

## 1365 **Common seal**

*Phoca vitulina* (L., 1758)



Fig. 1 Common seal (photo by M. Burkhard)

### **I. INFORMATION ON SPECIES**

#### 1. Systematic affiliation

Order: Carnivora

Family: Phocidae

#### 2. Legal status and threat to the species

##### **International law**

Habitat Directive – Annex II and V

Bern Convention – Annex III

##### **National law**

Protection of species – strict protection

##### **IUCN threat category**

IUCN Red List – LC

Polish Red List – Vertebrata – not listed

### 3. Species description

Common seal is one of two representatives of the *Phoca* genus – another one is ringed seal – which occur in the Baltic Sea. The species forms two metapopulations in the Baltic Sea: south-western Baltic and Kattegat and Kalmarsund – both belong to the nomadic subspecies of *Ph.v.vitulina*. Slight sexual dimorphism occurs. Females reach an average length of 146 cm and weigh of 67 kg and males average 156 cm in length and weigh of 75 kg.

Body coloration is from light brown to dark grey with a lot of dark spots, the belly is usually brighter than the back. Juveniles up to approx. 3 years have uniformly coloured fur. The pattern of dark spots on the fur of common seals is an individual feature.

### 4. Biology of the species

Common seals form large colonies and show strong relation to the haul-out sites. They choose sandy or rocky beaches at a short distance from their place of birth, and feed in shallow waters close to the colony.

Baltic Common seals reach sexual maturity at the age of 4- 5 years. The breeding season lasts from April to July. The pups are usually born from May to June. The puppy usually measures from 70 to 90 cm and weighs 8 to 12 kg and (unlike grey seals) are already covered with fur characteristic of adults. Thanks to this, they can enter the water with their mother soon after birth. The female takes care of the young for about 6 weeks. This period is intended for feeding young milk and learning to swim and acquire solid food. After this time, the young become independent (GDOŚ 2015).

The Baltic population of common seals feeds on easily available species of fish such as flatfish, herring, cod and sandeel. Sometimes shellfish and molluscs are also found in the diet.

### 5. Habitat conditions

As a typical representative of *Pinnipedia*, common seals use both sea and land habitats. At the same time the lack of distant migrations causes that the species within its area requires both good availability of food and places for rest, breeding and moulting.

### 6. Species distribution

Historical data indicates that in the Baltic Sea the population of the common seal counted over 5,000 individuals at the beginning of the 20th century, but intensive hunts caused a significant decrease and about 200 individuals remained in the late 1960s (Härkönen and Isakson 2010). It is assumed, that in 1970s, only a few more than 5 females were at the reproductive age. Protective actions taken at that time led to an increase in the population size up to about 588 individuals in 2008 with an annual increase of more than 9%. In Polish waters, this species was systematically recorded and hunted until the 1920s. It is estimated, that this species accounted for about 10% of all reported by-catch. From the second half of the last century the species was sporadically recorded in PMA. Based on the analysis of seal observations on the Polish coast, it can be concluded that at present Common seal is a rare and sporadically occurring species. It is impossible to estimate the number of individuals based on the reports only, however, in the area of the Vistula Mouth a few individuals are observed regularly (Hylla-Wawryniuk 2017).

Studies on occurrence and abundance of the common seal in PMA were carried out in 2016-2018 (as part of the project "Pilot implementation of monitoring of marine species and habitats in 2015-

2018", Opiola et. al 2016, 2017, 2018). Only in one year (2016) one specimen of this species was found at the grey seal haul-out (Opiola 2017).

## II. METHODOLOGY

### 1. Concept of species monitoring

The standard HELCOM methodology (HELCOM 2017) assumes the monitoring of the common seal in areas of its permanent occurrence on land (haul-outs), where both reproduction and moulting take place. The lack of such permanent sites (haul-out) on the one hand and on the other the regular appearance of a few individuals in PMA allows both monitoring and assessment of the species to be based on the indicators presented below. The recommended method covers the analysis of data collected during aerial monitoring including data obtained during the Grey seal monitoring (field forms, photo analysis) and the determination the frequency of occurrence in Polish sector of the Baltic Sea.

