
STATES OF JERSEY



THE ENVIRONMENT IN FIGURES: A REPORT ON THE CONDITION OF JERSEY'S ENVIRONMENT 2011–2015

Presented to the States on 16th September 2016
by the Minister for the Environment

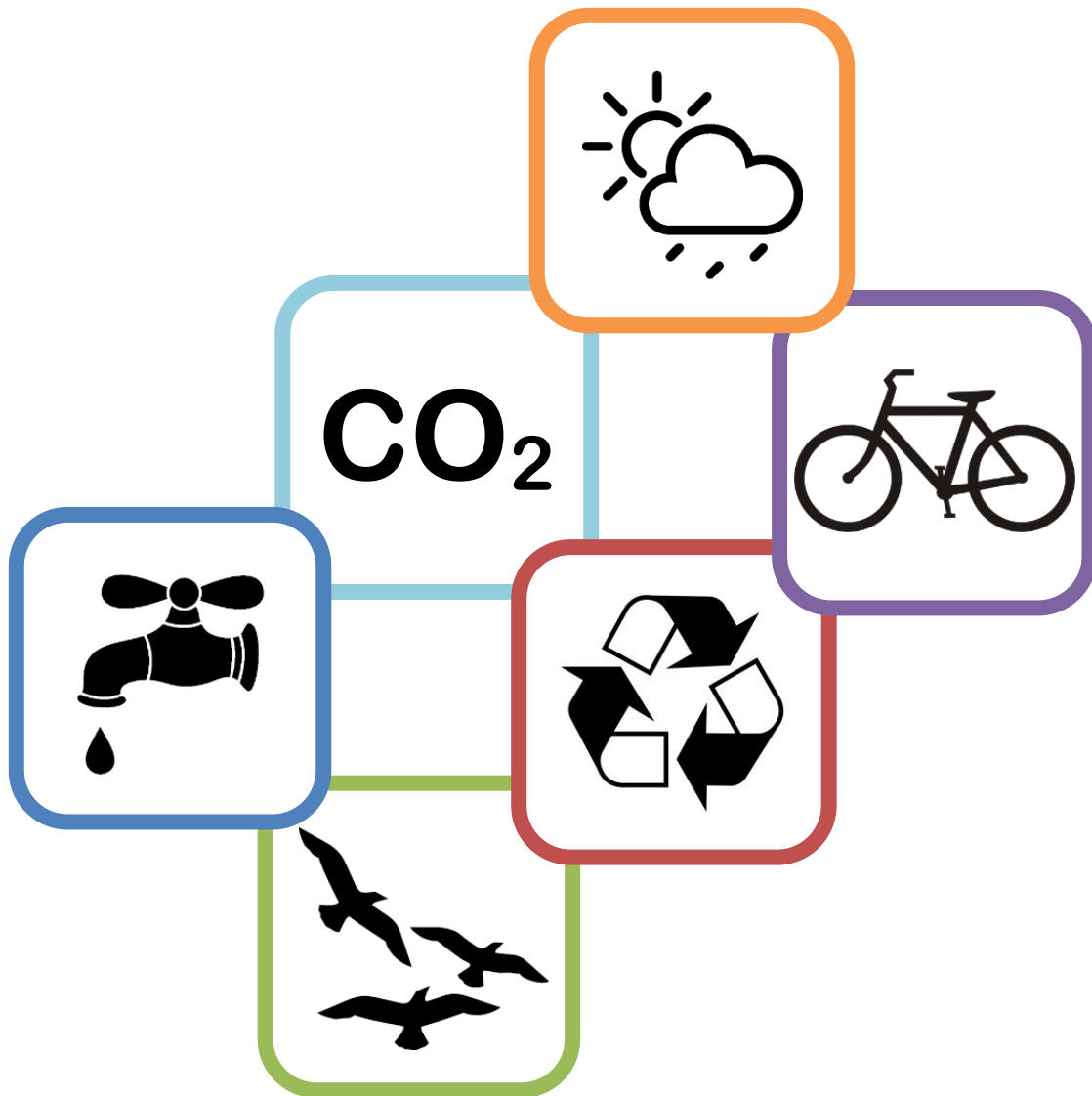
STATES GREFFE



Department of the Environment

The Environment in Figures: A report on the condition of Jersey's environment 2011-2015

EXECUTIVE SUMMARY





Further Information

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Foreword from the Minister

It is easy to think of the environment as a backdrop to our daily lives but it delivers much more to us than simple aesthetics. Clean air, water, soil, our seas, biodiversity and green spaces are all highly valued and make Jersey a special place to live, work and do business. They all deliver multiple benefits to the human population that can be termed 'eco-system services' which underpin the high quality environment that we all enjoy. However, the interactions and interrelationships within our environment are complex and as this report shows, the influence of human activity can disrupt this finely balanced equation. This Environment in Figures report looks at the most recent trends in 48 environmental indicators and tells us how our environment is performing.

The last report in this series was published in 2011 when I was serving on the Environment Scrutiny Panel and in 2014, I became Minister for the Environment. I needed to ensure that the actions set out in the previous report met the environmental challenges and continued to be implemented to protect these vital eco system services.

We are experiencing pressures on our infrastructure from many factors including extreme weather events and changed rainfall patterns caused by climate change. These impacts alongside others, such as higher than expected population increase, could mean that the operating limits of the infrastructure are exceeded and might result in environmental pollution and harm. To avoid this we must manage demand and our resource use. For example, reducing and recycling waste to minimise the amounts of inappropriate wastes disposed of through our energy from waste plant, or using water wisely to reduce pressure in terms of both water supply and treatment.

Public engagement programmes such as eco active, green travel fortnight and recycle for Jersey, provide information and practical solutions to encourage collective responsibility in reducing environmental impact. For example, eco active helps to deliver demand management through a suite of tailored programmes across many sectors, including a bespoke environmental management system for the business community, schools and the public sector.

Nevertheless, this report shows that where only passive, rather than more punitive measures have been used, the combined impact of these initiatives and the efforts of the general public has been limited. For example, the sustainable transport plan has only been partially successful in terms of modal shift. This has largely been due to an amendment accepted by the States Assembly not to significantly increase the cost of motoring until a viable alternative was available to all. Therefore, implementation relied solely on encouragement and the provision of improved services to drive behaviour change towards sustainable travel. It did not impact on the direct costs of motoring. If we are to achieve the level of environmental protection that we know the public want, and meet requirements of best international practise to



which we are committed, then we will need to consider what other policy levers may be appropriate.

Our local environment doesn't exist in isolation. PWC¹, among others, has looked at the factors that are shaping and disrupting the global economic landscape and society. These 'megatrends' are as relevant at the local level and provide a powerful lens for examining the global changes that impact us all, such as climate change and resource scarcity.

In August 2015 Barak Obama, said *"No challenge poses a greater threat to our future and future generations than a change in climate"...* He warned that this was *"the first generation to feel the impact of climate change and the last generation that can do something about it."*

The historic 2015 Paris agreement, is a global political consensus on the need for action, with over 170 world leaders committing to limit warming to less than 2°C by 2100 to avoid the impacts of dangerous climate change. The evidence from this report shows that we are already experiencing these trends locally with associated impacts on our ecosystems services. However, Jersey is addressing its carbon emissions by implementing the recently agreed 2014 Energy Plan which presents a pathway towards a low carbon future.

Patterns of decline in global biodiversity are seen locally in reductions of migrating species. The the numbers of migrating species we ultimately see reaching Jersey's shores are impacted by global habitat loss and degradation, hunting and trapping. Maintaining our internationally recognised biodiversity is intrinsically important from a global biodiversity perspective as well as to enhance the health and well-being of Jersey's residents. Islanders enjoy a high quality natural environment and Jersey is an attractive place for people to live, work and do business whilst active enjoyment of our outstanding countryside and coastal waters promote physical and mental wellbeing.

It is a matter of concern that this report is not more positive. Whilst some progress has been made, there are still significant challenges ahead. We need to fundamentally re-examine and prepare for the impact of global megatrends on our local environment. This will mean re-evaluating how we account for the value and contribution of our environment and the ecosystem services it provides, within our strategic and long term decision making. The Council of Ministers recognise the high value of our environment both in terms of the services it gives us and the contribution it makes to our quality of life in Jersey. The results from the 2016 Island Vision survey show the value that the public place in a high quality environment. The challenge is to continue to ensure the policies we develop to protect our environment are successful.

Steve Luce
Minister for the Environment
September 2016



¹ [Link to PWC Climate change and resource scarcity webpage](#)



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Welcome

Welcome to the executive summary of The Environment in Figures: A report on the condition of Jersey's environment, which covers the reporting period from 2011 to 2015. This report is the third in a series of environmental monitoring reports, the first of which was published in 2005². It examined the available historic environmental data and considered this in the context of the issues raised in a number of previous environmental reports.

The 2005 report identified five key environmental priorities summarised below:

- Climate change
- High levels of waste reduction
- Pressure on the quantity and quality of our water resources
- Transport
- Changes in our countryside and natural history

Recommendations to address these priorities were made, and this set the strategic direction for the next 5 years.

In 2010³ the second report was published and the process was repeated, with the evidence this time highlighting in particular, that the following priorities should be focused on:

- Agreeing an Energy Plan to reduce greenhouse gas emissions;
- Developing a new liquid waste strategy and improving the Island's recycling targets;
- Ensuring the availability and quality of fresh water;
- Protecting our marine environment and ensuring sustainable existing and potential economic activity there;
- Meeting and surpassing the targets set in the Sustainable Travel and Transport Plan supported by the new Island Plan
- Protecting and enhancing our biodiversity and heritage landscape through legislation, the 2011 Island Plan and incentives for the agricultural that purchase environmental goods and services.

In this latest report, the indicators have been updated to the end of 2015. They continue to measure progress towards meeting the environmental challenges in the key areas of energy and emissions, climate trends, fresh waters, marine waters, waste, transport and natural environment. The 48 indicators detailed in the report have been summarised in the performance table and the trend overview and show an 'at a glance' position in respect of our environment to the end of 2015.

In early 2016, it became apparent through a more extensive testing regime that historic legacy of pesticides in our fresh waters was more extensive than previously recognised. Ongoing monitoring will continue to record progress in this area along with continued awareness raising with the agriculture industry. The next Environment in Figures report will provide further information on this issue.

² [The State of Jersey \(2005\)](#)

³ [State of Jersey Report 2005-2010](#)





The indicators at a glance

This table provides an overview of the trend for each of the indicators over the period from 2011 to 2015. A traffic lights system; red, amber or green (RAG), has been applied to provide an overview of how each indicator is performing; red meaning static or a declining trend; amber meaning static or slight change; green representing increasing trends or good performance.

Full details of each indicator are included in the full report where information is provided on how data has been collected and interpreted.

Summary table of indicators

Ref:	Indicator description	RAG 2010	RAG 2015
Energy and Emissions			
E1	The energy consumption of hydrocarbons by end users	●	●
E2	Greenhouse gas emissions	●	●
Climate Trends (compared to 30 year norm)			
C1	Increasing average air temperature (warmer)	Yes	Yes
C2	Extended growing season	No	Yes
C3a	Increasing volumes of Winter rainfall	No	Yes
C3b	Increasing volumes of Summer rainfall	Yes	Yes
C4	Increasing number of heavy rainfall days (over 25mm)	No	No
C5a	Decreasing number of cold spells	Yes	Yes
C5b	Increasing number of warm spells	Yes	Yes
C6	Increasing sea temperature	Yes	Yes
Fresh Waters			
FW1a	The volume of drinking water supplied by Jersey Water per annum	●	●
FW1b	Depth of the water table at measured sites	●	●
FW1c	Annual leakage of water mains	N/A	●
FW2a	Nitrate levels in groundwater	●	●
FW2b	Nitrate levels in surface water	●	●
FW2c	Pesticide levels in surface waters	●	●
FW2d	Biological quality of surface waters	●	●
FW3	Number and type of reported pollution incidents	●	●
Marine Waters			
MW1a	Levels of compliance with EU Bathing Water Directive	●	●
MW1b	Radioactivity in the marine environment	●	●
MW1c	Toxic algal testing	●	●
MW1d	Heavy metal concentration in shellfish and algae	●	●

Ref:	Indicator description	RAG 2010	RAG 2015
MW2a	Dolphin species abundance	●	●
MW2b	Marine water indicator species - Whelks	●	●
MW2b	Marine water indicator species – Lobsters	●	●
MW3a	Number and status of Ramsar sites	●	●
MW3b	Biotope quality SE Ramsar site	N/A	N/A
Waste			
W1	Number of reported waste incidents under the Waste Management (Jersey) Law 2005 (since 2011)	N/A	●
W2	Total non-inert waste reused/recycled and composted per annum	●	●
W3	Total municipal solid waste (non-inert) arisings per capita	●	●
W4a	Recycling – Total percentage of recyclables collected per annum	●	●
W4b	Recycling – Number of States of Jersey recycling facilities	●	●
W5	Total liquid waste (sewage) processed per annum	●	●
W6	Number of slurry tanks on dairy farms	●	●
Transport			
T1	Annual traffic flow at 12 major sites	●	●
T2	Percentage mode of travel by car	●	●
T3	Atmospheric pollutant monitoring	●	●
Natural Environment			
NE1a	Area of farmed land under agri-environment stewardship schemes	●	●
NE1b	Extent of protected areas on land	●	●
NE1c	Condition of areas/sites of Special Scientific Interest	N/A	●
NE2	The Conservation of Wildlife (Jersey) Law 2000 (as amended)	●	●
NE3	The development of Biodiversity Action Plans (BAP) for protected species	●	●
NE4	Status of butterfly indicator species across key habitat types	N/A	●
NE5a	Status of 12 species of garden birds	●	●
NE5b	Numbers of wading birds	●	●
NE5c	Numbers of breeding birds	●	●
NE6	Bat species diversity and abundance on iBats transect	N/A	●
NE7	Detection and control of regulated organisms	●	●

The trend summary follows on the next page. It provides a snapshot of our environment as evidenced by the information in the 48 indicators across the 6 subject areas.

1. Trend Summary

This trend summary provides a snapshot of our environment as evidenced by the information in the 48 indicators across the 6 subject areas.



ENERGY & EMISSIONS – Local energy consumption and greenhouse gas emissions are slowly declining. To reduce our greenhouse gas emissions we must be successful in reducing the on-island demand and have a consistent and reliable supply of low carbon electricity from the French grid and continue to investigate offshore renewable energy generation.



CLIMATE TRENDS - Local climate trends are deviating from the 30 year norm and are in line with global climate change predictions: air and sea temperatures are rising; the growing season is lengthening; both summers and winters are wetter; cold spells are shorter and warm spells are longer.

FRESH WATERS -The quantity and availability of Jersey’s mains supply of water is currently sufficient for the population’s needs.

Although we see signs of improvement, elevated nitrate levels and the presence of pesticides means our water is of a poorer quality than we would aim for. This is a result of a high density population and long-term intensive agricultural practices in close proximity to our water courses and catchments.

MARINE WATERS - The quality of our marine waters and the biodiversity within them is very high. Pressures on the natural resources can arise from fishing activity and other economic activities.



WASTE – The 2005 target recycling rate of 32% was achieved but it has remained static since 2009. Progress has been made with hazardous waste like batteries which can now be recycled. Five parishes have introduced household recycling collections; the other parishes rely on centralised public recycling facilities.

The management of agricultural liquid waste (slurries) has improved considerably. The aging sewerage treatment facilities at Bellozanne are at the end of their useful life, a new plant will be able to treat more flow to deal with the islands increasing population.



TRANSPORT - Despite a target to reduce peak hour traffic by 15% by 2015, levels have only decreased by 1.6%. Traffic and particularly congestion reduces air quality in localised situations in St Helier and cause greenhouse gas emissions.

NATURAL ENVIRONMENT - Conservation management of our designated semi-natural sites is successful in preserving local biodiversity. We are not immune to global biodiversity losses as shown by downward trends in migrating species. Indicator species, such as, butterflies and breeding birds show the biodiversity value of urban and agricultural habitats is far lower and also is becoming poorer compared to designated semi-natural sites. Environmental stewardship schemes can improve the value of agricultural habitat for wildlife.





2. Summary of environmental performance

2.1. Energy and emissions

The need to 'agree an Energy Plan to reduce greenhouse gas emissions' was identified as a priority action in the 2010 report, in line with the requirements of the Kyoto protocol. Following a long period of development and stakeholder engagement, Pathway 2050: An Energy Plan for Jersey was adopted in 2014. It outlines an emissions reduction pathway through to 2050 for a low carbon future; with the aim of secure, affordable, sustainable energy. The Plan is based on three policy clusters of reducing energy demand, providing energy affordability and security of supply. These policies are delivered through actions across all energy use sectors and activities. Global technological advances are likely to impact on the implementation of the Plan, and may accelerate progress. For example, in relation to emissions from transport patterns and vehicle types; currently, one third of emissions come from transport due to dependence on petrol and diesel fuels, it is likely that the global move to low carbon fuel sources for transport will have a positive impact.

In 2014 emissions
were **38%**
LOWER
than in 1990 -
their **LOWEST**
EVER

Progress on the emissions reduction pathway has been variable since 2012, reflecting shocks in the local energy infrastructure. Emissions increased in 2012 - 2013 (indicator E2), following the loss of the 2 sub-sea cables which provide imported electricity from France, requiring generation of on-Island electricity using heavy fuel oil with high emissions. The installation of new sub-sea cables in 2014 has meant that this trend has now reversed. There is potential for Jersey to exploit off-shore renewable energy resources which could increase our security of supply and ensure supply of sustainable energy.

Energy and emissions – Summary of the priorities 2016 - 2020

Continued implementation of the Energy Plan including annual reporting cycle and the 5 year review in 2020.

Agreed priorities within the Plan include:

- Focus on demand management across the following policy clusters: domestic; commercial and government and transport;
- Integrating energy issues into the Island Vision;
- Continued work around the local energy market to ensure that all energy is affordable and fuel poverty is minimised and markets function to the consumer's advantage;
- Ensuring that the local energy market is responsive to opportunities presented by disruptive technologies such as renewable energy embedded generation and storage facilities at the household and community level;
- Continue to prepare the policy and regulatory framework for the development of off-shore utility scale renewable energy.



2.2. Climate trends

The indicators show that the impacts of climate change that are being experienced globally are being felt in Jersey. The historic 2015 Paris agreement aimed to limit warming to less than 2°C by 2100 in order to avoid dangerous climate change. The agreement prioritised the need for countries to put in place resilience and adaptation measures to cope with the changes that are unavoidable and are already being felt.

2014 & 2015
were the
HOTTEST
EVER recorded

By making Jersey climate-resilient and future proofing our Island against sea level rise and the impact of more frequent and severe weather events, we can provide confidence for people to live and for businesses to invest and establish their organisations.

It is a priority to develop a coordinated approach to integrate climate resilience into strategic planning, revision of spatial planning policies and building standards. Technological and engineering solutions can provide confidence and security in our homes and workplaces, whilst maintaining the heritage, countryside and other elements that characterise Jersey.

Changing growing seasons and warmer wetter weather, impacts on agricultural markets and will impact on farming practises and livestock husbandry, crops, management practises and could alter the appearance of the countryside. Jersey is currently able to protect itself against crop pests and diseases, with active eradication and control underway. Changes in local weather conditions will favour the year round survival of some pests and diseases and changing temperatures and wind direction could enable the arrival of new invasive species.

The States of Jersey are working in partnership with key stakeholders to develop a costed Climate Adaptation Plan (CAP) based on a risk assessment which enable decisions about how to spend money on the most vulnerable areas.

Climate trends – Summary of the priorities 2016 - 2020

Jersey must develop an Island wide strategic response to adapt to the local impacts of global climate change. We must develop a costed Climate Adaptation Plan (CAP):

Developing this Plan includes the following:

- Agree the baseline evidence to develop an agreed resilience factor for Jersey;
- Undertake risk assessment to identify priorities for strategic planning including the Island Vision, the Island Plan review, infrastructure planning and ensure climate resilience and response is integrated into emergency risk registers and response plans;
- Carry out an economic assessment of risks of climate change impacts versus the investment needed in climate resilience;
- Ensure a coordinated process to develop a climate resilience and adaptation framework that includes all stakeholders in a framework of corporate governance;
- Continue to monitor local weather, atmospheric trends and input to UK based climate models and work with experts to establish and report accurate data on sea level rise.



2.3. Fresh waters

In 2011, the following environmental priority was recognised 'Ensuring the availability and quality of fresh water'. Jersey has a legacy issue of elevated nitrates in groundwater due to the application of fertilizers to agricultural land. There has been ongoing work to address this diffuse pollution through the Nitrate Working Group and working with multiple farmers at the scale of the whole water catchment. Recent successes include, for the first time, a decoupling of nitrate levels in water from the area of agricultural farmed under potato crops (indicator FW4). However, on occasion, Jersey Water have been unable to provide drinking water that meets World Health Organisation maximum nitrate standards of 50mg/l.

The QUALITY of our water is reduced by
DIFFUSE POLLUTION

Assessing the extent and reducing the occurrences of pesticides in water are a high priority for the Department of the Environment and for Jersey Water; the monitoring regime for pesticides and also for phosphate is being increased and refined accordingly.

The implementation of a Water Plan in 2017 will provide a holistic approach to catchment management reducing inputs of nitrate, pesticides and phosphorus; all stakeholders, agriculturalists, land managers and the public, will play their part in improving water quality.

Jersey depends almost entirely on rainfall for its water. Jersey Water are already storing and abstracting water from most of the island streams. The Island's geology means that the storage capacity of groundwater in underground fractures is limited. Climate change is already changing the expected pattern of rainfall. Longer drier periods, more unpredictable and intense rainfall all add to the complexity of managing the quantity, as well as, the quality of our water resources.

Fresh Waters – Summary of the priorities 2016 - 2020

We must improve the quality of our water which has been affected by agricultural, industrial and domestic land use.

In order to address this we must adopt and implement the forthcoming Water Plan from 2017-2021 with the aim of improving the status of the resource. This will include:

- Implementing measures to reduce inputs of nitrate, pesticides and phosphorus through good land management practices to minimise any further contamination;
- We will need to monitor the success of the policies in the Plan and continue to increase our baseline water quality data;
- We will continue to use a mix of advice, education and regulation to improve the water resource and increase knowledge of the importance of sustainable water resources in the community;
- We will continue to use, and strengthen where necessary, the regulatory tools at our disposal.

Additionally we need adequate supplies of water of sufficient quality as do the water-dependant habitats and flora and fauna. Around 90% of the Island's population receive their water from the public water supply which is predominately collected from streams.



2.4. Marine waters

In 2011 the following environmental priority was recognised 'Protecting our marine environment and ensuring sustainable existing and potential economic activity there'. The quality of our extensive marine waters and the biodiversity within them overall is very high. But pressures on these natural resources can arise from fishing activity and the future impacts of climate change affecting species assemblages.

Preparations for commercialisation of offshore renewable energy in nearby waters will need to take into account potential impact on the marine environment and local fisheries.

The development of Marine Spatial Planning will provide an integrated approach to manage our marine resource effectively in line with high levels of conservation and protection of biodiversity.

The **WHELK FISHERY** continues to decline. Catches have not improved in **14 yrs**

Marine Waters – Summary of the priorities 2016 – 2020

We must maintain the high quality marine environment and its rich biodiversity which supports traditional industries like fishing and aquaculture.

In order to achieve this we will:

- Continue to ensure compliance with legislation, bilateral agreements and conventions that protect habitats, species and the fisheries resource;
- Re-constitution of Ramsar Management Authority to ensure continued implementation and development of management plans for all Ramsar sites;
- Development of Marine Spatial Planning for Territorial Waters;
- Develop network of existing Marine Protected Areas into a coherent ecological network;
- Ensure a data and evidence led approach to all aspects of marine resource management.



2.5. Waste

In 2011 the following environmental priority was identified 'Developing a new liquid waste strategy and improving the Island's recycling targets'.

Modern living can be resource hungry with increasing demand on water and energy and the production of increased amounts of waste. The regulation of waste management is having a positive impact on pollution and reducing environmental damage and ensures that Jersey is able to demonstrate that it is a responsible jurisdiction complying with good practise.

The provision of recycling facilities and awareness campaigns have not resulted in high levels of participation in recycling or waste reduction. Reduction in waste volumes has resulted from the impact of global manufacturers changing product packaging and materials to meet regulatory requirements. The economics of waste management and recycling are complex, management of waste is a hidden cost to most householders and businesses. In order to increase recycling rates a fundamental transformation of waste management will be required including the introduction of fiscal levers, such as, a commercial waste charge to incentivise recycling as a more financially attractive option. This will increase recycling rates and ensure that Islanders are more aware of both the environmental and financial costs of waste management.

The waste water strategy has been approved and requires the replacement of the sewage treatment works to cope with increasing population and associated higher flow rates, and increased rainfall as a result of climate change.

RECYCLING
rates have
PLATEAUED
at **32%**
since 2009

Waste – Summary of the priorities 2016 - 2020

In 2016 the Department for Infrastructure will commence a fundamental review of waste management as part of a wider public sector reform programme.

There will be political debate and public consultation that will set the waste management strategy for the next 10 years. Recognising this, the following priorities are indicative and they will be superseded by the agreed strategy once published. However, they will include:

- Revision of the solid waste strategy including increased recycling targets. The solid waste management service will be transformed and charging for commercial waste will be introduced;
- Implementing the 2014 waste water strategy and the introduction of charges for liquid waste;
- Continue to abide by internationally agreed standards in future waste management and monitoring of compliance at licenced waste management sites.



2.6. Transport

In 2010 the following environmental priority was recognised 'Meeting and surpassing the targets set in the Sustainable Travel and Transport Plan supported by the new Island Plan'. Despite a target to reduce peak hour traffic by 15% by 2015, levels have only decreased by 1.6%. Traffic and particularly congestion continues to reduce air quality in localised situations in St Helier and cause greenhouse gas emissions.

**PEAK TIME
CONGESTION**
has decreased by
1.6% vs a 15%
TARGET

The sustainable transport plan has been based on incentives and outreach campaigns like the annual cycle challenge, the provision of an improved bus service and associated infrastructure like bus shelters. These encouraging measures have not gone hand-in-hand with more punitive measures that could also drive behaviour change, such as discouraging private car use by increasing car parking charges.

Jersey's only environmental tax, Vehicle Emissions Duty has demonstrated that as long as the charging regime is well designed and not regressive, fiscal levers can bring about behaviour change and reduce environmental impacts. Since its introduction we have seen a move towards smaller, more fuel efficient vehicles in the Jersey fleet. It is clear that without a significantly revised approach achieving anything close to the target of a 15% reduction in peak time travel will be impossible.

Transport – Summary of the priorities 2016 – 2020

The challenges ahead focus on making accelerated progress in line with the following policy objectives:

- Sustainable Transport Policy – continued progress towards a 15% reduction in peak time congestion;
- The Energy Plan – 5 % reduction in the use of motor vehicles on our roads *at all times* by 2020;
- The Air Quality Strategy Action Plan – Continue to provide real time data to underpin evidence base.

The key actions to achieve this are:

- Delivery of Sustainable Transport Policy and Energy Plan and particularly drive modal shift away from private car use;
- Implementation of Island Plan policies and Future of St Helier project to ensure sustainable travel and transport and to support economic prosperity and residential expansion in the urban area;
- Continue to implement air quality monitoring programme and provide publicly available air quality information.



2.7. Natural Environment

In 2011 the following environmental priority was recognised - 'Protecting and enhancing our biodiversity and heritage landscape through legislation, the 2011 Island Plan and incentives for the agricultural that purchase environmental goods and services'.

Species and habitats are the building blocks of our ecosystems, and we regard them as the basic measure of our biodiversity. Jersey is not immune to global biodiversity losses as shown by downward trends in migrating species reaching our shores. In addition, declines in our local wildlife suggest that our conservation efforts to maintain habitats and species are insufficient. However, targeted conservation management on our designated semi-natural sites has proven a successful tool in preserving local biodiversity. Further work in the agricultural sector and building industry need to be implemented to halt further biodiversity losses.

Biodiversity provides many key eco-systems services. Eco-system services are underpinned by fit-for-purpose well-regulated infrastructure that is appropriately regulated and receives sufficient investment to meet best environmental practice operational guidelines. Whilst interactions and interrelationships are complex, eco-system services underpin the high quality environment that we all enjoy; clean air, water, land, biodiversity and green space are all elements that are highly valued in terms of what makes Jersey special. All these aspects are recognised as important in attracting inward investment and the relocation of high productivity individuals to the Island.

As well as providing a stable basis for future diversification of the economy, we need to reconsider our models for assessing success and for evaluating ecosystems services contribution to the economy.

Without active
INTERVENTION
& protection,
our Biodiversity is
DECLINING

Natural Environment – Summary of the priorities 2016-2020

It is imperative that the causes for the observed decline in our island's biodiversity is understood and reversed. This decline is despite the efforts made by many organisations and individuals undertaking conservation activities.

In order to address this our priorities for the next five years include:

- Revision of Jersey's Biodiversity Strategy to meet international obligations and a changing environment. The concept of eco-system services will underpin the development of the Strategy;
- Continued implementation and development of legislation and Island Plan policies to ensure the protection of the Island's biodiversity and habitats;
- Development of Protected Areas Strategy to define the location and extent to which we need to protect land for biodiversity;
- Implementation of the Countryside Access Strategy and ensuring good public access linkages to the wider environment whilst protecting our countryside.
- Continue and strengthen plant biosecurity measures and public awareness of risk.



3. Using The Environment in Figures report to help build an Island Vision

Recognising that many of the environmental challenges we face and their corresponding solutions are long term, in 2015, work began to develop an 'Island Vision' which will describe the sort of place islanders collectively want Jersey to become. Having this agreed vision will improve Jersey's long term planning process beyond the relatively short timescale of each Council of Ministers and the Strategic Plan. This approach will ensure that priorities identified within each electoral cycle sit within a broader vision of the Island's future that encompasses the full range of social, environmental and economic goals.

Whilst the Island will face many important immediate priorities which must be tackled, the Island Vision prevents us from losing sight of the bigger picture.

The Island Vision recognises that the full range of social, environmental and economic goals are inextricably linked.⁴ It describes a set of desired outcomes and the framework, (illustrated to the right), proposes broad themes from the economy, community and the environment. The environmental theme is broken down into: sustainable resources, natural environment and the built and historic environment.



Tangible outcomes have been developed, based on feedback from previous public surveys and consultations, against which it will be possible to monitor progress (the environment outcomes are shown below).

- Air is healthy to breathe
- Fresh water resources are clean and sustainable
- Secure, affordable & sustainable energy
- Waste is managed appropriately
- Managing the threats posed by climate change

Sustainable Resources

- The beauty of Jersey's countryside and coast is protected
- Marine environment is protected
- Wildlife, plants and habitats are protected

Natural Environment

- St Helier is a vibrant capital where people want to live, spend time and invest
- Provides quality homes and neighbourhoods
- Islanders can travel around Jersey easily
- Historic buildings and heritage sites are valued and protected

Built & Historic Environment

The Environment in Figures report provides evidence of progress towards these outcomes and identifies environmental challenges and will help inform the development of appropriate policy responses as required.

