



# Working responsibly to create value

Cairn Energy PLC 2018 Corporate Responsibility Data Appendix

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## Introduction

The Key Performance Indicators (KPIs) that we are reporting in 2018 were drawn from our materiality process and overall business objectives. They align with the Global Reporting Initiative (GRI) Standards (Core option).

The table below lists the issues that were assessed in 2018 to be the most important to Cairn and its stakeholders (high materiality) together with KPIs from those subject areas. These KPIs are denoted in the following data sections with a ★, and definitions and methodology notes are provided.

Material issue	Key Performance Indicator
Anti-Bribery and Corruption (ABC) Practices	Employees trained in Cairn's anti-corruption policies and procedures (number/%)
	Total communicated to on anti-corruption policies and procedures (number/%)
	Operations assessed for risks related to corruption (number/%)
Business Partner Alignment	Investment proposals that covered results of CR due diligence (%)
	Significant investment agreements and contracts that include human rights clauses or that underwent human rights screening (number/%)
Tax and Payments to Governments	Payments to governments (\$'000 US)
Funding	Covered in the 2018 CR Report and AR 2018. Implement funding strategy to support exploration, appraisal and development activity and to mitigate any downside revenue scenarios.
Investment	Covered in the 2018 CR Report and AR 2018. Implement funding strategy to support exploration, appraisal and development activity and to mitigate any downside revenue scenarios.
JV Partner Funding	Covered in the 2018 CR Report and AR 2018. Implement funding strategy to support exploration, appraisal and development activity and to mitigate any downside revenue scenarios.
Governments' ABC	Operations assessed for risks related to corruption (number/%)
	Money paid to political parties and institutions (£ pounds sterling)
Climate Change Policy and Planning	Covered in the 2018 CR Report. We conducted a climate change portfolio resilience review.
Global Energy Transition	Covered in the 2018 CR Report. Our 2018 CDP classification improved from C- to B- compared to 2017.
Major Accident Prevention	Lost Time Injury Frequency (lost time injuries per million hours worked)
	Total Recordable Injury Rate (total recordable injuries per million hours worked)
	Spills to the environment (number and volume)
Workplace Safety	Lost Time Injury Frequency (lost time injuries per million hours worked)
	Total Recordable Injury Rate (total recordable injuries per million hours worked)
	New supplier screening (%)
Contractor Selection	New supplier screening (%)

Material issue	Key Performance Indicator
Security of Personnel	Security incidents (number)
Asset Security	Security incidents (number)
Security and Human Rights	Security personnel that received human rights training (%)
	Significant investment agreements and contracts that include human rights clauses or that underwent human rights screening (number/%)
Local Community Stakeholders	Managers hired from the local population (national managerial employees) (%)
	Total national and non-national contractors (%)
Demonstrating Value and Measuring Impact	Social investment (£ pounds sterling)
	Total proportion of spending on local suppliers (%)
Working Conditions/ T&Cs	Significant investment agreements and contracts that include human rights clauses or that underwent human rights screening (number/%)
GHG Flaring and Venting	Greenhouse gas emissions (GHG) – Scopes 1, 2 and 3 (tonnes CO <sub>2</sub> e)
	GHG normalised to total employee and contractor hours worked (tonnes CO <sub>2</sub> e per 1,000 hours worked)

### Database

Corporate Responsibility (CR) KPI data is collected for monitoring and reporting purposes and is maintained in a specialist database. This database records data by geographical region, and defines the KPIs to be measured and the frequency at which data should be recorded. Data entry and approval are tracked within the database.

We use definitions set by the GRI and International Association of Oil & Gas Producers (IOGP) to provide comparable and credible data that can be benchmarked against our peers in the oil and gas sector.

### Scope and boundaries

We report on an 'operational control' basis. This means that we report on those assets and activities over which we have control in terms of CR policies and practices, irrespective of the licensed operating party. We exclude data where we do not control operations, but we do consider risks associated with our partners' position and their control of such activities. In line with this, our 2018 CR KPI data covers Cairn's head office in Edinburgh, our regional offices in the UK, Norway, Senegal and Mexico, and field operations in the UK.

We report CR data in line with the calendar year, i.e. 1 January to 31 December.

### Baseline data

We report historical data from all our activities over the last five years. Levels of activity at Cairn vary considerably from year to year, so we do not have a fixed baseline or historical reference point.

For more details about how we collect and report our CR data please refer to p64–65 of the Cairn 2018 CR Report.

Restated data in this report is marked with a ♦

## Governance

### Ethics, anti-bribery and corruption, and transparency

#### Ethics

##### Business ethics compliance (number)

	2014	2015	2016	2017	2018
Incidents of non-compliance with Cairn's Code of Business Ethics	0	0	0	0	0
Employee dismissals resulting from non-compliance with Code of Business Ethics	0	0	0	0	0
Contracts cancelled in part due to concerns about contractors' ability/willingness to operate in line with business principles	0	0	0	0	0

#### Anti-bribery and corruption

##### Operations assessed for risks related to corruption (number/%) ★

	2014	2015	2016	2017	2018
Cairn total	8/100	4/100	4/100	4/100	4/100

**Note:** For the purposes of this indicator we define an operation as a country in which we had operational activity (including field and office activity) in the reporting year. It should be noted that we may have more than one set of assets in a given country.

**Calculation:** Number of operations in the reporting year that have been assessed at some point for risks related to corruption/total number of operations in the reporting year x 100.

**Note:** All of the operations included have been assessed for risks related to corruption although the assessments may not have taken place in the reporting year itself.

**Note:** Significant risks identified include: 1) risk of corruption acts in the supply chain, 2) risk of local contractors not being adequately trained on anti-bribery and corruption, 3) risk of not adapting corporate anti-bribery and corruption management system to the local culture, 4) risk of operating in jurisdictions perceived as high risk for bribery, 5) risk of poor communication and monitoring of anti-bribery and corruption policies and procedures.

##### Total communicated to on anti-corruption policies and procedures (number/%) ★

	2014	2015	2016	2017	2018
Board members	7/100	9/100	9/100	10/100	9/100
Total employees	178/100	151/100	170/100	180/100	201/100
Total management grade employees	56/100	48/100	54/100	53/100	64/100
Total non-management grade employees	122/100	103/100	116/100	127/100	137/100
Total business partners*	-	12/75	20/87	5/63	22/88
Business partners - significant suppliers	-	11/85	19/95	5/100	19/100
Business partners - joint venture partners	-	1/33	1/33	0/0	3/50

**Note:** Data on business partners communicated to on anti-corruption policies and procedures is only available since 2015.

**Note:** Significant suppliers are defined as any new suppliers that Cairn selected during the reporting year that required approval from Cairn's Contracts Committee.

**Calculation:** Number of Board members/employees/management grade employees/non-management grade employees/business partners who have had Cairn's anti-corruption policies and procedures communicated to them during the reporting year/total number of Board members/employees/management grade employees/non-management grade employees/business partners x 100.

**Note:** All JV business partners will receive a copy of Cairn's Group Code of Ethics when they first become a partnership. The data presented is for those 'communicated to' in the reporting year.

**Note:** The following notes explain the processes Cairn goes through to ensure that anti-corruption risks are assessed and to ensure its anti-corruption policies and procedures are communicated to its business partners. In line with the requirements outlined in the UK Bribery Act, Cairn applies a risk-based approach to assessing corruption risk prior to establishing new operations and contracting with new joint venture partners and suppliers. Cairn considers a number of factors when determining the level of anti-bribery and corruption due diligence to be completed, such as the Corruption Perceptions Index score for the relevant country and the level of contact the business partner is expected to have with public officials. These factors are objectively scored, and the appropriate level of due diligence is determined accordingly. This process is mandatory for all Cairn Group companies, business units and locations.

In addition, all Cairn contractors are required to comply with Cairn's Group Code of Ethics. Consequently, this policy document is incorporated into contracts entered into by the Cairn Group with suppliers, consultants and agents.

As Operator (or prospective Operator) under a licence, we provide the relevant Government with details of our anti-bribery policies and procedures in the following circumstances:

- in the course of submitting an application under a licence bid round;
- where requested by the party from whom we are acquiring an interest in a licence;
- in the course of requesting consent from the relevant government to an acquisition of interests (if required); and
- where otherwise requested by the relevant government.

Up-to-date versions of Cairn's anti-bribery and corruption policy documents are displayed on the Cairn Energy website at all times.

### Employees communicated to on anti-corruption policies and procedures, and country breakdown (number/%) ★

	2014	2015	2016	2017	2018
Greenland	1/100	n/a	n/a	n/a	n/a
Mexico	n/a	n/a	n/a	1/100	5/100
Morocco	2/100	2/100	1/100	1/100	n/a
Norway	17/100	21/100	25/100	28/100	41/100
Senegal	n/a	1/100	1/100	5/100	2/100
Spain	3/100	n/a	n/a	n/a	n/a
United Kingdom	155/100	127/100	143/100	145/100	153/100

### Business partners communicated to on anti-corruption policies and procedures, and country breakdown (number/%) ★

	2014	2015	2016	2017	2018
Mexico	–	n/a	n/a	1/100	7/100
Norway	–	n/a	n/a	n/a	3/100
Senegal	–	12/75	19/90	3/50	0/0
Suriname	–	n/a	n/a	n/a	1/100
United Kingdom	–	n/a	1/50	1/100	11/100

Note: Data on business partners communicated to on anti-corruption policies and procedures is only available since 2015.

### Total employees (and Board members) trained in Cairn's anti-corruption policies and procedures (number/%) ★

	2014	2015	2016	2017	2018
Board members	0/0	7/78	9/100	10/100	9/100
Total employees	105/59	23/15	154/91	31/17	68/34
Total management grade employees	30/54	13/27	50/93	11/21	31/48
Total non-management grade employees	75/61	10/10	104/90	20/16	37/27

### Employees trained in Cairn's anti-corruption policies and procedures, and country breakdown (number/%) ★

	2014	2015	2016	2017	2018
Mexico	n/a	n/a	n/a	0/0	5/100
Morocco	0/0	0/0	0/0	0/0	n/a
Norway	6/35	0/0	24/96	0/0	2/5
Senegal	n/a	0/0	1/100	2/40	2/100
United Kingdom	99/64	23/18	129/90	29/20	59/39

Note: All Cairn employees have been trained in Cairn's anti-corruption policies and procedures, but these are the figures for employees who received training in the reporting year.

Calculation: Number of employees trained in Cairn's anti-corruption policies and procedures during the reporting year/total number of employees x 100.

### Definitions

**Employee:** person employed by, and on the payroll of, Cairn. Persons employed under short-service contracts are included as Cairn employees provided they are paid directly by Cairn. Cairn has a lot of other individuals who work on its behalf in the office; those who are contracted for more than three months to an organisational position are categorised as 'other workers'. These individuals are included as employees for the purposes of reporting health and safety statistics, but are not included in this training data.

Cairn's anti-corruption policies and procedures: Cairn has a well-established anti-bribery and corruption management system and procedures which look to mitigate the risks of bribery or corruption in the supply chain and when considering new investment opportunities.

Data on board members cannot be broken down by country as Cairn has only one board of directors which is located in the UK.

### Anti-competitive behaviour (number)

	2014	2015	2016	2017	2018
Legal actions for anti-competitive behaviour, anti-trust, and monopoly practices	0	0	0	0	0

## Transparency

### Payments to governments

#### Total payments to governments (\$'000 US) ★

	2014	2015	2016	2017	2018
Signature, discovery and production bonuses	0	0	0	8,000	0
Licence, rental and entry fees	1,475	1,033	330	1,904	4,248
Infrastructure improvements	1,995	0	0	0	0
Corporate income tax	-66,000	-51,865	-35,468	-30,225	-37,355
Withholding tax withheld on payments to group companies	4,029	333	0	0	0
VAT	-9,285	-6,257	-3,682	-6,625	-7,766
Customs duty	1,058	309	172	206	11
Training allowances	987	607	713	224	200
PAYE and NI	16,069	18,009	18,559	22,076	27,450
Withholding tax withheld on payments to third parties	28,051	10,095	4,244	2,179	707
Other	5,460	1,388	408	749	0

**Payments to governments, and country breakdown (\$'000 US) \***

	2014	2015	2016	2017	2018
<b>Signature, discovery and production bonuses</b>					
Mexico	0	0	0	8,000	0
<b>Licence, rental and entry fees</b>					
Côte d'Ivoire	0	0	0	0	1,245.38
Greenland	779	205	0	0	0
Ireland	214	68	113	103	85
Malta	146	551	0	0	0
Mauritania	136	61	0	0	0
Mexico	0	0	0	375	1,842
Norway	37	0	105	1,171	884
Senegal	107	107	107	107	107
Spain	43	0	0	0	0
United Kingdom	13	41	6	148	84
<b>Infrastructure improvements</b>					
Morocco	1,995	0	0	0	0
<b>Corporate income tax</b>					
Ireland	0	0.3	0.1	0.1	0.0
Norway	-66,000	-51,865	-35,468	-30,225	-37,355
<b>Withholding tax withheld on payments to group companies</b>					
Morocco	4,029	333	0	0	0
<b>VAT</b>					
Ireland	-23	17	-7	-9	-14
Malta	0	-251	0	0	0
Mexico	0	0	0	726	0
Morocco	16	20	14	0	4
Norway	-2,024	-1,533	1,282	-1,952	-2,461
Spain	-170	-105	-26	-15	0
United Kingdom	-7,084	-4,405	-4,945	-5,375	-5,295
<b>Customs duty</b>					
Senegal	1,058	309	172	206	11
<b>Training allowances</b>					
Greenland	539	0	268	0	0
Malta	38	0	0	0	0
Morocco	176	271	183	24	0
Senegal	200	200	200	200	200
Mauritania	34	136	62	0	0

	2014	2015	2016	2017	2018
<b>PAYE and NI</b>					
Greenland	228	20	0	0	0
Mexico	0	0	0	28	484
Morocco	154	29	26	24	20
Norway	3,794	2,714	3,085	3,860	4,717
Senegal	0	0	239	455	473
Spain	216	132	29	18	0
United Kingdom	11,677	15,114	15,179	17,690	21,758
<b>Withholding tax withheld on payments to third parties</b>					
Greenland	0	236	0	0	0
Ireland	14	0	0	0	0
Morocco	14,495	1,011	93	0	2
Senegal	13,542	8,848	4,151	2,000	661
United Kingdom	0	0	0	179	44
<b>Other</b>					
Greenland	536	416	132	0	0
Ireland	245	0	0	0	0
Mexico	0	0	0	280	0
Morocco	2,232	362	0	0	0
Nepal	0	516	0	0	0
Norway	2,343	58	-4	0	0
Senegal	104	36	280	469	0

**Note:** Payments to governments are defined as any payments made to governments.

**Note:** Figures for any payments made to governments during the reporting year are collated by Cairn's Finance department at the end of each calendar year. The figures include both payments to governments included in our EITI (Extractive Industries Transparency Initiative) reporting, such as corporate income tax, licence fees and withholding tax suffered, and additional payments made including VAT and payroll taxes and social security costs.

**Note:** Data has been provided for individual countries where relevant payments have been made.

**Note:** We disclose gross payments for assets that we operate and net payments for our non-operated assets.

**Note:** Negative figures reflect refunds received. These figures represent a net of payments and refunds.

**Note:** For all but the tax payments, Cairn reports only the gross payments for assets that we operate in support of two transparency initiatives, namely the European Union Accounting Directive and the Extractive Industries Transparency Initiative (EITI).

## Public policy

## Political contributions (£ pounds sterling) ★

	2014	2015	2016	2017	2018
Money paid to political parties and institutions	0	0	0	0	0

## Compliance

## Non-compliance with laws and regulations (excluding environmental)

	2014	2015	2016	2017	2018
Incidents (number)	0	0*	0	0	0
Non-monetary sanctions (number)	0	0	0	0	0
Monetary value of significant fines (£'000 pounds sterling)	0	0	0	0	0

**Note:** Cairn filed VAT/withholding tax returns late on four occasions in Morocco in 2015, incurring penalties of \$0.4MM, the equivalent of approximately 26% of tax payment when it was acting on its own behalf and as agent on behalf of its suppliers. The vast majority of this assessment (\$0.4MM) arose as a result of late filing of annual tax summaries for 2013 and 2014.

## Economics and funding

## Investment proposals that covered results of CR due diligence (%) ★

	2014	2015	2016	2017	2018
Investment proposals	100	100	100	100	100

**Note:** Investment Proposals (IPs): In 2018 Cairn required that any new investment with a net expenditure in excess of US\$1 million should be assessed against specified investment criteria, which include an assessment of the potential CR risks involved with the opportunity. For those investment opportunities that are taken forward to the Board for approval, an IP is required which summarises the outcome of the review (including the CR assessment), the recommended terms of the offer and how the opportunity would be managed in the event of success. These IPs are signed off by all functional department heads, the Chief Operating Officer (COO) on behalf of the Management Team (MT) and the Chief Executive Officer (CEO) on behalf of the Executive Team (ET).

**Note:** This indicator measures the proportion of IPs approved in the reporting year that covered the results of CR due diligence. Figures are compiled by reviewing all investment proposals approved in the reporting year.

**Calculation:** Number of IPs approved in the reporting year that covered the results of CR due diligence/number of IPs approved in the reporting year x 100.

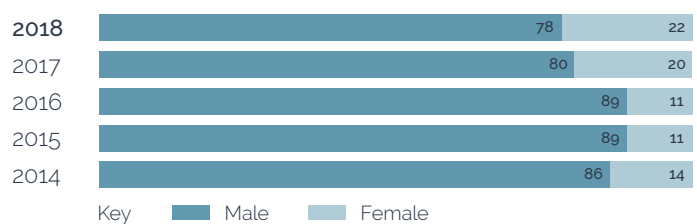
## Corporate governance

## Board meetings that considered CR issues (%)

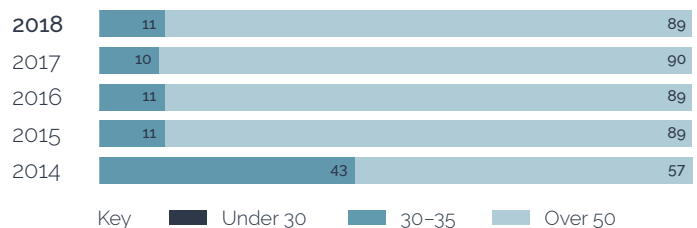
	2014	2015	2016	2017	2018
Cairn total	100	100	100	100	100

**Note:** The Board is ultimately accountable for ensuring Cairn meets our standards of Corporate Governance. It provides a leadership role in risk management and requires routine updates on CR-related risks and performance. CR performance is a standing item on the Board agenda and the Board received a CR corporate and operational update at each Board meeting in 2018. It also routinely examines the status and management of high risk issues facing the company. The Board received performance update papers for each meeting in 2018.

## Gender breakdown of Cairn's Board of Directors (%)



## Age breakdown of Cairn's Board of Directors (%)



## Cairn's Board members from minorities (%)

	2014	2015	2016	2017	2018
Total	0	0	0	0	0

# People

## Health and well-being

### Total hours worked (hours)

	2014	2015	2016	2017	2018
Employees <sup>1</sup>	390,096	274,473	341,745	398,750	399,465
Contractors <sup>2</sup>	1,155,123	397,713	615,873	667,302	139,937

### Hours worked by employees<sup>1</sup> (hours)

	2014	2015	2016	2017	2018
Greenland	1,752	n/a	n/a	n/a	n/a
Mexico	n/a	n/a	n/a	296	8,544
Morocco	8,087	4,541	2,648	1,744	980
Norway	31,950	37,927	54,080	63,218	64,336
Senegal	11,496	19,032	19,840	17,000	15,800
Spain	11,116	1,168	n/a	n/a	n/a
United Kingdom	325,695	211,805	265,177	316,492	309,805

### Hours worked by contractors<sup>2</sup> (hours)

	2014	2015	2016	2017	2018
Ireland	29,684	n/a	n/a	n/a	n/a
Malta	7,645	n/a	n/a	n/a	n/a
Morocco	313,736	n/a	n/a	n/a	n/a
Senegal	804,058	397,713	591,887	651,422	11,708
United Kingdom	n/a	n/a	23,986	15,881	128,229

#### Definitions

**1: Employee:** person employed by, and on the payroll of, Cairn. Persons employed under short-service contracts are included as Cairn employees provided they are paid directly by Cairn. Cairn has a lot of other individuals who work on behalf of Cairn in the office. Those who are contracted for more than three months to an organisational position are categorised as 'other workers' and these individuals are included as employees for the purposes of reporting health and safety statistics, including hours worked. ('Other workers' are not included in absenteeism data which is applicable to employees only.) They are not paid directly by Cairn but through their employing organisation.

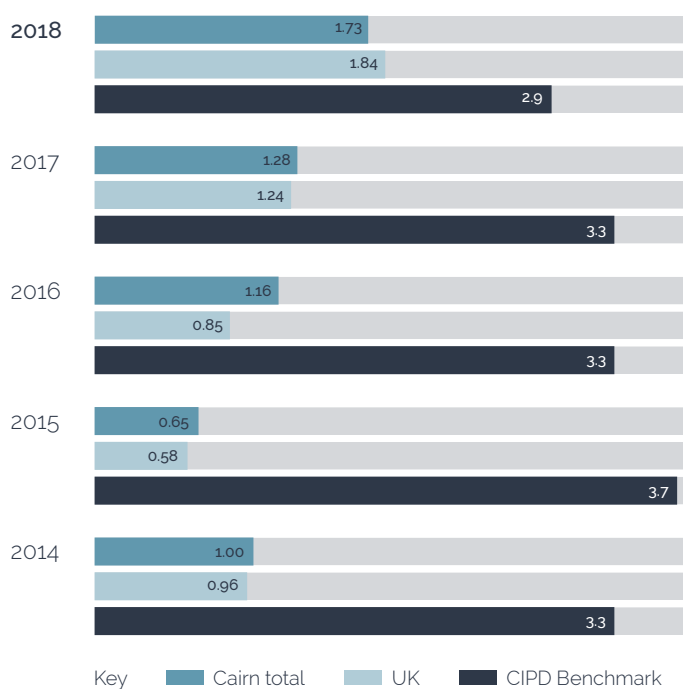
**2: Contractor:** someone contracted to work on Company business on a temporary basis in field-based positions, a subcontractor through another company, or someone contracted to work on Company business for less than three months in an office-based position. These people are not paid directly by Cairn but through their employing organisation.