In order to maintain the continuity of monitoring and homogeneity of data collected for analysis and the data analysis, it is recommended for the needs of the State Environmental Monitoring (SEM) to conduct annual monitoring of the species based on the presented method.

### 2. Indicators and assessment of the species conservation status

#### Population status indicator

Table (Table 1) presents indicators for the status assessment of the 'Population' parameter, while table (Table 2) presents the method of valorisation of indicators.

Table 1. Indicators for assessing the status of the common seal 'Population' parameter

Indicator	Unit	Indicator description
Occurrence	presence / absence	Presence / absence of grey seal at the Polish coast

Table 2. Valorisation of indicators for assessing the status of the common seal 'Population' parameter

Indicator	Assessment		
	FV favourable status	U1 unfavourable inadequate status	U2 unfavourable bad status
Occurrence	if the species occurred in at least 50% of the years covered by the monitoring	if the species occurred in less than 50% of the years covered by the monitoring	lack of species

#### Habitat status indicators

Table (Table 3) presents indicators for the status assessment of the 'Habitat' parameter, table (Table 4) presents the method of valorisation of indicators.

Table 3. Indicators for assessing the status of the common seal 'Habitat' parameter

Indicator	Unit	Indicator description
Existence and access to optimal rest areas	Descriptive index	Determined on the basis of expert knowledge, including information on possible disruption of such access, among others through construction works (breakwaters, bands) or pressures related to

Indicator	Unit	Indicator description
		tourism or maritime transport.

Table 4. Valorisation of indicators for assessing the status of the common seal 'Habitat' parameter

Indicator	Assessment		
	FV favourable status	U1 unfavourable inadequate status	U2 unfavourable bad status
Existence and access to optimal rest areas	Optimal resting places exist and animals have unlimited access to them (no pressures triggering the spreading effect)	Optimal resting places exist but access is limited (incl. pressures triggering the spreading effect)	Optimal resting places do not exist or animals have no access to them (for example, destruction of a previously recorded resting place)

### Conservation prospects

The prospects for protection and their assessment are an expert assessment and, at the same time, a forecast of the condition of the population and the habitat in the perspective of the next 10-15 years. It takes into account both current data on population status and species habitat as well as applied protective measures (e.g. approved national species protection plans) and observed threats (potential risks related to anthropogenic growth) and their trend in the long-term perspective. It is important that in addition to the results of the monitoring itself, the assessment should take into account all the analysis of the long-term trends in the change in the species size in PMA as well as available information on the above-mentioned issues resulting from systematic scientific or monitoring research.

Protection prospects has a favourable status (FV) when both parameters "Population" and "Habitat" are at least in unfavourable inadequate status (U1) and if no increase in the impact of negative factors which may worsen this condition is predicted. The U1 status can be assigned if both parameters "Population" and "Habitat" are at least in unsatisfactory condition (U1) but there are factors that negatively affect both parameters and in the perspective of 10-15 years will worsen their current condition. In the case when the assessment shows that the current state of both the population and the habitat will be deteriorating, the protection perspectives should be assessed as unfavourable bad (U2).

### Overall assessment

The overall assessment of the conservation status of the species is synonymous with the lowest status of one of the three assessed parameters: population, habitat, protection perspectives. The method of aggregation all indicators and parameters is presented on figure (Fig. 1).