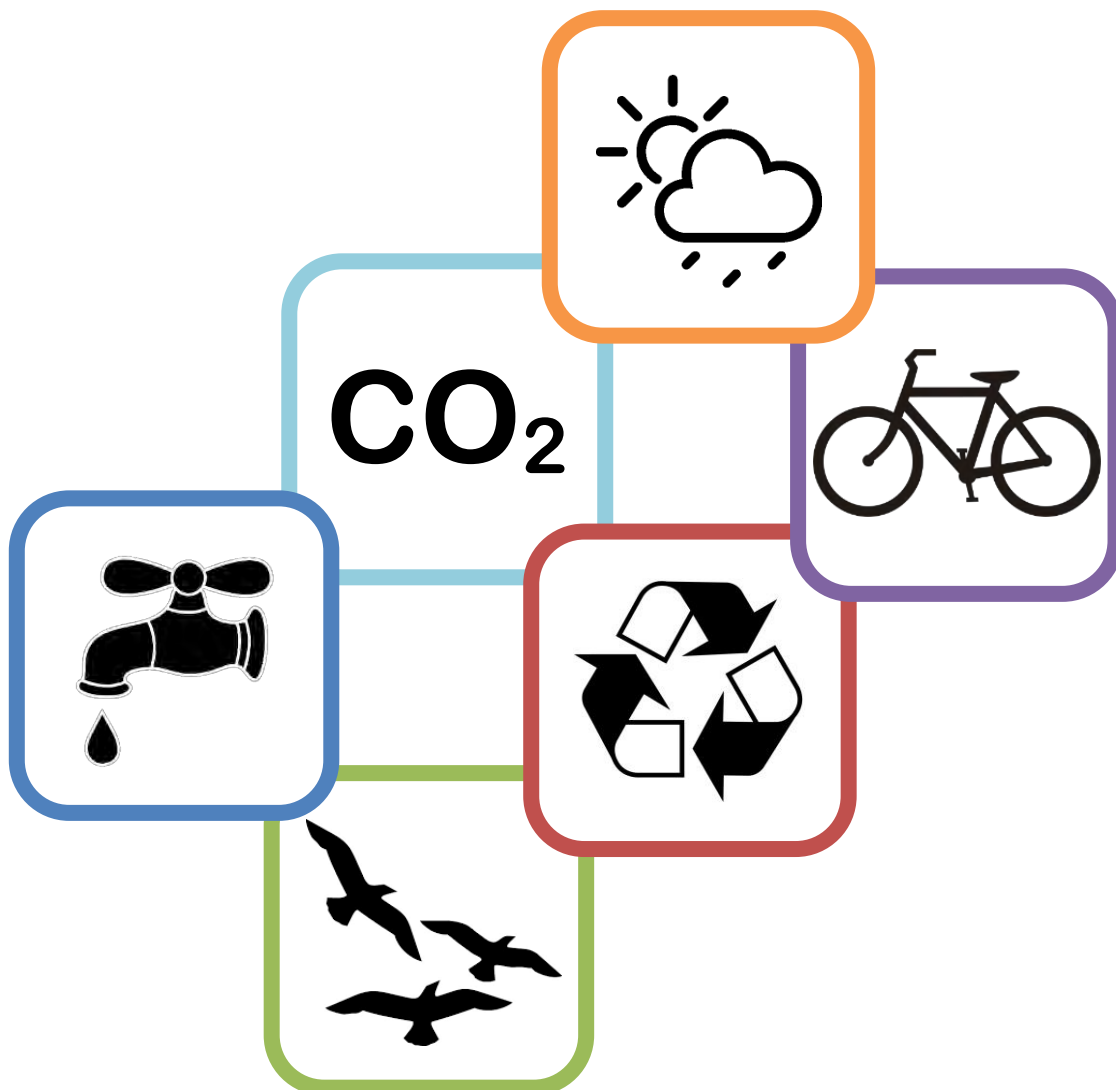
⁴ [Link to States of Jersey Longer term plan webpage](#)





Department of the Environment

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States 
of Jersey



Further Information

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It is easy to think of the environment as a backdrop to our daily lives but it delivers much more to us than simple aesthetics. Clean air, water, soil, our seas, biodiversity and green spaces are all highly valued and make Jersey a special place to live, work and do business. They all deliver multiple benefits to the human population that can be termed 'eco-system services' which underpin the high quality environment that we all enjoy. However, the interactions and interrelationships within our environment are complex and as this report shows, the influence of human activity can disrupt this finely balanced equation. The Environment in Figures report looks at the most recent trends in 48 environmental indicators and tells us how our environment is performing.

The last report in this series was published in 2011 when I was serving on the Environment Scrutiny Panel and in 2014, I became Minister for the Environment. I needed to ensure that the actions set out in the previous report met the environmental challenges and continued to be implemented to protect these vital eco system services.

We are experiencing pressures on our infrastructure from many factors including extreme weather events and changed rainfall patterns caused by climate change. These impacts alongside others, such as higher than expected population increase, could mean that the operating limits of the infrastructure are exceeded and might result in environmental pollution and harm. To avoid this we must manage demand and our resource use. For example, reducing and recycling waste to minimise the amounts of inappropriate wastes disposed of through our energy from waste plant, or using water wisely to reduce pressure in terms of both water supply and treatment.

Public engagement programmes such as eco active, green travel fortnight and recycle for Jersey, provide information and practical solutions to encourage collective responsibility in reducing environmental impact. For example, eco active helps to deliver demand management through a suite of tailored programmes across many sectors, including a bespoke environmental management system for the business community, schools and the public sector.

Nevertheless, this report shows that where only passive, rather than more punitive measures have been used, the combined impact of these initiatives and the efforts of the general public has been limited. For example, the sustainable transport plan has only been partially successful in terms of modal shift. This has largely been due to an amendment accepted by the States Assembly not to significantly increase the cost of motoring until a viable alternative was available to all. Therefore, implementation relied solely on encouragement and the provision of improved services to drive behaviour change towards sustainable travel. It did not impact on the direct costs of motoring. If we are to achieve the level of environmental protection that we know the public want, and meet requirements of best international practise to



which we are committed, then we will need to consider what other policy levers may be appropriate.

Our local environment doesn't exist in isolation. PWC¹, among others, has looked at the factors that are shaping and disrupting the global economic landscape and society. These 'megatrends' are as relevant at the local level and provide a powerful lens for examining the global changes that impact us all, such as climate change and resource scarcity.

In August 2015 Barak Obama, said *"No challenge poses a greater threat to our future and future generations than a change in climate"...* He warned that this was *"the first generation to feel the impact of climate change and the last generation that can do something about it."*

The historic 2015 Paris agreement, is a global political consensus on the need for action, with over 170 world leaders committing to limit warming to less than 2°C by 2100 to avoid the impacts of dangerous climate change. The evidence from this report shows that we are already experiencing these trends locally with associated impacts on our ecosystems services. However, Jersey is addressing its carbon emissions by implementing the recently agreed 2014 Energy Plan which presents a pathway towards a low carbon future.

Patterns of decline in global biodiversity are seen locally in reductions of migrating species. The the numbers of migrating species we ultimately see reaching Jersey's shores are impacted by global habitat loss and degradation, hunting and trapping. Maintaining our internationally recognised biodiversity is intrinsically important from a global biodiversity perspective as well as to enhance the health and well-being of Jersey's residents. Islanders enjoy a high quality natural environment and Jersey is an attractive place for people to live, work and do business whilst active enjoyment of our outstanding countryside and coastal waters promote physical and mental wellbeing.

It is a matter of concern that this report is not more positive. Whilst some progress has been made, there are still significant challenges ahead. We need to fundamentally re-examine and prepare for the impact of global megatrends on our local environment. This will mean re-evaluating how we account for the value and contribution of our environment and the ecosystem services it provides, within our strategic and long term decision making. The Council of Ministers recognise the high value of our environment both in terms of the services it gives us and the contribution it makes to our quality of life in Jersey. The results from the 2016 Island Vision survey show the value that the public place in a high quality environment. The challenge is to continue to ensure the policies we develop to protect our environment are successful.

Steve Luce
Minister for the Environment
September 2016



¹ [Link to PWC Climate change and resource scarcity webpage](#)



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How this report is structured

Welcome to The Environment in Figures: A report on the condition of Jersey's environment which covers the reporting period 2011 to 2015. This report is the third in a series of environmental monitoring reports, the first of which was published in 2005.

The 2005 report was Jersey's first environmental benchmark report. It examined the state of Jersey's environment and identified priority areas that would be monitored using a set of environmental indicators. The priority areas identified were: energy and emissions; climate trends; fresh and marine waters; waste; transport and the natural environment.

The indicators have been refined over the last two reporting periods and this report presents the most recent update of environmental performance. The report outlines progress from the previous period and sets priorities for the next 5 years.

The executive summary of the report is also available separately.

The indicators at a glance

The following table provides an overview of the trend for each of the indicators over the period, 2011 and 2015. We have used a traffic lights system; red, amber or green (RAG), to give a view of how each indicator is performing; red meaning static or a declining trend; amber meaning static or slight change; green representing increasing trends or good performance. The RAG table on the following pages gives a snapshot of the indicators divided into the different theme areas. RAG statuses from the last report (2005-2010) have also been included to provide a point of comparison over time.

Full details of each indicator are included in the relevant chapter of the report and they provide much more information on the way the data has been collected and interpreted.



Summary table of indicators

Ref:	Indicator description	RAG 2010	RAG 2015
Energy and Emissions			
E1	The energy consumption of hydrocarbons by end users	●	●
E2	Greenhouse gas emissions	●	●
Climate Trends (compared to 30 year norm)			
C1	Increasing average air temperature (warmer)	Yes	Yes
C2	Extended growing season	No	Yes
C3a	Increasing volumes of Winter rainfall	No	Yes
C3b	Increasing volumes of Summer rainfall	Yes	Yes
C4	Increasing number of heavy rainfall days (over 25mm)	No	No
C5a	Decreasing number of cold spells	Yes	Yes
C5b	Increasing number of warm spells	Yes	Yes
C6	Increasing sea temperature	Yes	Yes
Fresh Waters			
FW1a	The volume of drinking water supplied by Jersey Water per annum	●	●
FW1b	Depth of the water table at measured sites	●	●
FW1c	Annual leakage of water mains	N/A	●
FW2a	Nitrate levels in groundwater	●	●
FW2b	Nitrate levels in surface water	●	●
FW2c	Pesticide levels in surface waters	●	●
FW2d	Biological quality of surface waters	●	●
FW3	Number and type of reported pollution incidents	●	●
Marine Waters			
MW1a	Levels of compliance with EU Bathing Water Directive	●	●
MW1b	Radioactivity in the marine environment	●	●
MW1c	Toxic algal testing	●	●
MW1d	Heavy metal concentration in shellfish and algae	●	●
MW2a	Dolphin species abundance	●	●
MW2b	Marine water indicator species - Whelks	●	●
MW2b	Marine water indicator species – Lobsters	●	●
MW3a	Number and status of Ramsar sites	●	●
MW3b	Biotope quality SE Ramsar site	N/A	N/A
Waste			
W1	Number of reported waste incidents under the Waste Management (Jersey) Law 2005 (since 2011)	N/A	●



Ref:	Indicator description	RAG 2010	RAG 2015
W2	Total non-inert waste reused/recycled and composted per annum	●	●
W3	Total municipal solid waste (non-inert) arisings per capita	●	●
W4a	Recycling – Total percentage of recyclables collected per annum	●	●
W4b	Recycling – Number of States of Jersey recycling facilities	●	●
W5	Total liquid waste (sewage) processed per annum	●	●
W6	Number of slurry tanks on dairy farms	●	●
Transport			
T1	Annual traffic flow at 12 major sites	●	●
T2	Percentage mode of travel by car	●	●
T3	Atmospheric pollutant monitoring	●	●
Natural Environment			
NE1a	Area of farmed land under agri-environment stewardship schemes	●	●
NE1b	Extent of protected areas on land	●	●
NE1c	Condition of areas/sites of Special Scientific Interest	N/A	●
NE2	The Conservation of Wildlife (Jersey) Law 2000 (as amended)	●	●
NE3	The development of Biodiversity Action Plans (BAP) for protected species	●	●
NE4	Status of butterfly indicator species across key habitat types	N/A	●
NE5a	Status of 12 species of garden birds	●	●
NE5b	Numbers of wading birds	●	●
NE5c	Numbers of breeding birds	●	●
NE6	Bat species diversity and abundance on iBats transect	N/A	●
NE7	Detection and control of regulated organisms	●	●

The trend summary follows on the next page. It provides a snapshot of our environment as evidenced by the information in the 48 indicators across the 6 subject areas.



Trend Summary

CO₂

ENERGY & EMISSIONS – Local energy consumption and greenhouse gas emissions are slowly declining. To reduce our greenhouse gas emissions we must be successful in reducing the on-island demand and have a consistent and reliable supply of low carbon electricity from the French grid and continue to investigate offshore renewable energy generation.



CLIMATE TRENDS - Local climate trends are deviating from the 30 year norm and are in line with global climate change predictions: air and sea temperatures are rising; the growing season is lengthening; both summers and winters are wetter; cold spells are shorter and warm spells are longer.

FRESH WATERS -The quantity and availability of Jersey's mains supply of water is currently sufficient for the population's needs.

Although we see signs of improvement, elevated nitrate levels and the presence of pesticides mean our water is of a poorer quality than we would aim for. This is a result of a high density population and long-term intensive agricultural practices in close proximity to our water courses and catchments.



MARINE WATERS - The quality of our marine waters and the biodiversity within them is very high. Pressures on the natural resources can arise from fishing activity and other economic activities.



WASTE – The 2005 target recycling rate of 32% was achieved but it has remained static since 2009. Progress has been made with hazardous waste like batteries which can now be recycled. Five parishes have introduced household recycling collections; the other parishes rely on centralised public recycling facilities.

The management of agricultural liquid waste (slurries) has improved considerably. The aging sewerage treatment facilities at Bellozanne are at the end of their useful life, a new plant will be able to treat more flow to deal with the island's increasing population.



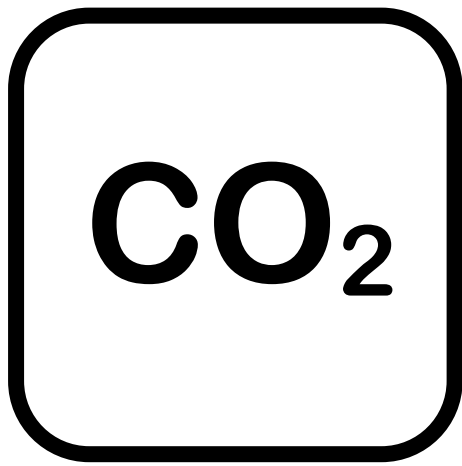
TRANSPORT - Despite a target to reduce peak hour traffic by 15% by 2015, levels have only decreased by 1.6%. Traffic and particularly congestion reduces air quality in localised situations in St Helier and cause greenhouse gas emissions.

NATURAL ENVIRONMENT - Conservation management of our designated semi-natural sites is successful in preserving local biodiversity. We are not immune to global biodiversity losses as shown by downward trends in migrating species.

Indicator species, such as, butterflies and breeding birds show the biodiversity value of urban and agricultural habitats is far lower and also is becoming poorer compared to designated semi-natural sites. Environmental stewardship schemes can improve the value of agricultural habitat for wildlife.







Energy and Emissions



The consumption of energy has a profound effect on quality of life, the economy and social equity. Jersey's population, like much of the developed world, is currently dependent on hydrocarbon fossil fuels to support industrialised economies and food production. Greenhouse gases (GHGs) are produced when energy is extracted from hydrocarbon sources and the overwhelming evidence is that these GHGs are causing the climate to change in a way that will most likely have significant and detrimental effects on global ecosystems and human habitation of the planet.

Through the UK, Jersey is a signatory to the Kyoto Protocol signalling to the international community that it is committed to taking action to reduce the Island's emissions of GHGs. In December 2015, an historic agreement was reached at the Conference of Parties in Paris where over 170 countries committed to reducing their emissions in order to keep global temperature increases to less than 2°C by 2100².

Jersey's programme of action is outlined in Pathway 2050: An Energy Plan for Jersey which was approved by the States of Jersey in 2014. It sets an emissions reduction target for 2050 of 80% lower emissions compared to 1990 levels and has a goal of secure, affordable and sustainable energy. There is a framework of three policy areas for action:

1. **Demand Management** – reducing demand through series of interventions across all emissions sectors according to identified targets each decade;
2. **Energy Security & resilience** – ensuring a diverse, safe and resilient supply of energy to meet Island's needs;
3. **Fuel poverty and energy affordability** – ensuring that energy is affordable to all members of the community.

Pathway 2050 outlines the many policies that must be successful across all the sectors if the Island is to achieve the substantial emissions reductions that other jurisdictions are signed up to. It also highlights where progress will need to be made in other important areas such as potentially harvesting the Island's offshore renewable energy resources.

The aim is a reduction in overall energy demand with an accompanying reduction in GHGs as less hydrocarbon based fuels are used.

² [Link to Paris Agreement](#)





1.1. The indicators

1.1.1. Energy use

A detailed analysis of Jersey’s energy use is provided in Jersey Energy Trends which can be found on www.gov.je³. Headline indicators and trends are given in this chapter.

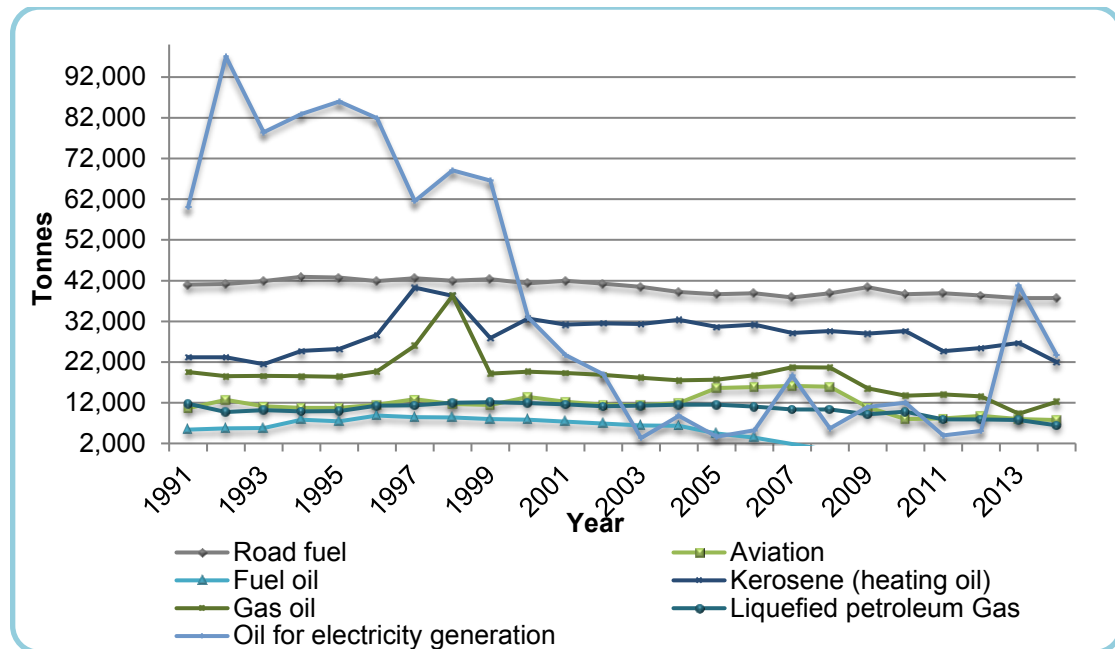
56% of all energy used in Jersey is a hydrocarbon petroleum product with petrol and diesel accounting for a quarter of final energy demand. The remainder is electricity, the vast majority of which, under normal circumstances, is imported via subsea connections from France where it is generated from nuclear and hydro sources. A small amount of on-island generation occurs at the La Collette plant from heavy fuel oil, but in normal years this is below 10% of total use.

Indicator E1 – Energy consumption

Indicator	Date range	RAG Status	RAG Comment
E1 The energy consumption of hydrocarbons by end users	2005-2010	 AMBER	Red – A clear and consistent increase in the consumption of hydrocarbon products
	2011-2014 ⁴	 AMBER	Amber – Static or slight declines in energy consumption Green – A clear and consistent decline in the consumption of hydrocarbon products

³ [Link to Energy Trends report on the States of Jersey webpage](#)

⁴ 2015 data not yet available.



Source: Jersey Energy Trends (States of Jersey - Statistics Unit and Department of the Environment)

Graph 1.1: Final energy consumption of petroleum products.

Graph 1.1 shows a long term trend of final energy consumption of petroleum products. A very clear decline can be seen in the amount of oil imported for electricity generation which has occurred because on-island generation has been largely displaced by imported electricity from France; the use of electricity is discussed further in the next indicator. However, the failure of the sole remaining operational sub-sea cable in September 2012 led to a temporary spike in the use of heavy fuel oil to generate on-island electricity by 2013. This begins to reverse in 2014 as the new sub-sea cable is commissioned and there is reduced on-island generation.

The consumption of liquefied petroleum gas (LPG) and kerosene (heating oil) have shown a slight overall declining trend in the last decade. These products are mostly used to space heat residential and commercial buildings. Their decline, in the face of a rising population and the construction of more residential and domestic units, is likely to be a result of the following:

- A reduction in the overall energy demand for space heating as a result of more energy efficiency buildings constructed and renovated to higher standards as required by improved building bye laws. In particular, the States of Jersey has led a de-carbonisation programme that comprised of energy efficiency improvements in 4,463 social housing units and 1,727 private and rental units occupied by vulnerable Islanders.
- The switch of 1,739 social housing units in the last 5 years away from LPG and oil for space heating to electricity.
- Warmer winters since 2013.



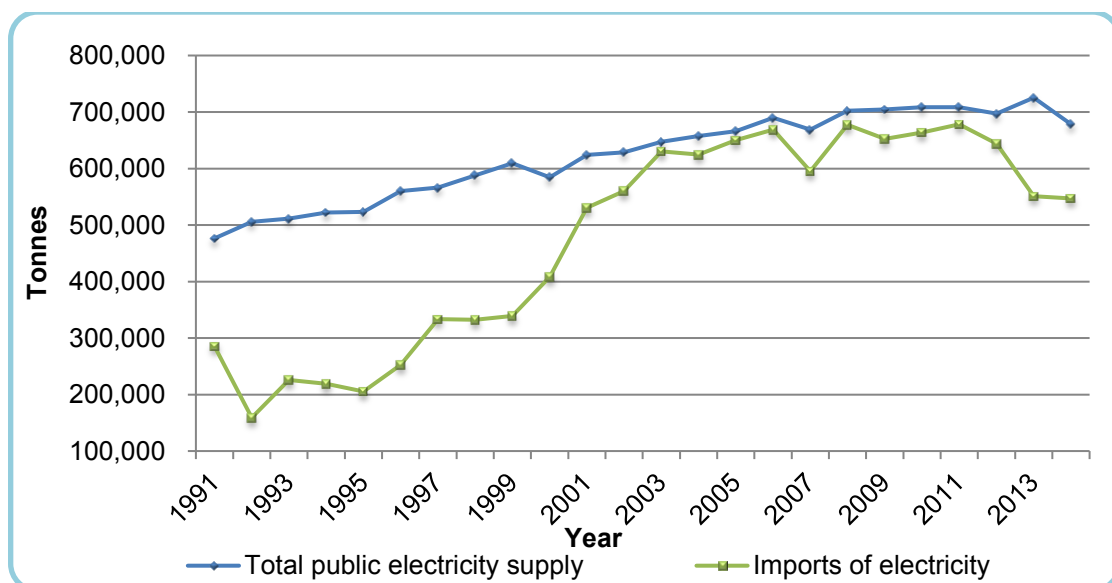
Energy and Emissions

In the last decade road fuel consumption has declined slightly due to the production of more efficient vehicles. Patterns in aviation fuel consumption and frequency of flights are less clear to interpret since planes refuel both on and off-island but more recently there has been a decline due to the loss of air routes meaning fewer journeys as well as more frequent off-island re-fuelling.

The above indicator tells us about consumption of petroleum products and consequent effects on Jersey's GHG emissions. However it does not account for non-hydrocarbon energy use i.e. imported electricity.

Since 1990, the most dramatic change within the electricity sector has been the growth in imported supply (Graph 1.2). During the 1990's imports accounted for between 40% and 60% of public electricity supply, by 2011, imported electricity accounted for 96% of the total. However, in June 2012 both supply cables failed and the original 'EDF1' cable was deemed irreparable. Although the sole remaining cable, Normandie 2, was restored, it then failed irrevocably in September 2012. This situation left no option but to generate electricity on-island at the La Collette back-up plant resulting in a spike of imported heavy fuel oil. The new 100MW 'Normandie 3' sub-sea cable was commissioned in 2014 so reversing this trend in increased hydrocarbon use and gas emissions.

Imported electricity is 'low carbon' because it is sourced from nuclear and hydro generation rather than from the combustion of hydrocarbons. Although the environmental impacts of imported electricity are arguably far less than hydrocarbons, they are not to be ignored and the issues of affordability and security of supply associated with this imported energy still apply. Following international carbon accounting practice, the (albeit small) amount of carbon associated with electricity produced in France is accounted for by the French national GHG inventory not Jersey's since inventories are production not consumption based.



Source: Jersey in Figures

Graph 1.2: Jersey's total electricity supply and imports.





Graph 1.2 shows how overall electricity demand has grown steadily over the last two decades. This is a result of an increasing population and more construction of residential and commercial units as well as a switch from oil and LPG heating sources to electricity in existing properties. The temporary drop in imported electricity since 2011 is discussed above.

1.1.2. Greenhouse gas emissions

Jersey reports its carbon emissions to the UK government who account for our emissions as it is under the UK's jurisdiction that the Island is a signatory to the Kyoto Protocol. Aether are the consultancy who independently collate, analyse and verify the UK's emissions and together with the States of Jersey they have produced an infographic which provides an interactive and transparent picture of the Island's emissions⁵. This section looks at highlights in Jersey's inventory.

Indicator E2 – Trends in greenhouse gasses

Indicator	Date range	RAG Status	RAG Comment
E2 - Greenhouse gas emissions	2005-2010	 AMBER	Red – A clear and consistent increase in GHG emissions Amber – Static or slight declines in GHG emissions
	2011-2014 ⁶	 AMBER	Green – A clear and consistent decline in GHG emissions

Between the Kyoto baseline year of 1990 and 2014, the Island achieved a 36% fall in overall emissions (from 611.7 kt/CO₂ eq to 363.4 kt/CO₂ eq see Graph 1.3). This appears to be good progress since many countries have set targets of a 20% reduction by 2020 and the Island has already exceeded this.

But this impressive reduction in carbon dioxide emissions is mostly attributable to the one-off switch from the production of electricity on-island to imported electricity via two sub-sea cables to the French mainland in the 1990s and early 2000s (See Graph 1.2).

Furthermore, the savings arising from this switch have already been 'banked' and any further savings will need to be made as a result of our reduced energy use and more sustainable fuel choices rather than 'one-off' events. Because of this, in the reporting period from 2005 to 2010, the indicator is only awarded an amber status.

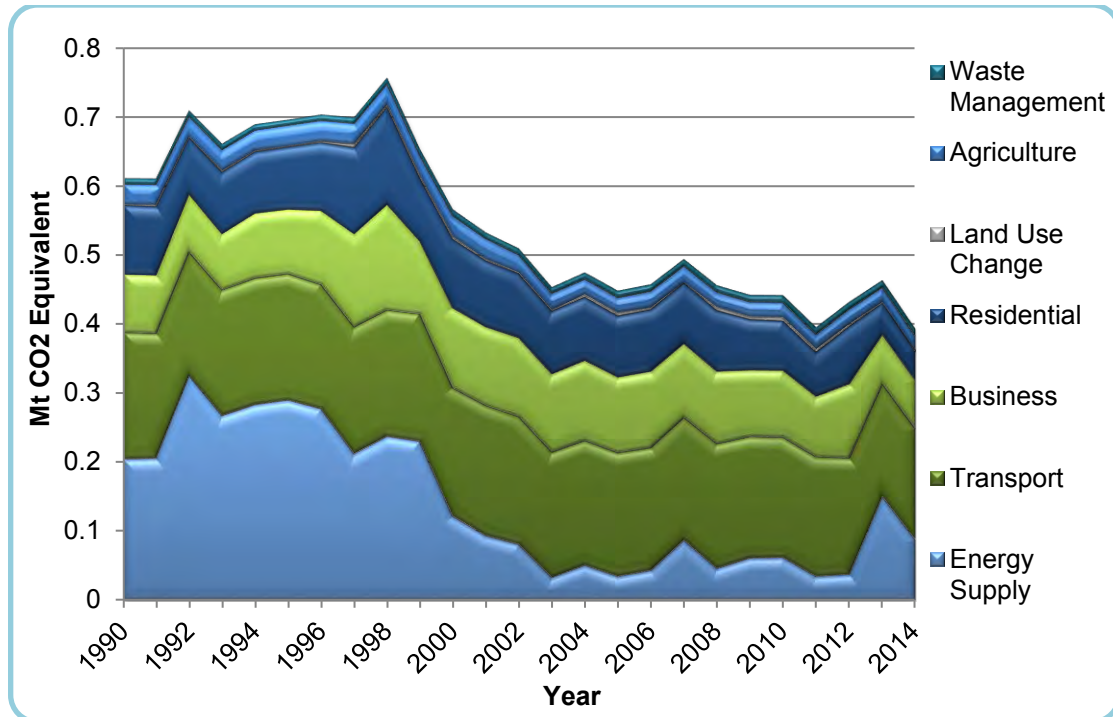
⁵ [Link to Greenhouse gas emissions infographic on the States of Jersey webpage](#)

⁶ 2015 data not yet available.



Energy and Emissions

The fragility of the progress achieved as a result of imported electricity was seen in 2012 with the failure of the sub-sea cables forcing the Island to temporarily generate electricity on island using carbon-intense heavy fuel oil. This impacted on Jersey's downward trend in emissions reduction. Given the turbulence in emissions in the last five years, an amber status is also reported for the 2010-2015 period. With newest cable commissioned in late 2014, electricity imports continue to increase. Furthermore, a new 100MW cable is underway to replace the very first cable and this is scheduled to be in service by 2017. It will provide additional improvements in the security of supply as well as impacting on carbon emissions.



Source: AEA on behalf of the Department of the Environment

Graph 1.3: Jersey's GHG Emissions.



1.2. Update on 2010 priority actions

In 2010 the following priority actions were identified for the period of 2010 to 2015. This section assesses progress against these in the last five years.

Energy (State of Jersey Report 2010)

Jersey must continue to indicate to the international community that it is delivering on its' commitment to a reduction in GHG emissions in line with Pathway 2050.

In order to address this we must:

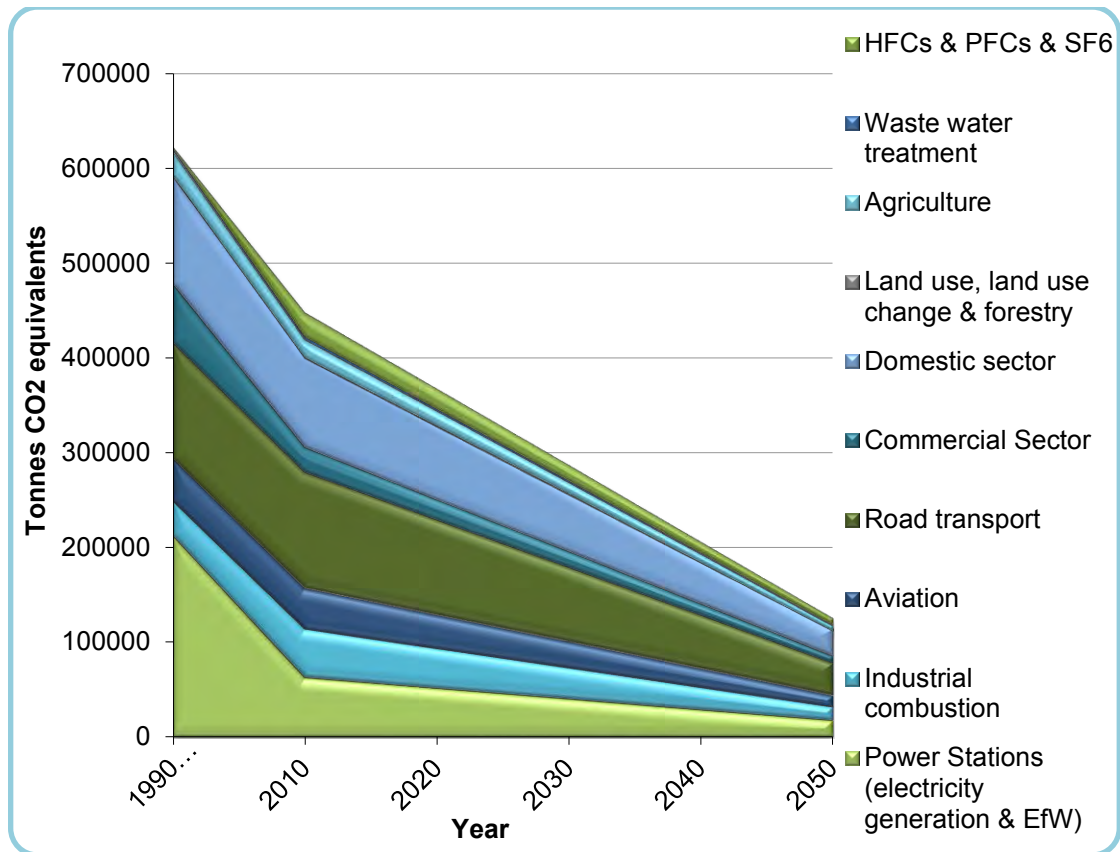
- Agree targets for the reduction in energy use and in GHG emissions within the framework of an Energy Policy whose aim is to deliver secure, affordable and sustainable energy;
- Continue and expand key existing work streams that support the carbon and energy reduction targets such as:
 - Considering ways in which the Energy Efficiency Service can be applied to the able to pay sector;
 - Delivering the legislative and commercial framework for the long-term exploitation of renewable energy e.g. tidal and off-shore wind power;
 - Continuing to deliver more energy efficient buildings and a reduction in energy use through the application and enhancement of planning policy and building bye-laws;
 - Moving to a low carbon economy where green skills contribute to economic diversity.

Since the last report a significant step forward has been the consultation, scrutiny process and final agreement of Pathway 2050: An Energy Plan for Jersey, in May 2014. The Plan sets out a clear policy direction for a reduction in energy use and emissions. The overarching target of Pathway 2050 is:

By 2050, reduce emissions by 80% compared to 1990 levels, by using secure, affordable and sustainable energy.