**Note:** Hours worked are collected for employees and for contractors. Employee hours are derived primarily from Cairn's time-writing system that UK and Norway employees use to log their working hours. For Mexico, Morocco and Senegal employees, hours worked are estimated based on the number of working days in the month and the standard working hours (taking into account holidays). Employee hours include hours worked by 'other workers' as these are captured in the time-writing system. Cairn's Human Resources department compiles the figures and enters them into the database each month.

Hours worked by field-based contractors are collected monthly, together with other HSE KPI data, from each vessel, rig, aircraft and shore base. For offshore workers, the hours are often calculated on a 12 hours per work day basis.

Hours worked by short-term (less than three months) office-based contractors were collected for the first time in 2016. Figures for Dakar office contractors are obtained monthly in the form of timesheets. The remaining figures are compiled at the end of the year using a list of non-time-writing personnel obtained from our Accounts department, and has to be estimated in most cases.

### Total absenteeism rates (%)



**Note:** This data covers employees only (and not 'other workers'/personnel who are contracted for more than 3 months to an organisational position). Contractor absenteeism is the responsibility of the contractor, and is not monitored by Cairn for reporting purposes.

**Note:** CIPD is the Chartered Institute of Personnel and Development in the UK. The CIPD benchmark provided here is their figure for the mean level of employee absence, per employee per annum (average working time lost per year (%)) and is applicable to the UK only.



**Employee absenteeism and gender breakdown (%)**

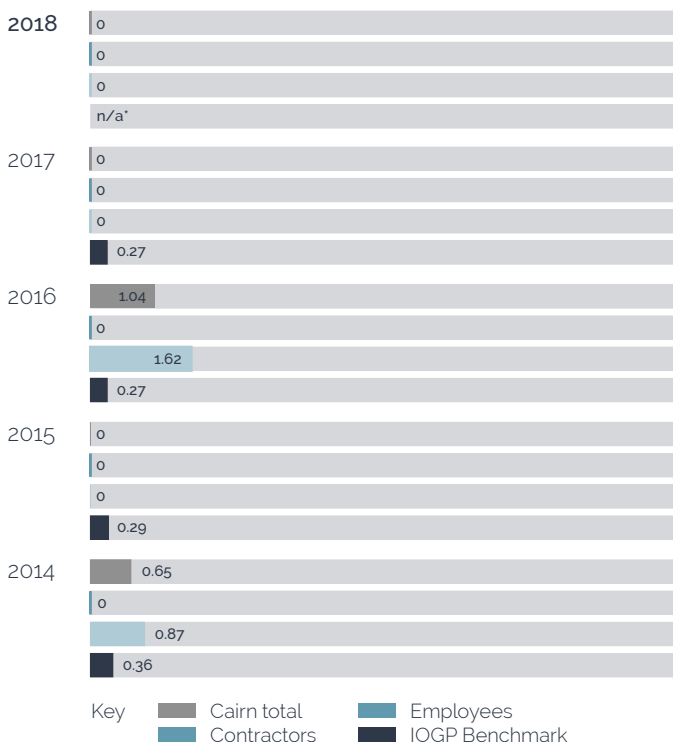
	2014	2015	2016	2017	2018
Cairn total/male/female	1.00/0.85/1.14	0.65/0.37/0.94	1.16/0.69/1.67	1.28/0.32/2.32	1.73/1.29/2.22
Greenland total/male/female	0.00/0.00/n/a	n/a/n/a/n/a	n/a/n/a/n/a	n/a/n/a/n/a	n/a/n/a/n/a
Mexico total/male/female	n/an/a/n/a	n/a/n/a/n/a	n/a/n/a/n/a	0.00/0.00/n/a	0.00/0.00/0.00
Morocco total/male/female	0.00/0.00/0.00	0.76/n/a/0.76	0.00/n/a/0.00	0.00/n/a/0.00	0.00/n/a/0.00
Norway total/male/female	1.68/1.51/1.91	1.11/0.63/1.59	3.05/1.84/4.58	1.85/1.15/2.66	1.59/0.97/2.39
Senegal total/male/female	n/a/n/a/n/a	0.00/0.00/n/a	0.00/0.00/n/a	0.00/0.00/0.00	0.80/0.00/1.33
Spain total/male/female	0.81/0.70/0.96	n/a/n/a/n/a	n/a/n/a/n/a	n/a/n/a/n/a	n/a/n/a/n/a
United Kingdom total/male/female	0.96/0.79/1.10	0.58/0.33/0.84	0.85/0.47/1.24	1.24/0.17/2.39	1.84/1.44/2.27

**Accident prevention and safety**

Occupational safety

**Lost Time Injury Frequency (LTIF)**

(Lost time injuries per million hours worked) ★



**Note:** Lost Time Injury Frequency is defined as the number of lost time injuries (fatalities + lost work day cases) per 1,000,000 hours worked (IOGP).

**Note:** IOGP is the International Association of Oil and Gas Producers. We have included overall IOGP benchmark figures (average of onshore and offshore for employees and contractors).

\* IOGP benchmark figures are not yet available for 2018.

**Note:** Cairn TRIR and LTIF statistics can be higher than the IOGP benchmark after only one incident, or a small number of incidents, because our exploration activities often last for only a short time period, so there are relatively few hours worked compared with ongoing production and other long-term operations.

**Lost Time Injury Frequency (LTIF) and country breakdown**

(Lost time injuries per million hours worked) ★

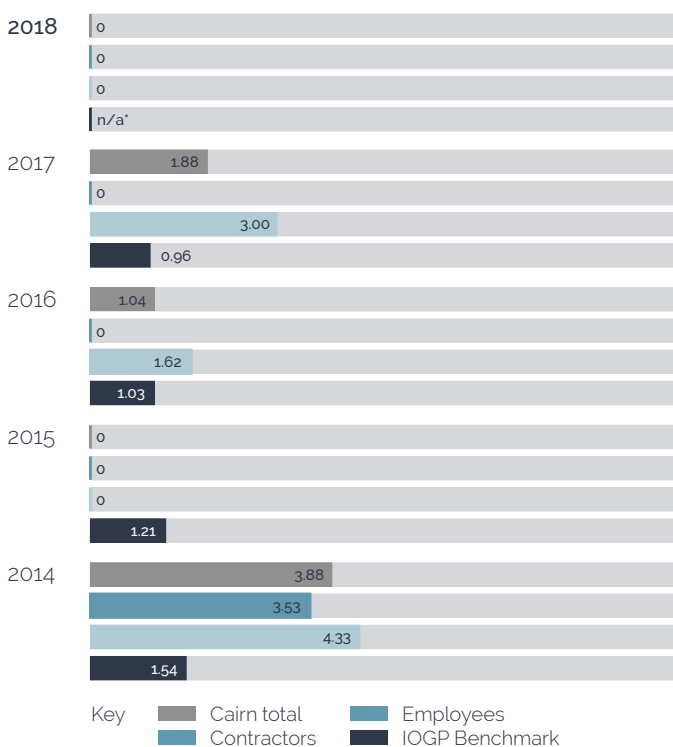
	2014	2015	2016	2017	2018
Senegal	1.23	0.00	1.63	0.00	0.00

**Lost Time Injury Frequency (LTIF) and gender breakdown**

(Lost time injuries per million hours worked) ★

	2014	2015	2016	2017	2018
Male	0.74	0.00	1.26	0.00	0.00
Female	0.00	0.00	0.00	0.00	0.00

**Total Recordable Injury Rate (TRIR)**  
(Total recordable injuries per million hours worked) ★



**Note:** Total Recordable Injury Rate is defined as the number of recordable injuries (fatalities, lost work day cases, restricted work day cases and medical treatment cases) per 1,000,000 hours worked (IOGP).

**Note:** IOGP is the International Association of Oil and Gas Producers. We have included overall IOGP benchmark figures (average of onshore and offshore for employees and contractors).

\* IOGP benchmark figures are not yet available for 2018.

**Note:** Cairn TRIR and LTIF statistics can be higher than the IOGP benchmark after only one incident, or a small number of incidents, because our exploration activities often last for only a short time period, so there are relatively few hours worked compared with ongoing production and other long-term operations.

**Total Recordable Injury Rate (TRIR) and country breakdown**  
(Total recordable injuries per million hours worked) ★

	2014	2015	2016	2017	2018
Morocco	3.11	0.00	0.00	0.00	0.00
Senegal	4.90	0.00	1.63	2.99	0.00
United Kingdom	3.07	0.00	0.00	0.00	0.00

**Total Recordable Injury Rate (TRIR) and gender breakdown**  
(Lost time injuries per million hours worked) ★

	2014	2015	2016	2017	2018
Male	3.68	0.00	1.26	2.25	0.00
Female	5.33	0.00	0.00	0.00	0.00

**Total Lost Day Rate (LDR)**  
(Lost days per 200,000 hours worked)

	2014	2015	2016	2017	2018
Cairn total	14.63	0.00	4.18	0.00	0.00
Employees	0.00	0.00	0.00	0.00	0.00
Contractors	19.57	0.00	6.49	0.00	0.00

**Note:** The GRI definition is used for this indicator. IOGP definitions are used for the rest of health and safety statistics, but no Lost Day Rate definition is provided by IOGP.

**Total Recordable Injuries (TRI)**  
(number)

	2014	2015	2016	2017	2018
Cairn total	6	0	1	2	0
Employees	1	0	0	0	0
Contractors	5	0	1	2	0

**Note:** Total Recordable Injuries is defined as the sum of fatalities + lost work day cases + restricted work day cases + medical treatment cases.

**Fatalities**  
(number)

	2014	2015	2016	2017	2018
Employees	0	0	0	0	0
Contractors	0	0	0	0	0
Third parties	0	0	0	0	0

**Note:** Fatalities: cases that involve one or more people who died as a result of a work-related incident or occupational illness (IOGP).

**Note:** A third party is a person with no business relationship with Cairn.

**Lost Work Day Cases (LWDC)**  
(number)

	2014	2015	2016	2017	2018
Cairn total	1	0	1	0	0
Employees	0	0	0	0	0
Contractors	1	0	1	0	0

**Note:** A Lost Work Day Case is defined as any work-related injury, other than a fatal injury, which results in a person being unfit for work on any day after the day of occurrence of the occupational injury. 'Any day' includes rest days, weekend days, leave days, public holidays or days after ceasing employment (IOGP).

**Lost Work Day Cases (LWDC), country breakdown and gender breakdown** (number)

	2014	2015	2016	2017	2018
Cairn total male/female	1/0	0/0	1/0	0/0	0/0
Senegal male/female	1/0	0/0	1/0	0/0	0/0

### Days unfit for work (lost work days) (days)

	2014	2015	2016	2017	2018
Cairn total	113	0	20	0	0
Employees	0	0	0	0	0
Contractors	113	0	20	0	0

**Note:** Days unfit for work are defined as the sum total of calendar days (consecutive or otherwise) after the days of the occupational injuries on which the people involved were unfit for work and did not work.

### Restricted Work Day Cases (RWDC) (number)

	2014	2015	2016	2017	2018
Cairn total	1	0	0	0	0
Employees	0	0	0	0	0
Contractors	1	0	0	0	0

**Note:** A Restricted Work Day Case is defined as any work-related injury other than a fatality or lost work day case which results in a person being unfit for full performance of the regular job on any day after the occupational injury. Work performed might be an assignment to a temporary job, part-time work at the regular job or continuation full-time in the regular job but not performing all the usual duties of the job. Where no meaningful restricted work is being performed, the incident is recorded as a Lost Work Day Case (LWDC).

### Restricted Work Day Cases (RWDC), country breakdown and gender breakdown (number)

	2014	2015	2016	2017	2018
Cairn total male/female	1/0	0/0	0/0	0/0	0/0
Morocco male/female	1/0	0/0	0/0	0/0	0/0

### Medical Treatment Cases (MTC) (number)

	2014	2015	2016	2017	2018
Cairn total	4	0	0	2	0
Employees	1	0	0	0	0
Contractors	3	0	0	2	0

**Note:** A Medical Treatment Case is defined as a case that is not severe enough to be reported as a fatality or lost work day case or restricted work day case but is more severe than requiring simple first aid treatment.

### Medical Treatment Cases (MTC), country breakdown and gender breakdown (number)

	2014	2015	2016	2017	2018
Cairn total male/female	3/1	0/0	0/0	2/0	0/0
Senegal male/female	3/0	0/0	0/0	2/0	0/0
United Kingdom male/female	0/1	0/0	0/0	0/0	0/0

**Note:** Health and safety data includes employees and contractors unless where specifically stated it is broken down by employee/contractor.

**Note:** An employee is a person employed by and on the payroll of Cairn. Persons employed under short-service contracts are included as Cairn employees provided they are paid directly by Cairn. Cairn has a lot of other individuals who work on behalf of Cairn in the office. Those who are contracted for more than three months to an organisational position are categorised as 'other workers' and these individuals are included as employees for the purposes of reporting health and safety statistics, including hours worked. ('Other workers' are not included in absenteeism data which is applicable to employees only; nor are they included in any other employee data.). They are not paid directly by Cairn but through their employing organisation.

**Note:** A contractor is someone contracted to work on Company business on a temporary basis in field based positions, a subcontractor through another company, or someone contracted to work on Company business for less than three months in an office-based position. These people are not paid directly by Cairn but through their employing organisation.

**Note:** A third party is a person with no business relationship with Cairn.

**Note:** In 2018 GRI have introduced a recommendation to report the number and rate of high-consequence work-related injuries (excluding fatalities). There have been no high-consequence work-related injuries during Cairn operations in 2018.

**Note:** There have been no recordable occupational diseases or incidents of work related ill health over the last 5+ years so no data has been reported for this indicator.

**Note:** Records of all incidents, including all recordable injuries, are kept in our online incident reporting system. Contractors are required to report all incidents to Cairn management as soon as possible after the event (and within 12 hours), and the details are logged in our incident reporting system, which keeps key personnel informed, by email, about progress with the reporting and investigation.

**Note:** Details about how we collect and record hours worked data are provided in the hours worked section on [p8](#).

**Note:** Data has been provided for individual countries where applicable health and safety incidents have taken place.

## Spills

### Total number of spills to the environment (number) ★

	2014	2015	2016	2017	2018
Oil	0	1	3	0	0
Fuel	0	0	1	0	0
Chemical	0	1	0	1	0
Waste	0	0	0	0	0
Other	0	0	0	0	0

### Total volume spilled to the environment (barrels) ★

	2014	2015	2016	2017	2018
Oil	0	0.002	1.050	0	0
Fuel	0	0	0.001	0	0
Chemical	0	0.006	0	0.214	0
Waste	0	0	0	0	0
Other	0	0	0	0	0

**Note:** We report spills according to the categories provided by the GRI: oil, fuel, chemical, waste, other.

**Oil:** crude oil

**Fuel:** diesel, gasoline, kerosene, heating oil, aviation fuel.

**Chemical:** any other raw material or ancillary.

**Waste:** any material (solid, liquid, gas) that is introduced into the work location as a product of the work but that fulfils no further useful purpose at that location.

**Other:** other material not included in categories above.

If something fits into more than one category, we report against the category that provides the most information, e.g. chemical rather than waste when reporting waste chemicals.

**Note:** We collect figures on the number of spills in the following size categories: less than 1 barrel; between 1 and 10 barrels; between 10 and 100 barrels; and greater than 100 barrels. We also record the volume spilled; spill volume is usually based on an estimate.

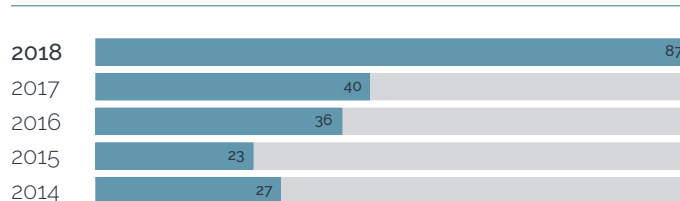
**Note:** We report figures on spills to the environment, but also collect data on spills contained before reaching the environment for monitoring purposes.

## Process safety

There have been no process safety events in 2018 or the previous four years.

## Contractors

### Total proportion of spending on local suppliers (%) ★



### Proportion of spending on local suppliers (%) ★

	2014	2015	2016	2017	2018
Greenland	54	26	66	2	83
Ireland	11	6	12	5	9
Malta	7	31	0	0	n/a
Mexico	n/a	n/a	n/a	10	20
Morocco	9	43	1	3	100
Nepal	42	n/a	n/a	n/a	n/a
Norway	93	94	96	89	92
Senegal	11	5	18	24	79
Spain	87	100	51	n/a	n/a
Suriname	n/a	n/a	n/a	n/a	0
United Kingdom	87	53	69	77	94

**Note:** Local suppliers are considered as those operating from the country of operation. They are classified as such by having a local address and where appropriate further registration as may be required by local authorities to recognise these companies officially (NINEA number for example in Senegal).

**Note:** We break down this data by country as our 'significant locations of operation'.

**Note:** Expenditure figures are pulled together through a system report of all invoices booked during the reporting year. Non-operated costs are excluded. A subset of figures is then produced which includes only invoices from local suppliers.

**Note:** Figures are provided in local transactional currency and converted into pounds sterling using the year-to-date average exchange rate.

**Calculation:** Expenditure on local suppliers/total expenditure x 100.

**New supplier screening (%)** ★

	2014	2015	2016	2017	2018
Environmental	33	33	90	80	95
Impacts on society	22	33	80	60	42
Labour practices	22	33	90	80	53
Human rights	0	17	75	60	58

**Note:** This data shows the percentage of significant new suppliers (any that require approval from Cairn's Contracts Committee) that were screened for corporate responsibility risks in four different areas as shown, i.e. environmental, impacts on society, labour practices and human rights. This data is compiled by reviewing Cairn's Contracts Committee records to identify new suppliers that Cairn selected during the reporting year. Tender and contract documentation for those suppliers are then reviewed to identify which CR risks are covered in the screening process for each one.

**Notes:**

In 2015, 75% of suppliers that were not screened were data processing companies and suppliers of materials for which CR issues were not considered a particular risk.

In 2016, 18 out of 20 new suppliers were screened for CR risks; the remaining two (10%) were international suppliers of IT/software-related services for which CR issues were not considered a particular risk.

In 2017, three out of five significant new suppliers were screened for CR risks in all four areas. The other two included a metocean equipment and data contract which was screened for HSE and a seismic processing (desk-based) contract which was considered low risk.

In 2018, only one of the 19 significant new suppliers was not screened; it was a software supplier.

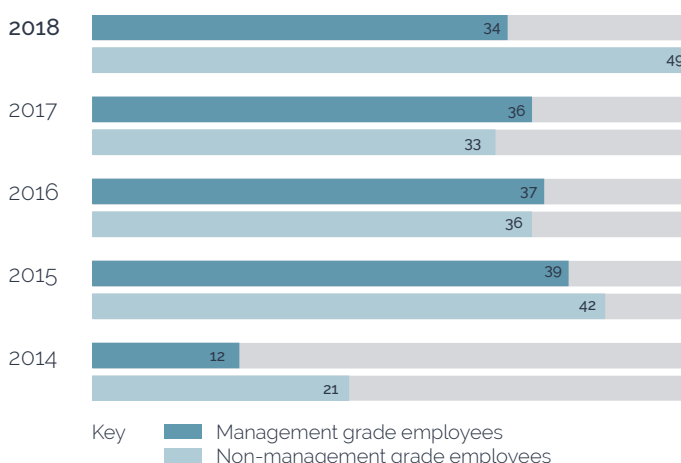
**Calculation:** Number of new suppliers that Cairn selected during the reporting year that were screened for CR risks in each of the four key areas/ number of new suppliers that Cairn selected during the reporting year x 100.

**Employees**

**Total employee training and gender breakdown**  
(average hours per employee)

	2014	2015	2016	2017	2018
Cairn total	18	41	36	34	44
Cairn male/ female	19/17	54/27	43/24	38/29	45/44

**Total management and non-management training**  
(average hours per employee)



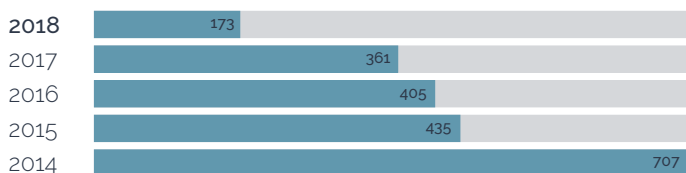
**Note:** Management is defined as personnel that have responsibility for managing other people, including senior management, middle management and team leaders.

