and efficient manner.

No environmental quality standards are breached in any of the neighbouring areas due to the impact from the installations. The plant operation, even at its maximum capacity, should not result in any deterioration of the parameters recorded to date. The launch of new or modernised installations has improved the local acoustic climate on the plant premises. The air sealing of loading terminals has eliminated fugitive emissions accompanying shipment of bitumens at road and rail tanker loading stations, and has limited emissions of malodorous substances which, until recently, were generated during shipment and storage of the products.

LOTOS Paliwa conducts fuel trading operations through its service stations, which are classified as facilities having no significant impact on the environment. Harmful emissions are limited thanks to air sealing of the processes of fuel reception and dispensing, as well as rainwater and meltwater treatment, which ultimately guarantees that the stations do not interfere with the natural environment.

Any possible negative impacts on wildlife of protected areas is neutralised by retaining a protective belt immediately adjacent to a wildlife protection site (selected individually for a given form of wildlife protection), as a safeguard against any potential threats which might stem from the company's operations.

Reclaimed habitats

In 2011, no events were recorded at **LOTOS Paliwa** which in consequence would require any reclamation work to be carried out. LOTOS service stations are designed, constructed and operated using the best technical, technological and organizational solutions, based on the assumption that environmental standards must be complied with both along the project site borders and beyond.

With respect to registered sites adjacent to protected areas, additional security measures are applied in the form of monitoring of underground waters, more frequent analyses of wastewater discharged into the environment, or extra restrictions applied by authorities with respect to volumes of emissions into the environment.

As in the case of other LOTOS Group companies engaged in the trading business, no need to carry out any protection or reclamation projects was identified at LOTOS Paliwa in 2011. Such a project is being implemented though as part of the Corporate Social Responsibility Strategy of the LOTOS Group.

In line with its CSR strategy, the **LOTOS Group** supports environmental efforts, i.e. all activities connected with the structure

and processes of nature. One of the examples of the company's involvement in reclamation efforts concerning the Baltic Sea is its cooperation with the Gdańsk University Development Foundation and the Marine Station of the Gdańsk University Oceanography Institute in Hel. The joint efforts, which have already continued for three years, were undertaken to prevent the extinction of endangered marine species, notably the harbour porpoise. Apart from these efforts, the partnership paved the way for further projects which aim to promote knowledge on the Baltic Sea biodiversity and provide information on how the endangered species can be protected. In previous years, the Company provided funds to finance the purchase of equipment (hydroacoustic detectors and fishing pots) that helps protect harbour porpoises against by-catch.

The cooperation with our partners brought results in the form of various educational and information campaigns carried out in 2011. A series of exhibitions were organized, devoted to the Baltic Sea fauna and flora, entitled "Okciem Mewy" ("The Seagull's View").

Just like in previous years, an information and education campaign entitled "Natura pod kilem" ("Nature under the Keel") was organized on the ships of the Gdańsk tourist fleet to promote the protection of NATURA 2000 sites and encourage Poles to contribute to developing plans aimed to protect those sites. During the campaign, over 240 thousand passengers travelled on ships of the Gdańsk tourist fleet.

A promotion and information campaign was also organized on the trójmiasto.pl website, the purpose of which was to draw attention to the problem of effective protection of animals in the light of the international obligations that Poland must implement as a signatory of various conventions and agreements, and as a member of the European Union.

A number of other actions were undertaken in 2011 in cooperation with the partners named above for the purpose of reaching the circles and persons who can influence the manner of the Baltic Sea exploitation and of changing their current attitudes.

Managing impact on biodiversity

The Biodiversity Convention of 1992 states that the greatest human-generated threats to biodiversity include:

1. destroying flora and fauna habitats,
2. climatic changes the speed of which is such that certain species find it impossible to adjust themselves to the changing living conditions,
3. introducing other species originating from other geographical regions, which results in displacement of local species.

The operations of **LOTOS Petrobaltic** do not pose any threat to biodiversity in the areas where they are conducted, because they involve none of the elements enumerated above. The company's licence areas are situated outside the NATURA 2000 sites, currently called Baltic Sea Protected Areas. As the animal and plant life in the areas where LOTOS Petrobaltic conducts its activities is very poor, the impact from the company's operations on the ecological system and biodiversity of the areas is practically non-existent. LOTOS Petrobaltic does not transfer any unwanted living organisms from other geographical and climatic regions, which could endanger the species native to the Baltic Sea.

It is important to note that as part of any strategic planning concerning new installations and technologies, e.g. ones which are to be used to produce oil from the B8 field, or gas from the B4 and B6 fields, the environmental aspects and legal requirements pertaining to environmental protection are the crucial elements of project viability studies.