The Energy Plan sets out an emissions pathway to 2050, it identifies a number of actions and interventions which, if successfully implemented, will contribute to Jersey achieving a reduction in its carbon emissions in line with other jurisdictions. It will also provide the basis on which to monitor and consult on further interventions that may be needed. As a number of policies are developed, new employment opportunities may be created; ranging from provision of energy audits, to installation of microgeneration, and offshore or marine energy services.

Graph 1.4 below illustrates the future pathway carbon emissions will take if all sectors achieve their carbon reduction targets as set out in this plan.



Source: States of Jersey, Department of the Environment

Graph 1.4: Carbon emission projections across all sectors required to reach reduction target.

The table below shows the potential impact of the sector specific demand management policies on emissions, as is useful to see the importance that each policy makes to the overall reduction in emissions.

Potential impact of sector-specific changes in demand on emissions		
Sector	Demand Management	CO _{2eq} savings from each action as % of total CO _{2eq} savings
Domestic	Energy efficiency measures applied to pre-1997 stock of properties	22%
	Introducing a 'low-carbon' standard for new homes through Building Bye-Laws	3%
	Implement micro-renewables in the domestic sector	4%
	Assisting the uptake of micro generation	To be developed
	Improved energy efficiency through behaviour change programme	2%
Industrial & Commercial	Energy efficiency improvements in the Public Sector (States of Jersey)	6%



	Energy efficiency improvements in the Private Sector	10%
Agriculture	Reducing emissions from ruminants	1%
	Implementation of Anaerobic Digestion systems for waste management of livestock slurry by 2020	4%
Road transport	Improved EU emissions standards for cars	12%
	Improved EU emissions standards for vans	2%
	Increase in number of Ultra Low Emission Vehicles	22%
	Achieving Sustainable Travel Plan congestion management targets	3%
	Achieve a 5% shift to sustainable modes of transport by 2020	1%
Aviation	Improved international operating standards for aircraft	4%
Waste water treatment	Liquid waste treatment options	<1%
F-gases	EU F-gas regulation phase out	3%

Source: States of Jersey, Department of the Environment

Table 1.1: Overview of sector specific demand management policies on emissions.

The delivery framework and corporate governance structure for the Energy Plan is the Energy Partnership which comprises The 'Energy Executive', a Ministerial oversight group and the 'Energy Forum', a group of industry representatives and stakeholders.

The Energy Executive was appointed in August 2014 and there followed purdah and a general election in autumn 2014. The new Ministers were appointed to the Energy Executive in December 2014 and 2015 marked the first full year of the implementation of the Energy Plan. Despite political changes throughout that period, work to initiate the work streams and action plans proceeded across the departments charged with their delivery.

Full year one progress is reported in the Energy Plan Year One report⁷ but headlines include:

- Delivering an online interactive tool to report Jersey's GHG emissions since 1990 and our progress towards a decarbonised economy by 2050;
- Continuation of the Home Energy Scheme, a targeted turnkey 100% grant programme to install energy efficiency measures in 1,727 private and rental units occupied by vulnerable Islanders. Additionally, the States of Jersey (later externalised as 'Andium Homes') installed energy efficiency improvements in 4,463 social housing units;

⁷ [Link to Energy Plan Year One report](#)



Energy and Emissions

- Continuation of the Community Buildings programme – a grant programme for energy efficiency improvements in the not-for-profit sector which provide day care and residential services for vulnerable islanders;
- Continuation of the provision of Energy Saving Trust accredited advice through an Energy Hotline based at the Department of the Environment;
- Piloting a targeted programme, eco active business, for assisting businesses in reducing their energy use and emissions in the private sector. This encompassed work in the public sector;
- Developing updated building bye-laws to ensure that the energy performance of both new builds and where possible the existing stock is improved;
- Resolving the ownership of the sea bed and making progress with both France and the UK in respect of future utility scale marine renewable energy;
- Initiating work around climate change and resilience to extreme weather, with the aim of developing a co-ordinated climate change adaptation action plan and risk assessment (see next chapter).

Whilst good initial progress was made across the breadth of the action statements, there were also challenges. Early in 2015, the preparation of the Medium Term Financial Plan 2016-2019 (MTFP2) required that all Ministers review their Department's portfolios and identify budget savings. To support public sector reform and to help balance the financial position over the MTFP2 period, a service review was undertaken and savings were made as follows:

- A service redesign identified that some action statements can be delivered differently;
- Ceasing all 100% grants to community buildings 2 years earlier than intended;
- Ceasing the programme of grants to the socially vulnerable from the end of 2015; and
- Staff reductions associated with the administrative overhead for delivering that scheme.

Despite the resource uncertainty and scarcity the Department remains committed to delivering the objectives of the Energy Plan. The Minister noted in his foreword to the annual report that 'secure, affordable and sustainable energy underpins the Island's long term economic growth which is essential to a return to long-term sustainable prosperity and social equity. The challenge for year 2 and beyond is to look for innovative ways for government to work with the private and third sector to deliver the Plan's objectives. The synergy between the Energy Executive and multi-stakeholder Energy Forum provides fertile ground to explore the opportunities and, with this in mind, I very much look forward to the year ahead'.



1.3. The priorities for 2016-2020

Based on the evidence from the last five years, the priorities for this area have been identified for the next 5 years as follows:

Energy and emissions – The next 5 years

Continued implementation of the Energy Plan including annual reporting cycle and the 5 year review in 2020.

Agreed priorities within the Plan include:

- Focus on demand management across the following policy clusters: domestic; commercial and government and transport;
- Integrating energy issues into the Island Vision;
- Continued work around the local energy market to ensure that all energy is affordable and fuel poverty is minimised and markets function to the consumer's advantage;
- Ensuring that the local energy market is responsive to opportunities presented by disruptive technologies such as renewable energy embedded generation and storage facilities at the household and community level;
- Continue to prepare the policy and regulatory framework for the development of utility scale renewable energy.

1.3.1. Implementing the Energy Plan

The priority for the next 5 years is to implement the agreed Energy Plan within the revised budget envelope. The impact of the plan will be monitored and reported against the illustrated carbon reduction pathways and the policy levers will be adjusted as required. The 5 year review in 2020 will assess overall progress, review and revise the targets for the next 5 years and align the policy objectives. The greenhouse gas emissions inventory will continue to be published annually, providing a way of monitoring and assessing the impact of the implementation of action statements to achieve emissions reduction.

The priority action areas within the plan are focussed on the following three sectors:

- **Domestic** – an energy efficiency programme for the able to pay will be developed in partnership with local training providers and the construction industry. The impact of changes to energy standards in the building bye laws and the requirement to implement consequential improvements will be monitored. An ongoing public awareness campaign will continue to be run through the eco active programme.
- **Commercial and government** – the Energy Plan sets out targets for 2020 for the business (public and private) sector. The Department of the Environment will continue to work through eco active business, in



partnership with Jersey Business and other sector specific business support networks, to implement a series of measures that support energy management and emissions reduction. Progress towards the 2020 targets will be monitored on an annual basis through the Energy Plan reporting process.

- **Transport** – the transport chapter outlines the sustainable transport measures that will be implemented over the coming 5 years. Progress will be monitored in line with Energy Plan targets.

1.3.2. Energy and climate resilience integrated into Island Vision 2035

An Island wide consultation process is being undertaken with the aim of developing an Island Vision for 2035 that can be agreed in 2017 and adopted by the new States Assembly following the 2018 elections.

The requirement for ensuring secure, affordable and sustainable energy is recognised as one of the strategic objectives for the vision and is integral to the consultation process. Climate change is recognised within the process as a global megatrend that affects all aspects of the future plan. The results from the consultation, supported by the evidence base from this report will be used to shape the island vision and future strategic plan.

The Energy Plan and the development of a Jersey climate adaptation plan, as outlined in the climate chapter, must be integral to the development of future strategic planning documents and decision making.

1.3.3. Work with the local energy market

During the writing of this report, the UK referendum on whether to stay in the EU took place. The referendum result to leave the EU has created a climate of extreme uncertainty and at the time of writing it is not clear how the result will impact on global and European energy markets. It is likely that there will be changes in the market place which may impact pricing and access to energy markets. At this stage (June 2016) it is not possible to assess what this may look like, but this will be kept under review.

Channel Islands Competition and Regulatory Authorities will have an important role to play in understanding the changes that will take place and ensuring that the local energy market operates in a fair way to provide affordable and secure energy to Islanders.

1.3.4. Ensure energy market is responsive to disruptive technologies

Within the context of a volatile and changing local and international energy marketplace, it will be a priority to ensure that local energy providers are able



to exploit opportunities to develop and implement new energy technologies at the local level.

The significant decrease in the cost of energy storage and electricity generation from photo voltaic arrays, mean that it will become more affordable for domestic scale embedded generation for use at home, for charging electric vehicles and for potential sale back into the grid. The further rollout of these technologies could potentially disrupt the current model of energy distribution which is based on a centralised distribution grid. These implications are challenging for the local energy market. They will require consideration to ensure that the market operates to enable the uptake of these disruptive technologies whilst not undermining the integrity and investment in the electricity grid.

1.3.5. Continue to prepare policy framework for utility scale renewable energy

In light of the recent (June 2016) referendum result, there may be changes to the current UK and EU renewable energy platform. Whilst the implications are unclear at the current time it may be that there will be changes to the access to markets and subsidy regime that is currently in place. The Department for External Relations will be working closely with UK colleagues throughout the EU negotiations.

Development work will continue as it is a key priority to put in place a legal framework to enable the commercialisation of utility scale renewables in Jersey waters. Legislation will be prepared based on good practise in other jurisdictions. The Jersey framework will need to be aligned with UK legislation. Changes in the relationship between the UK and EU will be monitored and the development of the legislation will need to be considered in light of the changing geopolitical landscape.

In 2016, Jersey will participate in the St Brieuc windfarm public enquiry⁸. The proposed St Brieuc windfarm is in French territorial waters. The planning and development process is likely to take up to 5 years to complete, and in the event of a favourable outcome, it is anticipated that the installation of the windfarm will commence in 2020. Whilst the St Brieuc windfarm will not be landing any electricity generated in Jersey, all power will be landed into the French grid, from which Jersey will continue to procure low carbon electricity.

⁸ [Link to further information on the St Brieuc windfarm](#)



Climate Trends



Climate change is now widely regarded as the greatest long-term threat to human society. Whilst the science of climate change continues to evolve, the processes are well understood and the impacts clearly measurable through increased global temperatures, increased severe weather events and changes to sea levels.

Jersey faces a growing challenge from the impacts of climate change and, in particular, the increased frequency and severity of weather events and sea-level rise. Jersey has already recognised climate change as a factor for consideration in terms of spatial planning and has started to enhance some aspects of its sea defences.

Areas of vulnerability and exposure to climate risk will need to be identified and made resilient to the impacts of severe weather in order to secure both business confidence, and the wider wellbeing of the community.

Climate change is having global impacts and these impacts are expected to intensify over the coming decades and will more adversely affect the most vulnerable communities who have the least resilience. Reports from the Intergovernmental Panel on Climate Change⁹, the Royal Society¹⁰ and the Hadley Centre¹¹ draw together the climate science and make it clear that the causes of climate change are now well understood and that our knowledge of the impacts is growing. These impacts are complex but will be felt when increased frequency and intensity of extreme weather and long-term sea level rise take effect. The scientific evidence is clear; such changes are happening now and will continue to occur over the very long-term.

Reducing energy demand and emissions through mitigation, as outlined in the energy chapter, must remain the highest priority to reduce the scale of these impacts, but we need to prepare now to ensure resilience to increasing climate change impacts over the long-term.

This chapter provides an overview of observed local weather and climate trends and outlines the steps that will be taken over the next 5 years to develop climate resilience for the Island through an agreed climate adaptation plan (CAP).

2.1. The indicators

2.1.1. Weather and climate trends

It is important to understand the difference between climate and weather. Weather is a description of the state of the atmosphere at any one moment in time. Climate uses day-to-day statistics to calculate the normal against which

⁹ [Link to IPCC Climate Change 2014 report](#)

¹⁰ [Link to The Royal Society Resilience to extreme weather report](#)

¹¹ [Link to further information the Met Office Hadley Centre](#)



we can compare the present. In climatology, a 30 year period of data is used as the benchmark against which to measure changes from that norm. In Jersey records representative of the Island's climate began to be recorded in 1894 at the Maison St Louis Observatory. The data has been compared against the calculated 1961-1990 norm period.

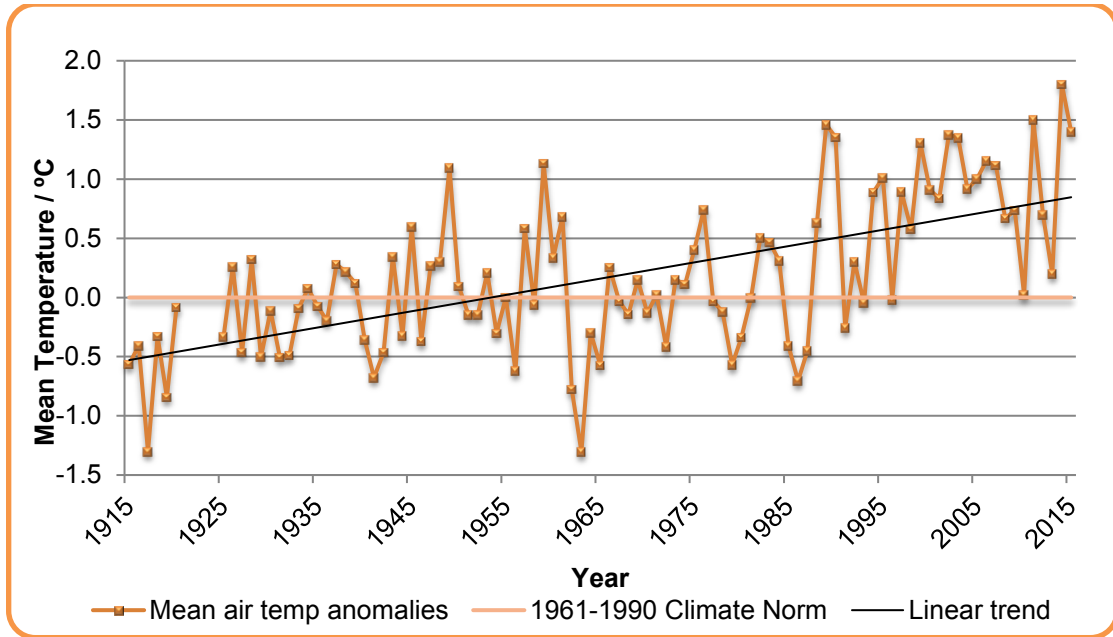
In 2004 the World Meteorological Organisation established a set of 27 climate indices based on the measurements of the daily extremes of air temperature and daily precipitation amount. The datasets are analysed in a number of ways to establish if there are any trends or relationships between them. For example;

- Whether the average diurnal variation between the maximum and minimum air temperature is changing;
- How the 95th percentile of precipitation total changes;
- How many nights in a year the minimum temperature is above a certain value and so on.

For this report, 8 indicators have been chosen that reflect climate change impacts of direct relevance to the Island. RAG statuses have been applied to show how the period 2011-2015 compares against the 1961-1990 norm and whether the trend is in line with climate change predictions. For example, climate change science forecasts that global temperatures will increase, the data shows that Jersey air temperature has increased by 1.1°C against the 30 year norm and therefore is given a **Yes** status.

Indicator C1 – Increasing average air temperature (warmer)

Indicator	Date range	Status	Comment
C1 Increasing average air temperature (warmer)	2005-2010	Yes	Yes – Increasing average air temperature compared to 30 year norm
	2011-2015	Yes	No – Average air temperature remains in line with 30 year norm



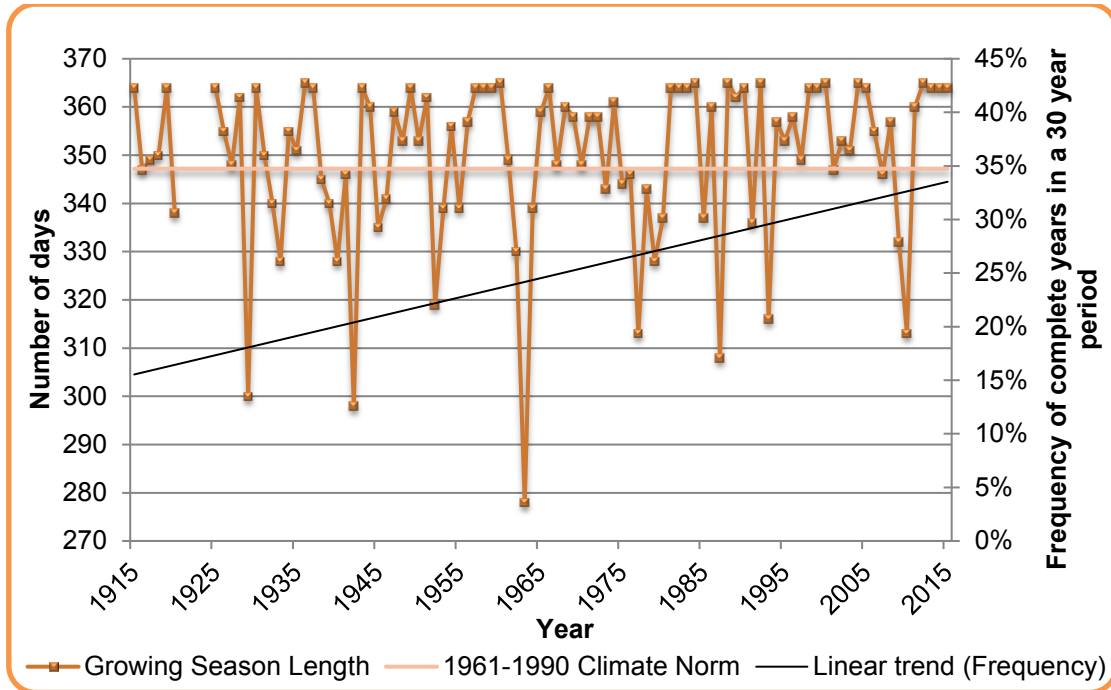
Source: States of Jersey, Meteorological Department

Graph 2.1: Average air temperature anomalies with trend line, plotted against the 30 year norm average of 11.5°C.

Graph 2.1 is clearly showing a sharp increase in air temperature from the mid-1980s to present day, with the last two years being some of the warmest in the series. Currently the average air temperature anomalies sit 1.1°C above the 11.5°C 30 year norm. This is consistent with global temperature change.

Indicator C2 – Extended growing season

Indicator	Date range	Status	Comment
C2 Extended growing season	2005-2010	No	Yes - Length of growing season longer than 30 year norm
	2011-2015	Yes	No - Length of growing season in line with 30 year norm



Source: States of Jersey, Meteorological Department

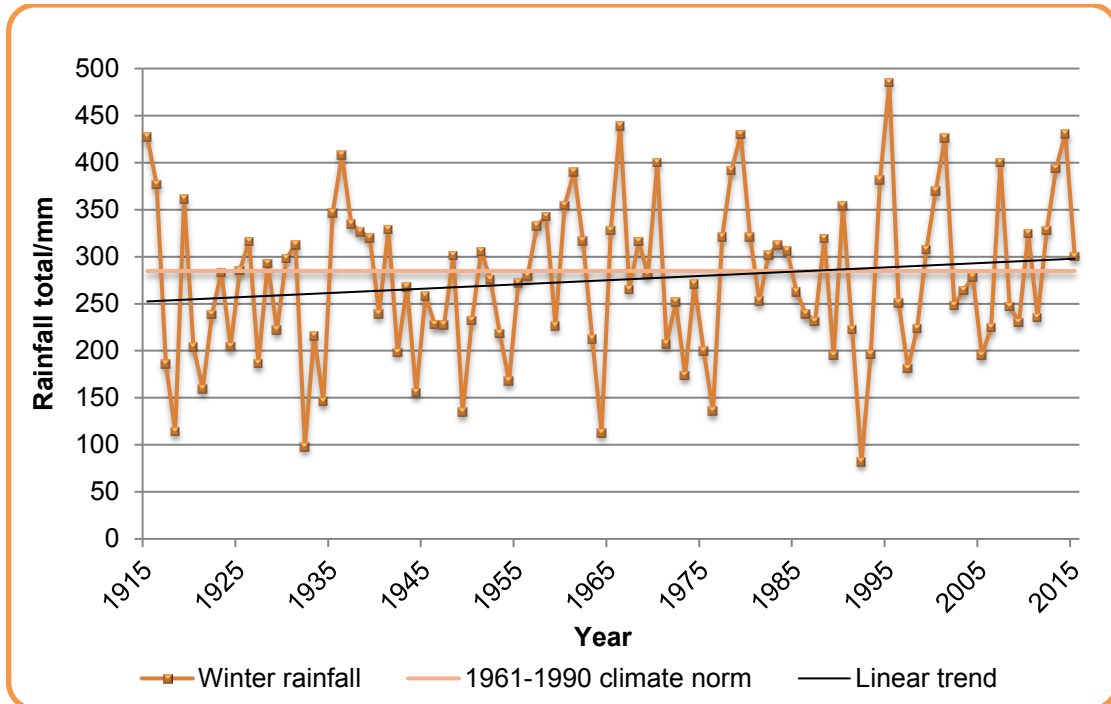
Graph 2.2: Growing season length with trend line showing the increasing frequency of the growing season extending over the complete year, as well as 30 year climate norm of 347.2.

With any of these indices we will see a large year to year variation, but it is the trend taken over a number of years that is more important and tells us something about how the climate is changing. The data shows fluctuations in growing season length for the previous 100 years, and Graph 2.2 illustrates that Jersey's generally mild climate allows for, on average, a long growing season. Despite a drop in the average between 2006-2010 there is a clear increasing trend overall, with the 2011-2015 average growing season length reaching 363.4 days.

Looking at the two indicators C1 and C2 together, there is a positive trend which illustrates the increase in air temperature is extending the local growing season.

Indicator C3a – Increasing volumes of Winter rainfall

Indicator	Date range	Status	Comment
C3a Increasing volumes of Winter rainfall	2005-2010	No	Yes – Increase in volume of Winter rainfall compared to 30 year norm
	2011-2015	Yes	No – Volume of Winter rainfall in line with 30 year norm



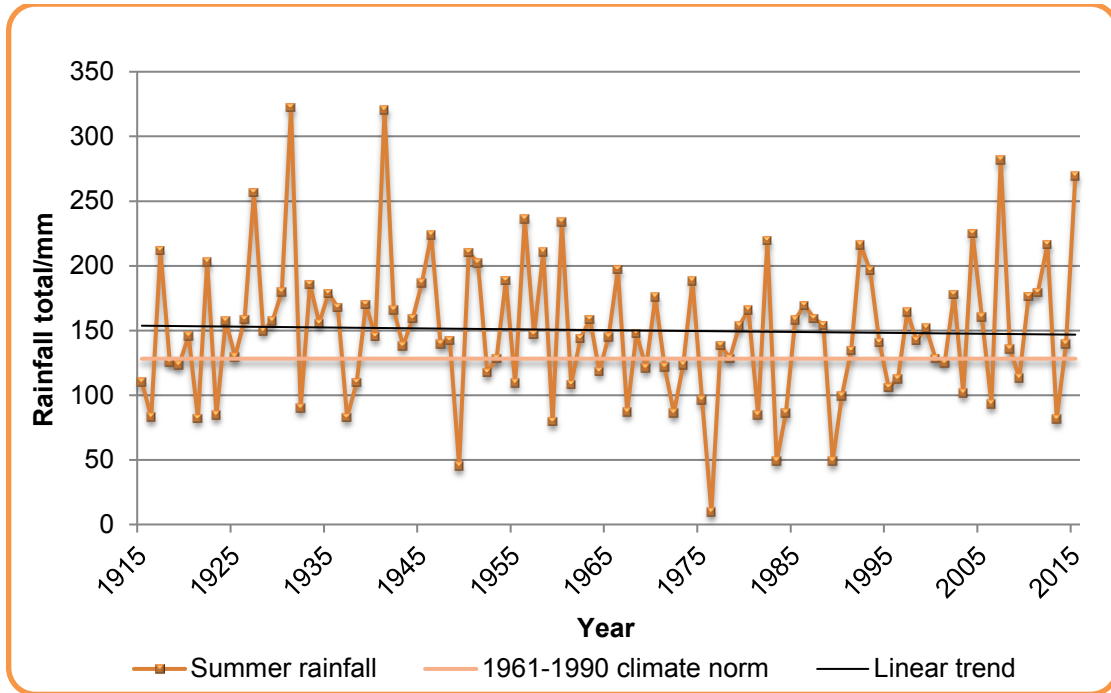
Source: States of Jersey, Meteorological Department

Graph 2.3: Winter rainfall totals with trend line, compared against the 30 year climate norm of 284.8mm.

As can be seen from Graph 2.3, the past 100 years has experienced variable levels of winter rainfall, with a steady increasing trend. The 2011-2015 average was 337.7mm, which is 52.9mm above the 30 year climate norm.

Indicator C3b – Increasing volumes of Summer rainfall

Indicator	Date range	Status	Comment
C3b Increasing volumes of Summer rainfall	2005-2010	Yes	Yes – Increase in volume of Summer rainfall compared to 30 year norm
	2011-2015	Yes	No – Volume of Summer rainfall in line with 30 year norm



Source: States of Jersey, Meteorological Department

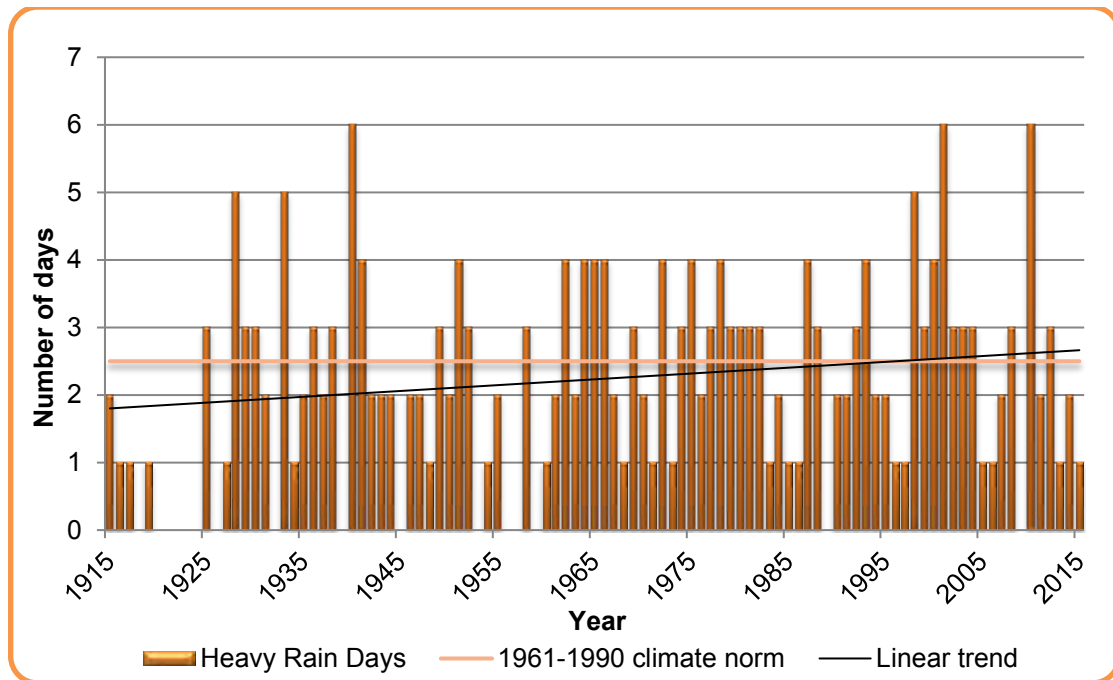
Graph 2.4: Summer rainfall totals with trend line, compared against the 30 year climate norm of 128.2mm.

Over the last 100 years the average amount of summer rainfall has marginally decreased overall, however the last 10 years has seen steady increases. Recent summers have been wetter than the climate norm, with the 2011-2015 average reaching 177.4mm. This is not however an observed trend as in climatology terms, the data covers a relatively short period of time, and is therefore not scientifically significant.

Indicators C3a and C3b show that the volume of winter rainfall recorded over the past 100 years has increased more quickly than the rate of decrease in summer rainfall.

Indicator C4 – Increasing number of heavy rainfall days (over 25mm)

Indicator	Date range	Status	Comment
C4 Increasing number of heavy rainfall days (over 25mm)	2005-2010	No	Yes – Number of heavy rainfall days above 30 year norm
	2011-2015	No	No – Number of heavy rainfall days in line with 30 year norm



Source: States of Jersey, Meteorological Department

Graph 2.5: Number of heavy rainfall days (greater than or equal to 25mm) per year with trend line, plotted against the 30 year climate norm of 2.5 days.

Climate change scientists predict an increase in storminess as the global mean surface temperature and hence energy input to the atmosphere increases. A heavy rainfall day is defined as one in which the rainfall is 25mm or more. Graph 2.5 shows significant variability from year to year, but the trend line supports global predictions, showing an increasing number of heavy rainfall days overall.

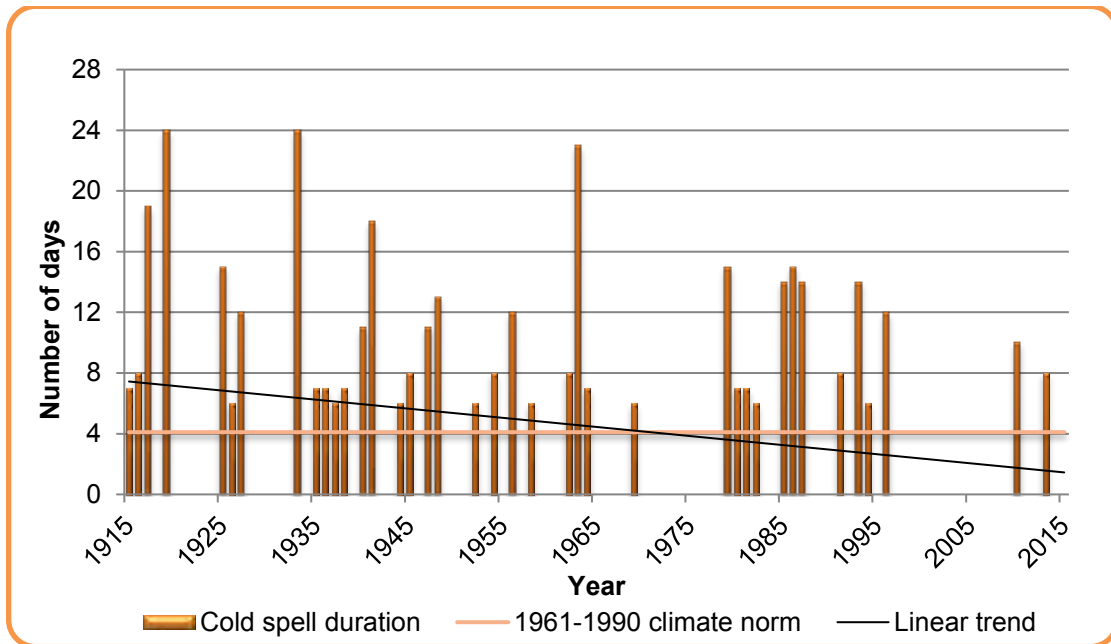
In contrast, the data for the period 2005-2015 shows a decline in the number of heavy rainfall days. This is not however an observed trend as in climatology terms, the data covers a relatively short period of time, and is therefore not scientifically significant.

The overall trend when considering indicators C3a, C3b and C4 together is a general increase in rainfall throughout the seasons. Despite a slight decline in heavy rainfall days over the last decade, the overall amount of rainfall has still continued to increase.