**Note:** Some senior roles, e.g. in the Technical department, do not include responsibility for managing other people.

**Total performance and career development reviews**  
(% of employees)

	2014	2015	2016	2017	2018
Cairn total	100	100	100	100	100
Male	100	100	100	100	100
Female	100	100	100	100	100
Management grade employees	100	100	100	100	100
Non-management grade employees	100	100	100	100	100

## Equality and diversity

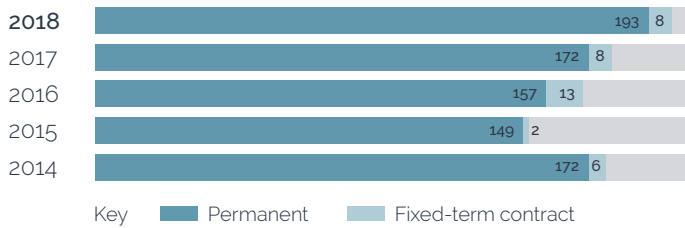
**Total employees<sup>1</sup>** (number)**Total 'other workers'<sup>3</sup>** (number)**Total contractors<sup>2</sup>** (number)**Cairn workforce: a snapshot with country and gender breakdown** (number)

	2014	2015	2016	2017	2018
<b>Cairn total</b>					
Employees <sup>1</sup> /other workers <sup>3</sup> /contractors <sup>2</sup>	178/49/707	151/46/435	170/63/405	180/56/361	201/61/173
Employees male/female	91/87	78/73	88/82	94/86	107/94
Other workers male/female	41/8	33/13	46/17	41/15	45/16
Contractors male/female	683/24	419/16	385/20	348/13	152/21
<b>Greenland</b>					
Employees <sup>1</sup> /other workers <sup>3</sup> /contractors <sup>2</sup>	1/0/0	0/0/0	0/0/0	0/0/0	n/a/n/a/n/a
Employees male/female	1/0	0/0	0/0	0/0	n/a/n/a
Other workers male/female	0/0	0/0	0/0	0/0	n/a/n/a
Contractors male/female	0/0	0/0	0/0	0/0	n/a/n/a
<b>Ireland</b>					
Employees <sup>1</sup> /other workers <sup>3</sup> /contractors <sup>2</sup>	0/0/98	0/0/0	0/0/0	0/0/0	0/0/0
Employees male/female	0/0	0/0	0/0	0/0	0/0
Other workers male/female	0/0	0/0	0/0	0/0	0/0
Contractors male/female	93/5	0/0	0/0	0/0	0/0
<b>Malta</b>					
Employees <sup>1</sup> /other workers <sup>3</sup> /contractors <sup>2</sup>	0/0/41	0/0/0	0/0/0	0/0/0	n/a/n/a/n/a
Employees male/female	0/0	0/0	0/0	0/0	n/a/n/a
Other workers male/female	0/0	0/0	0/0	0/0	n/a/n/a
Contractors male/female	40/1	0/0	0/0	0/0	n/a/n/a

**Cairn workforce: a snapshot with country and gender breakdown** (number) *continued*

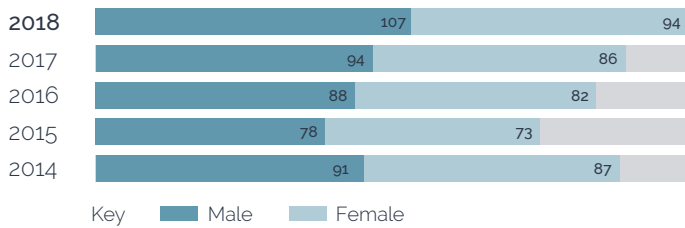
	2014	2015	2016	2017	2018
<b>Mexico</b>					
Employees <sup>1</sup> /other workers <sup>3</sup> /contractors <sup>2</sup>	n/a/n/a/n/a	n/a/n/a/n/a	n/a/n/a/n/a	1/0/0	5/3/0
Employees male/female	n/a/n/a	n/a/n/a	n/a/n/a	1/0	3/2
Other workers male/female	n/a/n/a	n/a/n/a	n/a/n/a	0/0	0/3
Contractors male/female	n/a/n/a	n/a/n/a	n/a/n/a	0/0	0/0
<b>Morocco</b>					
Employees <sup>1</sup> /other workers <sup>3</sup> /contractors <sup>2</sup>	2/0/281	2/0/0	1/0/0	1/0/0	n/a/n/a/n/a
Employees male/female	0/2	0/2	0/1	0/1	n/a/n/a
Other workers male/female	0/0	0/0	0/0	0/0	n/a/n/a
Contractors male/female	271/10	0/0	0/0	0/0	n/a/n/a
<b>Norway</b>					
Employees <sup>1</sup> /other workers <sup>3</sup> /contractors <sup>2</sup>	17/1/0	21/1/0	25/4/0	28/8/0	41/11/0
Employees male/female	11/6	11/10	14/11	15/13	24/17
Other workers male/female	1/0	1/0	2/2	7/1	8/3
Contractors male/female	0/0	0/0	0/0	0/0	0/0
<b>Senegal</b>					
Employees <sup>1</sup> /other workers <sup>3</sup> /contractors <sup>2</sup>	0/6/287	1/9/435	1/8/389	5/4/354	2/4/8
Employees male/female	0/0	1/0	1/0	3/2	1/1
Other workers male/female	4/2	5/4	4/4	2/2	2/2
Contractors male/female	279/8	419/16	373/16	342/12	5/3
<b>Spain</b>					
Employees <sup>1</sup> /other workers <sup>3</sup> /contractors <sup>2</sup>	3/0/0	0/0/0	n/a/n/a/n/a	n/a/n/a/n/a	n/a/n/a/n/a
Employees male/female	1/2	0/0	n/a/n/a	n/a/n/a	n/a/n/a
Other workers male/female	0/0	0/0	n/a/n/a	n/a/n/a	n/a/n/a
Contractors male/female	0/0	0/0	n/a/n/a	n/a/n/a	n/a/n/a
<b>United Kingdom</b>					
Employees <sup>1</sup> /other workers <sup>3</sup> /contractors <sup>2</sup>	155/42/0	127/36/0	143/51/16	145/44/7	153/43/165
Employees male/female	78/77	66/61	73/70	75/70	79/74
Other workers male/female	36/6	27/9	40/11	32/12	35/8
Contractors male/female	0/0	0/0	13/3	6/1	147/18

**Employees<sup>1</sup> by contract type (number)**

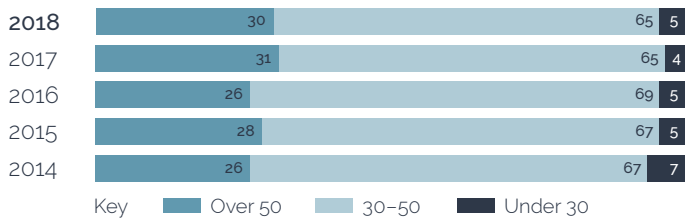


**Note:** A permanent contract of employment is a contract with an employee for full-time or part-time work for an indeterminate period. A fixed-term contract is a contract of employment that ends when a specific time period expires.

**Employees<sup>1</sup> by gender (number)**



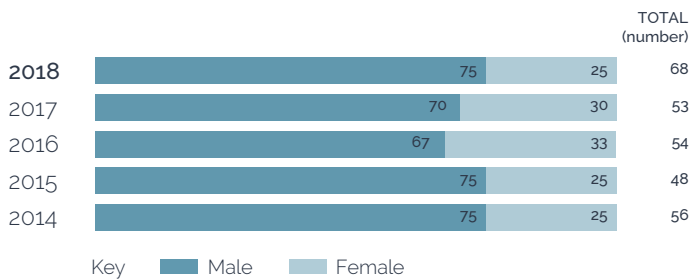
**Employees<sup>1</sup> by age group (%)**



**Employees<sup>1</sup> from minority groups (%)**

	2014	2015	2016	2017	2018
Cairn total	0	3	3	3	2

**Total managerial employees<sup>1</sup> and gender breakdown (%)**



**Note:** Managerial employees are employees that have responsibility for managing other people, including senior management, middle management and team leaders.

**Note:** Some senior roles, e.g. in the Technical department, do not include responsibility for managing other people.

**Managerial employees<sup>1</sup> and gender breakdown by country (%)**

	2014	2015	2016	2017	2018
Mexico male/female	n/a/n/a	n/a/n/a	n/a/n/a	n/a/n/a	0/100
Morocco male/female	0/100	n/a/0	n/a/0	n/a/n/a	n/a/n/a
Norway male/female	67/33	67/33	71/29	60/40	80/20
Senegal male/female	n/a/n/a	100/0	100/0	50/50	50/50
Spain male/female	100/0	n/a/n/a	n/a/n/a	n/a/n/a	n/a/n/a
United Kingdom male/female	77/23	76/24	65/35	72/28	74/26

**National and non-national employees**

**Total national and non-national employees<sup>1</sup> (%)**

	2014	2015	2016	2017	2018
Cairn total national/non-national	-	-	-	-	80/20
Mexico national/non-national	-	-	-	-	60/40
Norway national/non-national	-	-	-	-	61/39
Senegal national/non-national	-	-	-	-	50/50
United Kingdom national/non-national	-	-	-	-	86/14

**Note:** National employees are from the country of operation, i.e. having the nationality (born or naturalised) of that country. Non-national employees are not from the country of operation, i.e. not having the nationality of that country.

**Note:** We used to collect a similar set of employee data split by national/expatriate; however, we changed the categorisation in 2018 to better reflect our needs. For this reason, this data is only available from 2018.



**Total national and non-national contractors<sup>2</sup>**

(%)

	2014	2015	2016	2017	2018
Cairn total national/ non-national	17/83	15/85	23/77	19/81	80/20
Morocco national/ non-national	23/77	n/a	n/a	n/a	n/a
Senegal national/ non-national	13/87	15/85	20/80	18/82	100/0
United Kingdom national/ non-national	-	-	100/0	100/0	79/21

**Note:** National contractors are from the country of operation, i.e. having the nationality (born or naturalised) of that country. Non-national contractors are not from the country of operation, i.e. not having the nationality of that country.

**Note:** When contractor numbers are collected each month, the numbers that are national and non-national are provided. At the end of the year, the same monthly figures that are used to calculate the number of contractors (see footnotes) are used to calculate the number of national contractors.

**Note:** When recording numbers of short-term office-based contractors in the UK (e.g. using the non-time-writing personnel list), it is not always known whether these contractors are national or non-national as these details are not currently recorded. In such cases, we assume the contractors are national.

**Calculation:** Number of national contractors/total number of contractors x 100.

**Note:** This data is only available for the UK from 2016.

**Managerial employees hired from the local population (national managerial employees) (%) \***

	2014	2015	2016	2017	2018
Morocco	100	n/a	n/a	n/a	n/a
Norway	83	83	86	100	70
Senegal	n/a	0	0	50	50
Spain	100	n/a	n/a	n/a	n/a
United Kingdom	-	-	-	-	91

**Note:** This data covers employees and not contractors.

**Note:** Managerial employees are employees that have responsibility for managing other people, including senior management, middle management and team leaders. N.B. Some senior roles, e.g. in the Technical department, do not include responsibility for managing other people.

**Note:** Managerial employees hired from the local population are defined as managerial employees who are national, i.e. having the nationality (born or naturalised) of that country.

**Calculation:** Number of national managerial employees/total number of managerial employees x 100.

**Note:** We used to collect a similar set of managerial employee data split by national/expatriate; however, we changed the categorisation in 2018 to better reflect our needs. For this reason, this data is only available for the UK from 2018.

**Notes:**

**1: An employee** is a person employed by and on the payroll of Cairn. Persons employed under short-service contracts are included as Cairn employees provided they are paid directly by Cairn. Personnel who are contracted for more than three months to an organisational position and who are categorised as 'other workers' in the database are not included in the employee numbers for this indicator.

**2: A contractor** is someone contracted to work on Company business on a temporary basis in field-based positions or a subcontractor through another company, or someone contracted to work on Company business for less than three months in an office-based position. These people are not paid directly by Cairn but through their employing organisation.

Field-based contractors: Many field-based contractors work on rotation (back-to-back), e.g. one month on, one month off, so it is not practical or meaningful to give the total number of individuals who have worked as contractors on Cairn projects throughout the year. Instead we provide the total number of contractor positions.

Short-term (less than three months) office-based contractors: Data on numbers of short-term office contractors were collected for the first time in 2016. In 2018 this data came from two sources:

(i) Figures for Dakar office contractors are obtained monthly in the form of timesheets. This data is cross-checked against Cairn's employee and long-term contractor workforce data to ensure there is no double counting.

(ii) A list of non-time-writing personnel is supplied by Cairn's Accounts department at the end of the year. This list is cross-checked against employee and long-term contractor workforce data, and contractor data from Senegal, to ensure that personnel are not double-counted.

Data on numbers of field-based contractors and some short-term office-based contractors are collected and entered into the database each month. At the end of the year, the highest monthly figures are taken from each vessel/rig/base/office and these are added together to give the total number of contractors. Short-term office-based contractor data that is not available monthly is entered into the database as a total at the end of the year.

**3: 'Other workers'** are defined as personnel who are contracted for more than three months in an organisational position. They form part of Cairn's organisational workforce in the office and are not included in the contractor numbers.

**Note:** Data has been provided for individual countries where there are relevant employees and contractors.

## New hires

**Total new hires, rate of new hires and gender breakdown**  
(number/%)

	2014	2015	2016	2017	2018
Cairn total	15/8	18/12	25/15	24/13	36/18
Male	8/9	9/12	12/14	11/12	20/19
Female	7/8	9/12	13/16	13/15	16/17

**Total new hires, rate of new hires and country breakdown**  
(number/%)

	2014	2015	2016	2017	2018
Cairn total	15/8	18/12	25/15	24/13	36/18
Mexico	n/a/n/a	n/a/n/a	n/a/n/a	1/100	4/80
Morocco	1/50	0/0	0/0	0/0	0/0
Norway	3/18	11/52	4/16	5/18	10/24
Senegal	n/a/n/a	1/100	0/0	5/100	1/50
United Kingdom	11/7	6/5	21/15	13/9	21/14

**Total new hires, rate of new hires and age group breakdown**  
(number/%)

	2014	2015	2016	2017	2018
Cairn total	15/8	18/12	25/15	24/13	36/18
Over 50	2/4	5/12	3/7	6/11	8/13
30-50	8/7	13/13	18/15	17/14	24/18
Under 30	5/38	0/0	4/44	1/14	4/40

## Turnover

**Total employees leaving employment, rate of turnover and gender breakdown**  
(number/%)

	2014	2015	2016	2017	2018
Cairn total	16/9	11/7	5/3	9/5	6/3
Male	9/10	7/9	0/0	3/3	2/2
Female	7/8	4/5	5/6	6/7	4/4

**Total employees leaving employment, rate of turnover and country breakdown**  
(number/%)

	2014	2015	2016	2017	2018
Cairn total	16/9	11/7	5/3	9/5	6/3
Morocco	1/50	0/0	1/100	0/0	0/0
Norway	4/24	7/33	0/0	1/4	1/3
Senegal	n/a/n/a	0/0	0/0	2/40	0/0
United Kingdom	11/7	4/3	4/3	6/4	5/3

**Total employees leaving employment, rate of turnover and age group breakdown**  
(number/%)

	2014	2015	2016	2017	2018
Cairn total	16/9	11/7	5/3	9/5	6/3
Over 50	6/13	4/10	0/0	2/4	3/5
30-50	7/6	6/6	4/3	6/5	3/2
Under 30	3/23	1/14	1/11	1/14	0/0

**Note:** Turnover figures include only employees who left voluntarily (i.e. resigners).

**Note:** New hires and turnover figures are calculated using employee numbers at the end of the year.

**Note:** New hires and turnover data have been provided for individual countries where there has been applicable hiring and employees leaving employment.

## Parental leave and retention

### Total parental leave and retention rates

	2014	2015	2016	2017	2018
Employees entitled to parental leave (number)	178	151	143	180	201
Employees entitled to parental leave: male/female (number)	91/87	78/73	73/70	94/86	107/94
Employees that took parental leave (number)	20	10	12	7	5
Employees that took parental leave: male/female (number)	7/13	3/7	5/7	3/4	4/1
Employees that returned to work after parental leave (number/%)	13/76	9/90	8/100	9/100	7/100
Male employees that returned to work after parental leave (number/%)	7/100	3/100	5/100	3/100	4/100
Female employees that returned to work after parental leave (number/%)	6/60	6/86	3/100	6/100	3/100
Total employees that returned to work after parental leave who were still employed 12 months after return to work (number/%)	7/78	13/100	3/100	9/100	7/100
Male employees that returned to work after parental leave who were still employed 12 months after return to work (number/%)	2/50	7/100	1/100	5/100	2/100
Female employees that returned to work after parental leave who were still employed 12 months after return to work (number/%)	5/100	6/100	2/100	4/100	5/100

**Note:** Data for 'New hires', 'Turnover' and 'Parental leave and retention' includes only employees. Personnel who are contracted for more than three months to an organisational position and who are categorised as 'other workers' in the database are not included in this data; nor are contractors.

## Security

### Total security incidents (number) ★

2018	0
2017	1
2016	0
2015	0
2014	1

**Note:** A security incident is defined as any fact or event which could affect personal or organisational security.

**Note:** We break security incidents down into incidents against employees, incidents against contractors, incidents against security personnel, incidents against assets and incidents involving threat or extortion.

**Note:** Records of all incidents, including security incidents, are kept in our online incident reporting system. Contractors are required to report all incidents to Cairn management as soon as possible after the event (and within 12 hours), and the details are logged in our incident reporting system, which keeps key personnel informed, by email, about progress with the reporting and investigation.

### Security incidents and country breakdown (number) ★

	2014	2015	2016	2017	2018
United Kingdom	1	0	0	0	0
Senegal	0	0	0	1	0

### Security personnel that received human rights training (%) ★

	2014	2015	2016	2017	2018
Cairn total	0	0	0	0	0

**Note:** Data on the number of security personnel involved in Cairn activities at each of our assets is collected by checking with asset management, office administrators and Cairn's Health, Safety and Emergency Advisor at the end of each year. These figures are collected against three categories: (1) Cairn security employees; (2) private company security personnel; and (3) state/government security personnel. Information is also gathered on whether any human rights training has taken place for security personnel during the year, with details if applicable.

**Calculation:** Number of security personnel involved in Cairn activities that have received human rights training/total number of security personnel involved in Cairn activities x 100.

# Society

## Social and economic benefit

### Social investment (£ pounds sterling) ★

	2014	2015	2016	2017	2018
<b>Cairn total</b>	<b>354,558</b>	<b>426,867</b>	<b>95,694</b>	<b>185,242</b>	<b>85,592</b>
Community development	101	56,274	42,689	86,773	48,137
Senegal	101	56,274	42,689	86,773	48,137
Disaster relief	0	0	0	3,879	0
Mexico	n/a	n/a	n/a	3,879	0
<b>Education</b>	<b>352,390</b>	<b>360,142</b>	<b>20,501</b>	<b>39,871</b>	<b>37,455</b>
Greenland	108,782	0	0	0	0
Ireland	12,543	0	0	0	0
Morocco	60,705	178,783	0	0	0
Senegal	170,360	181,359	20,501	39,871	37,455
<b>Environment</b>	<b>1,240</b>	<b>10,452</b>	<b>6,248</b>	<b>6,982</b>	<b>0</b>
Senegal	0	10,452	6,248	6,982	0
Spain	1,240	0	0	0	0
National contractor training	n/a	n/a	7,858	47,736	0
Senegal	n/a	n/a	7,858	47,736	0
<b>Other</b>	<b>827</b>	<b>0</b>	<b>18,397</b>	<b>0</b>	<b>0</b>
Morocco	827	0	0	0	0
Senegal	0	0	18,397	0	0

**Note:** Cairn defines social investment as 'pro-active contributions or actions taken by Cairn to help bring benefits to communities where we operate'. These may include community development projects, capacity building within national institutions and developing skills within local businesses.

**Note:** Figures for social investment are collated from the following sources:

- social investment budget expenditure of an operating asset, collated by the HSE department; and
- skills awareness training provided to local businesses through operations, from data supplied by the Logistics department and local HSE departments.

**Note:** In 2015 and previous years, education figures included training allowances paid to governments that were also included in the 'Payments to governments' data. From 2016, the training allowances paid to governments have only been reported in 'Payments to governments' data and not in the 'Social investment' data.

**Note:** A category for 'National contractor training' was added in 2016. Previous contractor training payments were included under education.

## Charitable giving

### Charitable giving in the UK (£ pounds sterling)

	2014	2015	2016	2017	2018
<b>United Kingdom total</b>	<b>487,995</b>	<b>229,318</b>	<b>216,470</b>	<b>285,000</b>	<b>248,140</b>
Children	280,750	108,333	106,480	103,860	110,500
Community development	53,500	15,000	31,600	59,835	50,100
Culture	21,500	35,000	40,000	20,000	20,000
Disaster relief	0	10,000	0	0	0
Education	65,133	10,000	15,000	10,250	1,350
Environment	20,000	15,000	15,000	10,000	0
Health	34,500	25,000	8,390	45,730	66,190
Other	12,612	10,985	0	35,325	0

**Note:** Figures for charitable giving are collated by the Corporate Affairs department from the corporate charities committee budget.

## Human rights

### Human rights approach

#### Significant investment agreements and contracts that include human rights clauses or that underwent human rights screening (number/%) ★

	2014	2015	2016	2017	2018
<b>Cairn total</b>	<b>0/0</b>	<b>1/14</b>	<b>2/22</b>	<b>2/18</b>	<b>5/50</b>

**Note:** A significant investment agreement is defined as one that requires Board approval. This equates to one with a net expenditure in excess of US\$1 million.

**Note:** Significant investment agreements and contracts are assessed against specified investment criteria, which include an assessment of the potential corporate responsibility risks, including human rights, involved with the opportunity. The Investment Proposal (IP) summarises the outcome of the review (including the CR assessment), the recommended terms of the offer and how the opportunity would be managed in the event of success. These IPs are signed off by all functional department heads, the Chief Operating Officer (COO) on behalf of the Management Team (MT) and the Chief Executive Officer (CEO) on behalf of the Executive Team (ET).

**Note:** Data for this indicator is compiled by reviewing all IPs that were approved in the reporting year.

**Note:** All operations are screened broadly for human rights issues at the investment proposal stage. In this indicator we include only those agreements, finalised in the reporting year, that make specific reference to human rights.

**Calculation:** Number of IPs approved in the reporting year that include specific reference to human rights/number of IPs approved in the reporting year x 100.

### Operations that have been subject to human rights reviews or impact assessments (number/%)

	2014	2015	2016	2017	2018
Cairn total	5/62.5	2/50	4/100	4/100	4/100

**Note:** For the purposes of this indicator we define an operation as a country in which we had operational activity (including field and office activity) in the reporting year. It should be noted that we may have more than one set of assets in a given country.

**Note:** All field operations have been assessed for risks related to corruption although the assessments may not have taken place in the reporting year itself.

### Employees trained on human rights policies and procedures (%)

2018	17
2017	47
2016	0
2015	0
2014	6

**Note:** An employee is defined as a person employed by and on the payroll of Cairn. Persons employed under short-service contracts are included as Cairn employees provided they are paid directly by Cairn. Personnel who are contracted for more than three months to an organisational position and who are categorised as 'other workers' in the database are not included in the employee numbers for this indicator.

**Calculation:** Number of employees trained (during the reporting year) on policies and procedures relating to human rights/number of employees x 100.

### Total employee training on human rights policies and procedures (hours)

	2014	2015	2016	2017	2018
Cairn total	28	0	0	43	17

### Grievances

#### Total number of incidents of discrimination (number)

	2014	2015	2016	2017	2018
Incidents of discrimination	0	0	0	0	0

#### Labour relations grievance policy (%)

	2014	2015	2016	2017	2018
Total employees covered by non-retaliation and grievance policy	100	100	100	100	100

#### Total number of grievances (number)

	2014	2015	2016	2017	2018
Filed	0	1	0	0	0
Filed and addressed	0	1	0	0	0
Filed, addressed and resolved	0	0	0	0	0
Filed prior to reporting period but resolved during reporting period	0	0	1	0	0

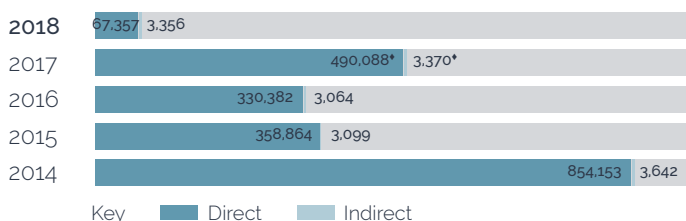
**Note:** There were no incidents of violation involving rights of indigenous peoples.