One of the most important objectives for the company regarding its operations in the Baltic Sea is to implement the best available solutions with respect to environmental protection, thus supporting the full biodiversity of the Baltic Sea. LOTOS Petrobaltic is working towards completion of its projects aimed to implement the Baltic Sea Action Plan, which stipulates zero discharge from offshore platforms.

The company has entered into negotiations with a Polish company which prepares muds for drilling operations. LOTOS Petrobaltic wants to phase out the harmful red chemicals, which, when confined to a closed system, are not in any contact with the environment. At the same time, the company wants to meet the requirements of the Baltic Sea Action Plan and substitute the red chemicals with green ones, which cause no harm to the marine environment, being friendly to both its flora and fauna.

Concurrently, it is assumed that all waste, including greywater and industrial waste, generated by offshore drilling rig and production platform operations, is to be transported to the shore. In 2011, an installation was constructed on the B3 field the purpose of which is to inject formation water back into the formation. As far as the environmental aspects are concerned, one of the priorities for 2012 relates to the continued implementation of the Baltic Sea Action Plan, both through technological and systemic solutions.

LOTOS Petrobaltic will also seek to meet the latest requirements and standards imposed by HELCOM with respect to treatment of sanitary sewage on its platforms. The company wants to conduct its operations based on the best available technologies and best practice concerning extraction of hydrocarbons from offshore reservoirs, in order to mitigate its impact on the Baltic Sea's biodiversity.

Impact of LOTOS Petrobaltic's operations on biodiversity		Environmental actions undertaken in line with the Baltic Sea Action Plan (BSAP)	
Destruction of wildlife and plant	Negligible impact	Formation and oily water re-injection	Positive impact

habitats

Climate change	No impact	Technological and systemic solutions concerning cuttings generated in the drilling process	Positive impact
Climate change	No impact	Transfer of all waste from offshore platforms to the shore	Positive impact

LOTOS Paliwa is involved in activities the purpose of which is to investigate biodiversity-related hazards posed by its existing filling stations. They include an assessment of the existing facilities' locations relative to identified protected areas and areas of high biodiversity value outside protected areas, made on the basis of the existing environmental impact assessment reports for such facilities with a view to meeting the effective laws and requirements.

The activities of **LOTOS Oil** focusing on biodiversity-related issues relate to three aspects: product characteristics, product manufacturing and product functionalities.

The company's products are designed based on production inputs such as oil bases and additives, and are marketed in labelled packaging. All production inputs are classified as chemical substances or mixtures, and as such are subject to the registration, evaluation, authorisation and restriction of chemicals (Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)). Among other things, the REACH regulation requires that such substances be evaluated from the point of view of their effect on reproduction of living organisms. At present, the REACH registration requirements do not apply to components used for the production of lubricants (lubricant soaps). For these substances, the obligatory registration date is 2013. The company has been taking steps in order to collect materials necessary for their registration.

Products marketed by LOTOS Oil undergo the process of natural ageing, and therefore must be replaced with new ones. Dealing with used oils is regulated by the environmental laws, which require that some proportion of marketed products be collected back and utilised in a manner that is not arduous to the environment. The company has therefore entered into relevant agreements with providers of recovery and recycling services.

Some of the oil products are biodegradable, i.e. if used correctly for the purpose for which they are intended, they enter the environment and become decomposed into components which cause no harm to the environment. The company is planning to launch such products. Plasticizers meeting the REACH requirements and intended for the rubber industry, whose production was launched in previous years, will continue to be developed. The products are characterised by a low (legally defined) content of polycyclic aromatic hydrocarbons.

Some of the products which the company wants to introduce will be produced by new installations, the designing and operation of which is subject to the currently applicable laws, which take into account the environmental aspects.

The products planned to be launched are designed with a particular focus on those functional characteristics which would enable them to be used in solutions designed to reduce negative environmental impacts. These are, for instance, products for wind farms and engines fuelled with landfill gas or natural gas, or motor oils intended for low-emission engines meeting the Euro5 standards. The company has also been considering the launch of production of biodegradable form oils for the construction industry. Demand for these products depends to a large extent on legal regulations which are in effect.

In accordance with its existing environmental management system (ISO 14001), **LOTOS Asphalt** has set certain goals as far as the environmental aspects of its operations are concerned. The goals include:

- reduction of emissions of bitumen fumes generated during dispatch of products from the Gdańsk facility, which has the largest capacity and actually load the highest volumes of bitumen into vehicles,
- reduction of emissions of bitumen fumes generated during storage of products at the Gdańsk facility, which has the largest throughput and the largest storage base for bitumen products.

These goals were set in 2010 and still apply. All the investment work with respect to the first of the goals was scheduled for completion in 2012, while the modernisation work concerning the tank park was scheduled to be finished by the end of 2013.

An environmental management programme was developed at the company, which comprises investment, organizational and training activities the purpose of which is to reduce any significant, identified environmental impacts, taking into account their technical and economic viability.

Related content:

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