Indicator C5a – Decreasing number of cold spells

Indicator	Date range	Status	Comment
C5a Decreasing number of cold spells	2005-2010	Yes	Yes – Fewer cold spells than 30 year norm
	2011-2015	Yes	No – Number of cold spell days in line with 30 year norm



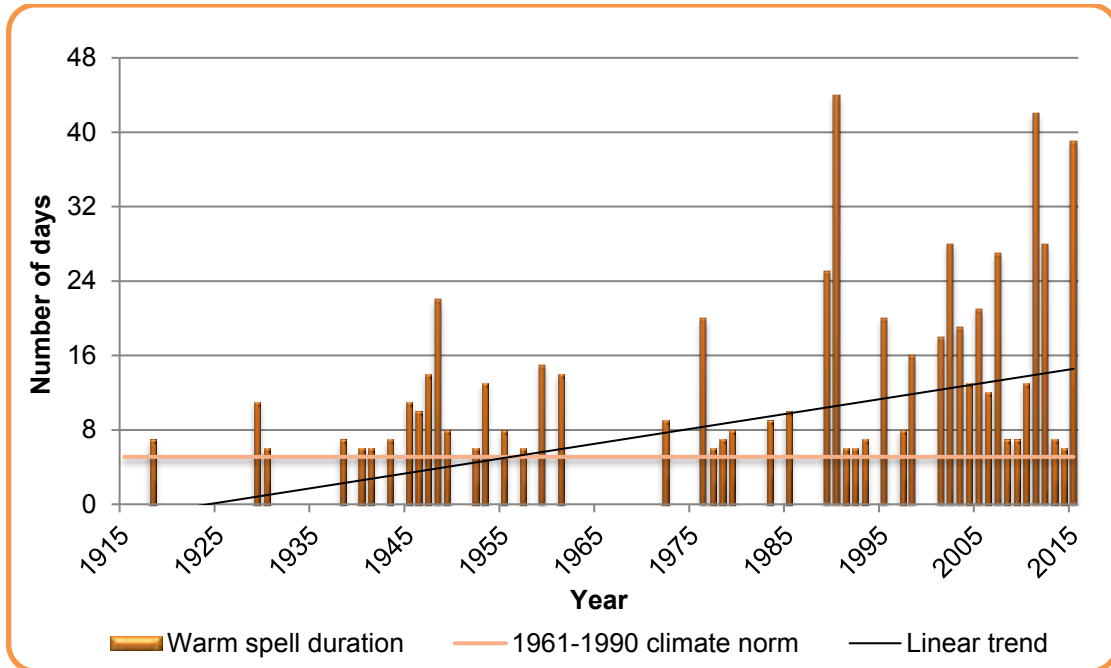
Source: States of Jersey, Meteorological Department

Graph 2.6: Cold spell duration (annual count of days with at least 6 consecutive days or more with air temperatures less than 2.9 °C) with trend line, plotted against the 30 year climate norm of 4.1 days.

Between 2005 and 2010 the average number of cold spell days was 2.0, which further decreased to 1.6 days between 2011 and 2015. Graph 2.6 shows the steady decline in cold spell days over the past 100 years.

Indicator C5b – Increasing number of warm spells

Indicator	Date range	Status	Comment
C5b Increasing number of warm spells	2005-2010	Yes	Yes – Number of warm spell days above 30 year norm
	2011-2015	Yes	No - Number of warm spell days in line with 30 year norm



Source: States of Jersey, Meteorological Department

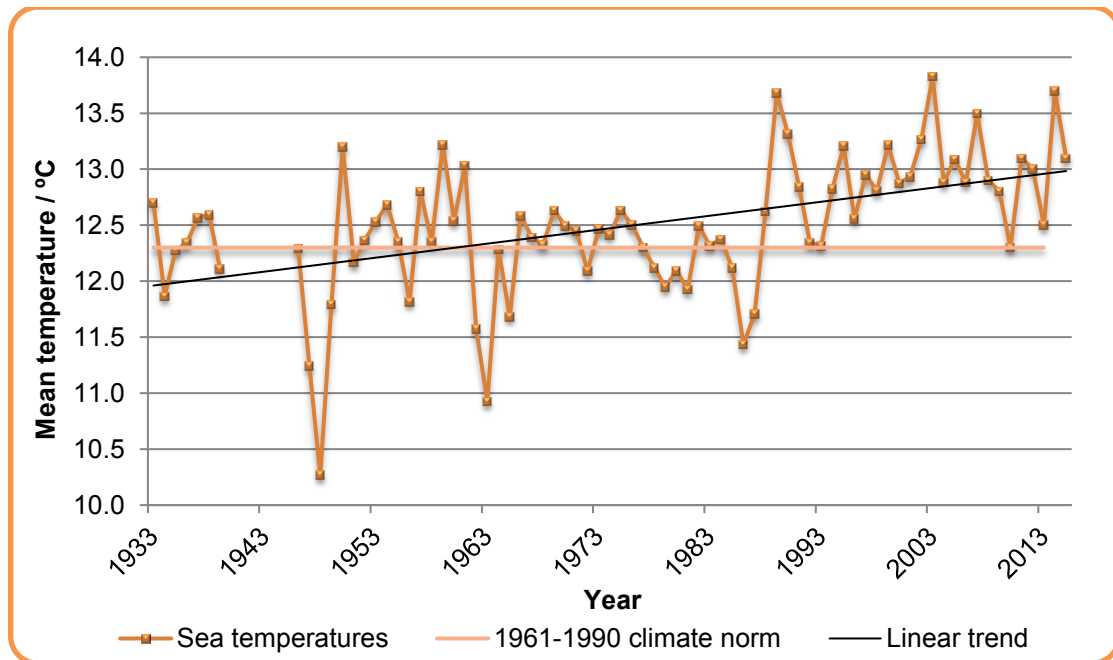
Graph 2.7: Warm spell duration (annual count of days with at least 6 consecutive days or more with air temperatures greater than 21.5 °C) with trend line, plotted against the 30 year climate norm of 5.1 days.

As can be seen from Graph 2.7, the number of warm spell days has increased significantly over time. This is particularly evident over recent years with the 2011-2015 average reaching 24.4 days, almost 5 times the climate norm of 5.1 days.

Looking at indicators C5a and C5b together, from the data it is evident that over the last 10 years there is a clear decline in the number of cold spell days and a significant increase in the number of warm spell days, when compared to the 30 year norm. This is in line with global climate predictions.

Indicator C6 – Increasing sea temperature

Indicator	Date range	Status	Comment
C6 Increasing sea temperature	2005-2010	Yes	Yes – Increase in sea temperature compared with 30 year norm
	2011-2015	Yes	No – Sea temperature in line with 30 year norm



Source: States of Jersey, Meteorological Department

Graph 2.8: Annual mean sea temperature with trend line, compared against the 30 year climate norm of 12.3°C.

Sea temperature has been recorded at St Helier Harbour since 1933. Graph 2.8 shows a clear increase in long term sea temperature, which has risen sharply since the late 1980s. In the last 5 years alone, the average sea temperature has risen to 13.1°C, which is 0.8°C higher than the climate norm. This is consistent with global trends.

This set of indicators, shows that the Jersey climate has been changing since records began in 1895. There has been an increase in air and sea temperatures and rainfall.

The long-term climate changes that are highlighted by the trends in the indicators are in line with the global pattern of climate change, particularly the marked warming trend over recent years.



2.2. Update on 2010 priority actions

In 2010 the following priority actions were identified for the period of 2010 to 2015. This section assesses progress against these in the last five years.

Climate (State of Jersey Report 2010)

Prepare for the local effects of global climate change: different rainfall regimes, rising sea levels, increased stormy weather and the impacts of this on our sea defences and flood prevention systems.

The indicators show that the Island's weather is displaying patterns consistent with global patterns of climate change. The challenge is to consider how to ensure the Island is resilient and adapts to the impacts of climate change.

2.2.1. Preparing for the effects of climate change

The Jersey climate resilience and adaptation work stream commenced in December 2014. A series of stakeholder events took place over a five month period, culminating in a local conference and publication of the Future Proofing Jersey report and recommendations, authored by Town and Country Planning Association¹². Since publication in April 2015, work has been coordinated by the Department of the Environment to commence work on the 10 recommendations.

Jersey needs to consider what resilience measures it needs to put in place in order to adapt to a changing climate. The importance of an accurate evidence baseline using the records of the past and present weather is critical for understanding the atmospheric processes and our climate. The Jersey Meteorological Department is committed to collecting high quality meteorological information and in partnership with the UK Meteorological Office, contributing these to larger data sets for use in climate modelling.

Whilst significant progress has been made in bringing climate change adaptation into both the corporate and political arenas, there is still much to do. This is reflected in the priority actions for the next 5 years.

In 2015 the Island's coastal sea defence strategy was updated to take into account the predicted sea level rise over this century. Some of Jersey's coastal defences will need to be improved to provide adequate protection from coastal flooding.¹³

Whilst there are some examples of how the impacts of a changing climate have started to be considered, such as Jersey Water's 25 year Plan and the Island Plan 2011, the development of a co-ordinated response through a CAP for Jersey is clearly a priority action for the next 5 years.

¹² [Link to Future Proofing Jersey report on the States of Jersey webpage](#)

¹³ [Link to Sea Defence Strategy periodic update report on the States of Jersey webpage](#)



2.3. The priorities for 2016-2020

Based on the evidence from the last five years, the priorities for this area have been identified for the next 5 years as follows:

Climate Trends – The next 5 years

Develop an Island wide strategic response to adapt to the local impacts of global climate change. Develop a costed Climate Adaptation Plan (CAP):

Developing this Plan includes the following:

- Agree the baseline evidence to develop an agreed resilience factor for Jersey;
- Undertake a risk assessment to identify priorities for strategic planning including the Island Vision, the Island Plan review, infrastructure planning and ensure climate resilience and response is integrated into emergency risk registers and response plans;
- Carry out an economic assessment of risks of climate change impacts versus the investment needed in climate resilience;
- Ensure a coordinated process to develop a climate resilience and adaptation framework that includes all stakeholders in a framework of corporate governance;
- Continue to monitor local weather, atmospheric trends and input to UK based climate models and work with experts to establish and report accurate data on sea level rise.

2.3.1. Agree baseline evidence and resilience factor

Building resilience to the impacts of climate change must be based on an agreed resilience factor using verified baseline evidence. This resilience factor can then be used to assess the degree of risk that individual climate impacts present to vulnerable areas and enables consideration of the interaction of these risks that arise through joint probability of occurrence. In order to identify and evaluate these risks, robust data sets and analysis of a wide range of socio economic and environmental factors is required; once the baseline evidence, risk assessment and agreement of resilience factor has been carried out, the second step of a clear process of adaptive management should commence based on an agreed and costed set of priorities.

2.3.2. Undertake risk assessment to identify priority actions

The adaptation planning process will follow the planning cycle of evidence gathering, setting priorities, implementation and review. This will require the establishment of key corporate policy goals and the integration of both resilience factors and adaptation measures into a wide range of existing strategies: including business continuity, emergency planning, critical infrastructure plans, spatial planning strategy through the Island Plan and the strategic objectives of the Island Vision.



The comprehensive resilience action plan will be based on international best practice. It is critical that this plan is incorporated as one of the corporate priorities of the States of Jersey. It will set out the key risks and vulnerabilities as well as key sectoral actions in relation to spatial planning, flood defence, transport, economic development, health-care, energy and emergency planning.

The review of the Island Plan, which sets out the Island's spatial planning strategy for the next ten years, will commence in 2017, and the revised Plan will be adopted in 2020. The Plan and supporting supplementary planning guidance will be underpinned by the agreed resilience factor which will be based on the baseline evidence. In order to ensure adaptation measures are incorporated into the Island Plan review process, consideration of a range of factors, from long-term spatial distribution through to building-scale actions to enhance resilience, will be required.

2.3.3. Assess economic impacts and opportunities

A priority issue is the interaction of climate impacts and the strategic function and growth of St Helier. St Helier is a critical asset to the island, and faces particular vulnerability from a combination of its geography, high tides and storm surges. The Future of the St Helier project provides an opportunity to integrate resilience principles into the planning process. This will require a multi-agency and multi-disciplinary approach including the engagement of Department of the Environment, Parish of St Helier, Ports of Jersey, Department for Infrastructure, and other key stakeholders and interest groups.

A coordinated approach to data collection across all sectors and States of Jersey departments will be taken in order to enhance the knowledge base of risks and vulnerabilities. Understanding the long-term economic risk and opportunities for the Island is vital and will include an assessment of Jersey's resilience in relation to its international competitors, as well as securing a more detailed economic assessment of climate impacts. The social impact of climate change, particularly upon those least able to mitigate its impact, will also be an important consideration.

2.3.4. Establish governance framework to ensure stakeholder involvement

Delivering action on climate resilience will require both political will and wider community and stakeholder engagement. A communications and awareness-raising strategy focussed on wider public engagement will be developed. A Climate Summit to raise awareness and increase understanding of the adaptive response is seen as an important element within this communications strategy.



2.3.5. Continue monitoring climate trends

The Jersey Metereological Service will continue to monitor weather and climate trends in line with best practise and will publish information on www.gov.je to assess the impact of climate change on the local situation.





Fresh and Marine Waters



Water resources and the range of services they provide are very important to us: they underpin economic growth, support healthy communities and are fundamental to environmental sustainability.

The water resources in Jersey are all interconnected. Rainfall replenishes the groundwater resource. Groundwater provides the water in wells and boreholes and forms springs and streams that keeps streams flowing during the dryer months. This water in our streams is captured in reservoirs for drinking water, abstracted for irrigation or other uses and maintains stream habitats as it flows towards our beaches and into the sea.

In a small, busy island where minor pollution events can have severe impacts, prevention is definitely better than cure. Individual actions can make a positive difference. Pollution prevention advice and education is a key work area delivered by the Department of the Environment.

Pollution can be split into two broad types:

- **Point source pollution:** pollution emitted from a single and identifiable source (for example, a leaking heating oil tank in the garden, a leaking septic tank, a drum containing chemicals dumped in the stream).
- **Diffuse source pollution:** pollution that derives from a wider area (for example; slurry/animal waste spread to land, fertilizer spread onto a field).

Water resources can be protected by taking some basic measures, such as, a simple weekly inspection of domestic oil tanks to check for cracks, reading and following a pesticide label instruction, spreading organic wastes correctly, disposing of unwanted chemical responsibly or using water saving tips and techniques. Information on pollution prevention is available on www.gov.je.¹⁴

3.1. The indicators

3.1.1. Drinking water supply

Almost all of the island's drinking water comes from rainfall that flows into streams that are then diverted into our reservoirs. Jersey Water can take water from most of the islands streams and transfer water around between reservoirs. This ensures that reservoirs are kept as full as possible and allows for the high demand for water we have in Jersey and the seasonal variation in rainfall.

The majority (97%) of water abstracted, is from surface water resources. The remaining water is taken from five boreholes located in the sand aquifer in St Ouen's Bay. The amount of water taken is within those allowed under licensing arrangements under the Water Resources (Jersey) Law 2007.

¹⁴ [Link to further information on pollution prevention of the States of Jersey webpage](#)



Jersey Water also operates a desalination plant to maintain supply during particularly dry periods.



A key challenge for Jersey Water is to ensure an adequate water supply for the future needs of an increasing population, within the challenges being experienced through climate change. In 2010 Jersey Water published a 25 year Water Resources Management Plan. This plan projected the water needs in Jersey for the next 25 years, identified pressures and recommended safeguard actions to achieve water security.

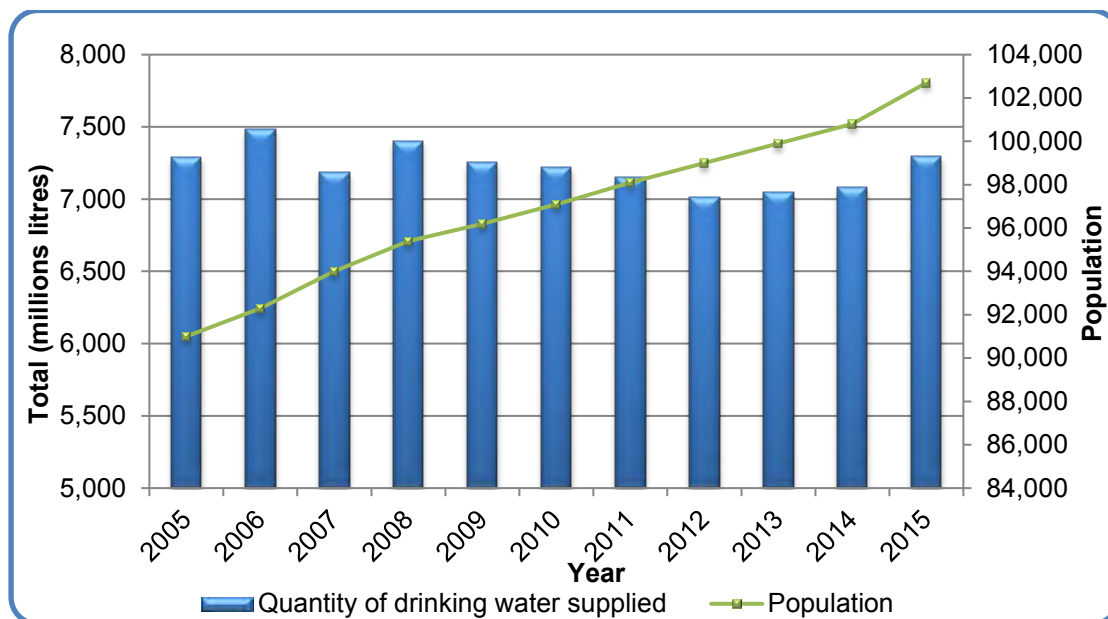
The plan recognised two main areas of intervention:

- **Managing demand** (water metering, leakage reduction etc),
- **Maximising supply** (repair and possible extension of Val de la Mare Reservoir etc.)

The Department of the Environment works closely with Jersey Water to help ensure that the water supply to reservoirs is maintained and is of sufficient quality for abstraction.

Indicator FW1a - The volume of treated drinking water supplied by Jersey Water per annum

Indicator	Date Range	RAG Status	RAG Comment
FW1a The volume of drinking water supplied by Jersey Water per annum	2005-2010	 GREEN	Red - The volume of water is insufficient for the needs of the island.
	2011-2015	 GREEN	Amber – N/A Green – The volume of water is sufficient for the needs of the island.



Source: Jersey Water

Graph 3.1: Quantity of drinking water supplied by Jersey Water, with annual population figures.¹⁵

The graph shows that the volume of water supplied by Jersey Water has remained more or less constant over the past decade despite an 11% increase in the Island's population. This has been achieved through a number of water saving initiatives, including a move to universal metering, which was completed in 2015. The programme has resulted in a significant reduction in demand due to a change in customer's water usage behaviour.

The quality of drinking water supplied by Jersey Water continues to be of a high standard. In 2016 a significant water quality issue emerged and this resulted in an extension of the monitoring of ground and surface water. This identified the presence of a legacy pesticide 'Oxadixyl' which resulted in the temporary closure of Val de la Mare reservoir. Jersey Water blended water resources to ensure that the mains water supply remained within drinking water limits as set out in the Water (Jersey) Law 1972. These are identical to the drinking water quality regulations in England & Wales. The overall water quality compliance level between 2011 and 2015 was typically greater than 99.8%, which is comparable with performance levels reported by water supply companies in England & Wales.

However, as a consequence of high levels of nitrate in streams and groundwater, which comes from fertilisers and organic sources, Jersey Water currently has a derogation under the Water (Jersey) Law 1972, which allows a proportion of samples in any one year to exceed the usual 50 mg/l nitrate limit in the mains water supply. The Department of the Environment established a diffuse pollution project in 2010¹⁶ to reduce catchment losses of nitrogen, and



¹⁵ Estimated population figure has been provided for 2013 by the States of Jersey Statistics Service using census data and projections.

¹⁶ [Link to further information about the diffuse pollution project on the States of Jersey webpage](#)



tackling this issue continues to be a priority one for the Department, along with phosphate and pesticides in water.

Indicator FW1b - The water table depth at measured sites

Indicator	Date Range	RAG Status	RAG Comment
FW1b Depth of the water table at measured sites	2005-2010	 GREEN	Red – Water table across the island not stable
	2011-2015	 GREEN	Amber – N/A Green - Water table across the island remains stable.

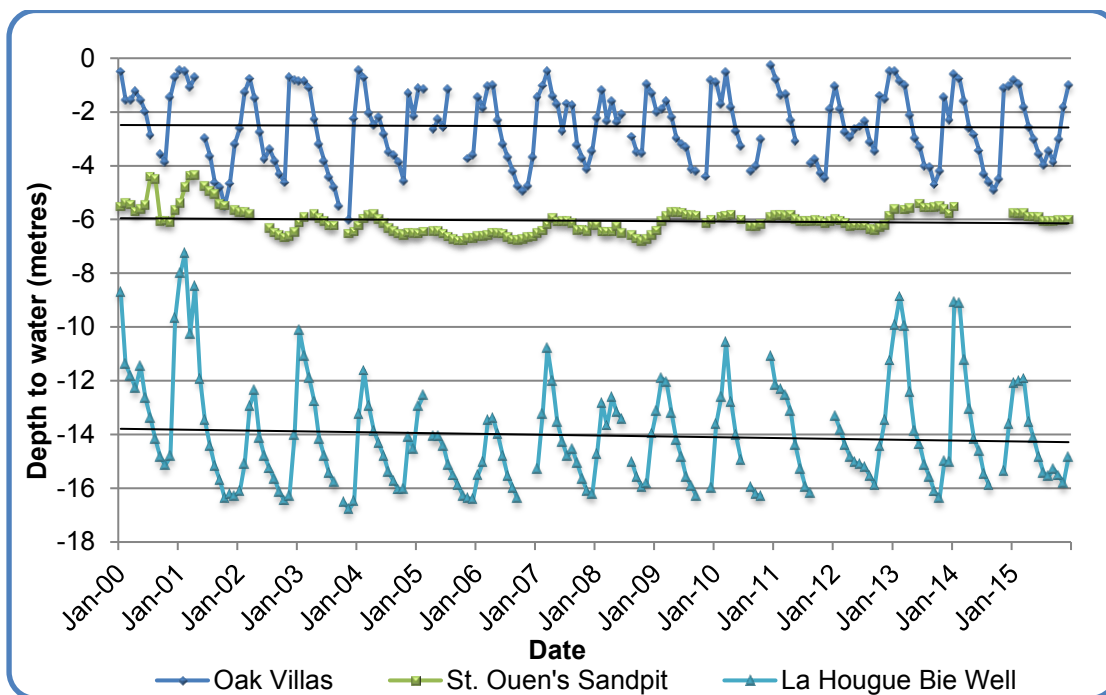
The Water Resources (Jersey) Law 2007 came into force in 2009 and provides for the protection, management and regulation of the Island’s water resources. The Law promotes a holistic approach that takes into account everyone’s water needs including those of animals and plants and their aquatic habitats.

All large abstractions (more than 15 cubic metres per 24 hour period) from surface water and groundwater must be licensed and smaller abstractions from groundwater must be registered with the Department of the Environment. This enables the Department to record the location and quantity of water abstractions.¹⁷ Water levels are also monitored monthly around the Island.

This water resource information is used to produce a periodic water situation report by the States of Jersey Hydrogeologist. Monitoring the resource helps to ensure that sufficient water will be available for drinking, and also for industry, agriculture and recreation; of particular importance during periods of drought.

The Law and information derived from data collected under the Law, allows for a long-term integrated and sustainable approach for the management of the Island’s water resources. A status assessment of the Island’s water resources was carried out in 2015 as part of the development work for the preparation of a Water Plan to be implemented in 2017. This assessment indicated that the quantitative status of the Island’s water resource in 2015 is currently good. This confirms the information presented in the hydrographs below which show that allowing for the expected annual fluctuations, the quantity of water in storage is remaining stable.


¹⁷ [Link to information about registering private water supplies on the States of Jersey webpage](#)



Source: States of Jersey, Department of the Environment

Graph 3.2: Groundwater level hydrographs from three boreholes between 1997 and 2015 (royal blue- west (St Ouen’s Bay), grey- centre (St John), light blue- east (La Hougue Bie) each with a linear trend line.

3.1.2. Fresh water management

Indicator	Date Range	RAG Status	RAG Comment
FW1c Annual leakage of water mains	2005-2010	N/A	Red – Increase in volume of mains water lost via leakage
	2011-2015	 GREEN	Amber – Stable volumes of mains water lost via leakage Green – Decrease in volume of mains water lost via leakage

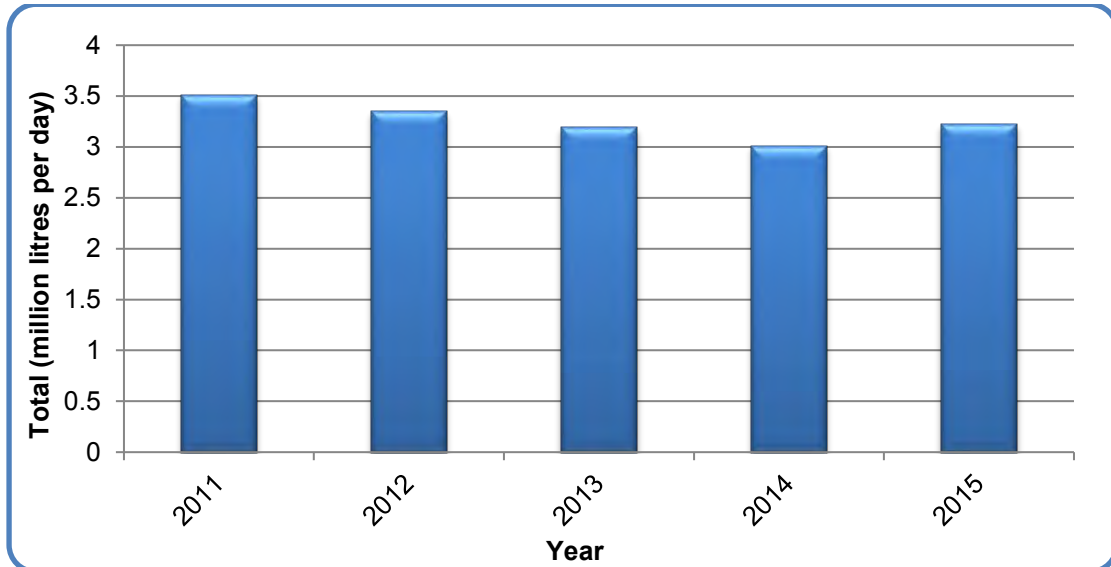
Jersey Water manages demand for water by ensuring that the water supply network has the minimal amount of leakage.

The indicator reporting on frequency of burst water mains, which was included in previous reports is not included in this update; the industry average comparative data from the UK water sector for burst water mains is no longer readily available. The indicator has been replaced with an indicator showing the annual leakage of water mains.

Over the past five years, Jersey Water has had considerable success in the reduction of leakage. In the five years to the end of 2014, leakage had reduced by 40% or nearly 10% of average daily demand. In 2015, leakage increased to



an average of 3.22 million litres per day compared to 3.01 million litres per day in 2014. The increase of 7% on the prior year is largely attributed to the combined effects of several large leaks which went undetected for some time. Despite the increase in the year, leakage rates remain low relative to industry standards.



Source: Jersey Water

Graph 3.3: Annual leakage of water mains between 2011 and 2015 (millions litres/per day).

The indicator monitoring the percentage of water connections metered, included in previous reports, has been removed. Information regarding the roll out of the metering programme and the progress made with this project, is included in the Water Resources Management Plan¹⁸.

3.1.3. Fresh water quality

Indicator FW2a – Nitrate levels in groundwater

Since 1990, approximately 50 groundwater sites across Jersey have been monitored on a six monthly basis by the Department of the Environment.



The information from this monitoring programme helps to identify long and short-term trends and the impact caused by contamination or pollution incidents.

Analysis of pH and conductivity are carried out in the field, whilst other parameters such as nitrate levels are analysed by the States of Jersey Official Analyst. Water samples for pesticide analysis are collected at selected sites. Twenty-four of the original sites are still monitored providing a data set spanning 25 years.

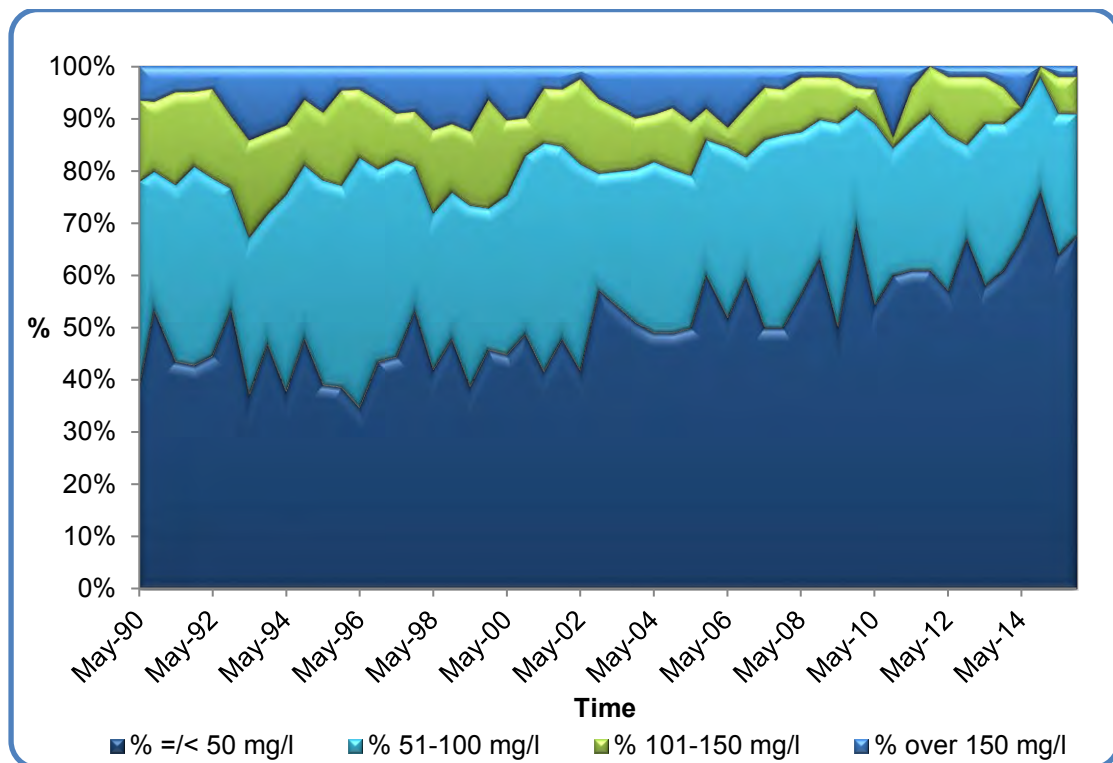
¹⁸ [Link to the Water Resources Management Plan on the Jersey Water webpage](#)



Fresh and Marine Waters

Indicator	Date Range	RAG Status	RAG Comment
FW2a Nitrate levels in groundwater	2005-2010	 RED	Red – Poor status
	2011-2015	 RED	Amber – Moderate status Green – Good status

Nitrate is a longstanding issue in Jersey's Waters; Jersey has some of the highest levels of nitrate in Europe. This situation is improving, as the number of groundwater sites with a nitrate level below the EU standard of 50 mg/l is rising, and the number of sites with very high levels is decreasing, as shown in the table and graph below. However, despite this improvement the nitrate in groundwater indicator is still assigned as having poor status. This indicator was previously called 'chemical levels in groundwater' but has been changed to 'nitrate levels in groundwater'. Whilst groundwater is analysed for many other chemicals it should be noted that the indicator only reports on nitrate.



Source: States of Jersey, Department of the Environment

Graph 3.4: Nitrate levels groundwater between 1990 and 2015.



Year	No. of analyses	No. of detections	No. of exceedances	%
2005	767	38	0	0.0
2006	926	40	0	0.0
2007	945	36	1	0.1
2008	990	22	3	0.3
2009	917	21	3	0.3
2010	1,205	31	10	0.8
2011	1,595	29	6	0.4
2012	1,690	24	3	0.2
2013	1,687	33	3	0.2
2014	828	22	5	0.6
2015	528	6	0	0.0

Source: States of Jersey, Department of the Environment

Table 3.1: Pesticide analysis of groundwater – percentage of samples exceeding 0.1 ug/l (the drinking water limit). Following the detection of Oxadixyl in Jersey groundwater at the beginning of 2016, Environmental Protection commenced a significant monitoring programme to establish the levels and distribution of this legacy pesticide. This will be reported in more detail in the next Environment in Figures report and by the Environmental Protection team in the interim.

Analysis indicates that the number of pesticide exceedances within groundwater is less than 1% between 2011 and 2015. Work carried out in 2015 as part of the development of the forthcoming 2017 Water Plan indicates a need to review the sites and suite of analysis that is used. The analysis indicates that the chemical quality of groundwater is good in respect of priority and priority hazardous substances. The risk from pesticides not on that list needs further assessment and this work will continue to be developed in 2016 due to the emerging pesticide issues. For more in depth information about the background work carried out for the Water Plan, and Jersey's water quality, please see 'Challenges for the Water Environment of Jersey', December 2014, available on www.gov.je.¹⁹

3.1.4. Surface water monitoring

As a result of a review and rationalisation process, the number of inland surface water (stream) sites monitored by the Department of the Environment has been reduced from 12 each month to 8 sites per quarter. Field data including pH, conductivity, dissolved oxygen and temperature are measured using field meters and test kits. Chemical analysis for parameters such as nitrate, phosphate, potassium and microbiology are undertaken by the States' Official Analyst laboratory. This information is used to:

¹⁹ [Link to Challenges for the Water Environment of Jersey on the States of Jersey webpage](#)





- Provide baseline quality data in order to characterise the status of the Islands surface water resource at catchment scale;
- Assess long-term trends and impacts from diffuse pollution and pollution incidents;
- Assess the background water quality entering the marine environment through outfalls;
- Assess surface water suitability as a habitat for aquatic life and the formulation of water quality objectives; and
- Determine whether water quality objectives are met once the 2017 Water Plan (currently in draft) is fully developed and adopted.