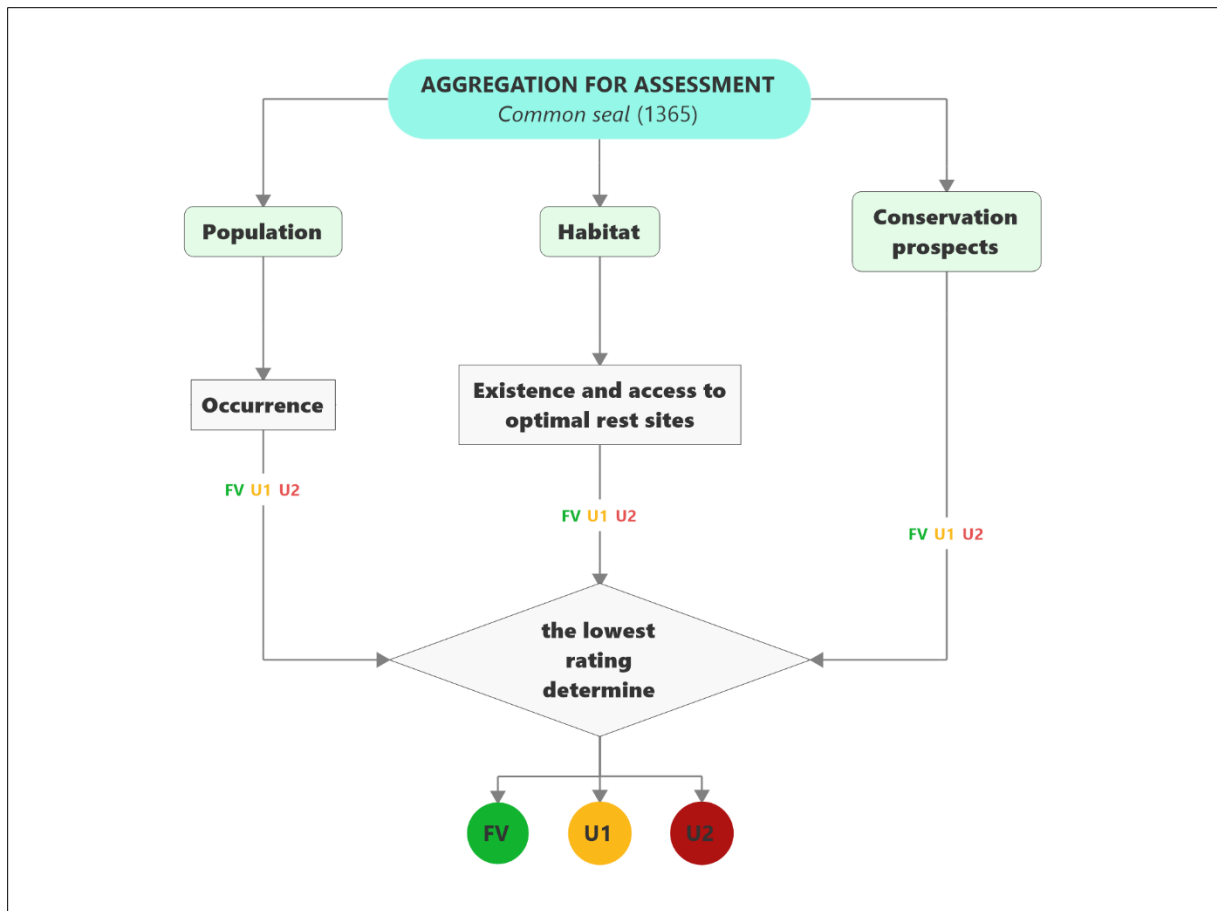


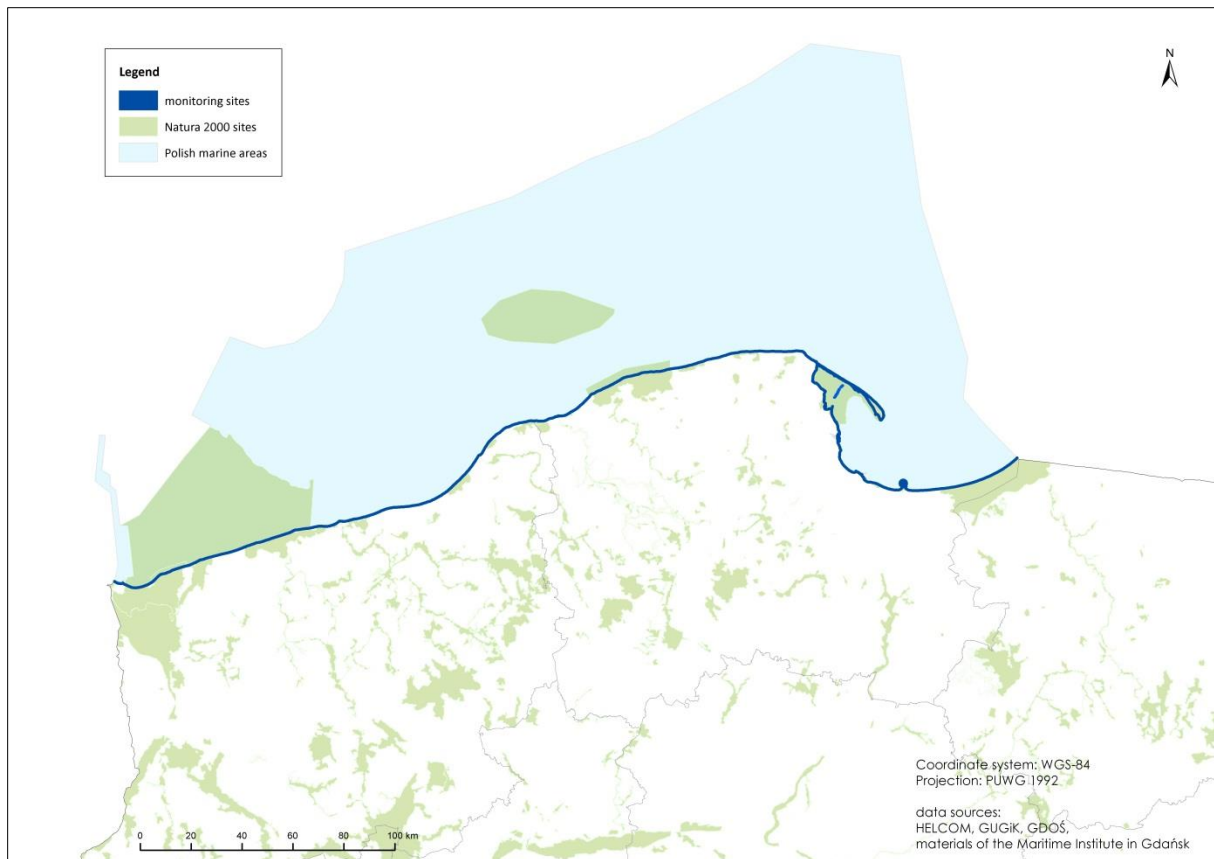
Fig. 1. Diagram of aggregation of indicators and parameters to assess the state of protection of the common seal

### 3. Description of monitoring

#### Selection of monitored locations

The monitoring of occurrence of the common seal is based directly on photographic materials and documentation collected during the monitoring of the grey seal as well as dedicated aerial survey along Polish coast (late August), including sandy ravines at the estuary of the Vistula Przekop (haul-out) and Rybitwia Mielizna (Ryf Mew) on the Puck Bay (Figure 2).

It should be underlined that in order to update information about the occurrence, photographic documentation is required.



*Fig. 2 Sites for common seal monitoring*

### The method of investigation

It is recommended that the air observation in August are carried out each year along the entire Polish coast by two observers sitting on the same side of the aircraft. The aircraft should maintain a flight at 200 m and a speed of approximately 110 km /h. The flight path leads over the water a short distance from the mainland, which allows both observers to cover the entire area of the shoreline and the beach. Observers document records by taking photographs and completing field forms (see point 4). The number of individuals is estimated by observers during the flight.

The final analysis of data from aerial survey monitoring consists in analysing the photographic documentation. On this basis, the seals are identified to the species, and their abundance is determined independently by two experts.

### Determination of indicators of population status

**Occurrence.** Occurrence is determined on the basis of the analysis of photographic data collected during the monitoring of the grey seal and on the basis of the dedicated survey in August.

### Determination of indicators of habitat status

**Existence and access to optimal rest areas.** Based on survey and additional information it should be specified if there are optimal resting places and whether seals have unrestricted access to them. All kinds of factors limiting access to such places should be taken into account - development of the shore infrastructure (strengthening), ports and estuaries and the intensity of tourism in coastal areas.