# Environment

## Climate change, energy and emissions

### Resource use

#### Total direct and indirect energy consumption (GJ)



### Direct energy (fuel) consumption by primary source

#### Aviation gas (GJ)

	2014	2015	2016	2017	2018
Cairn total	10,949	1,868	3,755	5,353	2,678
Morocco	6,642	0	0	0	0
Senegal	4,307	1,868	3,755	5,353	-
United Kingdom	0	-	0	-	2,678

#### Diesel (GJ)

	2014	2015	2016	2017	2018
Cairn total	803	822	1,516	1,278	344
Ireland	50	0	0	0	0
Morocco	41	0	0	0	0
Senegal	712	822	1,516	1,278	344

#### Fuel oil (marine diesel) (GJ)

	2014	2015	2016	2017	2018
Cairn total	841,848	356,145	325,039	480,741*	61,659
Ireland	67,752	0	0	0	0
Malta	7,171	0	0	0	0
Morocco	179,195	0	0	0	0
Senegal	587,730	356,145	325,039	480,741*	0
United Kingdom	0	0	0	0	61,659

**Restatements:** Fuel oil consumption figures (in tonnes and GJ) were found to be aggregating incorrectly in the database for 2017 data. This was because a suboptimal aggregation setting was applied to the fuel oil consumption indicator when some of the GHG-related indicators were reorganised in 2017. This was corrected in 2019 and the 2017 figures are being restated. This affects the 'Fuel oil (marine diesel)' and 'Total direct energy consumption' figures but not the associated GHG emissions. The change to affected figures is less than 1% (see ♦ for restatements).

#### Gasoline (petrol) (GJ)

	2014	2015	2016	2017	2018
Cairn total	498	28	72	131	86
Greenland	33	0	0	0	0
Morocco	346	0	0	0	0
Senegal	119	28	72	131	82
United Kingdom	0	0	0	0	4

#### Heating oil (GJ)

	2014	2015	2016	2017	2018
Cairn total	3	0	0	0	0
Norway	3	0	0	0	0

#### Natural gas (GJ)

	2014	2015	2016	2017	2018
Cairn total	52	0	0	2,585	2,589
Spain	52	0	0	0	0
United Kingdom	-	-	-	2,585	2,589

**Note:** Natural gas consumption data for the Edinburgh office only became available from 2017 onwards.

**Indirect energy (purchased electricity) consumption by renewable/non-renewable (or unspecified) (GJ)**

	2014	2015	2016	2017	2018
Cairn total: renewable/non-renewable (or unspecified)	3,642	2,978	2,523/329	2,460/589 <sup>♦</sup>	2,406/612
Greenland: renewable/non-renewable (or unspecified)	130	0	0/0	0/0	n/a
Morocco: renewable/non-renewable (or unspecified)	24	14	0/3	0/0	0/0
Norway: renewable/non-renewable (or unspecified)	360	272	0/158	0/340 <sup>♦</sup>	0/357
Senegal: renewable/non-renewable (or unspecified)	115	142	0/167	0/248	0/211
Spain: renewable/non-renewable (or unspecified)	165	n/a	n/a	n/a	n/a
United Kingdom: renewable/non-renewable (or unspecified)	2,847	2,550	2,523/0	2,460/0	2,406/0

**Indirect energy (district heating) consumption (GJ)**

	2014	2015	2016	2017	2018
Cairn total: renewable/non-renewable (or unspecified)	-	0/78	0/199	0/286 <sup>♦</sup>	0/301
Norway: renewable/non-renewable (or unspecified)	-	0/78	0/199	0/286 <sup>♦</sup>	0/301

**Indirect energy (district cooling) consumption (GJ)**

	2014	2015	2016	2017	2018
Cairn total: renewable/non-renewable (or unspecified)	-	0/42	0/15	0/35 <sup>♦</sup>	0/37
Norway: renewable/non-renewable (or unspecified)	-	0/42	0/15	0/35 <sup>♦</sup>	0/37

**Note:** Breakdown of energy data by renewable/non-renewable (unspecified) has been added in 2018. This data is only available for indirect energy consumption from 2016 onwards. We have evidence to show that our UK indirect energy (purchased electricity) consumption is from renewable sources but have no evidence to explain the source of indirect energy consumption in our other offices. It may come from a mixture of renewable and non-renewable sources. For this reason, the data is categorised as 'non-renewable/unspecified'.

**Note:** Most of our electricity and district heating and cooling (Norway only) consumption happens in our head office in Edinburgh (65% of our total electricity, district heating and cooling in 2018), followed by Stavanger, London, Dakar and Mexico (21%, 7%, 6% and 1% of total respectively). Electricity consumption for the Edinburgh, London, Dakar and Mexico offices is taken from meter readings. The figure for the London office in 2018 includes an estimate for October–mid-November (prior to our office move) because fourth-quarter figures were not available from our old office in time for this report. Electricity consumption for the Stavanger office is calculated as a proportion of the overall building consumption.

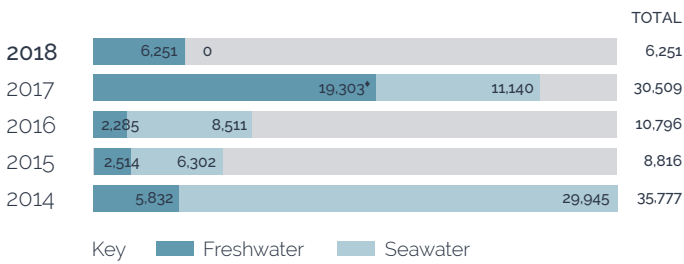
**Restatements:** Electricity, district heating and cooling data is not available from Cairn's Stavanger office building management company until after Cairn's end-of-year reporting has been completed. Norway figures for the year therefore have to be estimated (previous year +5%) and are corrected when the data is received. This affects the following data:

- indirect energy (purchased electricity) consumption by renewable/non-renewable - for Norway and Cairn total;
- indirect energy (district heating) consumption - for Norway and Cairn total;
- indirect energy (district cooling) consumption - for Norway and Cairn total; and
- total indirect energy consumption.

An estimate is included for Norway in 2018. 2017 figures have been restated to include the correct figure for Norway (see ♦).

## Water withdrawal

### Total water withdrawal (m<sup>3</sup>)



**Note:** Water withdrawal data is collected under the categories of freshwater, brackish water and seawater. There has been no brackish water withdrawal since before 2011. Some freshwater used by Cairn's activities is produced by reverse osmosis from seawater. This data is included under seawater, that being the source of the water.

### Total water withdrawal by source (m<sup>3</sup>)

	2014	2015	2016	2017	2018
Freshwater (assumed ≤1,000 mg/L Total Dissolved Solids)					
Municipal water supplies or other water utilities	5,686	2,452	2,157	19,272*	6,251
Unspecified sources	146	62	128	31	0
Seawater (>1,000 mg/L Total Dissolved Solids)					
Surface water sources	29,945	6,302	8,511	11,140	0

**Note:** Cairn did not have any field activity in areas of water stress in 2018.

**Restatements:** Water withdrawal data is not available from Cairn's Stavanger office building management company until after Cairn's end-of-year reporting has been completed. Norway figures for the year therefore have to be estimated (previous year +5%) and are corrected when the data is received. 2017 figures are restated where shown (see ♦) to include correct figures for Norway. 2018 figures include an estimate for Norway.

### Total absolute and normalised GHG emissions (Scopes 1, 2 and 3)

	2014	2015	2016	2017	2018
All scopes GHG emissions (including location-based Scope 2), tonnes CO <sub>2</sub> e	62,923.79	35,391.65	31,982.26	51,595.81*	7,499.74
All scopes GHG emissions (including market-based Scope 2), tonnes CO <sub>2</sub> e	-	35,142.89	31,693.48	51,354.56*	7,361.35
All scopes GHG emissions (including location-based Scope 2) normalised, tonnes CO <sub>2</sub> e per 1,000 hours worked	40.72	52.65	33.40	48.40*	13.90
All scopes GHG emissions (including market-based Scope 2) normalised, tonnes CO <sub>2</sub> e per 1,000 hours worked	-	52.28	33.10	48.17*	13.65

**Restatements:** Electricity, district heating and cooling data is not available from Cairn's Stavanger office building management company until after Cairn's end-of-year reporting has been completed. Figures for the year therefore have to be estimated (previous year +5%) and are corrected when the data is received. This affects the following data:

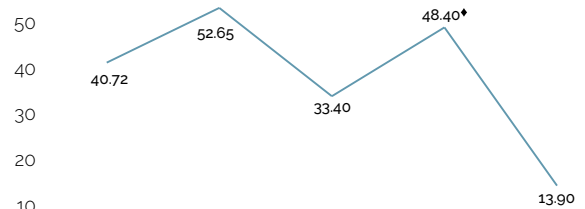
- absolute and normalised GHG emissions from purchased energy (location-based Scope 2) – for Norway and Cairn total;
- absolute and normalised GHG emissions from purchased energy (market-based Scope 2) – for Norway and Cairn total;

**Note:** Data has been provided for individual countries where there has been relevant energy consumption.

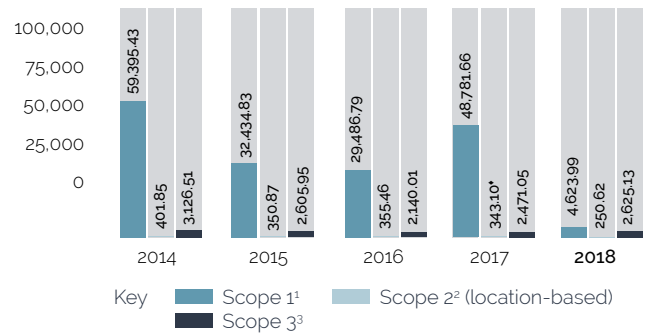
## Greenhouse gas emissions

### Total absolute and normalised GHG emissions (Scopes 1, 2 and 3) \*

GHG emissions (all scopes) normalised, tonnes CO<sub>2</sub>e per 1,000 hour worked



Total GHG emissions (tonnes CO<sub>2</sub>e)



**Calculation:** GHG emissions (all scopes) normalised = Scopes 1, 2 and 3 GHG emissions x 1,000/total hours worked.

- all scopes GHG emissions (including location-based Scope 2);
- all scopes GHG emissions (including market-based Scope 2);
- all scopes GHG emissions (including location-based Scope 2) normalised; and
- all scopes GHG emissions (including market-based Scope 2) normalised.

An estimate is included for Norway in 2018. 2017 figures have been restated to include the correct figure for Norway (see ♦).



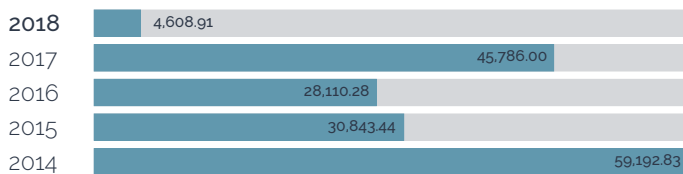
## Direct air emissions

**Absolute and normalised direct GHG emissions (Scope 1<sup>1</sup>)** (tonnes CO<sub>2</sub>e/tonnes CO<sub>2</sub>e per 1,000 hours worked) ★

	2014	2015	2016	2017	2018
Cairn total	59,395.43/38.44	32,434.83/48.25	29,486.79/30.79	48,781.66/45.76	4,623.99/8.57
Greenland	2.22/1.27	0.00/0.00	0.00/0.00	0.00/0.00	n/a/n/a
Ireland	4,760.54/160.37	0.00/0.00	0.00/0.00	0.00/0.00	0.00/0.00
Malta	498.70/65.23	0.00/0.00	0.00/0.00	0.00/0.00	n/a/n/a
Morocco	12,923.29/40.16	0.00/0.00	0.00/0.00	0.00/0.00	n/a/n/a
Norway	0.23/0.01	0.00/0.00	0.00/0.00	0.00/0.00	0.00/0.00
Senegal	41,207.84/50.53	32,434.83/77.83	29,486.79/48.20	48,651.50/72.79	29.83/1.08
Spain	2.62/0.24	0.00/0.00	n/a/n/a	n/a/n/a	n/a/n/a
United Kingdom	0.00/0.00	0.00/0.00	0.00/0.00	130.17/0.39	4,594.16/10.49

Calculation: Scope 1 GHG per 1,000 hours worked = Scope 1 GHG x 1,000/total hours worked.

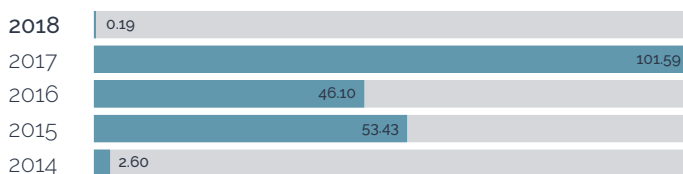
### Total CO<sub>2</sub> emissions (tonnes)



### CO<sub>2</sub> emissions (tonnes)

	2014	2015	2016	2017	2018
Greenland	2.21	0	0	0	n/a
Ireland	4,740.40	0	0	0	0
Malta	496.94	0	0	0	n/a
Morocco	12,880.02	0	0	0	n/a
Norway	0.23	0	0	0	0
Senegal	41,070.41	30,843.44	28,110.28	45,655.96	29.73
Spain	2.61	0	n/a	n/a	n/a
United Kingdom	0	0	0	130.04	4,579.18

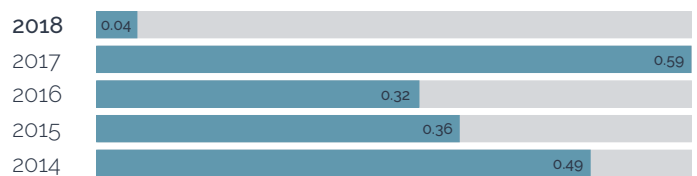
### Total CH<sub>4</sub> emissions (tonnes)



### CH<sub>4</sub> emissions (tonnes)

	2014	2015	2016	2017	2018
Ireland	0.36	0	0	0	0
Malta	0.02	0	0	0	n/a
Morocco	0.53	0	0	0	n/a
Senegal	1.69	53.43	46.10	101.59	0
United Kingdom	0	0	0	0	0.19

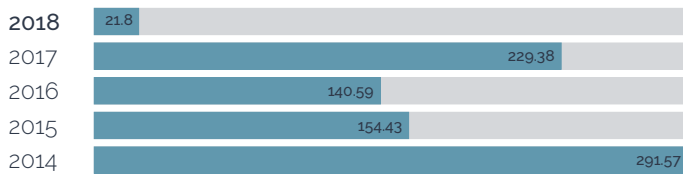
### Total N<sub>2</sub>O emissions (tonnes)



### N<sub>2</sub>O emissions (tonnes)

	2014	2015	2016	2017	2018
Ireland	0.04	0	0	0	0
Morocco	0.11	0	0	0	n/a
Senegal	0.34	0.36	0.32	0.59	0
United Kingdom	0	0	0	0	0.04

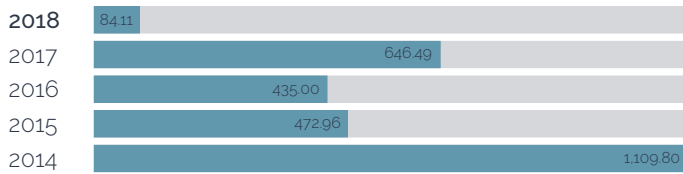
**Total CO emissions (tonnes)**



**CO emissions (tonnes)**

	2014	2015	2016	2017	2018
Greenland	0.01	0	0	0	n/a
Ireland	23.31	0	0	0	0
Malta	2.46	0	0	0	n/a
Morocco	62.79	0	0	0	n/a
Senegal	203.00	154.43	140.59	229.35	0.15
United Kingdom	0	0	0	0	21.65

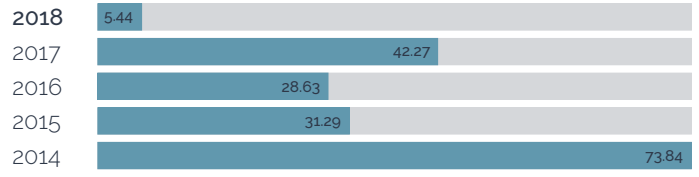
**Total NO<sub>x</sub> emissions (tonnes)**



**NO<sub>x</sub> emissions (tonnes)**

	2014	2015	2016	2017	2018
Greenland	0.04	0	0	0	n/a
Ireland	88.18	0	0	0	0
Malta	9.33	0	0	0	n/a
Morocco	241.60	0	0	0	n/a
Senegal	770.66	472.96	435.00	646.38	0.55
United Kingdom	0	0	0	0.11	83.55

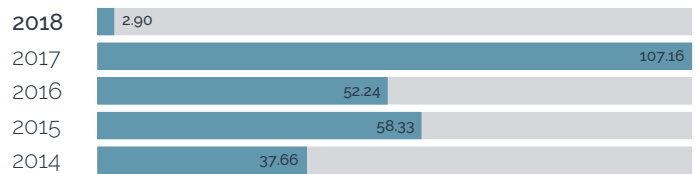
**Total SO<sub>2</sub> emissions (tonnes)**



**SO<sub>2</sub> emissions (tonnes)**

	2014	2015	2016	2017	2018
Ireland	5.94	0	0	0	0
Malta	0.63	0	0	0	n/a
Morocco	15.73	0	0	0	n/a
Senegal	51.55	31.29	28.63	42.27	0.04
United Kingdom	0	0	0	0	5.4

**Total volatile organic compounds (VOCs) (tonnes)**



**VOCs (tonnes)**

	2014	2015	2016	2017	2018
Greenland	0	0	0	0	n/a
Ireland	2.97	0	0	0	0
Malta	0.31	0	0	0	n/a
Morocco	8.31	0	0	0	n/a
Senegal	26.06	58.33	52.24	107.16	0.02
United Kingdom	0	0	0	0	2.88

## Indirect air emissions

### Absolute and normalised GHG emissions from purchased energy (location-based Scope 2<sup>3</sup>)

(tonnes CO<sub>2</sub>e/tonnes CO<sub>2</sub>e per 1,000 hours worked) ★

	2014	2015	2016	2017	2018
Cairn total	401.85/0.26	350.87/0.52	355.46/0.37	343.10/0.32*	250.62/0.46
Greenland	11.34/6.47	0.00/0.00	0.00/0.00	0.00/0.00	n/a/n/a
Morocco	4.96/0.02	2.79/0.62	0.69/0.26	0.00/0.00	n/a/n/a
Norway	1.30/0.04	8.46/0.22	13.81/0.26	18.42/0.29*	18.38/0.29
Senegal	22.09/0.03	27.19/0.07	31.95/0.05	42.46/0.06	39.38/1.43
Spain	13.37/1.20	0.00/0.00	n/a/n/a	n/a/n/a	n/a/n/a
United Kingdom	348.79/1.07	312.42/1.48	309.02/1.07	282.22/0.85	187.18/0.43

### Absolute and normalised GHG emissions from purchased energy (market-based Scope 2<sup>3</sup>)

(tonnes CO<sub>2</sub>e/tonnes CO<sub>2</sub>e per 1,000 hours worked) ★

	2014	2015	2016	2017	2018
Cairn total	–	102.10/0.15	66.68/0.07	101.85/0.10*	112.23/0.21
Mexico	–	n/a/n/a	n/a/n/a	n/a/n/a	5.68/0.67
Morocco	–	2.79/0.62	0.69/0.26	0.00/0.00	n/a/n/a
Norway	–	43.21/1.14	34.05/0.63	59.39/0.94*	67.17/1.04
Senegal	–	27.19/0.07	31.95/0.05	42.46/0.06	39.38/1.43
United Kingdom	–	28.90/0.14	0.00/0.00	0.00/0.00	0.00/0.00

Calculation: Scope 2 GHG per 1,000 hours worked = Scope 2 GHG x 1,000/total hours worked.

### Total absolute and normalised GHG emissions (Scope 3<sup>3</sup>)

(tonnes CO<sub>2</sub>e/tonnes CO<sub>2</sub>e per 1,000 hours worked) ★

	2014	2015	2016	2017	2018
Cairn total	3,126.51/2.02	2,605.95/3.88	2,140.01/2.23	2,471.05/2.32	2,625.13/4.87

### Total GHG emissions from business travel (Scope 3<sup>3</sup>)

(tonnes CO<sub>2</sub>e) ★

	2014	2015	2016	2017	2018
Business travel total	3,126.51	2,605.95	2,140.01	2,448.49	2,608.01
Air travel	3,117.61	2,601.65	2,136.96	2,444.06	2,603.15
Rail travel	8.91	4.31	3.06	4.44	4.86

### Total GHG emissions from electricity transmission and distribution losses (Scope 3<sup>3</sup>)

(tonnes CO<sub>2</sub>e) ★

	2014	2015	2016	2017	2018
Cairn total	–	–	–	22.55	17.12

Calculation: Scope 3 GHG per 1,000 hours worked = Scope 3 GHG x 1,000/total hours worked.

**Restatements:** Electricity, district heating and cooling data is not available from Cairn's Stavanger office building management company until after Cairn's end-of-year reporting has been completed. Figures for the year therefore have to be estimated (previous year +5%) and are corrected when the data is received. This affects the following data:

- absolute and normalised GHG emissions from purchased energy (location-based Scope 2) – for Norway and Cairn total;
- absolute and normalised GHG emissions from purchased energy (market-based Scope 2) – for Norway and Cairn total;

- all scopes GHG emissions (including location-based Scope 2);
- all scopes GHG emissions (including market-based Scope 2);
- all scopes GHG emissions (including location-based Scope 2) normalised; and
- all scopes GHG emissions (including market-based Scope 2) normalised.

An estimate is included for Norway in 2018. 2017 figures have been restated to include the correct figure for Norway (see ♦).

**Note:** Data has been provided for individual countries where there have been relevant emissions.

#### Notes about GHG data:

We report our GHG emissions in accordance with the GHG Protocol Corporate Accounting and Reporting Standard (World Resources Institute/World Business Council for Sustainable Development). We use the published 100-year Global Warming Potentials (GWPs) for CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O from the Intergovernmental Panel on Climate Change (IPCC) – with the Fourth Assessment Report (AR4) values applied when using Defra 2018 emission factors (they are already integrated), and the Fifth Assessment Report (AR5) values applied when using other emission factors. All GHG emissions are reported in tonnes of carbon dioxide equivalent (CO<sub>2</sub>e). We report five years of data from a baseline of four years earlier.