Indicator FW2b – Nitrate levels in surface water

This indicator was previously called ‘chemical quality of surface water’ but has been changed to ‘nitrate levels in surface water’. Surface water is analysed for many other chemicals as well as nitrate and it is important to note that the indicator refers to nitrate only.

The assessment of surface water quality has a number of different elements; biological, physico-chemical and other chemicals (priority and hazardous substances). Nitrate is one part of the physico-chemical assessment and this indicator refers to nitrate only. Currently most water bodies have been assessed as moderate quality for nitrate.

Indicator	Date Range	RAG Status	RAG Comment
FW2b Nitrate levels in surface water	2005-2010	 AMBER	Red – Poor status Amber –Moderate status
	2011-2015	 AMBER	Green – Good status

One of the main sources of nitrates in surface and ground waters comes from agricultural activities. Nitrogen is one of the main plant nutrients, and along with phosphate and potassium is the main component of fertiliser. If more fertiliser than the growing plant needs is applied, the rest can end up in our surface and groundwater. This can cause nutrient enrichment, called ‘eutrophication’, which causes problems that range from water requiring additional treatment to be suitable for drinking, to disruption of ecosystems.

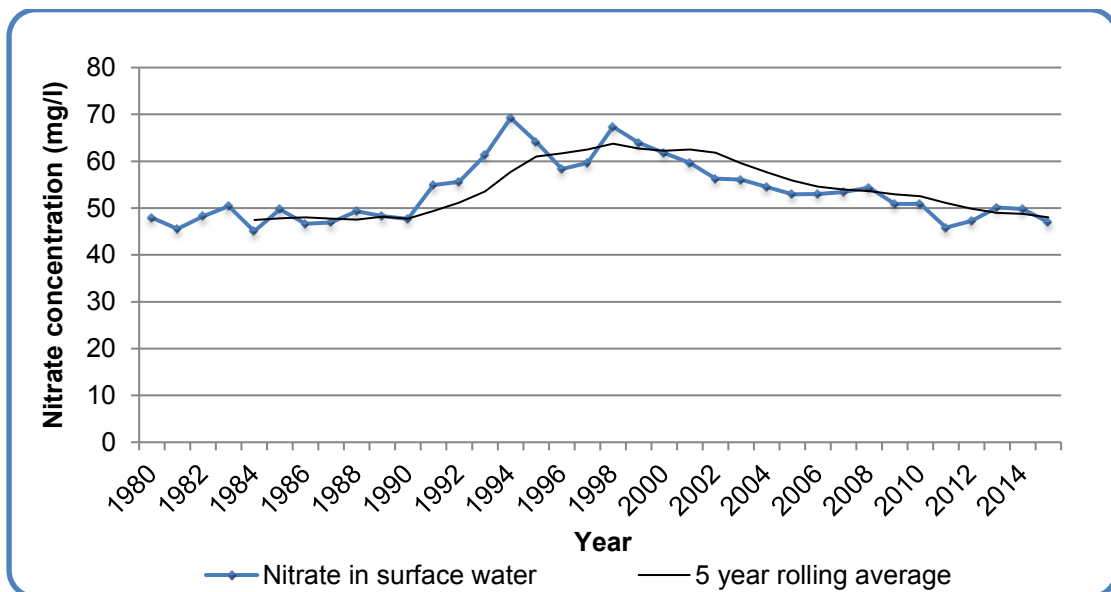
The previous report included an indicator showing the amount of land farmed and the import levels of nitrogen fertilizers, in an attempt to link fertilizer imports with their use. This indicator has now been removed as it is not sensitive enough to accurately reflect nitrogen use per vergee which would be more useful in understanding nutrient balances. In the future, this information



could be obtained from farmers but would require detailed records and analysis to be made of the application of fertilizers to individual fields which would then need to be extrapolated island wide.

However, over the past 10 years, the nitrate quality of Jersey's surface water streams has improved with the mean nitrate levels reducing from 52.9 mg/l in 2005 to 47.02 mg/l in 2015 as shown in graph 3.5 below. When samples taken exceed the 50mg/l limit required by the water law, in order to ensure Jersey Water provide drinking water meeting the quality standard, water is blended across reservoirs.

Despite the decline in nitrate levels over the last ten years, approximately half of water samples taken still have too much nitrate in them. In 2014 a nitrate working group was formed. The aim is to use an appropriate level of nitrogen according to crop requirement, taking into account all sources of nitrogen which have been applied to the land (organic manures and inorganic fertilisers). This should have the effect of reducing the amount of nitrogenous fertiliser imports and application rates. The draft Water Plan also has measures to limit the amount of nitrogen being put on land.





Source: States of Jersey, Department of the Environment

Graph 3.5: Annual mean nitrate concentration in surface water plotted against a five year rolling average trend line.

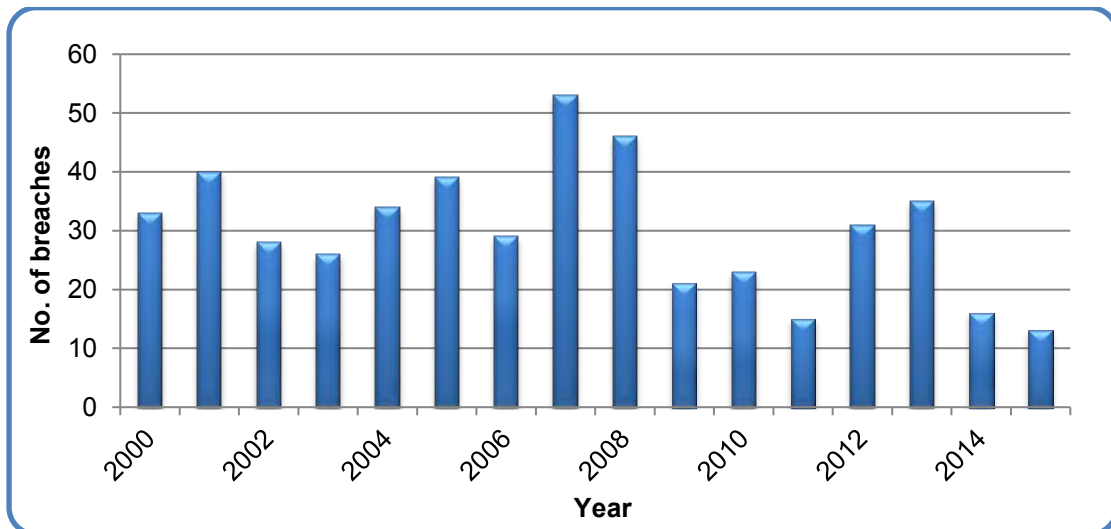
Indicator FW2c – Pesticide levels in surface waters

Pesticide levels in surface waters are measured by the number of pesticide breaches recorded in surface waters. Breaches are detected by routine monitoring carried out by Jersey Water and are classed as levels of more than 0.1µg/l of any pesticide.



Indicator	Date Range	RAG Status	RAG Comment
FW2c Pesticide levels in surface waters	2005-2010	 RED	Red – Number of samples breaching 0.1ug/l increasing
	2011-2015	 AMBER	Amber – Number of samples breaching 0.1ug/l is stable Green – Number of samples breaching 0.1ug/l is decreasing

This number of breaches recorded peaked at 53 breaches in 2007 and reduced to 13 in 2015 as shown in Graph 3.6. Assessing the extent and reducing the occurrences of pesticides in water are a high priority for the Department of the Environment and for Jersey Water; as previously explained the monitoring regime for pesticides and also for phosphate is being increased and refined accordingly following the detection of ‘Oxadixyl’ in 2016.



Source: States of Jersey, Department of the Environment



Graph 3.6: Number of pesticide breaches in surface water between 2000 and 2015.

Indicator FW2d – Biological quality of surface waters

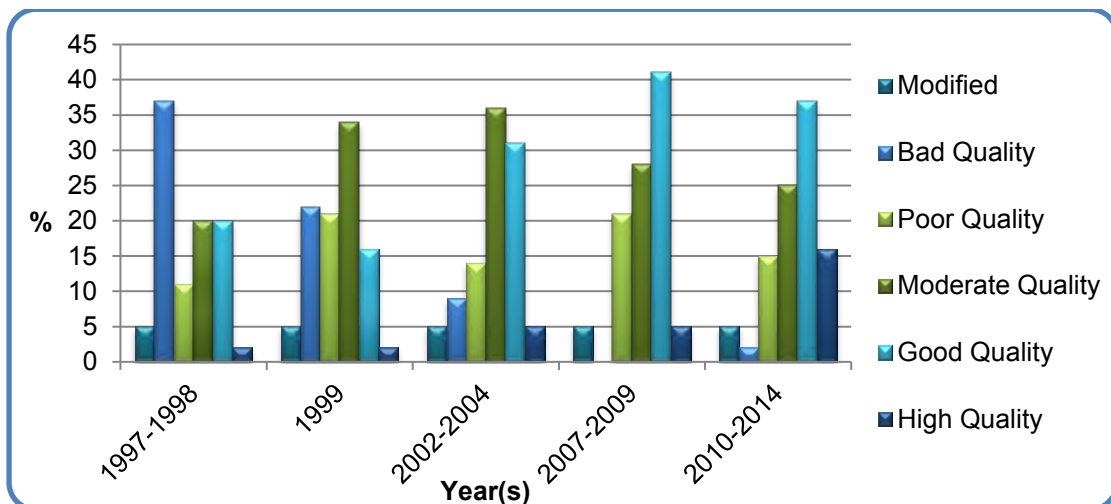
Biological water quality is monitored by the Department of the Environment. It is measured by assessing the types and abundance of the insects that have part of their life cycle in water.

Biological monitoring is a good indicator of long-term water quality as some macro-invertebrates are more tolerant of pollution than others. A damselfly (*Demoiselle*) is an example of a high scoring insect.



Indicator	Date Range	RAG Status	RAG Comment
FW2d Biological quality of surface waters	2005-2010	 AMBER	Red – Poor or declining status Amber – Moderate or improving status
	2011-2014 ²⁰	 AMBER	Green – Good status



The biological quality of Jersey’s streams is improving. The percentage of high quality status sites in the 2010-2014 assessment period tripled from 5% to 16% when compared to the previous assessment period. Over half (53%) of the Island’s streams have good or high biological water quality compared to 36% in 2005. The assigned RAG status is Amber (Moderate).



Source: States of Jersey, Department of the Environment

Graph 3.7: The proportion of streams achieving bad/poor quality compared to good/high quality as classified by macro-invertebrates.

Indicator FW3 – Number and type of reported pollution incidents

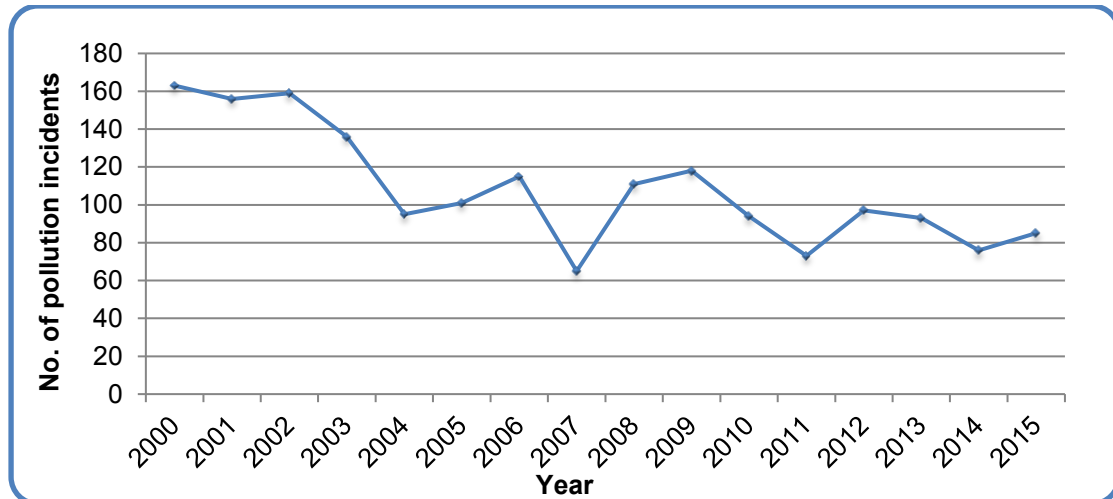
Indicator	Date Range	RAG Status	RAG Comment
FW3 Number and type of reported pollution incidents	2005-2010	 GREEN	Red - Increasing number of incidents
	2011-2015	 GREEN	Amber - No change in number of incidents Green - Decreasing number of incidents

²⁰ 2015 data not yet available



The Water Pollution (Jersey) Law 2000 is the legislation used to regulate and control water pollution within Jersey.

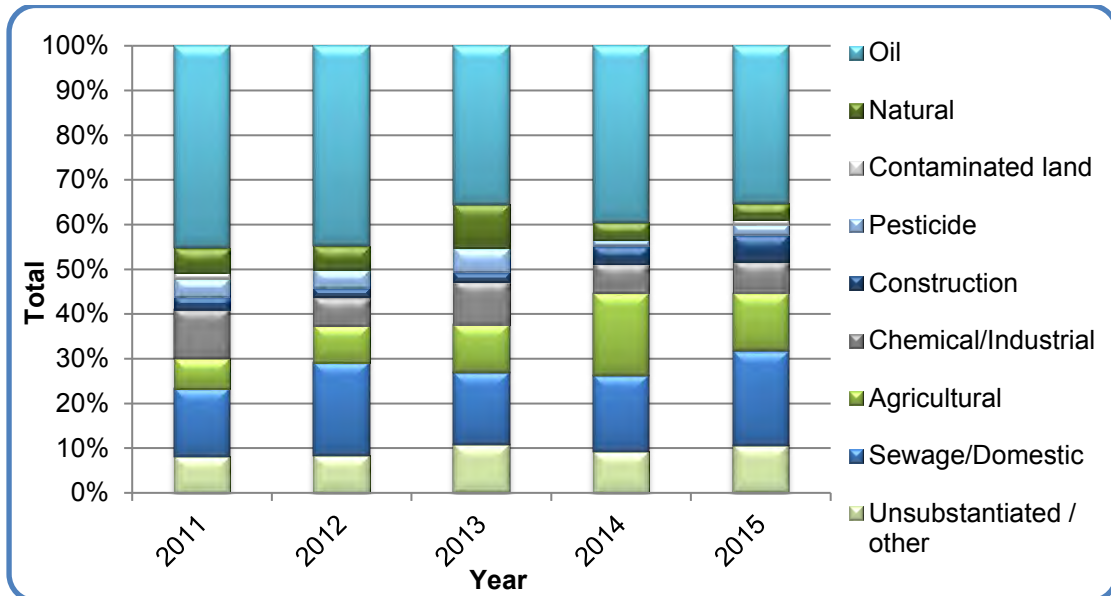
Graph 3.8 shows that since the law was introduced, the number of reported pollution incidents has gradually reduced from an average of 160 incidents in 2000-2002 to around 80-100 incidents per year in the last five years.



Source: States of Jersey, Department of the Environment

Graph 3.8: Total number of reported pollution incidents (2000-2015).

It is not possible to assess whether the downward trend relates to fewer incidents or less reporting of incidents. Graph 3.9 below shows that oil incidents continue to be a high proportion of reported incidents, although this proportion is reducing. Significant work has been carried out by the Department of the Environment to raise awareness of oil pollution including close working with fuel supply companies. Other examples of awareness raising activities include the 'Blue Fish' campaign. This campaign was designed to raise awareness of the difference between drains that go to the sewage treatment works and surface water drains that go to streams and the sea. The campaign appears to have had a positive impact on reducing the number of pollution incidents. Conversely the increasing trend in agricultural category incidents from a low starting point is possibly a result of the increased public awareness and a higher reporting rate.



Source: States of Jersey, Department of the Environment

Graph 3.9: Categories of pollution incidents (2011-2015).



The indicator regarding the number of prosecutions and outcomes under the Water Pollution Law included in previous reports has been removed, as it does not accurately represent a true picture of the long term trend of enforcement actions.

3.1.5. Marine Water quality

Jersey has clean and unpolluted coastal waters. The designation of internationally recognised Ramsar sites (wetlands of international importance) around the coast are a testament to this.

Indicator MW1a - EU Bathing Water Directive Compliance

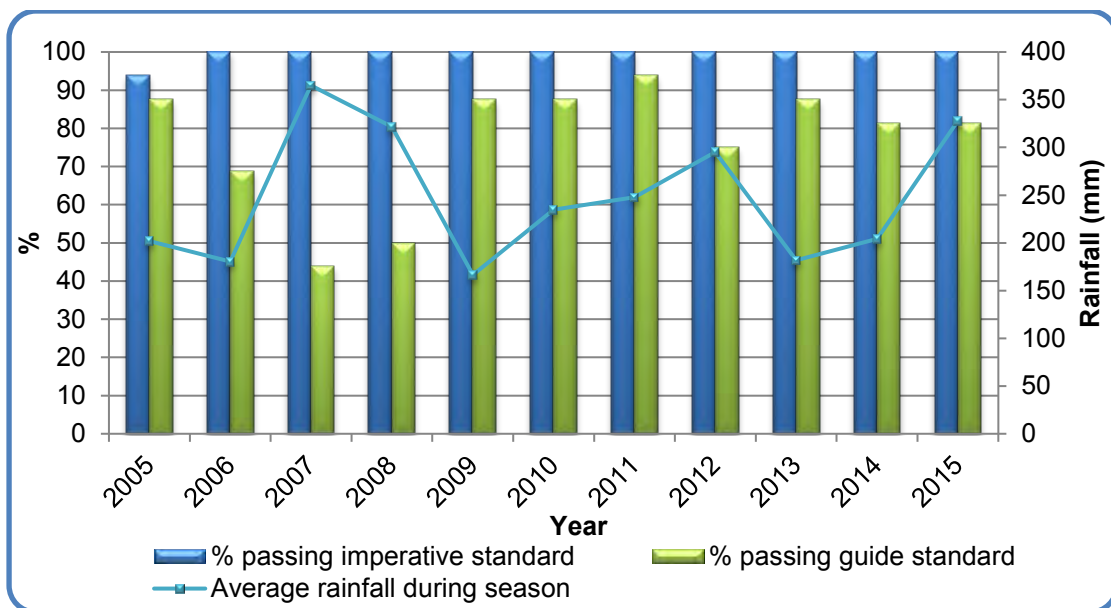
The Department of the Environment monitors 16 of the most popular bathing water beaches around Jersey. At each beach, the bathing water quality is sampled weekly from mid-May to the end of September. Monitoring and analysis of samples conforms to a strict protocol that is replicated throughout Europe.

Indicator	Date range	RAG Status	RAG Comment
MW1a Levels of compliance with EU Bathing Water Directive	2005-2010	 GREEN	Red – <i>imperative</i> failure Amber – Less than 75% of waters above <i>guide</i> standard and all pass <i>imperative</i> standard
	2011-2015	 GREEN	Green – 75% of waters above Guide standard and all pass <i>imperative</i> standard



The water quality at Jersey's local beaches is generally high. Since 2006, 100% of Jersey's bathing waters have passed the 1976 European Bathing Water Directive imperative standard.



Compliance of Jersey's bathing waters with European Bathing Water Directive guide standard (twenty times more stringent than the imperative standard) has varied. Historically wetter summers have resulted in lower levels of guide compliance, which reflect the microbial input of runoff from the land and also perhaps, less of the UV light that reduces the levels of bacteria due to cloud cover. In 2015 the trend for guide compliance increased significantly despite the summer being significantly wetter than average. See Graph 3.11 below.



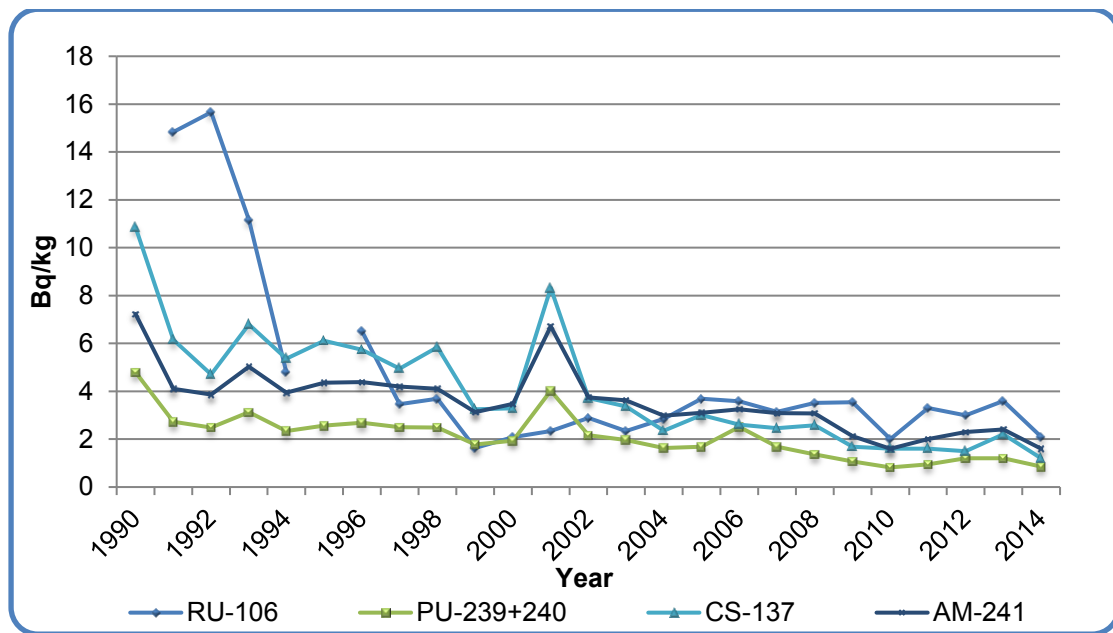
Source: States of Jersey, Department of the Environment

Graph 3.11: Bathing water compliance between 2005 and 2015, plotted against average rainfall during season.

Indicator MW1b - Radioactivity in the marine environment

Indicator	Date Range	RAG Status	RAG Comment
MW1b Radioactivity in the marine environment	2005-2010	 GREEN	Red - Increasing trend in radionuclides.
	2011-2014 ²¹	 GREEN	Amber - Static trend in radionuclides, Green - Decreasing trend in radionuclides, <i>In reference to the CEFAS draft report.</i>

²¹ 2015 data not yet available



Source: States of Jersey, Department of the Environment²²

Graph 3.12: Trends in 4 radionuclides in Jersey's Marine Sediments since 1990.²³

Graph 3.12 shows the trend of 4 radionuclides concentrations in marine sediment from Jersey since 1990. Whilst there are some inter-annual changes, the overall trend is still one of decline, which reflects the overall reduction in discharges from La Hague nuclear fuel reprocessing plant since the 1990's.



The information for this section is sourced from the UK's Centre for Environment, Fisheries and Aquaculture Science (CEFAS), who, in conjunction with other UK agencies, conduct annual assessments of radionuclides for the entire UK and British Isles, including the Channel Islands. The effects of the disused disposal site of Hurd Deep and the power station at Flamanville, also continue to be monitored, with fish, shellfish and seaweeds sampled by UK agencies. Concentrations continue to be at low levels. Assessments on people who consume large amounts of fish and shellfish, still estimate they receive less than 0.005 mSv, which is less than 0.5 per cent of the dose limit for members of the public. The report concludes that the concentrations of radionuclides from both artificial and local sources are still of negligible radiological significance.

²² Hughes et al 2006, CEFAS (Centre for Environment, Fisheries and Aquaculture Science) RIFE (Radioactivity In Food and the Environment) 2014

²³ Note an unrepresented outlying point for Ru-106 in 1990 of 86 Bq/kg



Indicator MW1c - Toxic algal testing



Indicator	Date Range	RAG Status	RAG Comment
MW1c Toxic algal testing	2005-2010	 GREEN	Red - Toxins detected /above trigger point
	2011-2015	 GREEN	Amber – N/A Green - Toxins not detected / below trigger point

The Department of the Environment undertake a monthly monitoring program of both sea water and shellfish samples to test for the presence of toxins associated with algal blooms.

These blooms are uncommon events, where plankton rapidly reproduce due to an abnormal change in the environment. This population explosion can be triggered by unusual weather or pollution events. Some species of plankton in these blooms can produce toxins, which can be harmful to both humans and marine organisms.

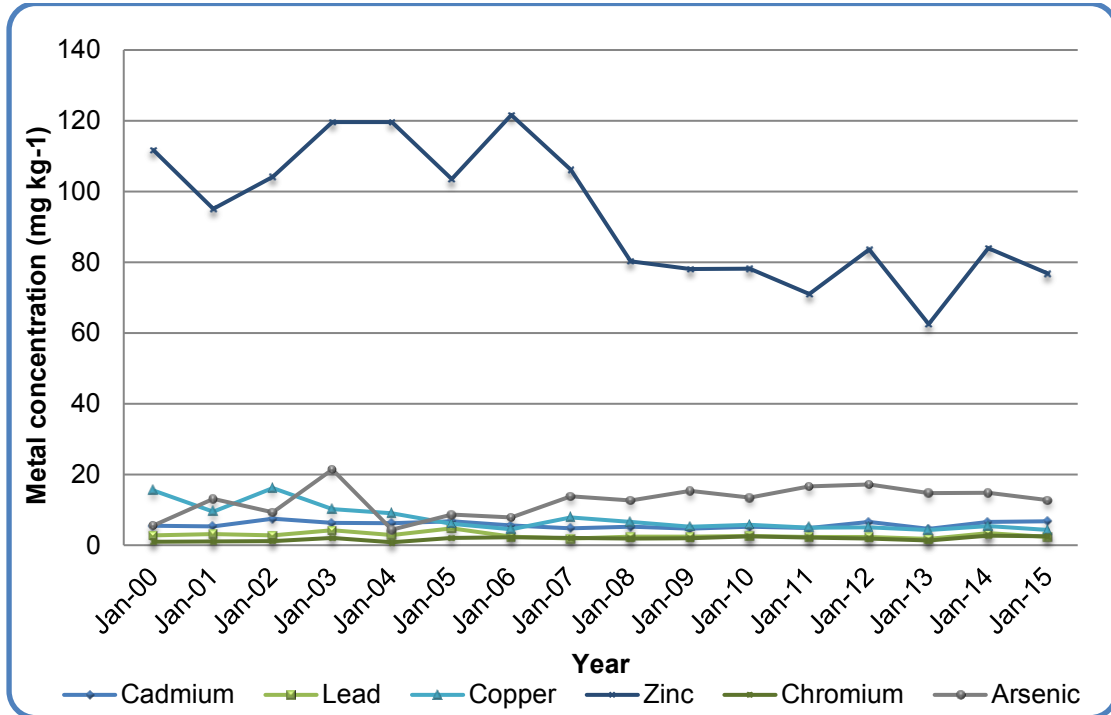
Trigger point for action is set by agreed standards. To date toxins have not been detected or are below trigger point at sample sites.

Indicator MW1d - Heavy metal concentration in shellfish and algae

Indicator	Date Range	RAG Status	RAG Comment
MW1d Heavy metal concentration in shellfish and algae	2005-2010	 GREEN	Red - Heavy metals exceeding levels found in comparable jurisdictions
	2011-2015	 GREEN	Amber – N/A Green - Heavy metals not exceeding levels found in comparable jurisdictions

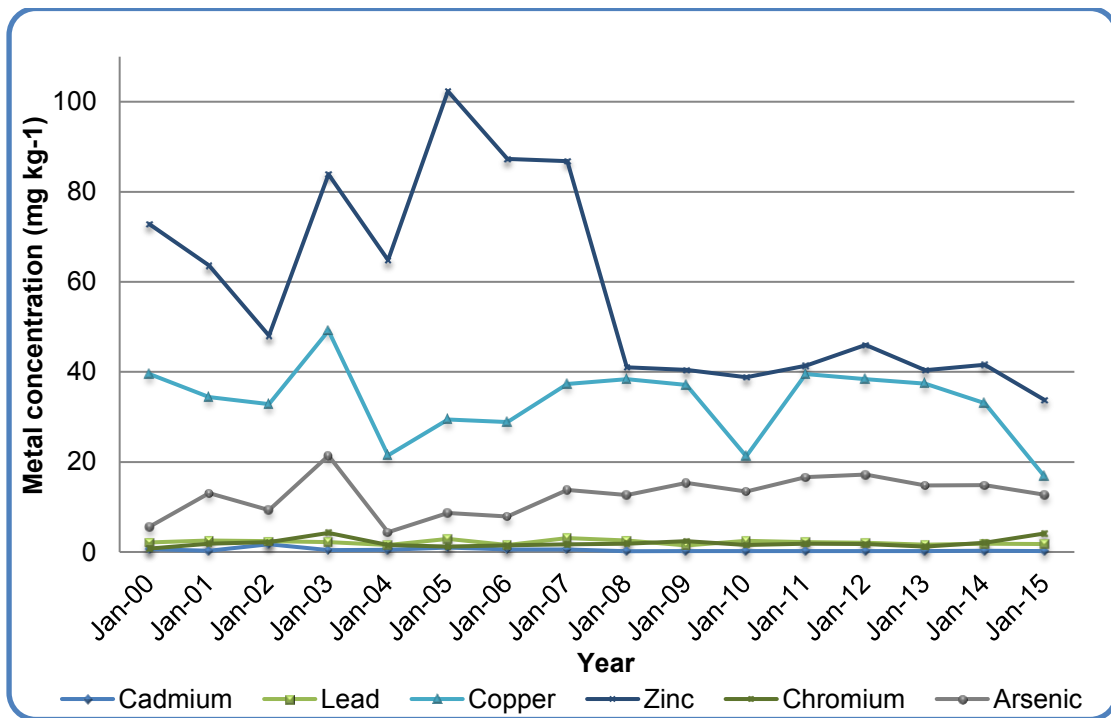


Fresh and Marine Waters



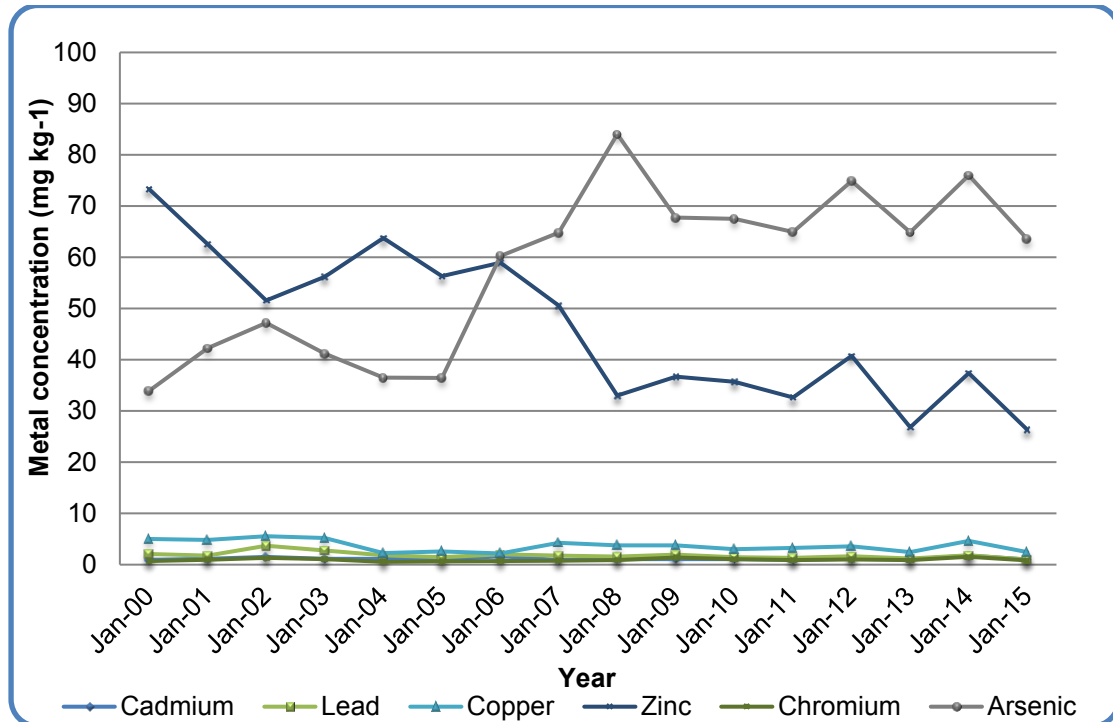
Source: States of Jersey, Department of the Environment

Graph 3.13: Average heavy metal content in Common Limpets (*Patella vulgata*) from several sites around Jersey 2000-2015.



Source: States of Jersey, Department of the Environment

Graph 3.14: Average heavy metal content in Slipper Limpets (*Crepidula fornicata*) from several sites around Jersey 2000-2015.



Source: States of Jersey, Department of the Environment

Graph 3.15: Average heavy metal content in seaweed (*Fucus serratus*) from several sites around Jersey 2000-2015.