#### 4. The date and frequency of investigation

It is recommended to conduct dedicated aerial survey monitoring, in addition to the monitoring of the grey seal, every year in August.

#### 5. Equipment and materials for investigation

Observers performing air monitoring should be equipped with a GPS device that records the route of flight, regardless of the aircraft's equipment, binoculars with parameters not worse than 8x40 and a camera that allows taking pictures with high magnification in high resolution.

#### 6. Examples of common seal research forms

Sea mammals observation field form			
Institution: <i>Maritime Institute in Gdańsk</i>			
Monitoring site: <i>Polish coast</i>			
Page no 1 of 1	<b>Method:</b> 1 = LAND survey; 2 = AERIAL survey;		<b>FLIGHT information:</b>  Start time (UTC): 06:00 Stop time (UTC): 10:00 Plane: <i>CESNA 125</i> Pilot: Observer side (left / right): <i>right</i>
Transect ID / Flight ID: <i>2017-06-03</i>	<b>Behaviour (seals):</b> 1 = swimming 2 = milling 3 = feeding 4 = surfacing 5 = resting / sleeping	<b>Obs. and meteo conditions:</b> Scale from best to worst visibility (1–3)* clouds (0–8) rain (0–3) wind force (0–7) [°B] wind direction (1–360) [°] sea state (0–7) [°B] * 1 very good 2 limited 3 below 500 m	
Observer:			
Date: <i>2017-06-03</i>			
No: status: 1 = start, 2 = stop, 3 = observation			

NO.	Position		TIME (UTC) [hh:mm]	Observations				Picture [yes / no]	Obs. and meteo conditions						Additional information
	LAT	LON		Species	Adults number	Pups number	Behaviour		Visibility	Clouds	Rain	Wind force	Wind direction	Sea state	
1			06:30						1	0	0	1	25	2	
3			07:15	PHVIT	120		5	T							All seals at entrance no 54
2			9:30						1	1	0	3	30	2	

<b>Compiled by:</b>	<b>Checked by:</b>	<b>Approved by:</b>
Date:	Date:	Date:
Signature – Full name:	Signature – Full name:	Signature – Full name:



**Photo analysis form of marine mammals**

Monitoring site: *Polish coast*

Transect ID: *2017-06-03*

Data analysed by (name): \_\_\_\_\_ Maximal number of seals: *3*

Time UTC	Position (LAT / LON)		Picture ID / number	Seal observations					Comments
				Species	Adults	Pups	Female feeding with milk [yes / no]	Mating [yes / no]	
<i>07:14</i>			<i>UW-170603-3</i>	<i>Common seal</i>	<i>2</i>	<i>0</i>	<i>-</i>	<i>-</i>	
<i>07:14</i>			<i>UW-170603-4</i>	<i>Common seal</i>	<i>3</i>	<i>0</i>	<i>-</i>	<i>-</i>	

<b>Compiled by:</b>	<b>Checked by:</b>	<b>Approved by:</b>
Date:	Date:	Date:
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## 7. Other species for which the methodology can be applied

The ringed seal (*Phusa hispida*) is one of three species of *Phocidae* occurring in the Polish waters of the Baltic Sea. However, this species is much less frequently recorded and its core habitats are in the waters of the northern Baltic. This species is only monitored on ice covering sea basins (HELCOM 2017) and is based on the counting of seals in such areas. For this reason systematic dedicated monitoring is not proposed for this species - but in case data collected during the monitoring of the other two species of seals showed that ringed seal tends to occur more frequently in PMA (annual statements confirmed by SEM monitoring), it is recommended to assess species based on the same methodology as for the common seal.

## 8. Protection of the species

The common seal is a strictly protected species. However, due to its irregular occurrences in PMA, protective measures for this species are not introduced.

Considering both the fact that the common seal inhabited the areas of PMA in the past and the fact that its population has been growing steadily it is reasonable to consider the possibility of establishing the species as a subject of protection in these Natura 2000 areas, where grey seal is the subject of protection.