### 1: Scope 1 GHG emissions

#### Definition

Scope 1 emissions: direct GHG emissions which occur from sources that are owned or controlled by the Company, for example, emissions from combustion in owned or controlled boilers, furnaces or vehicles.

At present, Cairn is undertaking exploration activities only. We are not operating any production assets. Our Scope 1 emissions arise from:

- fuel combustion during offshore rig, marine vessel and aircraft operations as well as a very small amount during use of land-based vehicles, and for Edinburgh office heating;
- flaring during well testing (not in 2018); and
- incineration of waste on marine vessels (a very small amount, and not in 2018).

#### Fuel combustion

The rig, vessels and helicopters keep a daily log of fuel usage and each provides us with a total figure for fuel consumption, in litres, at the end of each month. Fuel consumption figures for land-based vehicles (0.6% of total fuel consumption) are partly drawn from accurate fuel consumption records and partly from estimates when exact fuel usage is impractical to track.

Natural gas combustion for heating in the Edinburgh office is calculated as a proportion of the natural gas usage for the whole building.

A fuel density figure is used to convert litres of fuel into tonnes. The fuel density is provided by the rig, vessels or helicopter operator when available. Otherwise, a typical density is used from API 2009. Figures in tonnes are then converted into CO<sub>2</sub>e using emission factors for carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O) from the API Compendium 2009.

#### Flaring

There was no well testing in 2018. When well testing is carried out, the volume of oil and gas flared is measured and converted into mass (tonnes) using densities obtained from well test samples that are analysed in the laboratory. Scope 1 GHG emissions (tonnes of CO<sub>2</sub>e) are then calculated using emission factors from EEMS (Environmental Emissions Monitoring System) Atmospheric Emissions Calculations, 2008 (Table 10.1).

#### Waste incineration

No waste was incinerated during drilling operations in 2018. When this does occur, Scope 1 GHG emissions (tonnes of CO<sub>2</sub>e) are calculated using emission factors from the GHG Protocol.

#### Estimates and uncertainties

Natural gas combustion for heating Cairn's Edinburgh office is calculated as a proportion of the natural gas usage for the whole building.

We use the most applicable emission factors available, but there will always be a small margin of error from these as they may not match fuel type exactly.

### 2: Scope 2 GHG emissions

#### Definition

Scope 2 emissions: electricity and district heating/cooling indirect emissions are from the generation of purchased electricity and district heating/cooling consumed by the Company. Purchased electricity and district heating/cooling is defined as electricity and district heating/cooling that is purchased or otherwise brought into the organisational boundary of the Company.

Our Scope 2 emissions arise from the following situation:

- We report use of electricity in all our offices and a small amount of district heating and cooling in our Stavanger office.

We report Scope 2 emissions in line with GHG Protocol Scope 2 Guidance, i.e. in two ways: according to a location-based method and a market-based method (transmission and distribution losses are excluded). For the location-based method, we use emission factors from the International Energy Agency (IEA) (updated to IEA 2018 in 2018). These are grid average emission factors for each

country. For district heating and cooling, we use location-based emission factors from the UK Department for Environment Food & Rural Affairs (Defra) (updated to Defra 2018 in 2018).

For the market-based method we use emission factors, where available, in the following order of preference:

- a. Supplier-specific emission factors – obtained from Cairn's offices' electricity suppliers.
- b. Residual mix emission factors – obtained from the Association of Issuing Bodies (AIB) document 'European Residual Mixes 2017'.
- c. Location-based emission factors. These are the same IEA and Defra emission factors that we use for calculating location-based emissions.

Supplier-specific emission factors were requested from the electricity suppliers of all of Cairn's offices but were only available for the Edinburgh and London offices. Market-based Scope 2 figures for Norway were calculated using the residual mix emission factor for Norway. For Senegal and Mexico, there were no residual mix factors available, so the location-based factors were used.

We are not able to obtain supplier-specific emission factors for years prior to 2015 so all Scope 2 data prior to 2015 is calculated according to the location-based method.

#### Estimates and uncertainties

Most of our electricity and district heating and cooling (Norway only) consumption happens in our head office in Edinburgh (65% of our total electricity, district heating and cooling in 2018), followed by Stavanger, London, Dakar and Mexico (21%, 7%, 6% and 1% of total respectively). Electricity consumption for the Edinburgh, London, Dakar and Mexico offices is taken from meter readings. The figure for the London office in 2018 includes an estimate for October-mid November (prior to our office move) because fourth-quarter figures were not available from our old office in time for this report. Electricity consumption for the Stavanger office is calculated as a proportion of the overall building consumption.

Electricity, district heating and cooling data is not available from Cairn's Stavanger office building management company until after Cairn's end-of-year reporting has been completed. Norway figures for the year therefore have to be estimated (previous year +5%) and are corrected when the data is received (and restated in the following year's report).

There is always a degree of inaccuracy in emission factors. Also, there is no electricity emission factor available for Greenland, so we used the Denmark factor instead.

### 3: Scope 3 GHG emissions

#### Definition

Scope 3 emissions: Scope 3 emissions are a consequence of the activities of the Company, but occur from sources not owned or controlled by the Company.

Cairn currently reports Scope 3 emissions from two sources: 1) business travel (business travel well-to-tank emissions are excluded) including air and rail travel but not tube travel (99% of total Scope 3 GHGs in 2018); and 2) electricity transmission and distribution losses (1% of total Scope 3 GHGs in 2018). Other Scope 3 emissions, e.g. supply chain and employee commuting, are excluded.

For calculating Scope 3 (business travel) GHG emissions, we use the Defra methodology, including its recommendation to include an uplift for the influence of radiative forcing in air travel emissions. This uplift ensures that the maximum climate impact of an organisation's travel habits is captured. In our air travel GHG emissions calculations, we use journey type (domestic, short haul, long haul and international), seat class (economy, premium economy, business, first) and distance travelled. In our rail travel GHG emissions calculations, we use rail type (national rail, international rail) and distance. We updated to the latest Defra 2018 emission factors in 2018 (see <http://www.ukconversionfactorscarbonmart.co.uk/>).

It is Cairn policy that all travel for Edinburgh- and London-based staff, and usually the smaller offices, is booked using its corporate travel agent, Reed & Mackay (Reed & Mackay took over as Cairn's travel provider in November 2018; before that it was HRG) except under special exception. As a result of this, the majority of our travel data in 2018 was obtained in reports from Reed & Mackay and HRG, and these included details on journey type, seat class and kilometres travelled. Travel data is also obtained from Cairn's travel provider in Norway, from a travel expense claim report from Edinburgh's Accounts department and through communication with executive assistants in all Cairn's offices. Where journey kilometres are not provided with the data, they are obtained from internet resources, e.g. [airmilescalculator.com](http://airmilescalculator.com), [travelmath.com](http://travelmath.com).

For calculating Scope 3 (electricity transmission and distribution losses) GHG emissions we use Defra 2018 emission factors. We reported Scope 3 (electricity transmission and distribution losses) GHG emissions for the first time in 2017.

### Estimates and uncertainties

Not all HRG flight data can be broken down into flight sectors with the corresponding seat class, so there is a degree of uncertainty in this, e.g. GHG emissions for some of the domestic flight sectors may be calculated using short- or long-haul flight emission factors.

Travel data obtained from travel expenses does not always show whether a journey is single or return, so this sometimes has to be assumed. In addition, the seat class of these flights is not shown; however, flights booked outside the HRG system are usually with budget airlines, so the majority are known to be economy class. These flights are not broken down into sectors, but the majority are domestic or short-haul/European flights which are only one flight sector.

For rail travel data obtained from travel expenses, some of the journey distances are based on estimates.

Travel data provided by Cairn's travel provider in Norway (Berg-Hansen) does not include train journeys, so an estimate has to be made for these.

Occasional flights/train journeys booked by individuals, based in Cairn's offices outside the UK, might get missed; however, this is considered minimal.

The estimates and uncertainties that apply to Scope 2 data also apply to Scope 3 electricity transmission and losses data.

### GHG normalised to total employee and contractor hours worked

To meet UK reporting requirements, GHG emissions need to be reported normalised to an appropriate performance measure representative of the business. As Cairn did not have revenue or operated production facilities in 2018, or in the previous four years, and activities were of an exploration nature only (i.e. exploration drilling and associated activity), its GHG emissions have been normalised to total employee and contractor hours worked. They are presented as tonnes of CO<sub>2</sub>e per 1,000 hours worked.

Hours worked are collected for employees and for contractors. Employee hours are derived primarily from Cairn's time-writing system that UK and Norway employees use to log their working hours. For Senegal and Mexico employees, hours worked are estimated based on the number of working days in the month and the standard working hours (taking into account holidays). Employee hours include hours worked by 'other workers' (contracted for more than three months to an organisational position) as these are captured in the time-writing system. Cairn's Human Resources department compiles the figures and enters them into the database each month.

Hours worked by field-based contractors are collected monthly, together with other HSE KPI data, from each vessel, rig, aircraft and shore base. For offshore workers, the hours are often calculated on a 12-hour work day basis.

Hours worked by short-term (less than three months) office-based contractors were collected for the first time in 2016. Figures for the Dakar office contractors were obtained monthly in the form of timesheets. The remaining figures were compiled at the end of 2018 using a list of non-time-writing personnel obtained from our Accounts department. These had to be estimated in most cases.

### Estimates and uncertainties

Hours worked by field-based contractors are often calculated on a 12-hour work day basis rather than being a precise log of time worked.

Hours worked by short-term office contractors, other than those in the Dakar office, were estimated, largely based on discussion with people in the Edinburgh office.

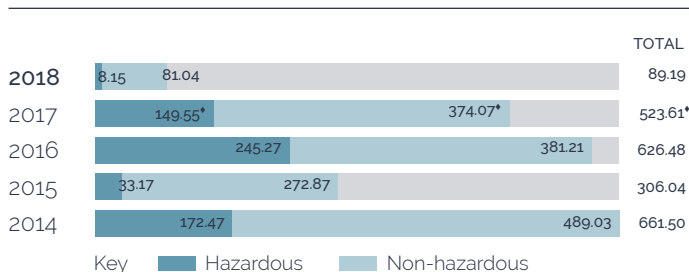
### GHG assurance

Limited assurance of our 2018 GHG data (Scopes 1, 2 and 3 and normalised) has been provided independently by ITP Energised which, within the scope of the limited assurance engagement, has found that the GHG emissions reported are materially correct and a fair representation of available information. A [full assurance statement](#) detailing the verification undertaken and its limitations is available.

## Discharges, waste and sound

### Waste

#### Total hazardous and non-hazardous waste (tonnes)



#### Total regulated hazardous waste quantities by disposal method (tonnes)

	2014	2015	2016	2017	2018
Incineration or used as fuel	112.24	20.25	204.51	136.33	4.68
Recycling	52.78	8.24	12.35	12.16*	2.59
Reuse	0.00	1.03	18.37	1.05	0.88
Landfill	0.96	3.50	1.85	0.00	0.00
On-site storage	1.17	0.14	0.01	0.00	0.00
Unspecified disposal	5.32	0.00	8.18	0.08	0.00

#### Total regulated non-hazardous waste quantities by disposal method (tonnes)

	2014	2015	2016	2017	2018
Composting	0.44	1.02	1.40	7.61*	2.10
Incineration or used as fuel	30.66	7.56	27.79	37.78	11.52
Recycling	181.63	94.64	186.77	166.94*	58.67
Reuse	67.52	23.35	35.17	64.38	0
Landfill	136.96	137.70	112.79	85.67	2.28
On-site storage	2.60	0.00	0.00	0.00	0.00
Other	n/a	n/a	n/a	n/a	4.24
Unspecified	69.21	8.61	17.30	11.69	2.23

#### Total recycled and reused waste

	2014	2015	2016	2017	2018
Total recycled (tonnes)	234	103	199	179*	61
Total recycled and reused (tonnes)	302	127	253	245*	62
% recycled	35	34	32	34*	69
% recycled and reused	46	42	40	47*	70

Hazardous waste: all waste that is defined as hazardous, toxic, dangerous, listed, priority, special or some other similar term as defined by an appropriate country, regulatory agency or authority. We use the European Union (EU) definitions and waste codes.

Non-hazardous waste: industrial wastes resulting from Company operations, including process and oil field wastes (solid and liquid) disposed of either on-site or off-site. Includes refuse and other office waste, commercial (e.g. retail) or packaging-related wastes. Excludes hazardous waste as defined above.

Disposal method: the method by which the waste is disposed. This is split into the following categories in line with GRI reporting requirements: reuse, recycling, composting, incineration, landfill, on-site storage, other and unspecified. Waste data, including information on disposal method, is provided by our waste disposal contractors where applicable, or by contractors who are responsible for waste generated during short-term operations. We use the EU definitions and codings.

We generate waste during rig, marine vessel and shore base operations, as well as from our offices in the UK and other locations.

Waste from field-based operations: waste generated during field-based operations (including offshore waste – except where offshore treatment is allowed such as waste incineration under the International Convention for the Prevention of Pollution from Ships (MARPOL)) is transferred to shore-based waste disposal facilities, and waste transfer notes are used to record and track each transfer as part of our 'Duty of Care'. Waste figures are submitted to Cairn at the end of each month by the vessels themselves (in the case of short-term operations such as seismic) or by the waste disposal contractor (in the case of longer-term operations such as drilling in Senegal or the UK). This data is then checked and entered into our database, split by hazardous/non-hazardous and by disposal method.

Waste figures are reported in tonnes. We ask our contractors to weigh waste wherever possible and report by mass (tonne, kg). Where this is not possible, tonnage is calculated by multiplying the volume of waste by a conversion factor. We provide contractors with a set of standard conversion factors from Waste & Resources Action Programme (WRAP), a non-government organisation working with UK Governments, the EU and other funders, to help deliver their policies on waste prevention and resource efficiency. (see: [www.wrap.org.uk](http://www.wrap.org.uk)).

Office waste: waste data is collected from our offices at the end of each year. This covers all types of waste including general office waste, controlled waste and recycling waste, e.g. paper and toner cartridges. Figures for Cairn's head office in Edinburgh are received from the waste contractors that service the building, the paper recycling company that we use, and from our IT department; an estimate is sometimes also required for any ad hoc items of waste that are collected separately. Figures for Cairn's Stavanger office are obtained from the building managers. For both of these offices, some figures are calculated as a proportion of the overall building. For our other offices, waste figures are estimated using per person per month Edinburgh office figures.

#### Estimates and uncertainties

There is a degree of uncertainty in the volumes of waste measured and in the conversion factors used to convert volume to tonnes and these will arise from the method used. Waste figures for offices are, for the most part, estimated as a proportion of the overall building or using per person per month Edinburgh office figures.

**Restatements:** Waste data is not available from Cairn's Stavanger office building management company until after Cairn's end-of-year reporting has been completed. Norway figures for the year therefore have to be estimated (previous year +5%) and are corrected when the data is received. 2017 figures are restated where shown (see ♦) to include correct figures for Norway. 2018 figures include an estimate for Norway.

## Water effluent and discharges to water

**Water effluent discharged to surface (m<sup>3</sup>)**

	2014	2015	2016	2017	2018
Cairn total	22,452	1758	2,529	16,038	3,074
Ireland	438	0	0	0	0
Malta	120	0	0	0	n/a
Morocco	6,172	0	0	0	n/a
Senegal	15,722	1758	2,529	16,038	0
United Kingdom	0	0	0	0	3,074

**Oil discharged in water effluent to surface**

(tonnes/mg per litre of water discharged to surface/mg per million tonnes of hydrocarbon produced)

	2014	2015	2016	2017	2018
Cairn total	0.00/ 0.00	0.00/ 0.00	0.00/ 0.00	0.00/ 0.00	0.00/ 0.00

**Note:** There has been no hydrocarbon production since 2010.

**Note:** Water effluent data includes domestic water effluent discharged from vessels but not from taps in offices. Domestic water effluent discharge from vessels is usually based on estimation as vessels do not often have discharge metres. Most water discharge is to seawater; the rest is office water effluent through domestic sewage systems.

**Note:** Data has been provided for individual countries where there has been relevant water effluent discharge.

**Environmental compliance and expenditure****Non-compliance with environmental laws and regulations**

(Cairn total)

	2014	2015	2016	2017	2018
Incidents (number)	0	0	0	0	0
Non-monetary sanctions (number)	0	0	0	0	0
Monetary value of significant fines (£'000 pounds sterling)	0	0	0	0	0

**Environmental protection expenditure and investments**

(£ pounds sterling)

	2014	2015	2016	2017	2018
Prevention and environmental management	4,163,358	966,402	1,280,276	2,950,022	4,545,083
Waste disposal, emissions treatment, and remediation	302,088	148,545	189,231	113,278	126,795

**Note:** These are approximate figures. We are developing our methodology for obtaining these figures and this has changed from 2014 to what we think is a more robust methodology now:

- In 2014, we obtained figures from purchase orders and did not include in-house expertise (employees and 'other workers'/long-term office-based consultants).
- From 2015 onwards, we obtained figures from records of invoices booked in the reporting year. An estimate for in-house expertise is included. It is possible that some expenditure is omitted as it is not always easily recognisable in the invoice records as environmental-related.

## Biodiversity

### Operational sites owned, leased, managed in or adjacent to protected areas and areas of high biodiversity value outside protected areas.

We report the following information for each operational site owned, leased, managed in or adjacent to, protected areas and areas of high biodiversity value outside protected areas:

- geographic location;
- subsurface and underground land that may be owned, leased, or managed by the organisation; and
- position in relation to the protected area (in the area, adjacent to or containing portions of the protected area) or the high biodiversity value area outside protected areas:
  - type of operation (office, manufacturing or production or extractive);
  - size of operational site in km<sup>2</sup>; and
  - biodiversity value characterised by:
    - » the attribute of the protected area or high biodiversity value area outside the protected area (terrestrial, freshwater or maritime ecosystem); and
    - » listing of protected status (such as IUCN Protected Area Management Categories (67), Ramsar Convention (78), and national legislation).

Area of operations	Geographical location	Protected areas (distance to licence block, status) type of operation
Senegal – Sangomar deep offshore	Approximately 85km offshore from the nearest coast, in water depths ranging from 800m to 2,000m.  Appraisal and exploration drilling and well testing during 2017 (SNE-5, SNE-6, VR-1, FAN South-1 and SNE North-1).  <b>No activities in 2018.</b>	Saloum Delta Biosphere Reserve and National Park (onshore at least 85km away). The biosphere reserve comprises 72,000ha of marine areas, 23,000ha of flooded areas and 85,000ha of terrestrial islands. The National Park, which forms part of a UNESCO World Heritage Site and a Ramsar Convention site, lies within a 180,000ha biosphere reserve.  Other protected areas in the vicinity include Magdalen Islands National Park, Goree Island, Popenguine Natural Reserve, Joal-Fadiouth Protected Marine area, Protected Marine area of Bamboung, Protected Marine area of Abene and Lower Casamance National Park.
Senegal – Sangomar offshore and Rufisque blocks	Blocks run from shore south of Dakar to Joal-Fadiouth to the south and offshore to border Sangomar Deep.  Water depths from 20m in near-coastal waters to 1,500m over approximately 2,300km <sup>2</sup> area.  Environmental baseline survey carried out in 2017.  <b>No activities in 2018.</b>	Ramsar site Saloum Delta Biosphere Reserve and National Park (43km onshore to east – see above). Magdalen Islands National Park (21km north), Languede Barbarie National Park (20km north) and Popenguine Nature Reserve 15km to north-east.  Other areas include Cap Vert, Joal-Fadiouth and La Petite Côte International Bird Areas. Protected Marine areas of Kayar (Grand Côte) and Saint Louis.  Baseline studies indicate potential presence of some sensitive habitats including sea pen and megafauna and <i>Lophelia perusa</i> reefs.
Republic of Ireland – Spanish Point (FEL 2/04), Spanish Point (FEL 4/08) North and FEL 1/14 Porcupine Basin, offshore Republic of Ireland	Approximately 130km offshore off the west coast of the Republic of Ireland.  <b>No activities in 2018.</b>	There are three offshore Special Areas of Conservation (SACs) in the locale of the survey area. The closest is the Hovland Mound site. The Belgica Mound site is also located nearby.  The Hovland Mound site has been selected as a Special Area of Conservation for reefs (biogenic), a habitat that is listed on Annex I of the EU Habitats Directive.  The Hovland Mound Province is located on the northern margins of the Porcupine Seabight, approximately 7.45km from the survey area and 130km west of the south-west Irish coast. Other coastal sites are over 150km to the east. Special Areas of Conservation and candidate SACs are over 130km east. These include Lower River Shannon, West Connacht Coast (cSAC), Blasket Islands and Roaringwater Bay and Islands. Designated Marine Protected Areas are considerable distances away with the exception of Hovland Mound SAC.
Republic of Ireland – Licence Option 16/18	Approximately 150km offshore off the west coast of the Republic of Ireland.  <b>No activities in 2018.</b>	The south of this block encroaches on the Hovland Mound Province which is a Special Area of Conservation (SAC). The Hovland Mound Province contains cold-water coral reefs and a variety of benthic macrofaunal such as sea pens with other species including shrimp and fish.
Republic of Ireland – Licence Option 16/19	Approximately 145km offshore off the west coast of the Republic of Ireland.  <b>No activities in 2018.</b>	The extreme north of this block encroaches on the Hovland Mound Province which is a Special Area of Conservation (SAC). See Licence Option 16/18 and Spanish Point.