Common limpet (<i>Patella vulgata</i>)						
Location	Arsenic	Cadmium	Chromium	Copper	Lead	Zinc
Goury France		2.7-7.5	0.2-2.4	3.0-6.6	0.9-3.7	40-91
Portland, Weymouth	19-24	2.2-3.7	<1-2.9	9.7-19	1.1-2.1	63-72
Looe estuary, Devon		3.3-21.5	0.5-2.6	10-27	5.1-38	83-224
<i>Fucus serratus</i>						
Goury France		0.5-1.9	0.1-0.8	0.8-2.0	0.2-2.0	32-100
Irish Sea		1.1-1.4		3.2-10.1	2.1-4.0	80-171

Source: Multiple (see footnote²⁴)

Table 3.2: Comparison of heavy metal content from several comparable jurisdictions.

²⁴ Bryan et al, 1980. The use of biological indicators of heavy metal contamination in estuaries with specific reference to an assessment of the biological availability of metals in the estuarine sediments from south-west Britain. J. Mar. Biol. Assoc. Occ. Pap. 1:1-73.

Langston et al, 2003. Site characteristics of the south west European marine sites. Chesil and The Fleet. Mar. Biol. Assoc. Occ. Pap 11: 168p.

Miramand et al. 1991. Heavy metal concentrations in two biological indicators (*Patella vulgate* and *Fucus serratus*) collected near the French nuclear fuel reprocessing plant at La Hague. The Science of the Total Environment, 111: 135-149



Preston et al, 1972. British Isles coastal waters: The concentration of selected heavy metals in sea water, suspended matter and biological indicators- a pilot survey. Environ. Pollut. 3: 68-82.



The Department of the Environment continues to monitor six trace metals in three marine species that are commonly used as bio-monitors for their difference in feeding patterns. Common limpets are algal browsers, whilst slipper limpets are filter feeders. These samples are then compared to serrated seaweed (*Fucus serratus*). Samples have been collected using the same methodology from the same five sites around Jersey since 1993. The Jersey samples are then compared to data from similar jurisdictions and studies as can be seen in Table 3.2 above.

Whilst levels of arsenic had been increasing in all biota from 2005 to 2010, recent data suggests that arsenic concentrations are starting to level off or decrease. The levels of arsenic in Jersey still remain lower than those recorded from similar studies in Weymouth. Levels of cadmium, copper, zinc and lead can fluctuate from time to time with the exact cause difficult to ascertain. However levels remain lower than those recorded elsewhere in the UK and France.

Indicator MW2a - Dolphin species abundance

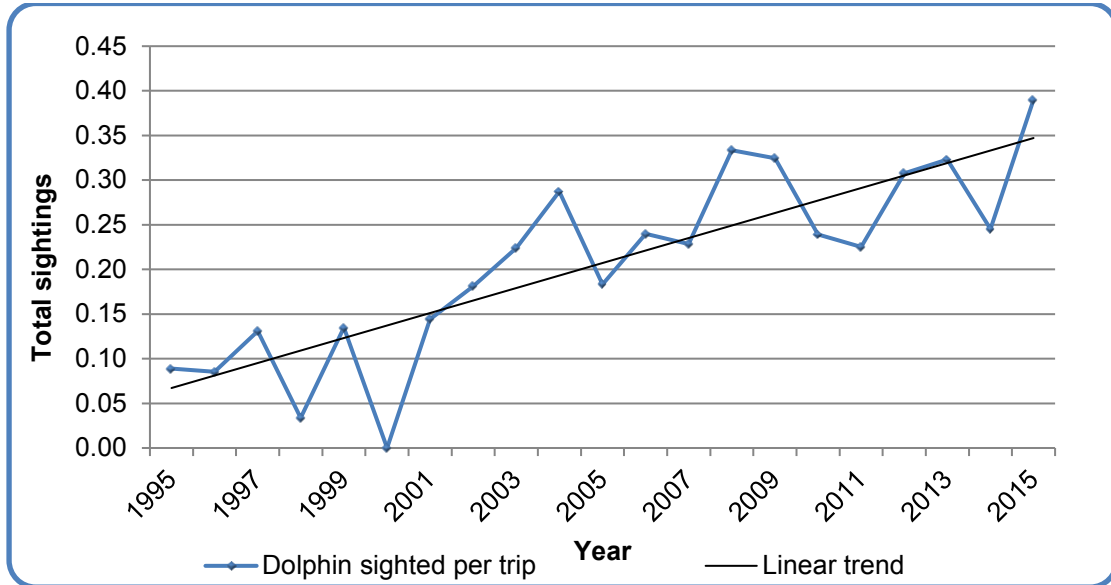
Indicator	Date Range	RAG Status	RAG Comment
MW2a Dolphin species abundance	2005-2010	 GREEN	Red – Observations note severe decline in population status Amber – Observations note minimal decline in population status
	2011-2015	 GREEN	Green – Observations confirm population maintained at current 'good' levels

The Fisheries Protection Vessel (FPV) Norman Le Brocq continues to record cetacean sightings as part of their work at sea. Data records include species, number of cetaceans, estimates of adults and juveniles, location and activity. The data is shared with both the Société Jersiaise and French agencies and non-governmental organisations to allow for a cohesive approach to monitoring cetaceans in the wider region.

Bottlenose dolphins (*Tursiops truncatus*) continue to be the most commonly sighted and recorded species. Sightings per patrol, or trip out to sea, continue to increase, even though patrol patterns have changed since 2010, with the Norman Le Brocq spending less time at sea (Graph 3.16). Juvenile dolphins still comprise a similar proportion of total sightings as those sighted in 2010. Overall, this positive increase suggests that local populations of Bottlenose dolphins are still at healthy levels.



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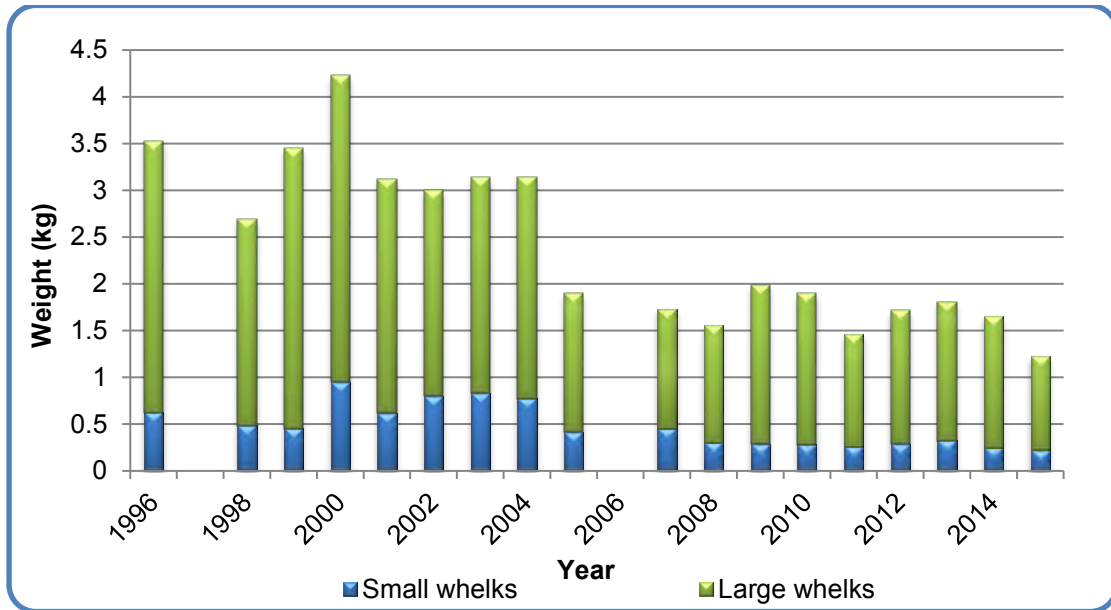
Source: States of Jersey, Department of the Environment

Graph 3.16: Dolphin sightings per trip from the FPV Norman Le Brocq with trend line.

Indicator MW2b - Marine water indicator species

Whelks

Indicator	Date Range	RAG Status	RAG Comment
MW2b Marine water indicator species - Whelks	2005-2010	 RED	Red – Below reference point
	2011-2015	 RED	Amber – At reference point Green – Above reference point



Source: States of Jersey, Department of the Environment

Graph 3.17: Annual whelk catches from the Department of the Environment’s monitoring programme.

The Marine Resources Section of the States of Jersey’s Department of the Environment, continues to monitor catches of the common whelk (*Buccinum undatum*). This is a significantly important commercial fishery that continues to be fished by both Jersey and French fishermen in the Jersey Territorial Sea. Since 1996, the Department has conducted research and monitoring work around the island, using the same survey sites and monitoring methods, so that catches per unit effort (CPUE) could be monitored over time and compared independently to fishermen’s log book returns.



Catches are separated out into “large” and “small” whelks, which are approximately larger or smaller than the 45 mm minimum legal size. Overall, the CPUE in 2015 was 1.23 kg per pot (Graph. 3.17). There has been a decrease on the CPUE recorded in 2013 (1.80 kg) and 2014 (1.65 kg). This is one of the lowest total CPUEs on record since 1996. The large fraction (above minimum landing size) of 2015’s catch is significantly reduced, with a CPUE of 1.00 kg, compared to 1.40 kg in 2014. The small fraction (below minimum landing size) remains low at 0.22 kg per pot. Overall there is still a trend of decline in the stock, with no significant improvement on catches from the last fourteen years. The changes are as a result of fishing pressure, rather than from environmental impact.

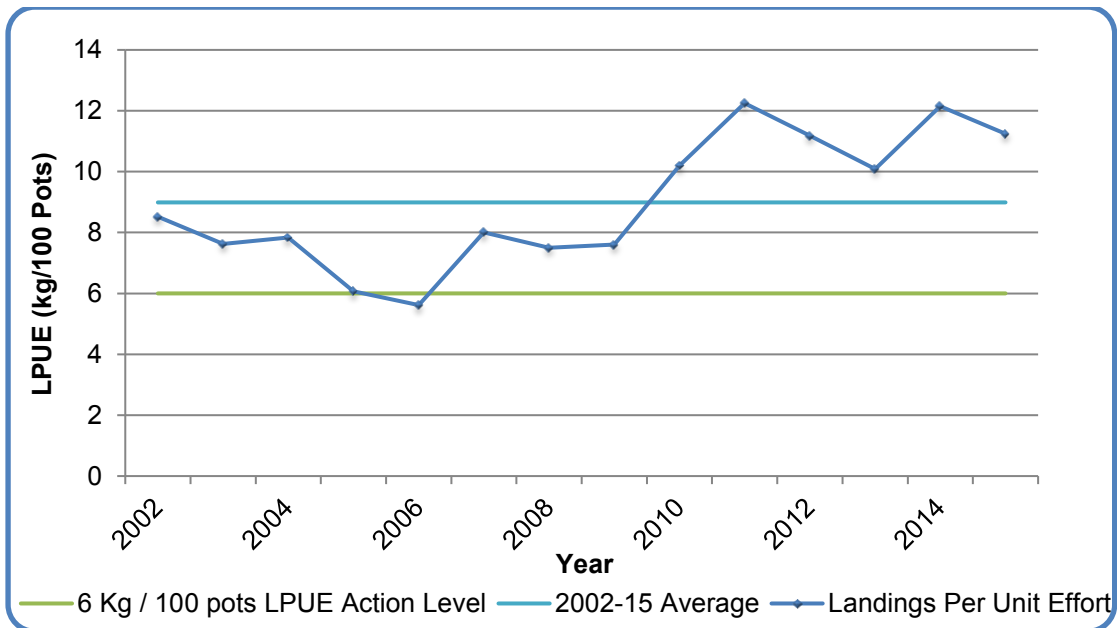
Ormers

The Department has not received any evidence that the ormer (*Haliotis tuberculata*) stock is in decline and currently the section is not monitoring ormers as it is focusing resources on other projects.



Lobsters

Indicator	Date Range	RAG Status	RAG Comment
MW2b Marine water indicator species - Lobsters	2005-2010	 GREEN	Red – Below reference point
	2011-2015	 GREEN	Amber – At reference point Green – Above reference point



Source: States of Jersey, Department of the Environment

Graph 3.18: Annual average landings per unit effort (LPUE) for Jersey commercial lobster fishing vessels over 10 meters in length.

European Lobster (*Homarus gammarus*) remains the most important commercial fishery for Jersey fishing industry. The state of the stock is monitored using a number of systems including fishery independent research and monitoring and fishery dependent log book returns. This data is used to monitor the stock status. As can be seen in Graph 3.18, the current landings per unit effort (LPUE) levels of approximately 11 kg/100 pot lifts is well above the management action trigger point of 6 kg and the 2002-2015 average of approximately 9 kg.



The Marine Resources Section, has also undertaken research into Lobsters annually since 2004. In 2014 CPUE for lobsters above the 87 mm carapace length minimum legal size, had increased to 20 kg per 100 pots. There was also a larger amount of smaller lobsters in catches which suggests that whilst the stock is experiencing fishing pressure, it remains at stable levels.



In 2015 Jersey and Normandy were re-awarded Marine Stewardship Council joint certification for fishery. This is an independent award for sustainable fishing, taking into account environmental impact, management, regulation and traceability of fish stocks. Jersey and Normandy remain one of the few certified sustainable trans-national lobster fisheries in Europe.

3.1.6. Ramsar sites

Indicator MW3a - Number and status of Ramsar sites

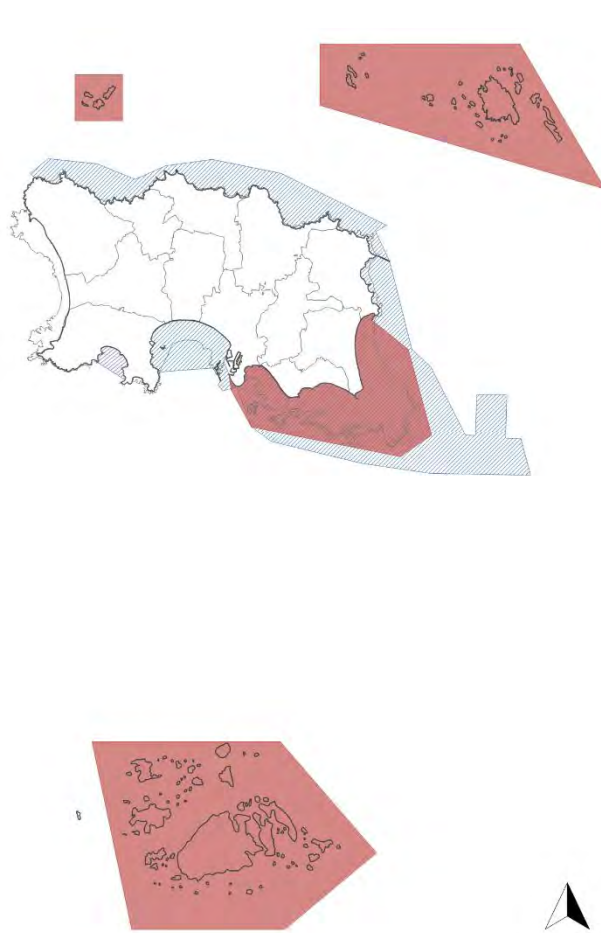
Indicator	Date Range	RAG Status	RAG Comment
MW3a Number and status of Ramsar sites	2005-2010	 AMBER	<p>Red – Qualifying sites not yet designated and not programmed in for designation</p> <p>Amber – All Sites designated but management plans not yet prepared</p>
	2011-2015	 GREEN	<p>Green – All qualifying sites are Ramsar designated and with management plans in place</p>

In total four Ramsar sites have been designated. They comprise of various habitats: reefs, boulder fields, mud, sandy and shingle shores not covered by water at low tide, combined with shallow tidal lagoons, seagrass beds and outlying reefs.

Since 2010, management plans have been implemented for all four of Jersey’s Ramsar sites; The Paternosters, Les Écréhous, Jersey’s South-East Coast and Les Minquiers. A Ramsar Management Authority has been formed from interested stakeholders representing the wide range of marine activities and interests present in each Ramsar site. Additionally the Department of the Environment has worked closely with local and French fishermen to have several Marine Protected Areas (MPAs) designated within Ramsar sites. A no-dredging zone on the south east coast of Jersey was extended out to cover an area around “Les Anquettes”. Similarly a no-dredging area has been agreed around Les Minquiers offshore reef, with an additional area currently being discussed for Les Écréhous. These areas will further protect sensitive marine habitats and species such as Maerl and seagrass, whilst complying with Jersey’s international obligations under multilateral environmental agreements such as Ramsar and OSPAR. Map 3.1 provides a map of the designated Ramsar sites and no mobile fishing gear zone areas.



Fresh and Marine Waters



Legend	
	Ramsar
	No Mobile Gear Zones

Source: States of Jersey, Department of the Environment

Map 3.1: Map showing the Ramsar and No Mobile Gear Zone designations across Jersey, The Paternosters, Les Écréhous and Les Minquiers.

Indicator MW3b - Biotope quality SE Ramsar site

Indicator	Date Range	RAG Status	RAG Comment
MW3b Biotope quality SE Ramsar site	2005-2010	N/A	See text
	2011-2015	N/A	

Permanent transects in the SE Ramsar site are currently being established and are undergoing monitoring by volunteers from the Société Jersiaise. The results should be published in 2017 and will be included in the next Environment in Figures report.



3.2. Update on 2010 priority actions

3.2.1. Fresh waters

In 2010 the following priority actions were identified for the period of 2010 to 2015. This section assesses progress against these in the last five years.

Fresh Waters (State of Jersey 2010)

- Ensuring security of potable supply - Working with Jersey Water to enable them to deliver wholesome water in a sustainable way;
- Managing water resources- Continue to manage and develop our understanding of Jersey's water resources to enable us to protect that resource, particularly during periods of drought, for the benefit of the Island as a whole;
- Applying a more holistic way of working - Ensure that we are delivering an integrated and holistic approach to the protection of our aquatic environment by more thematic working, for example applying the principles of the Water Framework Directive;
- Responding to identified key pressures - Continue to develop and deliver strategies to mitigate identified pressures within the fresh and marine water environment;
- Encouraging stakeholder involvement and responsibility - Investigate ways to communicate with stakeholders and promote public engagement in water quality and water resources issues.

Significant progress has been made since the last report on the priority issues contained in that report. In 2012 the Department made the decision to look at how to adapt the principles of the Water Framework Directive to water management in Jersey. The Water Framework Directive takes a much more holistic approach to water management.

Historically water quality has been managed separately from water resources and aquatic biology. The new way of working recognises that each individual pollutant and pressure has a role to play in the overall ecological 'health' of the water environment. Therefore a more holistic management plan, which seeks to address a range of issues, is required. This is particularly relevant in Jersey as land use and water quality are very closely linked and therefore need to be managed together in a coordinated way.

The process has provided a driver for better integration, by bringing together specialists from the marine sector and the freshwater environment, alongside land management and agricultural specialists. During the first stage of the process (in 2014) data were integrated and combined across these policy areas for the first time in order to define the status of water bodies.



In November 2014, the Department of the Environment published the report 'Challenges for the Water Environment of Jersey'²⁵, summarising the key water management issues facing the Island. This 'challenges' document was the first step in the water management planning process for the Jersey; it set out the current status of the water environment and the key pressures acting upon the resource.

The main issues that were identified as constraining the health of our waters were the elevated levels of nutrients (particularly nitrate), the risk of elevated levels of the nutrient phosphorus and a risk of pesticide contamination. These issues are collectively caused by what is termed "diffuse pollution" in the water management industry, because no single point source can be identified for them; contributions of nitrates, phosphorus and pesticides come from across the Island's agricultural, and to a lesser extent urban landscapes.

The Water Management Plan (currently in draft) will set out the actions needed to help ensure healthy water supplies and better environmental conditions on the Island into the future. Many of these actions have been arrived at by consultation with stakeholders, including Jersey Water and the agricultural industry. The overall long term target is to improve the environmental status of as many of our water bodies as possible that are currently below the target level of good status. Currently, the majority of Jersey's water bodies are at moderate status, mostly driven by the levels of nutrients found in surface waters and groundwater. Once it is finalised and approved, this Water Management Plan (WMP) will be implemented over five years between 2017 and 2021.

3.2.2. Marine waters

Marine Waters (State of Jersey 2010)

- Continue to ensure compliance with legislation and conventions (e.g. OSPAR, ASCOBANS);
- Implementation of management plans for all Ramsar sites;
- Development of Marine Spatial Plan;
- Establish network of Marine Protected Areas (MPA).

Significant improvements have been achieved in our understanding and the management of our marine environment since 2005. The Integrated Coastal Zone Management Strategy was agreed by the States in 2008 and the Department of the Environment has delivered key aspects of this despite resourcing issues. Since 2010 the Marine Resources Strategy has been out to industry and public consultation and the Department is currently moving the recommendations forward within the context of Marine Spatial Planning.

²⁵ [Link to Challenges for the Water Environment of Jersey on the States of Jersey webpage](#)



Fresh and Marine Waters

Work to deliver obligations under multi-lateral environmental agreements has continued especially the Ramsar and OSPAR conventions. The Ramsar Management Authority has now delivered management plans for all of Jersey's Ramsar sites. Additionally no mobile gear zones have been established in several of these sites to protect OSPAR sensitive habitats. Subsequently habitats such as sea grasses, rocky reefs and mearl are now protected from dredging and trawling in parts of Jersey's Waters although further work is required. Much of the data for establishing these areas has been collected in partnership with volunteer organisations such as Jersey Seasearch and Société Jersiaise.

Management of fish stocks has been achieved through the Fisheries and Marine Resources Panel in Jersey and the Joint Advisory Committee and Joint Management Committee, set up under the Bay of Granville Treaty, for the wider Normano-Breton gulf. MPAs at the Minquiers and Écréhous are also currently being discussed and some agreed with both Jersey and French Fishermen.

Research has continued and developed since 2010 with programmes looking at commercial fish and shellfish stocks, marine mammals, environmental monitoring and key species and habitats ongoing. Fishing pressure is evident in the whelk population where overall there is still a trend of decline in the stock, with no significant improvement on catches from the last fourteen years.



3.3. The priorities for 2016-2020

Based on the evidence from the last five years, the priorities for this area have been identified for the next 5 years as follows:

Fresh Waters – The next 5 years

We must improve the quality of our untreated water which has been affected by agricultural, industrial and domestic land use.

In order to address this we must adopt and implement the forthcoming Water Plan from 2017-2021 with the aim of improving the status of the resource. This will include:

- Implementing measures to reduce inputs of nitrate, pesticides and phosphorus through good land management practices to minimise any further contamination;
- We will need to monitor the success of the policies in the Plan and continue to increase our baseline water quality data;
- We will continue to use a mix of advice, education and regulation to improve the water resource and increase knowledge of the importance of sustainable water resources in the community;
- We will continue to use, and strengthen where necessary, the regulatory tools at our disposal.

Additionally we need adequate supplies of water of sufficient quality as do the water-dependant habitats and flora and fauna. Around 90% of the Island's population receive their water from the public water supply which is predominately collected from streams.

3.3.1. Implementation of the Water Plan 2017-2021

The objectives set under the plan are short (2017-18), Medium (2017–2021) and longer term (beyond 2021-which will appear in the next Environment in Figures report):

- Promote an Island-wide ethic of sustainable land use in Jersey such that the effects of land-based activities on the water environment are well known, accepted and mitigated where at all possible.
- Communicate the WMP amongst the sectors responsible for, and involved with, delivery of measures.
- Update and implement the policy mechanisms necessary for effective delivery of the chosen measures: specifically the Water Pollution Law, the Pesticide Law and their associated codes of practice.
- Rationalise the ongoing environmental monitoring programme (already underway) to incorporate targeted phosphates and pesticide monitoring.



- Develop any additional funding mechanisms required to implement the plan.

In the medium term, throughout the WMP (2017 to 2021), the objectives are to:

- Reduce the levels of nitrate found in surface waters and groundwaters (maximum and mean levels).
- Remove the need that Jersey Water has for the nitrate dispensation.
- Reduce the number of pesticide breaches in streams.
- Increase compliance monitoring for the measures identified in the Plan across the land based sectors in respect of losses of nutrients and pesticides to water (% compliance with mandatory measures).
- Increase frequency and coverage of existing environmental monitoring for pesticides and phosphorus such that a higher number of Jersey's water bodies can undergo classification in 2020 ready for the next round of the WMP.
- Implement additional compliance and advisory capabilities and capacity to ensure adherence to new regulations and provide internal advice to DoE.

Based on the evidence from the last five years, the priorities for our marine waters have been identified for the next 5 years as follows:

Marine Waters – Priorities for 2016-2020

We must maintain the high quality marine environment and its rich biodiversity which supports traditional industries like fishing and aquaculture.

In order to achieve this we will:

- Continue to ensure compliance with legislation, bilateral agreements and conventions that protect habitats, species and the fisheries resource;
- Re-constitution of Ramsar Management Authority to ensure continued implementation and development of management plans for all Ramsar sites;
- Development of Marine Spatial Planning for Territorial Waters;
- Develop network of existing MPAs into a coherent ecological network;
- Ensure a data and evidence led approach to all aspects of marine resource management.



3.3.2. Compliance with legislation, bilateral agreements and conventions.

It is an ongoing priority of the Department of the Environment to ensure compliance with legislation, bilateral agreements and conventions that protect habitats, species and the fisheries resource. These include the UK Jersey Fisheries Management Agreement, Granville Bay Agreement, OSPAR, ASCOBANS and in the next 5 years will include a review of the implications of extending Annex 5 of the OSPAR convention to Jersey. OSPAR annex 5 covers the conservation and protection of marine habitats and biodiversity. At this stage the extent of the implications of the UK EU referendum are unclear.

3.3.3. Continued implementation of Ramsar management plans

It is a priority to ensure the ongoing management and monitoring of the four Ramsar sites in order to continue to comply with the requirements of the designation. The Ramsar Management Authority continue to develop as an authority to ensure continued implementation and development of management plans for all Ramsar sites. The Ramsar management plans are published on www.gov.je.²⁶

3.3.4. Development of Marine Spatial Planning for Territorial Waters

The key challenge for the marine environment remains the development and delivery of a marine spatial plan for Jersey territorial waters and the wider Gulf with the conservation and preservation of marine habitats and species at its core. The States of Jersey is following the principles of international good practice, including OSPAR and Marine Strategy Framework Directive, of ensuring clean, healthy, safe, productive and biologically diverse seas. In order to meet these requirements it will be necessary to include the relevant aspects of the Aquaculture Strategy, Marine Resources Strategy, the spatial and consenting aspects of Offshore Renewable Energy, climate change adaptation and improved integration with coastal terrestrial management and planning.

3.3.5. Develop network of existing MPAs into coherent ecological network

Developing an ecologically coherent network of MPAs is a priority action to ensure the success of this objective. A robust, species diverse marine ecosystem is the basis for sustainable exploitation and use of the marine environment. It also contributes towards ensuring resilience to climate change and other environmental challenges.

²⁶ [Link to Ramsar management plans on the States of Jersey webpage](#)



3.3.6. Ensure a data and evidence led approach to all aspects of marine resource management

Full integration of all stakeholders in policy formation, management decisions and service delivery is a significant challenge in the marine environment and yet is a key component to the success of any aims. This is coupled with the objective to ensure that decisions are based on the best available data and evidence.



Fresh and Marine Waters



Waste



This chapter provides an overview of the trends in Jersey in relation to waste arisings and recycling. The amount of waste produced is related to the size of the population and the economic conditions which affect decision making around purchase of goods and services.

Where relevant, the data in this chapter has been presented in relation to the 2015 population figures²⁷. This provides an indication of whether the amount of waste generated and amount of recycling per person is increasing or decreasing.

This chapter also provides information in relation to the environmental impact from waste management and disposal activities.

Waste management is controlled through the Waste Management (Jersey) Law 2005 (the Waste Law) which came fully into force in 2007 and is administered by the Department of the Environment. Between 2011 and 2015, there has been significant progress in raising awareness of the Waste Law and in helping organisations and individuals to meet its requirements.

Ensuring compliance with this important environmental legislation and using enforcement powers including prosecution, is an important part of protecting the Island's environment.

The Waste Law implements international conventions on the movement of waste^{28,29,30}. It provides a legislative framework to ensure environmentally sound waste management practices are followed through implementation of a licensing and regulatory regime. It also enables Jersey to export waste for recovery and disposal.

The 2005 Jersey Solid Waste Strategy supports the Waste Law by providing the strategic planning, targets and monitoring of waste arisings and recycling facilities in Jersey. An update to the 2005 strategy is now overdue, however this is due to the work currently underway to review waste management services (see section 4.3).

The 2005 waste strategy continues to provide the commitment to the principles of the waste hierarchy and the framework for implementing sustainable waste management practises. Section 4.2 provides an overview of the activities and development work that has been completed between 2011 and 2015; section 4.3 outlines the challenges for the next 5 year period as the management of waste undergoes significant change in Jersey.

²⁷ [Link to population estimates on States of Jersey webpage](#)

²⁸ The OECD Decision C(2001)107/FINAL establishes a framework for the OECD Member countries to control transboundary movements of wastes destined for recovery operations within the OECD area.

²⁹ The Basel Convention is an International convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal concluded at Basel on the 22nd day of March 1989, as amended

³⁰ The export of hazardous waste from Jersey for disposal was prevented by the UK Government in 2002



4.1. The indicators

4.1.1. Implementing Waste legislation


The Waste Law ensures that environmentally sound waste management practices are followed to reduce the potential pollution of air, land and water through poor waste disposal and management. This is achieved through regulatory licensing, including:

- Licensing of sites carrying out waste management activities;
- Enforcement action and advice against unlicensed or harmful activities involving waste;
- Registration of carriers (by road transportation) of hazardous or healthcare wastes;
- Control procedures for movements of hazardous or healthcare wastes within Jersey and for hazardous and other wastes exported or imported to Jersey.

Indicator W1 – Number of reported Waste incidents

Waste incidents have been recorded since the introduction of the Waste Law in 2007. This indicator demonstrates how the Waste Law is helping to manage the environmental impact from waste incidents.

Waste incidents include dumping waste at unauthorised sites or inappropriate locations, fly tipping, open burning of waste as a means of disposal, poor storage or stockpiling of wastes on site which may increase the risk of pollution of the environment. Waste arises from all sectors of the economy and society, including household, commercial and industrial activities.

Indicator	Date Range	RAG Status	RAG Comment
W1 Number of reported waste incidents under the Waste Management (Jersey) Law 2005 (since 2011)	2005-2010	N/A	Red – Increasing number of incidents
	2011-2015	 RED	Amber – No change in number of incidents Green – Decreasing number of incidents



The number of waste incidents has increased from 9 to 81 between 2011 and 2015, which is to be expected following the introduction of the legislation and new regulatory framework. The increase shows that there has been improved recording and a greater level of public awareness of the issues resulting in higher reporting levels. The figures do not equate to a larger number of incidents. The main incidents reported are around fly-tipping, burning and construction waste.



4.1.2. Implementing solid waste strategy 2005 targets

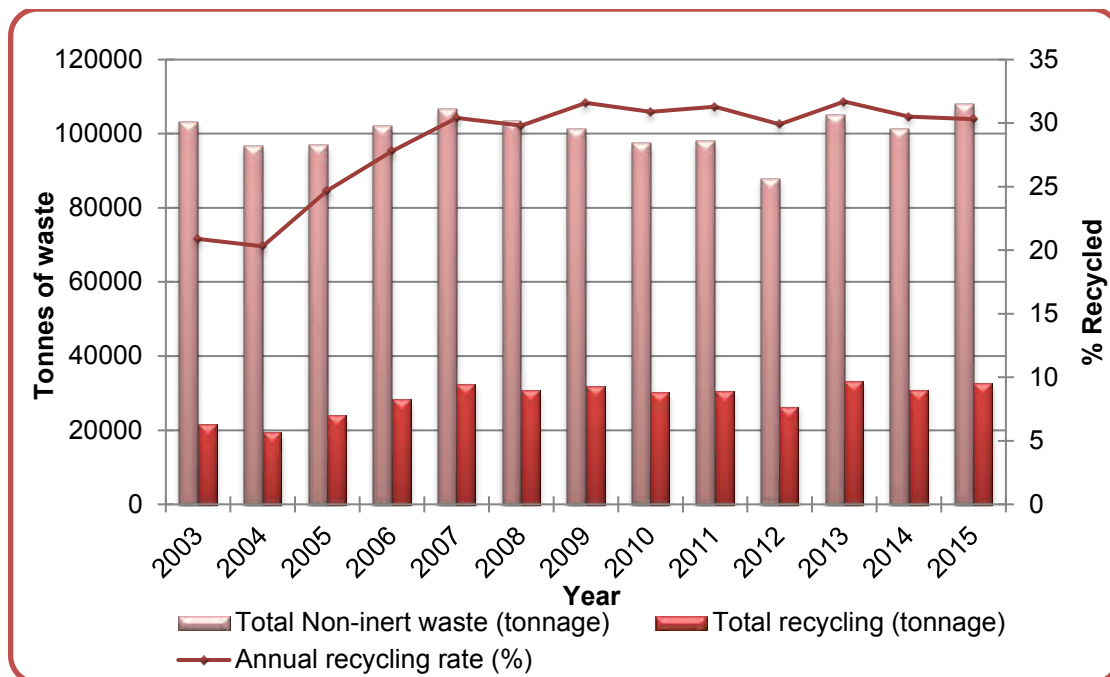
The 2005 solid waste strategy is based on the principles of the internationally agreed waste hierarchy which prioritises waste reduction, reuse and recycling. Minimising waste and increasing levels of reuse and recycling reduces the amount of residual waste requiring disposal. These principles continue to underpin the approach taken to waste management and provide the framework for the provision of waste management facilities on Island.