## 9. References

GDOŚ 2015. Obszary Natura 2000 – Poradniki metodyczne. Tom 6 - Gatunki zwierząt z wyjątkiem ptaków. <http://natura2000.gdos.gov.pl/tom-6>

Härkönen T., Isakson E. 2010. Status of harbour seals (*Phoca vitulina*) in the Baltic proper. NAMMCO Sci. Publ. 8: 71-76.

HELCOM 2018. Proposal for Monitoring guidelines for seal abundance and distribution in the HELCOM area. Draft version ([www.helsinki.fi](http://www.helsinki.fi))

Hylla-Wawryniuk A. 2017. Dane dotyczące raportów o zaobserwowaniu ssaków morskich w Polsce zebrane w bazie danych online Fundacji WWF Polska i Stacji Morskiej Instytutu Oceanografii Uniwersytetu Gdańskiego im. Profesora Krzysztofa Skóry w Helu w latach 2009–2016. Fundacja WWF Polska, pp 10

Opióła R., Barańska A., Kruk-Dowgiałło L., Dziaduch D., Brzeska-Roszczyk P., Pieckiel P., Łysiak-Pastuszek E., Osowiecki A., Olenycz M., Zaboroś I., Mioskowska M., Kuczyński T., Błęńska M., Dembska G., Pazikowska-Sapota G., Galer-Tatarowicz K., Flasińska A., Nowogrodzka K., Boniecki W., Cichowska A., Boniecka H., Gawlik W., Gajda A., Kaźmierczak A., Bajkiewicz-Grabowska E., Markowski M., Kozłowski K., Malinga M., Świstun K., Yalçin G., Błaszczuk Ł., Mroczek K., Pyra A. 2017. Pilotażowe wdrożenie monitoringu gatunków i siedlisk morskich w latach 2015-2018. Raport z prac wykonanych w III etapie. Wydawnictwa wewnętrzne Instytutu Morskiego w Gdańsku nr 7124, Praca realizowana w ramach Państwowego Monitoringu Środowiska na zlecenie Głównego Inspektoratu Ochrony Środowiska, p. 486

Opióła R., Barańska A., Osowiecki A., Kruk-Dowgiałło L., Michałek M., Dziaduch D., Brzeska-Roszczyk P., Pieckiel P., Łysiak-Pastuszek E., Olenycz M., Zaboroś I., Dembska G., Boniecka H., Gawlik W., Gajda A., Bociąg K., Bajkiewicz-Grabowska E., Kozłowski K., Tarała A., Kosecka M., Kowalczyk J., Świstun K., Yalçin G., Filipczak R., Mroczek K., Błaszczuk Ł. 2016. Pilotażowe wdrożenie monitoringu gatunków i siedlisk morskich w latach 2015–2018. Raport z prac wykonanych w II etapie. Wydawnictwa

wewnętrzne Instytutu Morskiego w Gdańsku nr 7045, Praca realizowana w ramach Państwowego Monitoringu Środowiska na zlecenie Głównego Inspektoratu Ochrony Środowiska, p. 469

Opioła R., Barańska A., Kruk-Dowgiałło L., Dziaduch D., Michałek M., Brzeska-Roszczyk P., Pieckiel P., Łysiak-Pastuszek E., Osowiecki A., Olenycz M., Zaboroś I., Mioskowska M., Kuczyński T., Dembska G., Pazikowska-Sapota G., Galer-Tatarowicz K., Flasińska A., Nowogrodzka K., Cichowska A., Radke B., Dziarkowski T., Boniecka H., Gawlik W., Gajda A., Bajkiewicz-Grabowska E., Markowski M., Kozłowski K., Tarała A., Malinga M., Świstun K., Aninowska M., Yalçın G., Thomsen F., Mroczek K., Pyra A. 2018. Pilotażowe wdrożenie monitoringu gatunków i siedlisk morskich w latach 2015–2018. Raport z prac wykonanych w IV etapie. Wydawnictwa wewnętrzne Instytutu Morskiego w Gdańsku nr 7232, Praca realizowana w ramach państwowego Monitoringu Środowiska na zlecenie Głównego Inspektoratu Ochrony Środowiska, p. 341

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