Area of operations	Geographical location	Protected areas (distance to licence block, status) type of operation
UK – Offshore Ekland Licence P2184 (Block 210)	Lies in the central North Sea (CNS), approximately 210km east of the nearest landfall at Peterhead. A single well was drilled in 2018. Well has since been abandoned.	The East of Gannet and Montrose Field Marine Protected Area (MPA) intersects with the 22/18c block. The geotechnical survey was carried out 12km away from this MPA. The closest protected area to the survey area is the Buchan Ness to Collieston Coast SPA, located approximately 198km to the west of the survey location. Buchan Ness to Collieston Coast SPA is located on the coast of Aberdeenshire in north-east Scotland.  Other nearby MPAs include the Norwegian Boundary Sediment Plain MPA located at approximately 58km from the blocks and the Fulmar MPA at nearly 82km away.
UK – Offshore Chimera Licence P2312	Located in Block 3/17 within the UKCS Northern North Sea, approximately 107km from the Shetland Islands and approximately 187km from Norway.  <b>No activities in 2018.</b> Well drilling planned in 2019.	Chimera is not in close vicinity of any protected site. The closest area is a UK Special Area of Conservation (SAC) for corals, located more than approximately 150km away.
UK – Offshore Woodstock Licence P2379	Approximately 200km east of Aberdeen and lies less than 50km from the UK-Norway median.  <b>No activities in 2018.</b>	No significant areas are considered close to the block. The Scanner pockmark complex (Special Area of Conservation) is estimated to be over 80km to the north-west and the Norwegian Boundary Sediment Plain (Nature Conservation Marine Protected Area) lies over 50km north-north-east. Pockmarks associated with gas seepage are possible in this region of the North Sea, although the main density of known pockmarks lie 50km or more to the west and north.
UK – Offshore Manhattan Licence P2381	Approximately 225km east of Aberdeen adjacent to Woodstock.  <b>No activities in 2018.</b>	As per adjacent Woodstock, no significant areas are considered close to the block. The Scanner pockmark complex (Special Area of Conservation) is estimated to be over 80km to the north-west and the Norwegian Boundary Sediment Plain (Nature Conservation Marine Protected Area) lies over 50km north-north-east. Pockmarks associated with gas seepage are possible in this region of the North Sea although the main density of known pockmarks lie 50km or more to the west and north.
UK – Offshore Peppermint Licence P2393	Approximately 180km east-south-east of Aberdeen.  <b>No activities in 2018.</b>	No identified protected zones in the surrounding area. The Firth of Forth Banks Complex (Nature Conservation Marine Protected Area) including Berwick, Scalp, Montrose Banks and the Wee Bankie lie some 150km to the west-south-west at their nearest point. This area contains important benthic species and is an important area for grey seals and foraging seabirds.
Norway Duncan Licence PL880	Approx 140km north-west of Bergen and immediately west of the planned Nova development.  <b>No activities in 2018.</b>	The nearest known highly environmentally sensitive locations are coastal Norway including spawning grounds over 100km north-east.
Norway – Grannes Licence PL800	Lies in the Barents Sea around 300km north of Trondheim. It lies immediately south of Lynghaug and Godalen.  <b>No activities in 2018.</b>	Similar to Lynghaug, no sensitive sites lie within the block. Several Ramsar sites occur along the Norwegian coast; however, nearest landfall to PL842 is approximately 150km to the south-east. OSPAR Marine Protected Areas lie approximately 200km south (Sularevet), 130km south-south-east (Inverryggen) and 170km east (Rostrevet). These are cold-water coral reef areas.
Norway – Terako UPDIP Licence PL248J	Adjacent to Duncan, Approximately 140km north-west of Bergen and immediately west of the planned Nova development.  <b>No activities in 2018.</b>	The nearest known highly environmentally sensitive locations are coastal Norway including spawning grounds over 100km north-east.
Norway – Seil Licence PL877	Seil lies around 125km WNW of Bergen.  <b>No activities in 2018.</b>	The nearest highly environmentally sensitive areas lie along the coast of Norway. No significant areas are known in this location at present.
Norway – Lynghaug Licence PL758	Lies offshore approximately 297km north of Trondheim.  A site survey was carried out in 2018. A well is planned in 2019.	No sensitive sites lie within the block. Several Ramsar sites occur along the Norwegian coast; however, nearest landfall to PL758 is approximately 150km to the south-east. OSPAR Marine Protected Areas lie approximately 200km south (Sularevet), 130km south-south-east (Inverryggen) and 170km east (Rostrevet). These are cold-water coral reef areas.

Area of operations	Geographical location	Protected areas (distance to licence block, status) type of operation
Norway – PL842 Godalen and PL856	<p>PL842 (Godalen) lies offshore some 300km north of Trondheim. Licence acquired in 2017.</p> <p>A site survey was carried out in 2018. A well is planned in 2019.</p> <p>PL856 lies offshore approximately 250km north-east of Hammerfest. Licence acquired in 2017.</p> <p><b>No activities in 2018.</b></p>	<p>PL842: No Ramsar sites lie within the block. Several Ramsar sites occur along the Norwegian coast; however, nearest landfall to PL842 is approximately 150km to the south-east. OSPAR Marine Protected Areas lie approximately 200km south (Sularevet), 130km south-south-east (Inverryggen) and 170km east (Rostrevet). These are cold-water coral reef areas. Other sensitive areas are shown in the provided maps.</p> <p>PL856: No Ramsar sites lie within the block. The nearest OSPAR Marine Protected Area appears to be Korallen, an area of cold-water coral 250km south-east of the block. Other sensitive areas are shown in the provided maps.</p>
Suriname – Block 61	<p>Block 61 lies in offshore Suriname. The distances from the shoreline and the closest and furthest survey points are approximately 115km and 250km, respectively.</p> <p>2D seismic survey carried out in Q1 and Q2 2019.</p>	<p>No Ramsar sites occur within the block. The closest Ramsar site is a Wetland of International importance located on the coast around 135km away.</p> <p>Several IBAs (Important Bird Areas) occur along the coast, however the closest one is located 90km away.</p> <p>A protected area with sustainable use of natural resources is located around 100km away from the closest point of Block 61.</p>
Mexico – Block 15	<p>Block 15 is located approximately 2km offshore of the state of Veracruz in the south-west Gulf of Mexico.</p> <p>Environmental baseline survey carried out in 2018.</p>	<p>Block 15 intersects with a large Marine Priority Region. It is also near to two smaller protected areas (0.5km) with sustainable use of natural resources, located north and south of the Block.</p> <p>Within Block 15 there is also an artificial reef Platform (Tiburón-1) which is a former operation oil production platform.</p>
Mexico – Block 9	<p>Block 9 offshore lies within the Sureste Basin which is part of the larger southern Gulf of Mexico geological province, approximately 100km north-east of Dos Bocas.</p> <p>Environmental baseline survey completed in 2018. Two wells planned in 2019.</p>	<p>Block 9 does not intersect with any special conservation areas. There are two large protected areas with sustainable use of natural resources, with one 85km south-west and another 105km south-east of Block 9.</p> <p>Within each of these protected areas, there are embedded UNESCO-MAB Biosphere Reserves.</p>