Indicator W2 – Total non-inert waste reused/recycled and composted per annum

Indicator	Date Range	RAG Status	RAG Comment
W2 Total non-inert waste reused/recycled and composted per annum	2005-2010	 GREEN	Red – Less than 30% of waste is recycled by 2009 Amber – 31-30% of waste is recycled by 2009
	2011-2015	 GREEN	Green – By 2009 32% of waste is recycled by 2009

The target recycling rate of 32% set in the 2005 strategy was achieved in 2009 and remained static between 2011 and 2015. There has been significant growth in the recycling of specific materials such as batteries and electrical goods. These items are priority materials to remove from the general waste stream as they should not be disposed of in general waste, which is sent to energy recovery, due to their content of heavy metals and potentially hazardous chemicals.

Whilst the total annual non-inert recycling rate percentage is not affected by the increase in recycling of batteries and electrical items, due to their relatively small tonnages, the environmental impact of removing batteries from the general waste stream is significant. Approximately 5 tonnes of batteries are collected per annum for export and reprocessing. This removes a significant unacceptable waste from the Energy from Waste (EfW) facility.



Source: States of Jersey, Department for Infrastructure



Graph 4.1: Total amount of solid waste (non-inert) recycled.

4.1.3. Total municipal solid waste arisings per capita

Municipal solid waste is the total tonnage of recyclables collected and the total residual waste received for energy recovery from both domestic and commercial wastes as these are not collected or calculated separately.

Municipal solid waste does not include scrap metal recycled, aggregates recycled and the residual inert waste received from industrial sources such as construction and demolition sources. The large tonnages recorded for these wastes is excluded from the totals as this would make it difficult to monitor and report on the progress made in managing Jersey’s municipal waste up the waste hierarchy.

Indicator W3 – Total municipal solid waste (non-inert) arisings per capita

Indicator	Date Range	RAG Status	RAG Comment
W3 Total municipal solid Waste (non-inert) arisings per capita	2005-2010	 GREEN	Red - Waste per capita is increasing
	2011-2015	 AMBER	Amber - Waste per capita is static Green – Waste per capita is reduced



Year	Total tonnes solid waste	Jersey Population	Tonnes of waste per capita
2005	96,753	91,000	1.06
2006	101,950	92,300	1.10
2007	106,587	94,000	1.13
2008	103,231	95,400	1.08
2009	101,094	96,200	1.05
2010	97,449	97,100	1.00
2011	98,065	98,100	1.00
2012	87,804	99,000	0.89
2013	105,082	99,900	1.05
2014	101,240	100,800	1.00
2015	107,848	102,700	1.05

Source: States of Jersey, Department for Infrastructure and Statistics Unit

Table 4.1: Total tonnes municipal solid waste per annum.³¹

Municipal solid waste arisings per capita has remained fairly static, at approximately 1 tonne per capita per year. The economic context has a significant contributory factor to waste levels. It is likely that improvements in the local economy may result in future growth of waste arisings.

In 2012 there was a decline due to a significant decrease in the tonnages of green waste received for composting and also a decline in commercial deliveries of waste. Green waste levels are closely linked to climatic conditions. With the likelihood of warmer wetter weather in the future, it is expected that green waste levels may increase accordingly. The data is very sensitive to changes in tonnages of heavier waste streams, so it is important to consider the data within the economic, social and climatic context of that time.

4.1.4. Recycling rates



The 32% recycling target set out in the 2005 Solid Waste Strategy was reached in 2009 and was maintained between 2011 and 2015.

It is intended that commercial waste charges will be introduced by 2018. Should these new charges be approved by the States Assembly in the Medium Term Financial Plan debate in September 2016, it is anticipated that recycling in this sector will improve and a new target recycling rate of 36% by 2019 is achievable.

³¹ Estimated population figure has been provided for 2013 by the States of Jersey Statistics Service using census data and projections.



Indicator W4a – Recycling – Total percentage of recyclables collected per annum

Indicator	Date Range	RAG Status	RAG Comment
W4a Recycling – Total percentage of recyclables collected per annum	2005-2010	 GREEN	Red – Less than 30% of waste is recycled
	2011-2015	 GREEN	Amber – 31% of waste is recycled Green – More than 32% of waste is recycled

This indicator provides information on the combined recycling from all States of Jersey recycling facilities including bring sites, Bellozanne household recycling centre, kerbside recycling and the private sector. Whilst the total recycling rate remained relatively constant between 2011 and 2015, there has been a decrease in the tonnage of some of the heavier materials received for recycling, such as glass and green waste.

Glass packaging has become lighter and so although the tonnage recorded has reduced, this does not mean that there has been a reduction in participation. Green waste arisings are sensitive to climatic conditions and so they vary from year to year, and the increase in uptake of home composting has also reduced the green waste that is recorded through the recycling monitoring.

There has been an increase in the recycling of specific materials that have a significant environmental benefit from being recycled. These include an increase in the tonnage of electrical goods and batteries received for recycling and the separation of lightbulbs and plasterboard for recycling. New collection schemes have been introduced for these materials; waste electrical amnesty collections took place in 2012 - 2014, providing additional drop off points for depositing waste electricals and raising awareness about the importance of recycling electrical goods. In addition to the battery collection point at the household recycling centre at Bellozanne, battery collection points were established in schools in 2010 and bags and tubes were provided for public buildings with a high footfall, providing Islanders with an easy way of disposing of batteries in 2011. This has been particularly successful with battery recycling increasing from c.5 t/pa in 2008 to c. 9 t/pa in 2015

A new initiative to separate plasterboard from the waste stream was implemented in 2014. Plasterboard contains high levels of sulphate which makes it unsuitable for energy recovery. Since 2014 it has been received separately, mixed with green waste and composted to create a gypsum enhanced agricompost for local agricultural use.

Whilst more than half of the materials in the municipal solid waste stream could technically be recycled or composted, the environmental and economic





costs and benefits need to be considered in order to evaluate whether recycling is the best option. For each material considered for recycling, the Department for Infrastructure carry out an evaluation to assess the environmental benefits and financial impact along with traceability. This ensures that Jersey’s recycling is being processed responsibly and achieving the best practicable environmental option.

Year	2011	2012	2013	2014	2015
Paper and card	7,519	7,217	6,261	6,802	7,092
Packaging wood	1,000	1,000	1,000	1,044	1,041
Metal packaging	86	96	97	94	92
Textiles	399	331	371	457	476
Plastic (bottles)	94	94	85	84	109
Plastic (commercial film)	792	1,197	1,247	1,120	1,102
Waste electrical & electronic equipment	428	546	900	762	1,175
Batteries	7	12	15	12	19
Household metals	1,175	1,135	2,308	1,821	1,076
Glass	6,383	5,245	5,224	5,391	5,603
Green waste received	12,776	9,395	15,789	11,971	13,056
Lightbulbs	-	-	-	17	7
Plasterboard	-	-	-	1,264	1,789

Source: States of Jersey, Department for Infrastructure

Table 4.2: Tonnes of materials collected for recycling per annum from all sources (public, private and third sector).

Indicator W4b – Recycling – Number of States of Jersey recycling facilities

Indicator	Date Range	RAG Status	RAG Comment
W4b Recycling – Number of States of Jersey recycling facilities	2005-2010	 GREEN	Red – Decrease in number of recycling facilities
	2011-2015	 GREEN	Amber – No change in number of recycling facilities Green – Higher number of recycling facilities

The household recycling centre opened at Bellozanne in 2007 providing a central recycling point for the public. The Department for Infrastructure has continued to expand the bring bank network and to work with the Parishes to introduce Parish household recycling collections. In 2010 there were 17 bring bank facilities providing householders with local facilities to recycle paper, plastic bottles and cans with some sites also providing facilities for textile and cardboard recycling. The trend is an increase in the tonnage of each material collected for recycling.



In 2015, there were a total of 20 bringing bank sites and five parishes were providing household recycling collections. The Department for Infrastructure also continued to operate a separate Household Green Waste Reception and the Household Recycling Centre continued to run at Bellozanne.

4.1.5. Liquid waste

Indicator W5 – Total Liquid Waste (sewage) processed per annum

This indicator provides data on the volume of liquid waste (sewage) processed at the Bellozanne treatment works. Bellozanne is the main public treatments works and treats approximately 25,000 cubic metres of sewage per day.

This figure fluctuates with rainfall as some of the network, principally parts of town, are still on a combined sewer network which receives both surface water e.g. from roof gutters as well as foul sewage. During times of heavy rainfall the flows exceed the treatment plant capacity, at this stage part of the sewage does not go through all the treatment stages just primary treatment and ultra-violet treatment.



The percentage of sewage receiving full treatment shows the amount that goes through all treatment stages. This means that in times of heavy rainfall if the flows exceed the capacity of the treatment process, some sewage does not pass through all treatment stages before it discharges into St Aubins Bay. Although this only happens in very poor weather and the discharge is very dilute, it could present a possible pollution risk.

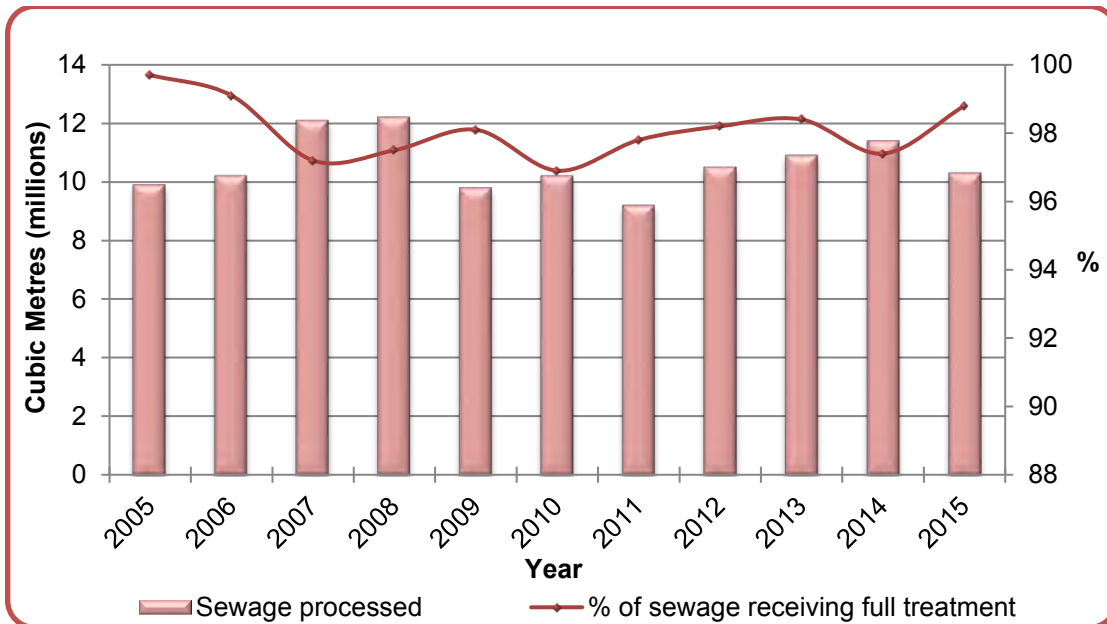
The Department for Infrastructure runs a telemetry system monitoring 120 pumping stations and their associated equipment. This system provides an early warning system for both emergency planning and drainage management purposes. The Department for Infrastructure have staff on call 24/7 to repair any failing mechanical equipment or attend to high levels. With an increase in heavy rainfall events and unpredictable storminess due to climate change, maintaining and managing the foul sewer network is very important in terms of minimising potential environmental damage.

The Waste Water Strategy 2014 recommends replacement of the sewage treatment works and a programme of drainage upgrades. More information is included in section 4.2.

The new treatment facilities will be complete by 2022. The new plant will take almost 40% more flow to full treatment which will protect the island's aquatic environment and give the infrastructure capacity to allow for population growth. There will also be additional storm storage tanks located at the new facilities, which will hold some of this sewage in high flows. When the flows drop off as the rainfall drops, this stored sewage can then be treated.



Indicator	Date Range	RAG Status	RAG Comment
W5 Total liquid waste (sewage) processed per annum	2005-2010	 AMBER	Red - Increase in % of flow bypassing full treatment
	2011-2015	 AMBER	Amber – No change in % of flow bypassing full treatment Green – Increase in % of flow receiving full treatment



Source: States of Jersey, Department for Infrastructure

Graph 4.2: Liquid waste receiving full treatment.

4.1.6. Pollution from waste

The storage and management of waste can cause controlled and sometimes uncontrolled emissions to air, land and water. These are monitored in different ways according to severity and likelihood of causing a pollution incident.

Atmospheric pollution from point sources has continued to be monitored in line with the procedures outlined in the previous report and the requirements of the 2012 Air Quality Strategy³². Air quality monitoring is published on www.gov.je³³.



The previous report provided data on monitoring of pollutants at 3 specific sites which were known to have been contaminated in the past: Crabbe, Beauport and the Airport. These sites are no longer routinely monitored by the Department of the Environment as their condition is no longer of concern and therefore they have been excluded from this report.

³² [Link to 2012 Air Quality Strategy and Action Plan](#)

³³ [Link to air quality monitoring on the States of Jersey webpage](#)



Indicator W6 – Pollution from Waste – Number of slurry tanks installed at dairy farms

Indicator	Date Range	RAG Status	RAG Comment
W6 Number of slurry tanks on dairy farms	2005-2010	 GREEN	Red – No dairy farms have slurry storage on site Amber – 50% of dairy farms have slurry storage on site
	2011-2015	 GREEN	Green – All dairy farms have slurry storage on site

Livestock slurries and manures have the potential to cause considerable damage to the environment and can cause a nuisance in urban situations if not stored and handled properly. They are an important source of plant nutrients and can reduce the use of expensive inorganic fertilisers.

Dairy farmers and other livestock holdings are required to comply with the Water Pollution (Jersey) Law, 2000. This requires them to ensure management of slurry waste. Support was made available by the States of Jersey, to provide livestock farmers with finance to upgrade slurry handling and storage facilities and so help minimise pollution and nuisance risks. By 2012 all dairy farmers had installed on-farm storage, for at least 4 months volume of livestock slurries and the financial support scheme was closed.



4.2. Update on 2010 priority actions

In 2010 the following priority actions were identified for the period of 2010 to 2015. This section assesses progress against these in the last five years.

Waste (State of Jersey 2010)

- Develop a new Liquid Waste strategy to include replacement or renewal of Bellozanne liquid waste treatment plant;
- Review and revise the Solid Waste Strategy;
- Continue to abide by internationally agreed standards in future waste management planning;
- Continued improvement in recycling rates;
- Waste minimisation targets will be considered in the Solid Waste Strategy Review.

4.2.1. Develop a new liquid waste strategy

In March 2014 the Transport and Technical Services Department (now Department for Infrastructure) published the Waste Water Strategy outlining plans for the next 20 years.

The main focus of the strategy is the need to replace the sewage treatment works (STW) at Bellozanne. The plant was built in the 1950s and is identified as struggling to achieve the required standards. It is inefficient and outdated and is continually requiring costly maintenance, the new plant will be able to treat higher flow rates so there will be fewer discharges of partially treated storm sewage into our coastal waters.

Over the years, the STW has been refurbished and repaired but studies have shown that this is no longer feasible and the whole plant needs replacing at a cost of £53.6m. This expenditure is essential to ensure that:

- The STW achieves future discharge standards,
- The frequency of partially treated sewage being released into the sea after heavy rainfall will be reduced,
- The plant is much more efficient and is not prone to breakdown or complete failure.

The strategy also identifies priorities for the sewerage network (the sewers and drains that collect and transport sewage to Bellozanne for treatment and surface water to the sea). The priorities are:

- To repair and refurbish the sewerage network,
- To continue to undertake projects to install new drains so that the surface water is separated from the sewage. This reduces the amount of water



that does not require costly treatment from going to Bellozanne and allowing it to go straight to sea,

- To connect appropriate properties to the network that currently have no connection when the capacity is available above projects are advanced.

The sewage sludge treatment works in Bellozanne Valley was upgraded in 2015. Sludge is treated by a digestion process, which includes a pasteurisation process and also a combined heat and power unit which supplies electricity to the whole process, using biogas produced by the digestion process. The treated biosolids are then centrifuged to produce a product similar in appearance to soil. In line with the Waste Hierarchy, the enhanced treated product is being recycled as an agricultural fertilizer. If the land bank is unavailable due to adverse weather conditions or crop constraints, the pellets are initially stored for later use. If the storage runs out or there is an issue with the landbank the biosolids are diverted to the EfW plant.

4.2.2. Revise the solid waste strategy and integrate waste minimisation targets

The principles established in the 2005 solid waste strategy have been extended and continued to provide the framework for waste minimisation and recycling rates between 2011 and 2015.

The main element of the strategy for solid waste management was the replacement of the aged Bellozanne incinerator with a new EfW treatment plant. The new EfW facility was developed at La Collette following extensive consultation and environmental impact assessment, and was commissioned in 2011. The EfW has capacity to process 105,000 tonnes of waste per annum and to generate up to 7% of the Island's electricity.

The plant is a twin stream plant which provides the reliability to serve the Island and flexibility to adapt to changes in the volume of local waste arisings.

The plant is regulated by the Department of the Environment under the Waste Management (Jersey) Law 2005 which requires the plant to comply with its waste management licence, the Waste Incineration Directive and EU air quality standards.³⁴

In order to avoid unnecessary stoppages caused by damage to the plant, and compliance with the emissions requirements of the waste licence, it has been important to remove certain items from the waste stream being processed at the plant. An extensive public awareness programme, supported by provision of recycling facilities, has been developed to remove plasterboard, electrical items, glass, metals and batteries from the waste stream.

³⁴ [Link to monitoring information on the States of Jersey webpage](#)



There are other large waste streams that are not included in the data and indicators that the Island generates each year.

In 2010 108,158 tonnes of inert material was received and used in the filling of the La Collette reclamation site and 60,229 tonnes of material was separated and reused as recycled aggregates. This figure is fairly typical of previous years but varies depending on the activity in the construction and earth moving market.

The safe disposal of scrap metal, particularly vehicles, is an important service to the Island. The Island's waste metals are shipped to larger reprocessors rather than being fragmented locally. Vehicles are also exported following the extraction of all liquids which could cause pollution.

Clinical waste is a special category of waste because it may include pathogens and cytotoxic compounds. As a result, it must be kept separate from other waste streams and be burnt in a clinical waste incinerator at higher temperatures than those achieved in the EfW.

Other hazardous wastes are stored at Bellozanne, in a secure compound. Some waste oils are re-used as fuels and other hazardous wastes including chemicals and agrochemicals are shipped to the UK for safe disposal.

In 2010 the Department for Infrastructure began work on developing an inert waste strategy to determine the available tipping space, and hence end life of La Collette as an inert waste infill site, as well as identifying another suitable site in advance of La Collette closing. The current lifespan of La Collette inert infill is 2025 although the Department for Infrastructure are currently investigating ways of to extend this.

In 2013 the Department of the Environment implemented a public awareness project to help address fly tipping. The antisocial practice of fly tipping can be addressed with assistance from the general public and businesses on reporting incidents, from the media in highlighting cases and information about facilities, by the provision of good waste recycling and disposal facilities, and with the deterrent effect of enforcement action. The project will continue and better recording of locations and instances of fly tipping will help obtain and target further resources to address it.

4.2.3. Continue to abide by internationally agreed standards in future waste management

The Waste Law provides a legislative framework to ensure compliance with international standards. Exports of waste from Jersey to other jurisdictions follow the notification procedures in the Waste Law and the EC Regulation (EC) No.1013/2006 on shipments of waste. Between 2011-2015, the Department of the Environment processed and consented to a total of 38 shipments of waste; 35 shipments of electrical and electronic equipment, batteries, refrigeration equipment and gasses were sent to recovery/recycling operations and 3 shipments of hazardous wastes such as chemicals,



pesticides and air pollution control residues from the EfW plant at La Collette, were sent for other disposal operations.

Waste Management Licences require operational best practice for the waste activities being carried out and require operators to assess and manage their activities, so that they do not pollute the environment or cause a nuisance. The licenses are issued by the Department of the Environment to operators of sites where waste activities are carried out. The types of sites licenced include landfill or land reclamation sites, waste incineration plant (the EfW plant at La Collette), skip waste and scrap metal storage and treatment sites, construction, demolition and aggregates treatment sites, household waste collection sites and green waste collection and treatment sites.

There are 16 licenced sites, 2 mobile plant licences issued to treat contaminated land (at the former Gas works site, Town Park, St. Helier and former Mascot Motors site, Georgetown, St. Clement) which have now been surrendered and are no longer in force.

The regulation of waste sites under the Waste Management (Jersey) Law 2005 helps to increase best practice compliance with EU legislation such as the End of Life Vehicle Directive (2000/53/EC) and Waste Electrical and Electronic Equipment (2012/19/EU). Between 2011 and 2015, 86 carriers of hazardous and healthcare waste were registered with the Department of the Environment.

4.2.4. Improvements in recycling rates

The indicators in this chapter demonstrate that the Solid Waste Strategy 2005 target recycling rate of 32% has remained constant since 2009.

A number of external factors also contribute to the island's recycling rate:

- The economic downturn appears to have reduced waste as people are buying less and throwing away less. This also impacts commercial waste in the same way;
- Global manufacturers have made changes to their packaging, for example thinner glass is becoming more common in the manufacture of items such as food and drink packaging. Consequently the tonnage collected locally will decline although the number of bottles and jars collected may actually increase;
- The success of other local initiatives also has impacted the recycling rate. For example, the promotion of home composting, may reduce the tonnage of recyclables collected as people compost their garden waste in preference to taking it to a composting site for processing.

Improvements in the local and global economy combined with a continued increase in the number of households is likely to increase the amount of solid waste arisings. International initiatives to reduce the weight and volume of packaging materials will help to slow the rate of increase in arisings.



The amount of packaging entering the local waste stream impacts on recycling rates. A number of national retailers who operate locally take part in the Courtauld Commitment which aims to reduce waste within the UK grocery sector.

The eco active campaign works with the Recycle for Jersey team to align their messages and priorities to support positive environmental behaviour change.

It is generally accepted that convenience is the key to public participation in recycling schemes and this was reflected in the Solid Waste Strategy 2005. Kerbside collections direct from households require little effort on the part of the householder and experiences elsewhere show that recycling rates increase as a result.

In 2006 a kerbside recycling scheme was implemented for householders in St John. Similar household kerbside recycling collections began in the Parishes of Trinity, St. Lawrence and St. Mary in 2009 and in 2010 the Parish of St. Helier commenced a kerbside scheme which is now serving most areas.

There was no growth in the number of parishes providing household recycling schemes between 2011 and 15, however, during 2015 the Department for Infrastructure started working with the Parish of St. Brelade to implement a recycling scheme in 2016.

During 2015, Department for Infrastructure also completed a piece of work investigating the feasibility of a centralised island wide recycling scheme. Overall a positive response towards recycling was expressed by the parishes, but so too was a will to continue to deliver recycling collections on a parish by parish basis.



4.3. The priorities for 2016-2020

Based on the evidence from the last five years, the priorities for this area have been identified for the next 5 years as follows:

Waste – The next 5 years

In 2016 the Department for Infrastructure will commence a fundamental review of waste management as part of a wider public sector reform programme.

There will be political debate and public consultation that will set the waste management strategy for the next 10 years. Recognising this, the following priorities are indicative and they will be superseded by the agreed strategy once published. However, they will include:

- Revision of the solid waste strategy including increased recycling targets. The solid waste management service will be transformed and charging for commercial waste will be introduced;
- Implementing the 2014 Waste Water Strategy and the introduction of charges for liquid waste;
- Continue to abide by internationally agreed standards in future waste management and monitoring of compliance at licenced waste management sites.

4.3.1. Transformation of solid waste management service

The management of solid waste in the next 10 years is the subject of a transformation programme as part of the wider public sector reform programme that will be taking place. The indicators demonstrate that within the current waste management framework, the rates of recycling and waste arisings have reached a static point. In order to achieve real improvement a new approach is required in line with good practise in other jurisdictions.

The Department for Infrastructure have initiated several review processes in order to examine a suite of options for Jersey. The options appraisal process will be the subject of both political and public scrutiny. Within the medium term financial plan (MTFP2) 2016-2019, it is proposed that new mechanisms are introduced to resource and incentivise different behaviours. These include introducing a waste charge for the commercial sector which will encourage recycling.

The new strategic approach will continue to provide the community with the policy guidance, targets and practical support needed to ensure compliance with the Waste Law. The strategy will remain underpinned by the waste hierarchy, but will also include carbon metrics to assess and evaluate the priority areas for recycling and reprocessing.

A wide public awareness programme will be developed to support sustainable waste management practices working with the eco active programme.



4.3.2. Delivery of the Waste Water Strategy

The priority for the next 5 years will be implementing the recommendations of the Waste Water Strategy 2014. A key aspect of the strategy is the renewal of the sewage treatment works, this is dependent on the introduction of a liquid waste charge which is proposed through the medium term financial plan 2016-2019.

Future proofing surface water drainage and management will play an important part in terms of ensuring the Island's resilience to the challenges of climate change, as Jersey continues to experience the impacts of more unpredictable and heavy rainfall events.

4.3.3. Continue to abide by internationally agreed standards in future waste management planning and monitoring of compliance

Implementation and enforcement of the Waste Law will continue to ensure compliance with international agreements. The transformation programme will be based on the principle of sustainability and will provide an operational framework to implement sustainable waste management.

There are a number of hazardous waste materials, such as asbestos, redundant chemicals and used oil that present particular challenges. Redundant chemicals have to be carefully stored and disposed of correctly which often means off Island export for high temperature incineration. Waste oils present a risk of pollution of ground and water and so need to be stored securely. Many waste oils can be recovered as fuels in heating systems.

Following an extensive options assessment, a purpose built facility to receive asbestos at La Collette opened in February 2016. Before the new facility was commissioned, licensed asbestos containing material was stored in secure containers and non-licensed asbestos was deposited in designated areas of the La Collette headland. The new facility will provide permanent disposal in line with recognised best practise.



Transport



Jersey has a high level of car ownership and car usage. High car usage leads to increases in congestion, local air and noise pollution, global carbon emissions, and road injuries.

The need to provide for the use of the car, puts pressure on our environment and its use also results in less physical activity and, consequently, a less fit and healthy society.

Issues associated with transport and the environment:

- **Congestion** – a negative impact on the local economy and our quality of life. It also significantly increases the amount of pollution a vehicle emits for a given length of journey;
- **Local air and noise pollution** – motor vehicles create air and noise pollution which can be damaging to our health and quality of life;
- **Global greenhouse gas emissions** – over a quarter of Jersey's greenhouse gas (GHG) emissions, contributing to global climate change, come from road traffic;
- **Reduced physical activity** – the dominance of the motor car for travel has contributed to a reduction in physical activity, which in turn leads to health issues such as obesity, cardio vascular disease and mental health problems. The Health and Social Services Department consider exercise through daily travel as key to addressing this problem;
- **The built environment** – the need to provide for high numbers of motor cars creates high demand for road space and parking space and makes many areas unwelcoming except by car;
- **Road injuries** – typically 360 road injuries occur on Jersey's roads every year of which approximately 60 are serious;
- **Access for everyone** – 16% of households in Jersey do not have a car, but still need to travel safely and conveniently;
- **Oil dependency** – the majority of cars are powered by petrol and diesel although more hybrids and electric vehicles are entering the fleet. Petrol and diesel cars emit carbon emissions and contribute to one third of Jersey's GHG emissions. Furthermore, Jersey is a price taker in global energy markets. Motorists are at the receiving end of a fragile and currently unpredictable global energy market, which has seen petrol and diesel prices drop sharply in the last 3 years. It is expected that this decline in prices will reverse into 2016 and beyond.

The States of Jersey adopted a Sustainable Transport Policy (STP) in 2010, with the aim of reducing traffic on the roads at all times. This was intended to deliver real financial benefits through reductions in congestion, pollution, road injuries and health problems caused by low levels of physical activity. It also aimed to provide savings through a reduction in the space given over to car parking.





5.1. The indicators

As identified above, there are a wide range of transport related issues which can have environmental, health and economic impacts. The indicators that are reported on in this section focus on traffic numbers, mode of transport and associated atmospheric emissions which are directly linked to traffic volumes. Issues in relation to the impact on the natural environment and land use are covered in separate chapters of this report.

5.1.1. Transport choices

Indicator T1 - Annual traffic flow at 12 major sites

Indicator	Date Range	RAG Status	RAG Comment
T1 Annual traffic flow at 12 major sites ³⁵	2005-2010	 AMBER	Red – No reduction or increase Amber – Small reduction
	2011-2015	 AMBER	Green – Significant reduction

Annual traffic flow is considered to be the best indicator of the volume of traffic flow at all times. The data for this indicator represents the number of vehicles recorded over each entire year (24hrs per day 7 days a week) on 12 main routes across the island (previously only 5 routes were reported upon). The data is collected using permanent traffic counters installed in the road surface.

Year	Number vehicles recorded (million)	% change on previous year	Jersey Population	Number vehicles recorded per capita
2007	60.9		94,000	648.3
2008	61.1	0.29	95,400	640.6
2009	61.8	1.20	96,200	642.9
2010	60.7	-1.82	97,100	625.3
2011	61.4	1.07	98,100	625.6
2012	60.9	-0.84	99,000	614.8
2013	59.9	-1.53	99,900	599.9
2014	60.2	0.37	100,800	596.7

Source: States of Jersey, Department for Infrastructure

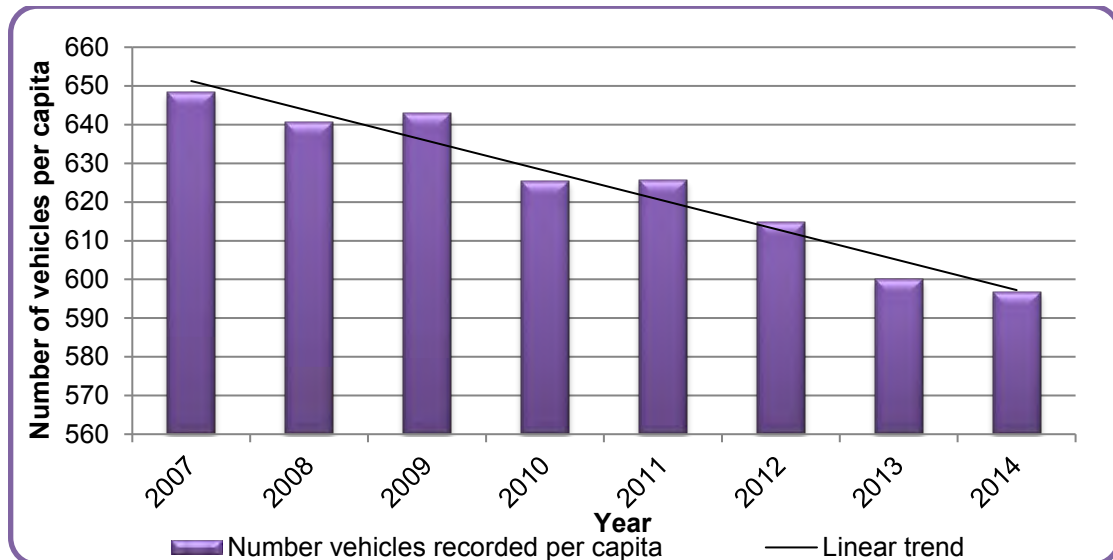
Table 5.1: Annual total traffic flow on 12 major sites.³⁶

³⁵ This indicator was previously annual traffic flow at 5 major sites, but increased in 2007 to 12 major sites. Therefore the current RAG status cannot be directly compared with the previous RAG status but of the 12 sites now monitored, the original 5 are included so it is felt that there is a degree of consistency.

³⁶ Estimated population figure has been provided for 2013 by the States of Jersey Statistics Service using census data and projections.



The data shows that traffic levels have been relatively constant between 2007 and 2014, though it is encouraging that the 2014 level was 2.7% lower than the peak value in 2009, particularly when considered against the background of population changes and economic growth. The population has increased by 8,700 from 2007 to 2015. Per capita traffic movements have therefore decreased more than the data illustrates. This decrease could be due to a number of different factors such as the changing economic climate, the age profile of the population and the location of new developments.



Source: States of Jersey, Department for Infrastructure

Graph 5.1: Annual number of vehicles recorded per capita at 12 major sites with trend line.

Analysis of the traffic data for a typical winter morning peak period as recorded by Department for Infrastructure automatic traffic counters shows a similar small reduction in traffic flow (1.6%).