Figure 1: Protected areas offshore Senegal

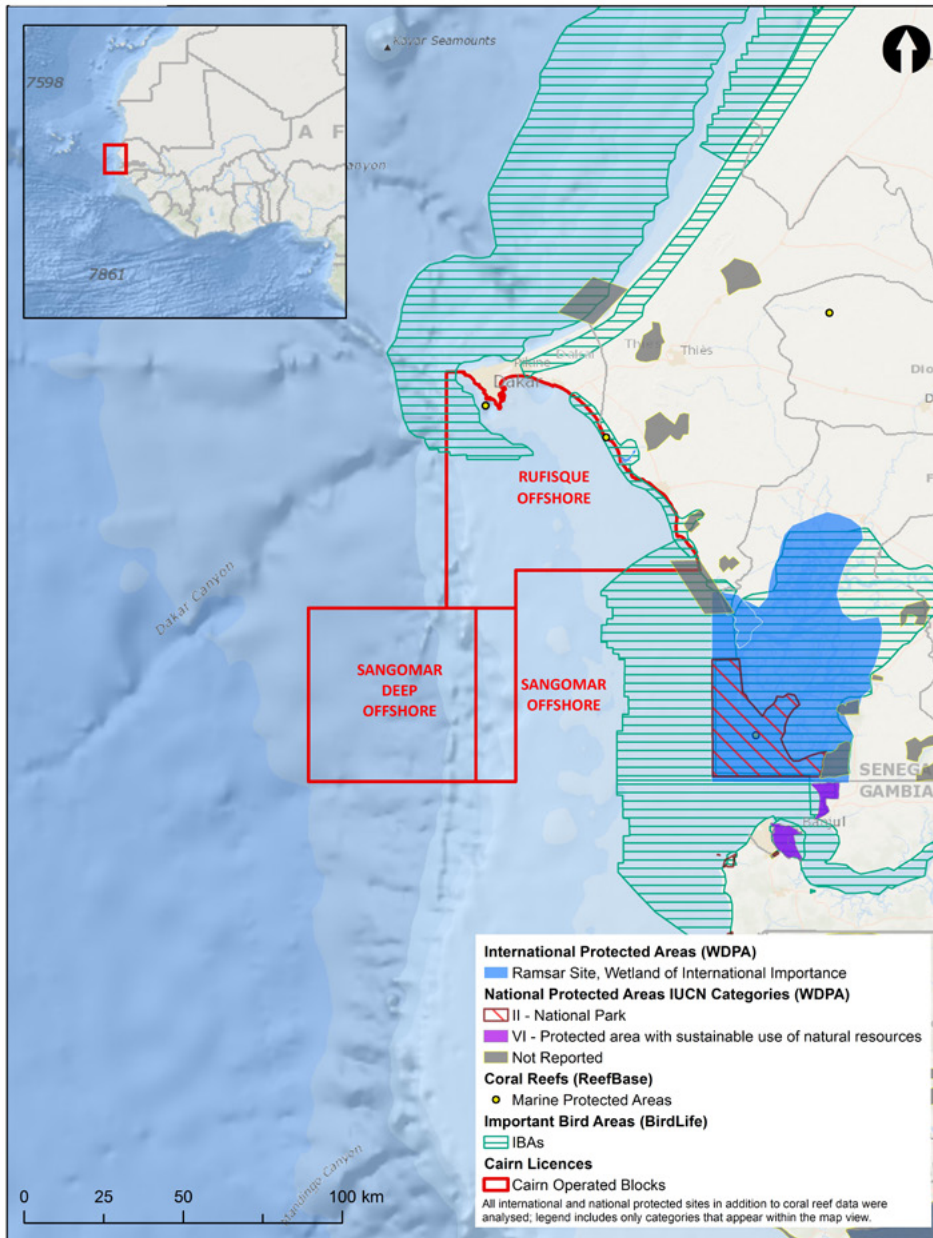


Figure 2: Protected areas offshore Ireland

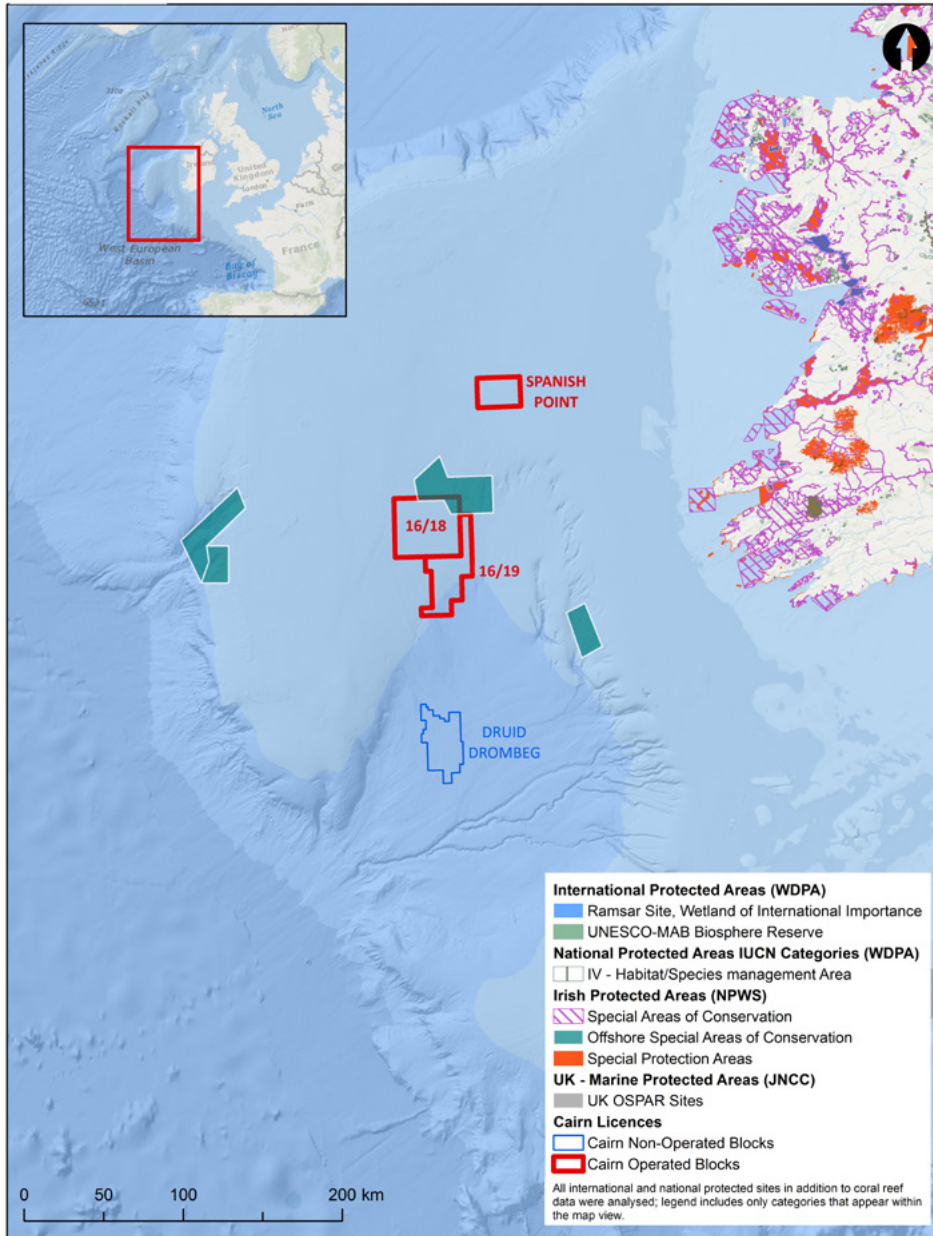


Figure 3: Protected areas offshore the UK and Norway

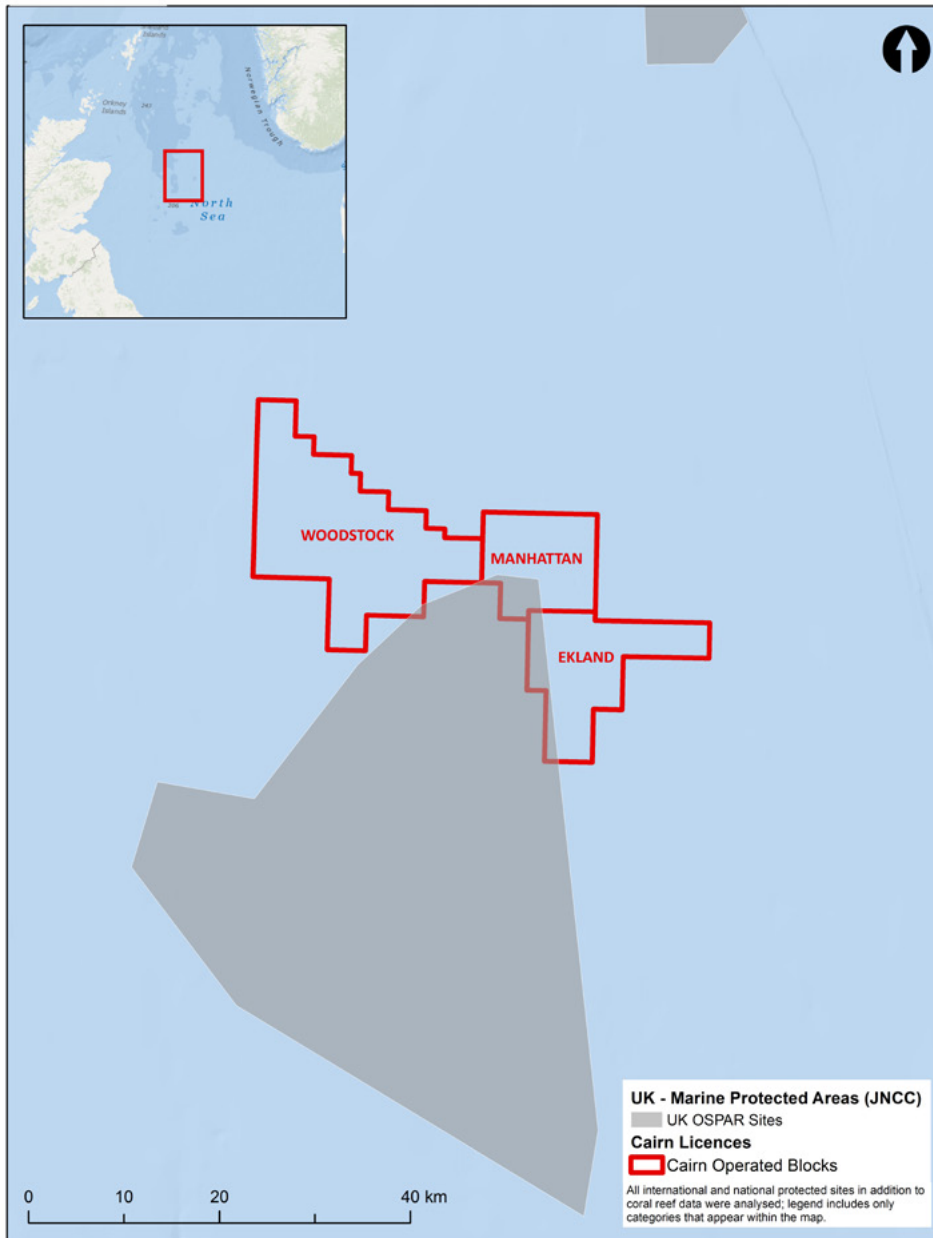


Figure 4: Protected areas offshore the UK and Norway

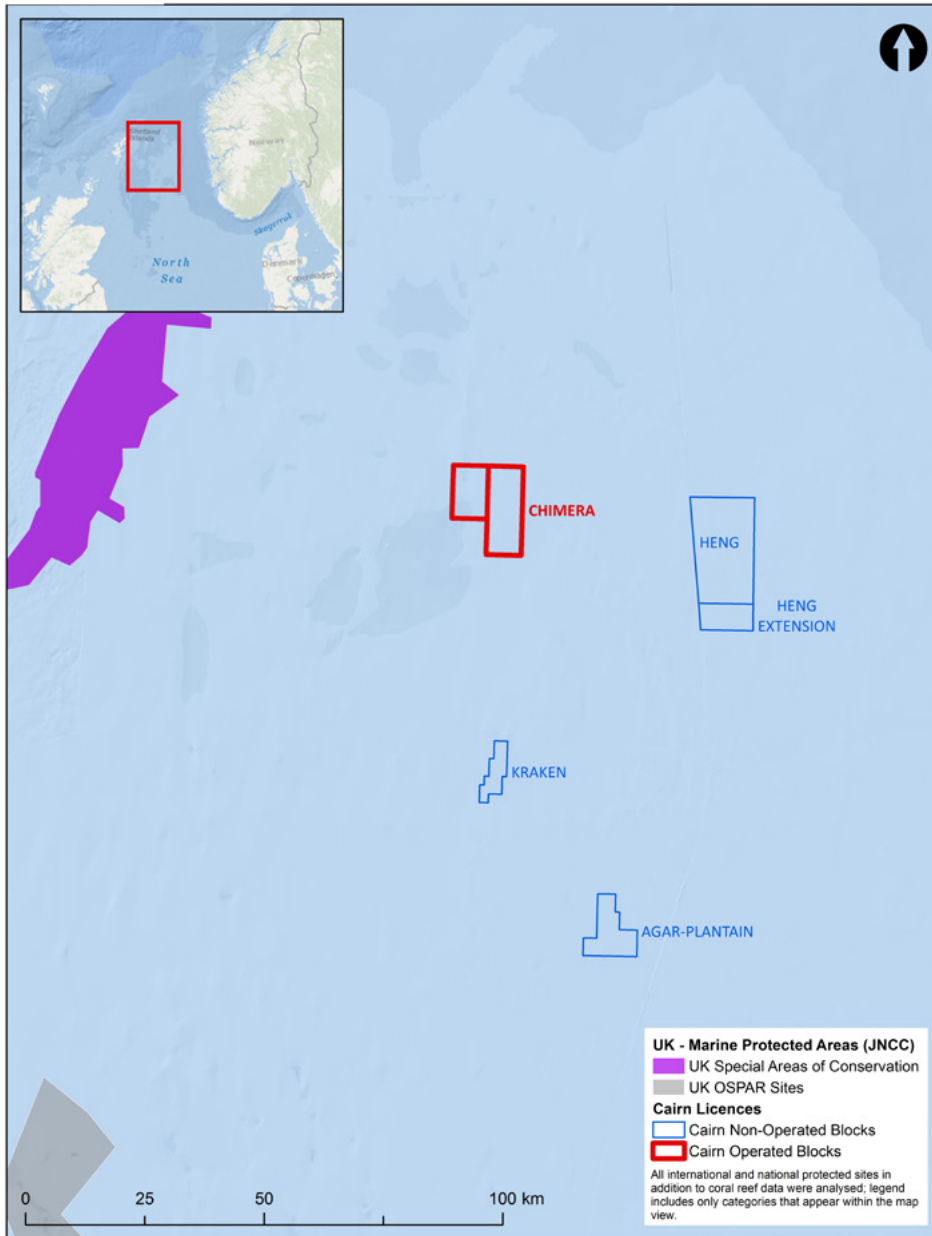


Figure 5: Protected areas offshore the UK and Norway

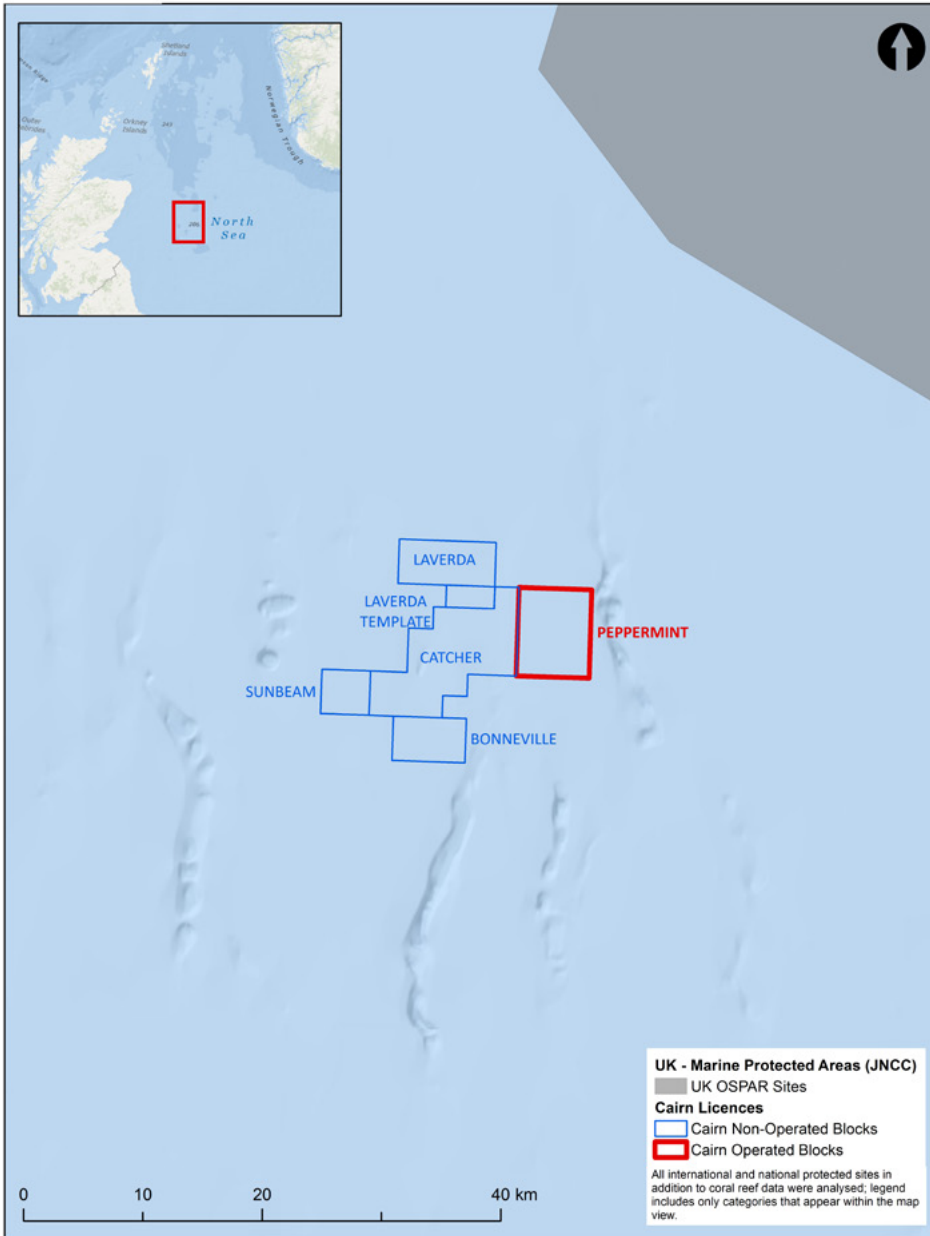


Figure 6: Protected areas offshore Norway

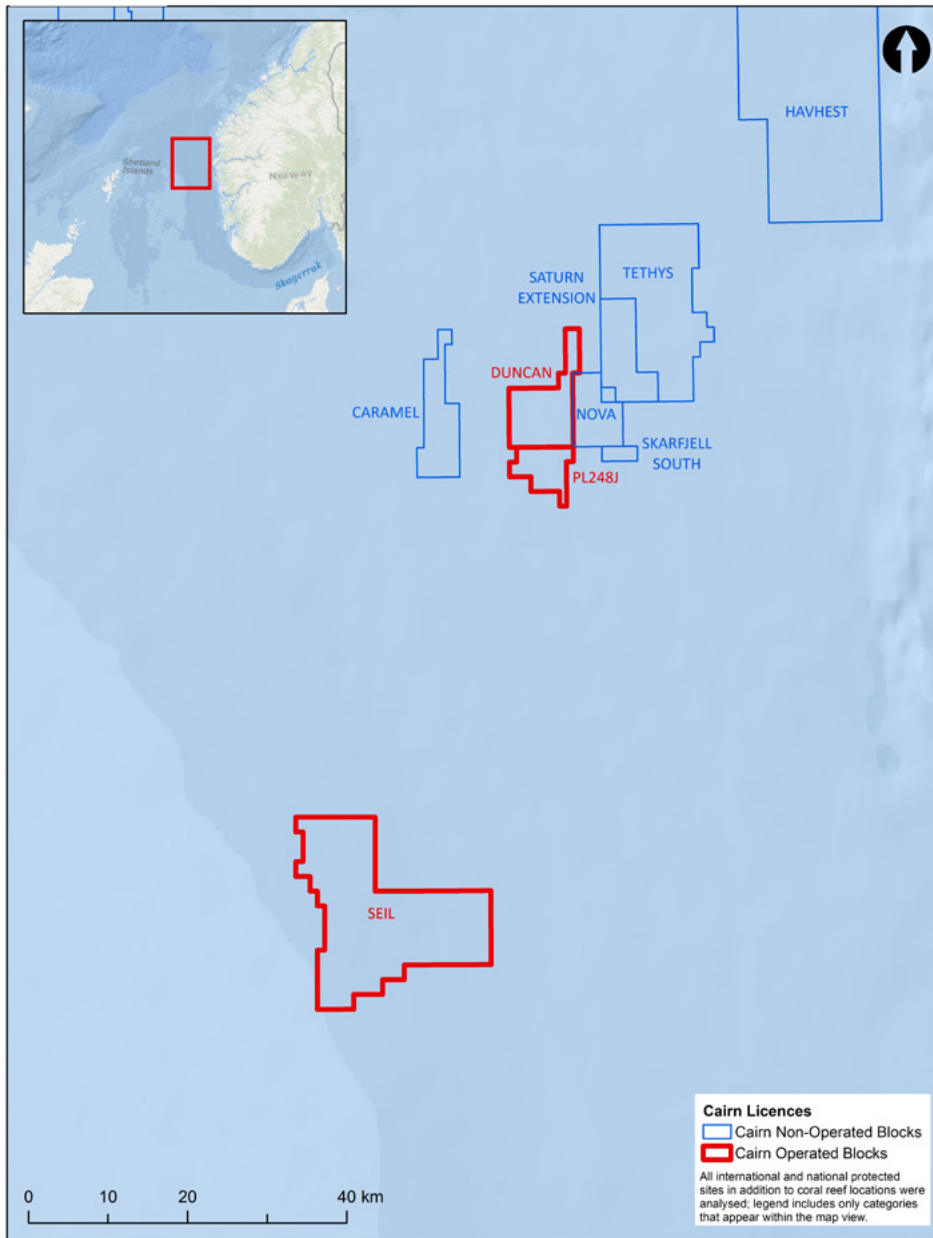




Figure 7: Protected areas offshore Norway

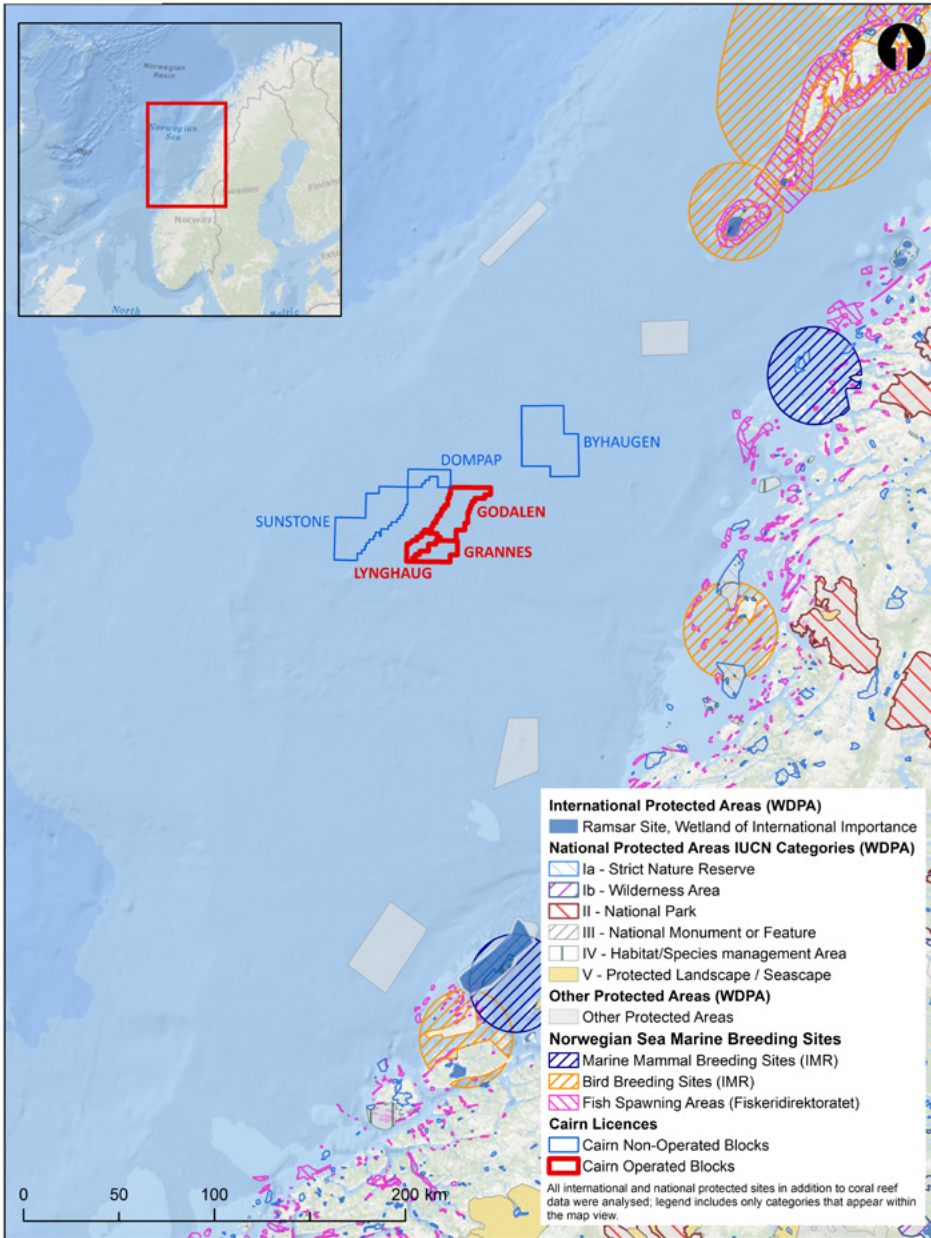


Figure 8: Protected areas offshore Suriname

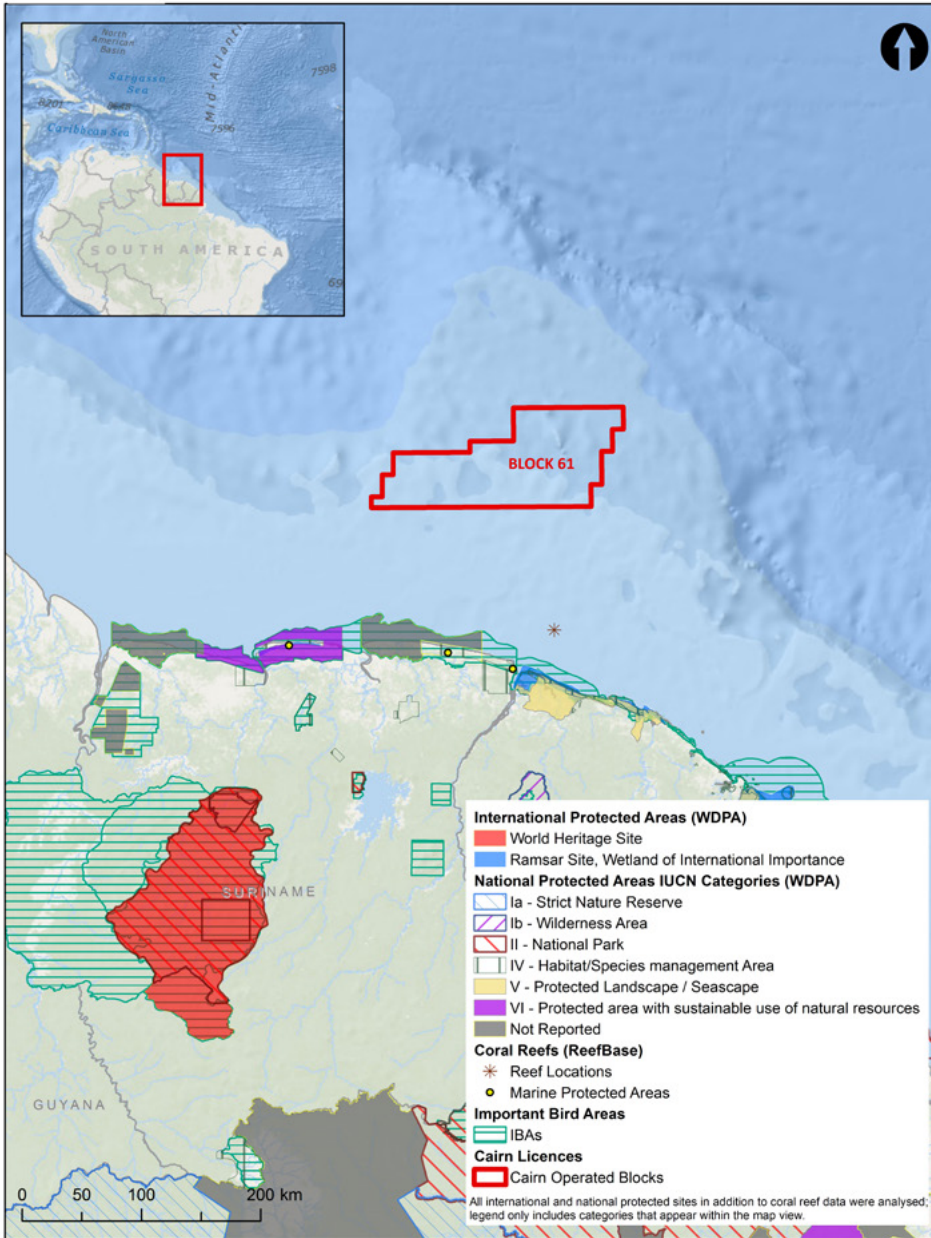


Figure 9: Protected areas offshore Mexico

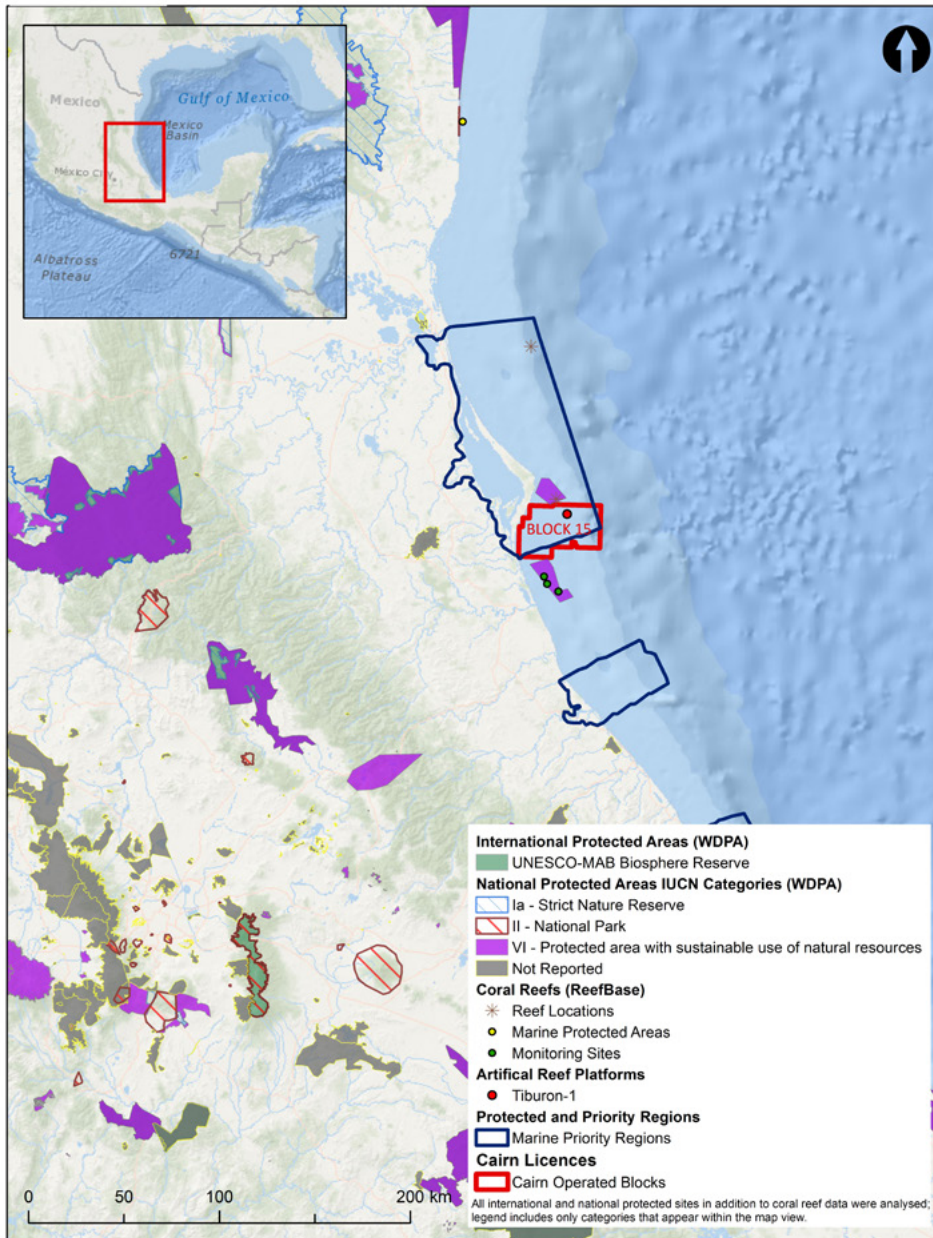
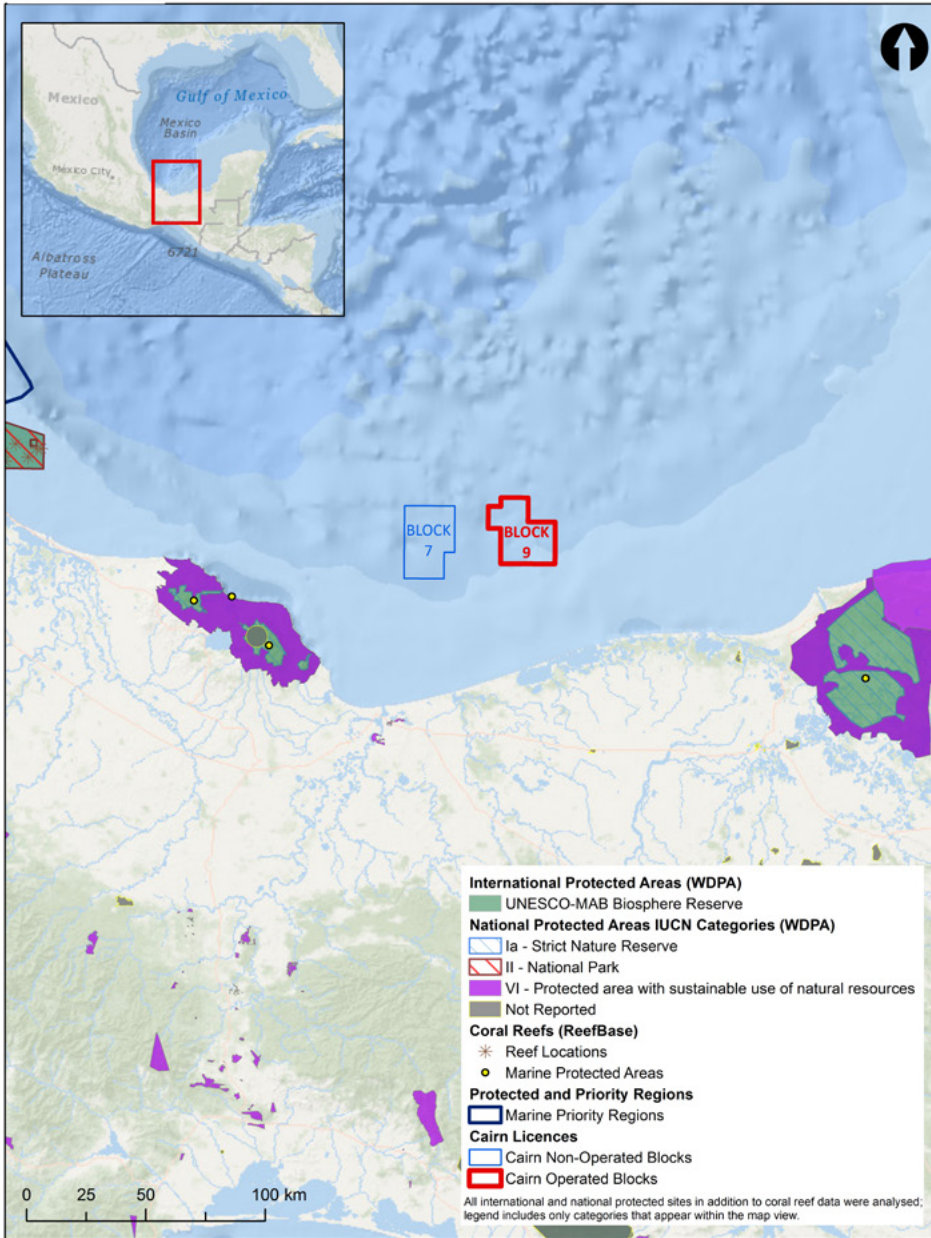


Figure 10: Protected areas offshore Mexico



**Description of significant impacts of activities, products and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas**

Area of operations	Nature of significant direct or indirect impacts on biodiversity	Significant direct or indirect impacts on species
Senegal – Sangomar Deep Offshore	Potential for direct impacts on the biodiversity of the benthic environment in the vicinity of the Sangomar Deep wells was identified due to smothering by drill cuttings and from the discharge of drilling fluids.	No significant direct or indirect impacts on biodiversity were identified during the ESIA process undertaken for operations in Senegal. The majority of WBM chemicals are considered as Pose Little Or No Risk (PLONOR) chemicals. Where non-PLONOR chemicals were required for operational or safety reasons, their use and discharge were strictly monitored and minimised to the greatest extent possible, and approved by the country regulator.  Otherwise, discharges were kept to a practical minimum during drilling. Localised smothering of non-mobile benthic organisms in the immediate vicinity of the well was anticipated and observed, but no overall direct or indirect impact on biodiversity occurred.
Senegal – Sangomar offshore and Rufisque offshore blocks	Environmental baseline survey was undertaken in 2017.  <b>No activities in 2018.</b>	n/a
Republic of Ireland – Spanish Point (FEL 2/04), Spanish Point (FEL 4/08) North and FEL 1/14 Porcupine Basin, offshore Republic of Ireland	<b>No activities in 2018.</b>	n/a
Republic of Ireland – Licence Option 16/18	<b>No activities in 2018.</b>	n/a
Republic of Ireland – Licence Option 16/19	<b>No activities in 2018.</b>	n/a
UK – Offshore Ekland Licence P2184 (block 22–10)	Geotechnical survey and drilling took place in 2018.	The ESIA for the drilling estimated short-term impacts to marine mammals and fish as a result of noise generation from drilling and VSP operations are expected to be low risk. Residual impacts from both hazardous and non-hazardous waste generation are reduced to low following the implementation of mitigation measures and in addition no spill modelling has predicted the reach of the coastline and therefore no adverse impacts on the integrity of any European-designated sites is expected. Low-risk transboundary impacts are expected atmospheric emissions or release of hydrocarbons, and significant cumulative effects are not expected.  Therefore, although the drilling of Nautical's Ekland exploration well could give rise to potential transient negative environmental impacts, significant and long-term potential environmental impacts are sufficiently reduced by appropriate project design and planning, and mitigation measures implementation.
UK – Offshore Chimera Licence P2312	A geophysical survey was carried out in 2018 with no significant impacts.	Due to the observation of faunal burrows and sea pens, particularly Pennatula phosphorea, there was the potential for the presence of the OSPAR-listed threatened and/or declining habitat sea pens and burrowing megafauna communities within the survey area. No other potentially sensitive species or habitats were observed in the Chimera survey area.  No significant impacts are expected to have arisen from this survey.
UK – Offshore Woodstock Licence P2379	<b>No activities in 2018.</b>	n/a
UK – Offshore Manhattan Licence P2381	<b>No activities in 2018.</b>	n/a
UK – Offshore Peppermint	<b>No activities in 2018.</b>	n/a
Norway – Duncan Licence PL880	<b>No activities in 2018.</b>	n/a

Area of operations	Nature of significant direct or indirect impacts on biodiversity	Significant direct or indirect impacts on species
Norway – Grannes Licence PL800	No activities in 2018.	n/a
Norway – Terako UPDIP Licence PL248J	No activities in 2018.	n/a
Norway – Seil Licence PL877	No activities in 2018.	n/a
Norway – Lynghaug Licence PL758	A geophysical survey was carried out in 2018.	The geophysical survey is expected to have had no significant impacts on the coral and seabed communities and the environment. The faunal abundance and diversity observed were generally low. The sea pen quantities observed contained a significant number of individuals but densities were considered unlikely to constitute a 'sea pen and burrowing megafauna habitat'. During the survey, five individuals of the rockfish <i>Sebastes</i> were encountered.
Norway – Godalen Licence PL842	A geophysical survey was carried out in 2018.	The survey carried out is expected to have had no significant impacts on the environment. The faunal abundance and diversity were generally low. Several sea pens were observed; the quantities observed contained a significant number of sea pens but densities considered unlikely to constitute a 'sea pen and burrowing megafauna habitat'. Only one observation of rockfish of the genus <i>Sebastes</i> was recorded.
Suriname – Block 61	Survey operations carried out in Q4 2018 through Q1 of 2019 and finalising operations to be carried out in Q2.	In the ESIA study, it was found that that if mitigation is applied, all potential impacts with the exception of collisions or entanglement with listed species, can be reduced to low or negligible significance.  During operations in Q1, mitigation measures such as soft start were carried out according to JNCC guidelines, and 24-hour observation cover by Marine Mammal Observers and Passive Acoustic Monitoring. No turtles were observed in the entirety of the survey and no IUCN 'endangered' mammals.
Mexico – Block 15	Survey operations carried out in Q1 of 2019. Drilling operations to commence end of 2019.	Results from the environmental baseline survey finalised in February 2019 showed there are no resident endangered species within Contract Area 15. The only observed protected/listed species from the survey were one sea turtle and three species of dolphin ( <i>Stenella attenuata</i> , <i>Steno bredanensis</i> and <i>Tursiops truncatus</i> ).  The benthic infauna community found is relatively diverse, with variable abundances tending toward the high end of the range typically observed in Gulf of Mexico shelf. The Tiburon platform functions as an artificial reef that has altered the natural ecosystem on a localised scale and supports a well-developed and mature epifauna. Based on data acquired from the October 2018 EBS survey and information from CNH, pre-existing damages are limited to known existing infrastructure from oil and gas operations.  There were no anthropogenic environmental damages identified within Block and five fish tissue samples collected during the October 2018 survey.
Mexico – Block 9	Survey operations carried out in Q1 of 2019. Drilling operations to commence end of 2019.	The EIA impact assessment submitted in March 2019 determines that most relevant impacts on the natural environment correspond to the temporary effects on fish, mammals and marine turtles due to noise, changes in the structure and composition of the seabed, and impact on planktonic communities, for which measures of specific mitigation will be carried out.  The project is located in a region considered an oligotrophic product of low concentrations of nutrients and associated with low biological diversity. Regarding this, a total of seven species of seabirds were recorded, whose estimators indicate a low diversity of species of this group. In relation to the fish, four species were identified in total, with lower values of diversity estimators than reported in other adjoining contractual areas. In Block 9 there were also no records of mammals or sea turtles in the survey.  It is expected that the prevention and mitigation measures that make up the proposed Environmental Monitoring Program, will guarantee minimum impact of the project on the environment and on each one of the elements that make it up, so that the activities of the project will be carried out without detriment to the ecological balance in the region.

**Total number of IUCN Red List species and national conservation list species with habitats in areas affected by operations, by level of extinction risk.**

Area of operations	Nature of significant direct or indirect impacts on biodiversity	Significant direct or indirect impacts on species
Senegal – Sangomar Deep Offshore	Approximately 85km from the nearest coast, in water depths ranging from 800m to 2,000m.  Appraisal and exploration drilling and well testing 2017 (SNE-5, SNE-6, VR-1, FAN South-1 and SNE North-1).  <b>No operations in 2018.</b>	The ESIA indicated five marine turtle species have been recorded in Senegal waters and nesting in the Saloum Delta and around the Cape Verde peninsula: the hawksbill turtle ( <i>Eretmochelys imbricata</i> ) and the leatherback turtle ( <i>Dermochelys coriacea</i> ), both critically 'endangered'; green turtle ( <i>Chelonia mydas</i> ) and loggerhead turtle ( <i>Caretta caretta</i> ), both 'endangered' on the IUCN Red List of Threatened Species, and the olive ridley turtle ( <i>Lepidochelys olivacea</i> ). The nesting periods of green and leatherback turtles overlap with the time of the proposed drilling operations (March, and December to February, respectively).
Senegal – Sangomar offshore and Rufisque offshore blocks	Environmental baseline survey was undertaken in 2017.  <b>No operations in 2018.</b>	The areas may include similar species to Sangomar Deep, see above.
Spanish Point (FEL 2/04), Spanish Point (FEL 4/08) North and FEL 1/14 Porcupine Basin, offshore Republic of Ireland	<b>No operations in 2018.</b>	None known.
Republic of Ireland – Licence Option 16/18	<b>No operations in 2018.</b>	None known.
Republic of Ireland – Licence Option 16/19	<b>No operations in 2018.</b>	None known.
UK – Offshore Eckland Licence P2184 (block 210)	Lies the central North Sea (CNS), approximately 210km east of the nearest landfall at Peterhead. Geotechnical survey and drilling took place in 2018. The well has been relinquished since.	The EIA for the Eckland Well Exploration drilling identified sea pens ( <i>Pennatula phosphorea</i> ) considered 'vulnerable'.  Basking sharks ( <i>Cetorhinus maximus</i> ) have been sighted in the area and are considered 'endangered'.  Seabirds that have been recorded travelling in the vicinity of the well location include the fulmar ( <i>Fulmarus glacialis</i> ) which is classified as 'endangered' in Europe.
UK – Offshore Chimera Licence P2312	Located in Block 3/17 within the UKCS Northern North Sea, 107km from the Shetland Islands and approximately 187km from Norway. Geophysical survey was carried out in 2018.	In the environmental baseline survey results report, sea pens ( <i>Pennatula phosphorea</i> ) were observed, which are classified as 'vulnerable' in the IUCN.  No further potentially sensitive species or habitats were observed in the Chimera survey area.
UK – Offshore Woodstock Licence P2379	<b>No operations in 2018.</b>	Spawning ground for Norway pout and mackerel particularly in late winter and spring. Cetaceans which are likely use the location in any significant numbers include minke whales (low density) and harbour porpoises (moderate densities). If pockmarks are present benthic species associated with pockmarks are possible including echinoderms and epifauna along with some fish species. No known IUCN endangered species.
UK – Offshore Manhattan Licence P2381	<b>No operations in 2018.</b>	As per adjacent Woodstock, spawning ground for Norway pout and mackerel particularly in late winter and spring. Cetaceans which are likely use the location in any significant numbers include minke whales (low density) and harbour porpoises (moderate densities). If pockmarks are present, benthic species associated with pockmarks are possible including echinoderms and epifauna along with some fish species. No known IUCN endangered species.
UK – Offshore Peppermint Licence P2393	<b>No operations in 2018.</b>	Spawning grounds for Norway pout, saith, cod and lemon sole. Relatively low conservation value. There are some migratory bird routes across the block. Low harbour seal densities occurring. Cetaceans sighting generally low with exception of harbour porpoise which appear to be more ubiquitous across the North Sea in this region. No notable benthic communities in the vicinity and no known IUCN endangered species

Area of operations	Nature of significant direct or indirect impacts on biodiversity	Significant direct or indirect impacts on species
Norway – Duncan Licence PL880	<b>No operations in 2018.</b>	Spawning grounds of fish species appear to be largely to the east and west of the block. Cold-water coral species appear in zones further north. Bird species in the area include guillemot and groves over the open sea in moderate densities. Sea and stone seals occur towards the coast. No known IUCN endangered species.
Norway – Grannes Licence PL800	<b>No operations in 2018.</b>	In the seabed investigation report, sea pens ( <i>Pennatula phosphorea</i> ) were observed, which are classified as 'vulnerable' in the IUCN Red List. Due to low density observed in the transects, the area was considered unlikely to be a 'sea pen and burrowing megafauna habitat'.  Individuals of the rockfish <i>Sebastes marinus</i> , considered 'vulnerable', and <i>Sebastes mentella</i> , considered 'endangered' in Europe.
Norway – Terako UPDIP (Duncan UPDIP) Licence PL248J	Adjacent to Duncan, approximately 140km north-west of Bergen and immediately west of the planned Nova development.  <b>No operations in 2018.</b>	As per adjacent Duncan, spawning grounds of fish species appear to be largely to the east and west of the block. Cold-water coral species appear in zones further north. Bird species in the area appear include guillemot and groves over the open sea in moderate densities. Sea and stone seals occur towards the coast.
Norway – Seil Licence PL877	<b>No operations in 2018.</b>	Government-protected zones occur along the coast over 70km to the east with coral agglomeration much further north. Fish spawning grounds occur in the area, including Norway pout.
Norway – Lynghaug Licence PL758	Lies offshore some 297km north of Trondheim. A site survey was carried out in 2018.	In the seabed investigation report, sea pens ( <i>Pennatula phosphorea</i> ) were observed, which are classified as 'vulnerable' in the IUCN Red List. Due to low density observed in the transects, the area was considered unlikely to be a 'sea pen and burrowing megafauna habitat'.  Individuals of the rockfish <i>Sebastes marinus</i> , considered 'vulnerable', and <i>Sebastes mentella</i> , considered 'endangered' in Europe.
Norway – Godalen Licence PL842	Lies offshore some 300km north of Trondheim. A site survey was carried out in 2018.	In the seabed investigation report, sea pens ( <i>Pennatula phosphorea</i> ) were observed, which are classified as 'vulnerable' in the IUCN Red List.  Individuals of the rockfish <i>Sebastes marinus</i> rarely occur in the area, but are considered 'vulnerable' and <i>Sebastes mentella</i> , considered 'endangered' in Europe.
Suriname – Block 61	Survey operations carried out in in Q4 2018 through Q1 of 2019.	In the ESIA study produced for offshore seismic survey operations, species of turtles have been identified: According to the 2018 IUCN Red List, hawksbill turtles are 'critically endangered'; green turtles are 'endangered', and loggerhead, olive ridley, and leatherback turtles are 'vulnerable' (IUCN, 2018). All sea turtle species known to occur in waters off Suriname may be found in the middle shelf waters of the Block 61 survey area. Nesting periods range from March to July.  Marine mammals that may occur in Surinamese waters include the sei whale ( <i>Balaenoptera borealis</i> ), the blue whale ( <i>Balaenoptera musculus</i> ) and the fin whale ( <i>Balaenoptera physalus</i> ), which are all under 'endangered' status according to the IUCN. The sperm whale ( <i>Physeter microcephalus</i> ) and the West Indian manatee ( <i>Trichechus manatus</i> ) are considered to be 'vulnerable'.  Along with 22 'vulnerable' fish species, four critically 'endangered' fish species were identified: the Caribbean electric ray ( <i>Narcine bancroftii</i> ),argetooth sawfish ( <i>Pristis pristis</i> ), Atlantic goliath grouper ( <i>Epinephelus itajara</i> ) and the daggernose shark ( <i>Isogomphodon oxyrinchus</i> ). There are also three 'endangered' species: golden tilefish ( <i>Lopholatilus chamaeleonticeps</i> ), Nassau grouper ( <i>Epinephelus striatus</i> ) and the Atlantic bluefin tuna ( <i>Thunnus thynnus</i> ).  In the IUCN Red List there are also eight 'near threatened' bird species that can be found along the Surinamese coast: the blue-cheeked Amazon ( <i>Amazona dufresniana</i> ), olive-sided flycatcher ( <i>Contopus cooperi</i> ), rufous-sided pygmy tyrant ( <i>Euscarthmus rufomarginatus</i> ), harpy eagle ( <i>Harpia harpyja</i> ), crested eagle ( <i>Morphnus guianensis</i> ), Orinoco goose ( <i>Neochen jubata</i> ), bearded tachuri ( <i>Polystictus pectoralis</i> ), and buff-breasted sandpiper ( <i>Tryngites subruficollis</i> ).



Area of operations	Nature of significant direct or indirect impacts on biodiversity	Significant direct or indirect impacts on species
Mexico – Block 15	Survey operations carried out in Q1 of 2019. Drilling operations to commence end of 2019.	<p>The environmental baseline survey identified the coral species elkhorn (<i>Acropora palmata</i>) and staghorn (<i>Acropora cervicornis</i>) corals, both of which are listed as 'critically endangered'. The coast is also an important nesting ground for sea turtles such as Kemp's ridley (<i>Lepidochelys kempii</i>) and the hawksbill (<i>Eretmochelys imbricata</i>) classified as 'critically endangered', the green turtle (<i>Chelonia mydas</i>), as 'endangered', and loggerhead (<i>Caretta caretta</i>), and leatherback (<i>Dermochelys coriacea</i>) turtles as 'vulnerable'.</p> <p>The regional study area identified the 'critically endangered' Nassau grouper (<i>Epinephelus striatus</i>), as well as six species that are 'endangered' (EN), 14 that are 'vulnerable' (VU), and 13 that are 'near-threatened' (NT).</p> <p>Regarding marine mammals, the 'endangered' Antillean manatee (<i>Trichechus manatus manatus</i>) has been identified and for birds the 'vulnerable' heron (<i>Agamia agami</i>).</p>
Mexico – Block 9	Survey operations carried out in Q1 of 2019. Drilling operations to commence end of 2019.	<p>The environmental baseline survey points out the following fish species in the block that are 'critically endangered': lesser electric ray (<i>Narcine bancroftii</i>), smalltooth sawfish (<i>Pristis pectinata</i>), calico grouper (<i>Epinephelus drummondhayi</i>), Atlantic goliath grouper (<i>Epinephelus itajara</i>) and Warsaw grouper (<i>Hyporthodus nigritus</i>). 'Endangered' species found included whale shark (<i>Rhincodon typus</i>), scalloped hammerhead (<i>Sphyrna lewini</i>), great hammerhead shark (<i>Sphyrna mokarran</i>), American eel (<i>Angilla rostrata</i>), Jarocho goby (<i>Elacatinus jarocho</i>), Nassau grouper (<i>Epinephelus striatus</i>), Yucatan killifish (<i>Fundulus persimilis</i>), Veracruz white hamlet (<i>Hypoplectrus castroaguirrei</i>), Mardi Gras wrasse (<i>Halichoeres burekai</i>), great northern tilefish (<i>Lopholatilus chamaeleonticeps</i>), golden silverside (<i>Menidia colei</i>), reticulated toadfish (<i>Sanopus reticulatus</i>) and Atlantic bluefin tuna (<i>Thunnus thynnus</i>).</p> <p>The Mexican Gulf harbours three species that are considered 'vulnerable' and two that are 'critically endangered'. Six identified species in the survey are considered 'least concern' according to the IUCN list.</p> <p>Marine mammals found 'endangered' include the North Atlantic right whale (<i>Eubalaena glacialis</i>), sei whale (<i>Balaenoptera borealis</i>), the blue whale (<i>Balaenoptera musculus</i>) and the Caribbean manatee (<i>Trichechus manatus</i>). The 'critically endangered' species include the Gulf of Mexico whale (<i>Balaenoptera edeni</i>), and 'vulnerable' fin whale (<i>Balaenoptera physalus</i>), sperm whale (<i>Physeter microcephalus</i>).</p> <p>There are 11 species of turtles in the zone, including the green turtle (<i>Chelonia mydas</i>) and the loggerhead turtle (<i>Caretta caretta</i>) which are considered 'endangered' and the hawksbill turtle (<i>Eretmochelys imbricate</i>), Kemp's ridley (<i>Lepidochelys kempi</i>) and leatherback turtle (<i>Dermochelys coriacea</i>), which are all considered 'critically endangered'.</p>

**Habitats protected or restored**

The impacts from Cairn drilling operations on the environment and biodiversity in Senegal were, although measurable, very limited in scale and localised. No habitats required restoration following completion of drilling activities.

The following measures were implemented, or planned for implementation, during the 2018 exploration drilling campaigns.

Activity	Potential impact	Mitigation/Protection measures
Routine seismic operations	Underwater noise (acoustic source/seismic array)	<p><b>Protected Species Observers:</b> Use two Marine Mammal and Turtle Observers (MMO) for daylight activities and one Passive Acoustic Monitoring (PAM) operator for night-time monitoring.</p> <p><b>Visual monitoring:</b> A 500m radius safety buffer/exclusion zone will be observed for at least 60 minutes to ensure there are no marine mammals in the area each time the seismic activity is started.</p> <p><b>Pre-watch:</b> 24 hours period of observation using MMO/PAM; pre-watch period: 60 minutes.</p> <p><b>Soft-start:</b> Each time the seismic sound-producing equipment is started, the power will be increased gradually over a period of 20 to 40 minutes to allow animals to move away.</p> <p><b>Soft-start delay:</b> (1) 30-minute delay for 'species of concern' last seen in mitigation zone; (2) 60-minute delay for deep-diving whales.</p> <p><b>Shutdown of the array:</b> The array will be shut down if a marine mammal or sea turtle enters the 500m safety buffer/exclusion zone.</p> <p><b>Sound source:</b> Use lowest size and levels adequate for seismic data acquisition.</p> <hr/> <p><b>Visual monitoring:</b> A 500m radius safety buffer/exclusion zone will be observed for at least 60 minutes to ensure there are no sea turtles in the area each time the seismic activity is started.</p> <p><b>Soft-start delay:</b> (1) 30-minute delay for 'species of concern' last seen in mitigation zone; (2) delay until a sea turtle is outside the mitigation zone.</p>
	Underwater noise (vessel noise)	<p><b>None proposed.</b></p>
	Physical presence of survey vessels (vessel movement)	<p><b>Protected Species Observers:</b> As above.</p> <p><b>Soft-start:</b> As above.</p> <p><b>Bridge watches:</b> Conduct bridge watches.</p> <p><b>Vessel speed:</b> Maintain nominal speeds when travelling to and from the port.</p> <hr/> <p><b>Pre-survey communication:</b> Communicate with key stakeholders (e.g. fishing associations).</p> <p><b>Notifications:</b> Provide notifications to Port Authority and Maritime Authority (MAS); post notices to mariners; broadcast seismic vessel position on communication channels.</p> <p><b>Radar:</b> Use radar and detection equipment to detect commercial fishing vessels.</p> <p><b>Escort/Support vessel:</b> Use vessel to protect integrity of the safety buffer/exclusion zone.</p> <p><b>Bridge watches:</b> Conduct bridge watches.</p> <p><b>Vessel speed:</b> Maintain nominal speeds when travelling to and from the port.</p> <p><b>Fisheries Liaison Officers:</b> Use local personnel on the escort/support vessel.</p>

Activity	Potential impact	Mitigation/Protection measures
Routine seismic operations (continued)	Physical presence of seismic survey equipment	<b>Protected Species Observers:</b> As above.
		<b>Soft-start:</b> As above.
		<b>Bridge watches:</b> As above.
		<b>Pre-survey communication:</b> As above.
		<b>Notifications:</b> As above.
		<b>Radar:</b> As above.
		<b>Escort/Support vessel:</b> As above.
		<b>Bridge watches:</b> As above.
		<b>Fisheries Liaison Officers:</b> As above.
	Combustion emissions	<b>Maintenance:</b> Maintain engines in optimal working condition and in accordance with manufacturers' specifications.
	Effluent discharges	<b>Compliance:</b> Comply with Suriname laws, MARPOL. <b>Treatment of discharges:</b> Treat sanitary effluent in marine sanitation device prior to discharge; treat oil-contaminated effluent in oil-water separator prior to discharge; monitor oil content to 15 parts per million. <b>Shipboard Oil Pollution Emergency Plan (SOPEP):</b> Plan in place on vessels.
	Hazardous or non-hazardous waste (accidental loss)	<b>Pre-survey inspection:</b> Inspection of vessels by Cairn to ensure functionality of waste management systems. <b>Waste Management Plan:</b> Plan in place and implemented for all vessels. <b>Waste management:</b> Incinerate on board vessel and/or transfer waste onshore to approved facility. <b>Records:</b> Maintain record of all waste generation, transfers, treatment and disposal.
	Accidental small diesel fuel spill	<b>Compliance with MARPOL:</b> SOPEP in place; maintain Oil Record Book. <b>Storage:</b> Store oil and grease in designated containment areas on vessels. <b>Escort/Support vessel:</b> Use vessel to protect integrity of the safety buffer/exclusion zone (to prevent collisions and fuel loss). <b>Recovery:</b> Stock, use and replenish sorbent materials for clean-up of minor spills on vessels. <b>Fuel transfer:</b> Implement strict bunkering procedures for fuel transfer if necessary.