Year	Aggregate traffic flow towards St Helier on 9 main routes (7 - 9am)	% Change in traffic flow (2010 base)	Jersey Population	% Change in population (2010 base)
2010	10,713		97,100	
2011	10,710	<-0.1%	98,100	+1.0%
2012	10,601	-1.0%	99,000	+2.0%
2013	10,574	-1.3%	99,900	+2.9%
2014	10,428	-2.7%	100,800	+3.8%
2015	10,544	-1.6%	102,700	+5.8%



Source: States of Jersey, Department for Infrastructure

Table 5.2: Aggregate morning peak period traffic flow on 9 main routes (out of the 12 major sites monitored island wide) towards St. Helier.³⁷

³⁷ Estimated population figure has been provided for 2013 by the States of Jersey Statistics Service using census data and projections.



Indicator T2 – Mode of travel

Indicator	Date Range	RAG Status	RAG Comment
T2 Percentage mode of travel by car	2005-2010	 AMBER	Red - No reduction in car as travel mode Amber – Small reduction in car as travel mode
	2011-2015	 AMBER	Green - Significant reduction in car as travel mode

Two data sources are used to look at mode of travel: a manual survey once per year by Department for Infrastructure, and the Jersey Annual Social Survey (JASS). These can be taken together to help assess modal shift away from private car use, particularly during peak commuter periods. Both sets of figures have a limited database so to increase confidence in the results the two sets of data are included together.

Year	Car or van	Walk	Cycle	Motor cycle	Bus
2008	78	11	3	3	4
2009	79	10	3	3	5
2010	76	12	4	3	5
2011	76	11	4	4	5
2012	76	11	4	3	5
2013	77	11	4	3	5
2014	75	12	3	3	6
2015	75	11	4	3	6

Source: States of Jersey, Department for Infrastructure manual counts

Table 5.3: Peak time mode of travel into St Helier 2008-2015.

The data in Table 5.3 provides information on the percentage split by mode of travel into St Helier. This is measured manually by Department for Infrastructure staff, positioned on all 14 major roads which feed traffic into the town area from 7.30 am to 9:00am on one dry week day before the school summer half term break, typically in mid-May. It is therefore susceptible to daily variance, which can be several percent for individual roads but will only be a few percent for the summary figures.



Year	Number of cars/vans	% change on previous year
2008	12,281	
2009	12,699	+3.40%
2010	12,011	-5.42%
2011	11,845	-1.38%
2012	11,708	-1.16%
2013	12,050	+2.92%
2014	11,710	-2.82%
2015	11,923	+1.82%

Source: States of Jersey, Department for Infrastructure manual counts

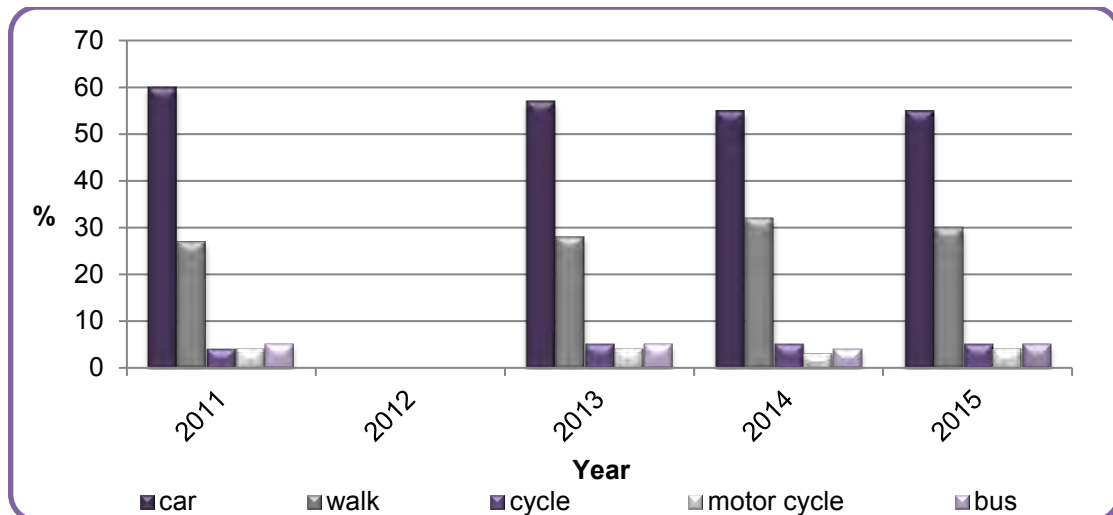
Table 5.4: Number of cars / vans entering St Helier 2008-2015.

Year	Car	Walk	Cycle	Motor cycle	Bus
2011	60	27	4	4	5
2012	-	-	-	-	-
2013	57	28	5	4	5
2014	55	32	5	3	4
2015	55	30	5	4	5

Source: Jersey Annual Social Survey (JASS)

Table 5.5: Mode of travel to work – JASS data. No data available for 2012 as the phrasing of this question within the 2012 JASS survey was altered, therefore the data for 2012 was not consistent with this indicator.

Table 5.5 provides data from the JASS, which asks respondents to state mode of travel to work (which as many people work outside of St Helier is a different dataset to the former) but has a limited sample size and is a response to the respondents typical mode choice, which will vary from day to day, see Graph 5.2.



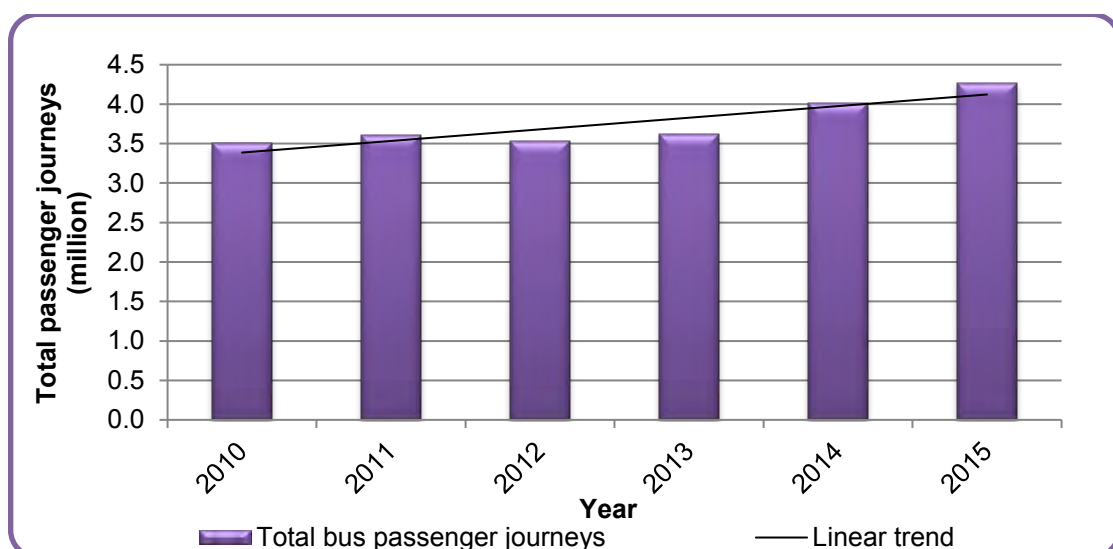
Source: JASS annual survey

Graph 5.2: Mode of travel to work – JASS data. No data available for 2012 - see text above.

Using the information from both data sets together, there appears to have been a small reduction in car use in favour of cycling, motorcycling and using the bus.

The States STP predicts that approximately half of the target 15% peak period reduction in traffic levels will come from increased bus use and the number of peak hour bus users is expected to double.

Continued investment in the bus service has resulted in significant increases in bus patronage. The contract to provide Jersey’s main and school bus networks was awarded to a new operator in 2012 with operations commencing at the start of 2013. Growth has continued, with a total of 4.27 million passenger journeys recorded in 2015.



Source: States of Jersey, Department for Infrastructure

Graph 5.3: Bus passenger journeys with trend line.



5.1.2. Atmospheric pollution from transport

Emissions from road transport and industry are identified as the main sources that have the potential to impact on Jersey's air quality, with the former being the primary source of pollution on the Island.³⁸

55% of vehicles on Jersey's registration system are over 10 years old. Whilst it is not possible to calculate the exact number still actually on the road since the abolition of road tax, this still means that a significant proportion of Jersey's road fleet produces a higher level of pollution compared to younger and better maintained vehicles.

Currently, only about 1,000 vehicles (about 1%) are subject to annual testing at DVS. These include buses, taxis and oversize trucks. This ensures that the emissions of those vehicles comply with the published levels of emissions for that vehicle at year of manufacture.

Air quality monitoring carried out since 1997 aims to record the air quality at several locations around the island and concentrates mainly on St. Helier. Over this period, a significant reduction in benzene has been noted as the maximum permitted concentration in petrol was reduced from 5% to 1% in the year 2000. Leaded petrol has also been completely phased out.



Currently, the principle pollutants of concern are nitrogen dioxide (NO₂) and particulate matter and both are used Europe wide as a measure of air quality; both are monitored in Jersey. The principle source of both pollutants is from road traffic and especially from diesel vehicles. Air quality in Jersey typically falls into the highest (good) category for over 90% of the year, but further reduction would be highly desirable in terms of improving the islands air quality in certain areas and under specific weather conditions, where air quality can deteriorate.

Other pollutants such as carbon monoxide (CO) and sulphur dioxide (SO₂) are more typically associated with domestic heating and are considered to be less significant from a road transport perspective.

³⁸ [Link to Air Quality Monitoring in Jersey 2014 report](#)



Indicator T3 - Atmospheric pollutant monitoring

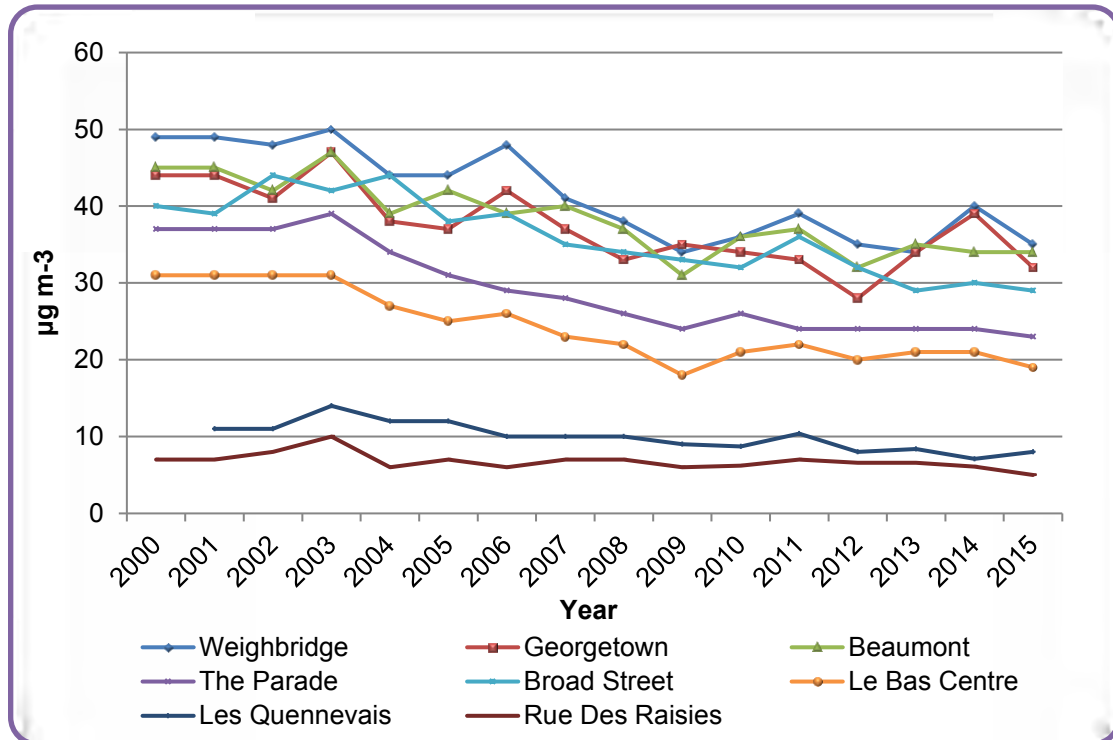
Indicator	Date Range	RAG Status	RAG Comment
T3 Atmospheric pollutant monitoring: e.g. nitrous oxides, volatile organic compounds, ground level ozone, particulates, radioactive substances	2005-2010	 AMBER	Red - An increasing trend Amber - Static trend
	2011-2015	 AMBER	Green - A decreasing trend

Over the past 5 years, atmospheric pollution levels have been more or less stable. However, they cannot be compared directly to the UK or European standards owing to the measurement methods used. The monitoring program is currently under review with a view to expanding the program and using type approved devices which would accord with international standards.

Atmospheric pollution has been monitored on the island since the 1960's and the focus is now on NO₂ and particulates. Particulates are continuously monitored at two sites in St. Helier and published in real time on the internet.³⁹ NO₂ is monitored in real time and published daily. Monthly NO₂ monitoring is also carried out at 22 locations around the island. Airborne radiation is monitored at the airport and volatile organic compounds, including benzene, monthly at 5 locations.

After several years of decline, mean NO₂ levels have levelled out and even shown signs of rising, although are still within the EC Directive Limit of 40µgm³ except at Georgetown and the Weighbridge, both of which have high road traffic levels.

³⁹ [Link to air quality monitoring on the States of Jersey webpage](#)



Source: AEA NO2 air quality monitoring report

Graph 5.4: Annual Mean NO₂ Concentrations µg m⁻³ (not adjusted for diffusion tube bias).

Environmental Health has begun to move towards the principle of ‘polluter pays’ and with this in mind, has engaged with private industry, partly through the planning process, in a number of areas to carry out monitoring of the pollution that may be caused by their activities. Private industry also benefits from the information such monitoring provides and as the data is made public, it also engenders transparency and public confidence. It is intended to develop this principle further as it is cost neutral to the States and provides tangible benefits to both industry and to the public.



5.2. Update on 2010 priority actions

In 2010 the following priority actions were identified for the period of 2010 to 2015. This section assesses progress against these in the last five years.

Transport (State of Jersey 2010)

Progress in this area over the last 5 years has been focused on the development and adoption of the STP and the introduction of Vehicle Emissions Duty (VED) to fund sustainable transport initiatives.

The challenges ahead are:

- To implement the STP;
- Implementation of the Island Plan to ensure that spatial planning supports the objective of reducing the need for car dependency;
- Ensuring that the target revenue from VED is achieved (by reviewing the rate of VED) and to continue to reinvest a proportion of that money in transport programmes.

The key actions are:

- Implementation of STP target areas:
 - Bus service improvements;
 - Walking and cycling infrastructure improvements;
 - Workplace and school travel plans, public awareness campaigns;
 - Reviewing car parking;
- Implementation of Island plan policies:
 - Development of supplementary planning guidance;
 - Conditions on developments requiring workplace travel plans;
- Implement air quality monitoring programme to continue to monitor emissions from vehicles:
 - Review current air quality monitoring programme;
 - Continue to make air quality information publicly available.

5.2.1. Implementing the sustainable travel and transport policy

The States approved the STP in 2010. This comprehensive document identifies objectives and a policy framework within which to achieve these. The Plan had a high level target of achieving a 15% reduction in peak time car travel by 2015 and a significant reduction in traffic at all times.

Although agreeing the plan signalled good progress, the States Assembly accepted an amendment to the STP not to significantly increase the cost of motoring until a viable alternative was available to all. This has impacted on the delivery of the 15% peak hour target, as certain fiscal levers such as



increased prices for commuter parking would be in opposition to the amendment.

Whilst the peak hour target was originally measured against a target date of 2015, the Plan sets a longer term strategy which will continue to further reduce the Island's private car dependence and improve and protect the quality of our environment for future generations. The full STP report⁴⁰ as well as the 2015 Progress Report⁴¹ can be found on www.gov.je.

Progress in the last 5 years, against the headline STP target of a 15% reduction in the peak hour rate has been disappointing. Peak hour traffic levels have only decreased by 1.6% and it is recognised that more significant progress will require a cultural change away from private car use locally and possibly more significant fiscal levels to drive behaviour change.

The Energy Plan: Pathway 2050 identifies that road transport accounts for over one quarter of our energy consumption. It anticipates that reductions in this consumption will come principally from a move towards lower emissions vehicles, but also from a 5% reduction in the use of motor vehicles on our roads *at all times* by 2020. This will require a significant change in people's travel habits. Progress has been made with regard to improving the alternatives to private car use, particularly through improvements to our bus service which now offers a more viable island wide alternative.

However, progress has not been made with regard to addressing the relative cost of motoring, which was an integral part of the STP before amendment. Although challenging, the relative cost of motoring should now be reviewed with a view to altering the balance in favour of sustainable transport and to provide funding for those initiatives which enhance the alternatives.

Recognising the importance of reducing peak hour traffic levels, reducing commuter and school traffic in and out of St Helier continues to be a key target area. However, the policy aims to reduce car dependence island-wide and cause a significant shift towards more sustainable forms of transport *at all times*, so supporting the Energy Plan target 5% reduction in the use of motor vehicles on our roads at all times by 2020. The data provided indicates that there has been a slight increase in the use of bus, cycling and walking.

Headline actions from the STP are as follows:

- Continued improvements in the bus service are key to achieving modal shift, it is expected that 50% of the target will be achieved by increased public transport use. Bus use has increased by 33% in the peak hour since 2010 and 22% overall;
- Work is also ongoing to encourage cycling, help pedestrians and make roads safer especially for vulnerable road users;

⁴⁰ [Link to Jersey's Sustainable Transport Policy White Paper on the States of Jersey webpage](#)

⁴¹ [Link to Sustainable travel policy progress report 2015 on the States of Jersey webpage](#)



- The first section of an eastern cycle route was completed in 2011 running from Gorey Pier south for approximately 1 mile and has been extended to Grouville Primary School in 2016. Works are ongoing to provide an extension of the existing cycle route from La Route de La Liberation at the head of New North Quay, along Commercial buildings, through La Collette and along Havre des Pas promenade;
- A shared cycle and pedestrian path is under construction in St Peter's Valley;
- Encouraging the use of low or zero emissions personal transport and ensuring that legislation encourages their use, providing that safety is not compromised. Eco permits for reduced parking charges and dedicated charging points in all the main town car parks incentivise the use of low emissions vehicles;
- All new developments likely to generate significant amounts of travel (for example, offices over 2,500m² or retail developments over 800m²) are required to submit a workplace travel plan;
- School travel plans have been produced at the majority of schools as they join the Eco Schools network. Work is ongoing to ensure that all schools have effective travel plans with annual reviews.

For further details of and a full list of recommendations see www.gov.je.

5.2.2. Implementation of Island Plan policies

Maintaining and enforcing good spatial planning underpins the aim of achieving modal shift, reducing congestion and peak time car numbers. For example, by meeting most of the Island's development needs from within the existing urban area the need to travel is reduced, there are more sustainable travel choices and the urban environment can be regenerated and the countryside protected.

The Revised 2011 Island Plan establishes a hierarchy of movement in line with the STP to ensure that, in making land-use and transport-related decisions, priority is given to the most sustainable modes of travel. This hierarchy of provision in ascending order of importance is as follows:

- Walking; cycling;
- Travelling by bus;
- Travelling by taxi;
- Car sharing;
- Single occupancy car travel.

This hierarchy relates to the movement of people. It should be recognised that people with disabilities have special needs whatever their mode of travel. The movement of goods is also essential and a balance between efficiency and environmental safeguards should be made.



The Island Plan also contains a range of policies designed to enable and require the delivery of transport infrastructure that supports more sustainable modes of travel, such as footpaths, cycle paths and bus shelters and support for improved bus services. These can be delivered through direct provision or planning obligation agreements.

It is recognised that the supply of parking, at both the start and end of a journey, will have a direct influence over car use. Therefore, the planning system can effect this by regulating the amount of parking space required and/or permitted as an integral part of development. The requirement for work place travel plans as part of new developments ensures travel and transport considerations are made at the beginning of the project and integrated throughout.

5.2.3. Monitoring of atmospheric pollution arising from transport

In 2013 the Jersey Air Quality Strategy (JAQS) and its underpinning action plan, a joint initiative, was put forward by the Minister for the Environment and the Minister for Health and Social Services. The aim was to safeguard air quality in Jersey within a defined framework of tasks, actions underpinned by a timetable for monitoring and reporting on air quality.

Jersey enjoys good air quality largely as a result of its location and the prevailing weather conditions, together with a limited impact from industrial and manufacturing processes. The evidence is that pollution levels are already below thresholds of concern to human health and the environment.

However, monitoring suggests that the greatest proportion of air pollution in Jersey is from road traffic. Monitoring stations provide information on these transport pollutants at key congestion points. The results demonstrate that the air quality in Jersey can be categorised as good, in comparison with UK standards.

The Air Quality Strategy recognises the overlap between the pressures on air quality from transport emissions and the impact of the recommendations within the STP to lessen these. The STP will help to maintain and enhance our good air quality both by reducing the amount of road traffic and by increasing the proportion of vehicles with lower levels of emissions. The aim of the JAQS is to support the STP, and its subsequent revisions, and in particular ensure the States of Jersey are leading by example. The aim was that all States vehicles are operating to the highest emissions standard according to operational requirements. As vehicles in the States of Jersey fleet undergo planned replacement they all reached at least Euro 3 standards by 2014. A handful of specialist emergency vehicles will not meet the specification until replaced at the end of their design life.

Commercial vehicles are important as they do significant mileage and if not of a high standard can be a significant source of pollution. The STP notes that



there is an issue with a large number of privately owned older vehicles operating in Jersey which do not meet the requirements of the Euro 3 standard. All vehicles manufactured for sale in the EU after 2000 are required to meet the Euro 3 engine (2000) standard - 98/69/EC⁴².

Whilst there is an issue with respect of the age profile of the vehicles in Jersey, the Euro 3 manufactured vehicles are now working their way through the 2nd hand market, this external driver provides a mechanism that over time will ensure all vehicles operating in Jersey are meeting the Euro 3 standard.

The maintenance of commercial vehicles affects their performance. In 2015 a project to introduce a commercial operator licence system commenced. This will result in improved road worthiness standards and reduced emissions for commercial vehicles through improved maintenance regimes. The system will be introduced first for operators of vehicles over 7.5t and expanded to other vehicles in due course. A system of regular road worthiness and emissions testing for all vehicles will be reviewed following introduction of the commercial vehicle system.

In parallel with delivering these JAQS outcomes is a requirement for transparent widely available air quality data. A review of the previous monitoring systems has been undertaken and the new system is type approved, whose measurements can be directly compared with UK and European standards. Daily reporting is now available online⁴³.

5.2.4. Vehicle Choices – low emission vehicles

The STP encourages low emissions vehicles through parking advantages, specifically:

- Providing 50% discounted parking prices for low or zero emissions vehicles:
- Providing spaces and charging points for electric vehicles in public car parks, as those vehicles become commonly available.
- Taking a proactive role in identifying low or zero emissions personal transport and ensure that legislation does not restrict their use, providing that safety is not compromised.

Between 2011 and 2015 electric and hybrid vehicles comprised 1.2% of the total new registrations. These comprised 165 new and second hand electric vehicles and 458 new or second hand electric / hybrid vehicles (total registrations between 2011 and 2015 were 36,834 vehicles).

There have been some notable success in converting fleets with one local taxi firm converting their entire fleet to hybrid vehicles. However, overall uptake has been slow particularly in earlier years when the price differential between

⁴² Euro 3 (2000) for any vehicle - 98/69/EC

⁴³ [Link to air quality monitoring on the States of Jersey webpage](#)



electric / hybrid vehicles and conventional vehicles was prohibitively high. More recently this gap is closing and we expect to see an increased rate of uptake.

5.2.5. Introduction of Vehicle Emissions Duty

VED is Jersey's first environmental tax and was implemented in 2010 and is based on a charge at the first registration of a vehicle that is associated with the carbon dioxide emissions of that vehicle as defined by the manufacturer. Where emissions data is not available or in the case of commercial vehicles the cc of the engine was used as a proxy for assessing the band for charging. The charging bands rise steeply so incentivising the purchase of small engine fuel efficiency vehicles.

Over the first 5 years of the tax, the environmental objectives of VED (i.e. to incentivise people to purchase lower emissions vehicles) are beginning to be achieved, with a shift in the fleet towards lower emissions vehicles. However, the effectiveness of this policy measure has been somewhat confused by a trend of overall reductions in the purchase of new vehicles as a result of the economic downturn during this period.

Since the introduction of VED, manufacturers have been driven by global targets to reduce the emissions of their vehicles. Therefore, in general, it has become easier to purchase a lower emissions vehicle – a trend that is reflected in the purchasing patterns. This has been good news for fleet managers. For example, the States of Jersey car fleet has moved substantially to low emission / high efficiency small petrol or diesel cars emitting less than 100gCO₂/km which is reducing emissions as well as making efficiency savings. This is a good example of good environmental practice making good business sense. Additionally a trial of 10 fully electric vehicles was carried out across the States of Jersey car fleet to assess the business case for additional electric vehicles in their fleet.

In 2015, the budget for 2016 was debated and the Minister for Infrastructure brought forward a set of revised VED band rates and charging coverage with the aim of continuing to drive purchasers of new and second hand vehicles towards the very lowest emissions vehicles and ideally zero emissions electric vehicles. These changes included removing the 50% reduction in VED applied to second hand vehicles and applying the carbon emissions ratings to commercial vehicles if that data were available. After debate these changes were accepted. In particular, support was obtained for the argument that if Jersey is serious about its environmental responsibilities and encouraging the purchase of lower emission vehicles, the banding structure needed to be updated. The updated bands continue to maintain pressure on purchasing patterns and reward those who purchase the lowest emission vehicles and a watching brief will be maintained to ensure that purchasing habits are responding in line with expectations.



5.3. The priorities for 2016-2020

Based on the evidence from the last five years, the priorities for this area have been identified for the next 5 years as follows:

Transport – The next 5 years

The challenges ahead focus on making accelerated progress in line with the following policy objectives:

- STP – continued progress towards a 15% reduction in peak time congestion;
- The Energy Plan - 5% reduction in the use of motor vehicles on our roads *at all times* by 2020;
- The Air Quality Strategy Action Plan - Continue to provide real time data to underpin evidence base.

The key actions to achieve this are:

- Delivery of STP and Energy Plan and particularly drive modal shift away from private car use;
- Implementation of Island Plan policies and Future of St Helier project to ensure sustainable travel and transport and to support economic prosperity and residential expansion in the urban area;
- Continue to implement air quality monitoring programme and provide publicly available air quality information.

Implementation of the recommendations within the STP update are a key priority delivering more sustainable travel and transport and improving air quality both by reducing the amount of road traffic and by increasing the number of low emission vehicles. The Future St Helier Project is a strategic initiative recognised in the States Strategic Plan as a priority for the Council of Ministers. It seeks to regenerate the town area to ensure it continues to provide space to live and work for a growing population as well as remaining as Jersey's economic centre. Successful travel and transport plays an important role in ensuring St Helier's future and many of the spatial planning initiatives within this project will support the overarching objectives of the STP.

5.3.1. Implementation of the Sustainable Transport Policy and Energy Plan objectives

The STP, in 2010, set an ambitious headline target of a 15% reduction in peak hour traffic. The States accepted an amendment to the STP which stipulated that the cost of motoring (including parking) should not be disproportionately increased until viable alternatives were in place for all. It failed to acknowledge the impact that the amendment would have on achieving that target. Progress has been made with regard to improving the alternatives to private car use, particularly through improvements to our bus service. However, progress has not been made with regard to addressing the relative cost of motoring, which was an integral part of the STP before amendment.



The bus service has been improved significantly and now offers a viable alternative island-wide. Although challenging, the relative cost of motoring should now be reviewed with a view to altering the balance in favour of sustainable transport and to provide funding for those initiatives which enhance the alternatives.

Key STP actions for the next 5 years:

- A review of the costs of private car use in contrast to other more sustainable forms of travel;
- Further bus service improvements including more shelters, bus priority, increased capacity, coverage, connectivity and revised routes;
- Walking and cycling infrastructure improvements (including completing St Peter's valley shared path, implement further sections of Eastern cycle network, complete cycle/pedestrian link from New North Quay to Havre des Pas and upgrading the existing western cycle route);
- Continued application and review of workplace and school travel plans, public awareness campaigns;
- Reviewing car parking including the provision of eco-permits for ultra-low emissions vehicles and car parking spaces for them;
- Implement flexible car park charging systems and develop nearest car park pricing incentives;
- Review the provision of shopper parking and its impact on St Helier's businesses;
- From 2016 monitor the impact of the newly applied Vehicle Emission Duty bands;
- Introduction of commercial vehicle operator licences and road worthiness and emissions testing for commercial vehicles (first phase for over 7.5t vehicles to be introduced in 2018);
- Building on the success of pilot initiatives such as the Department for Infrastructure's electric bike scheme and the introduction of several electric vans to the Jersey Post fleet.

5.3.2. Implementation of Island Plan policies and Future of St Helier Project

The States Strategic Plan 2015 -2018 recognised the critical role St. Helier has to play in delivering a strong and sustainable economy by making its regeneration one of its five strategic priorities.

A public engagement exercise as part of the Future St. Helier project identified the need to ensure that St. Helier is a liveable town with pleasant and attractive public streets and spaces that people can move about safely and conveniently. A movement strategy for St Helier will be developed to ensure a



better balance between motor traffic, pedestrians and cyclists, consistent with the aims of the STP.

This will identify specific projects to make St. Helier a more accessible and walkable town with an improved public realm. These schemes could be delivered by the pooling of existing resources with the Department for Infrastructure and the Parish of St. Helier together with contributions from the private sector secured from the planning process.

5.3.3. Continued implementation of the air quality monitoring programme

There will be ongoing and an expanded real-time air quality monitoring programme to continue to monitor emissions from vehicles. The Environmental Health team has transferred from the Department of Health to the Department of Environment which will facilitate cross-working and synergies with the delivery of the Air Quality Strategy and the Energy Plan.





Natural Environment

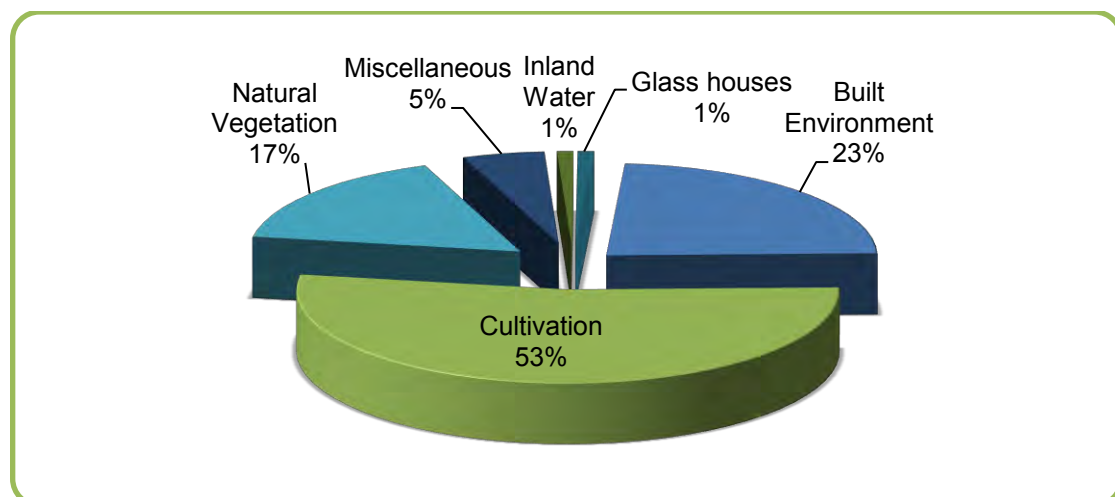


This chapter examines the state of Jersey's natural and rural working environment. Despite the Island's small size of 118km² it contains an incredibly diverse range of natural habitats alongside our more built up areas and many would argue that Jersey's specific countryside character contributes significantly to the quality of life we experience locally. The Jersey countryside is one of its most prized assets but the scarcity of land in the Island has resulted in considerable pressure for development. To some extent this pressure is related to the over-spill of development from urban areas. However, it is also generated by the needs and aspirations of those living and working in the countryside.

The challenge is to maintain and enhance the Island's key habitats and species whilst recognising that space is also required for other societal needs such as housing, recreation and businesses using the countryside for economic activity within the rural economy.

6.1. The indicators

6.1.1. Overall land cover



Source: Jersey in Figures 2014

Graph 6.1: Categories of land use in Jersey.

Graph 6.1 shows how Jersey's land surface can be categorised. What is notable is that approximately one quarter is 'built environment' which includes man-made surfaces such as buildings, roads, footpaths, domestic gardens, and harbour areas. The largest category, over 50%, is under 'cultivation' and so it is the nature of our working countryside that defines much of our local identity and sense of place. Consequently, this chapter will look at the balance between the natural and working countryside.

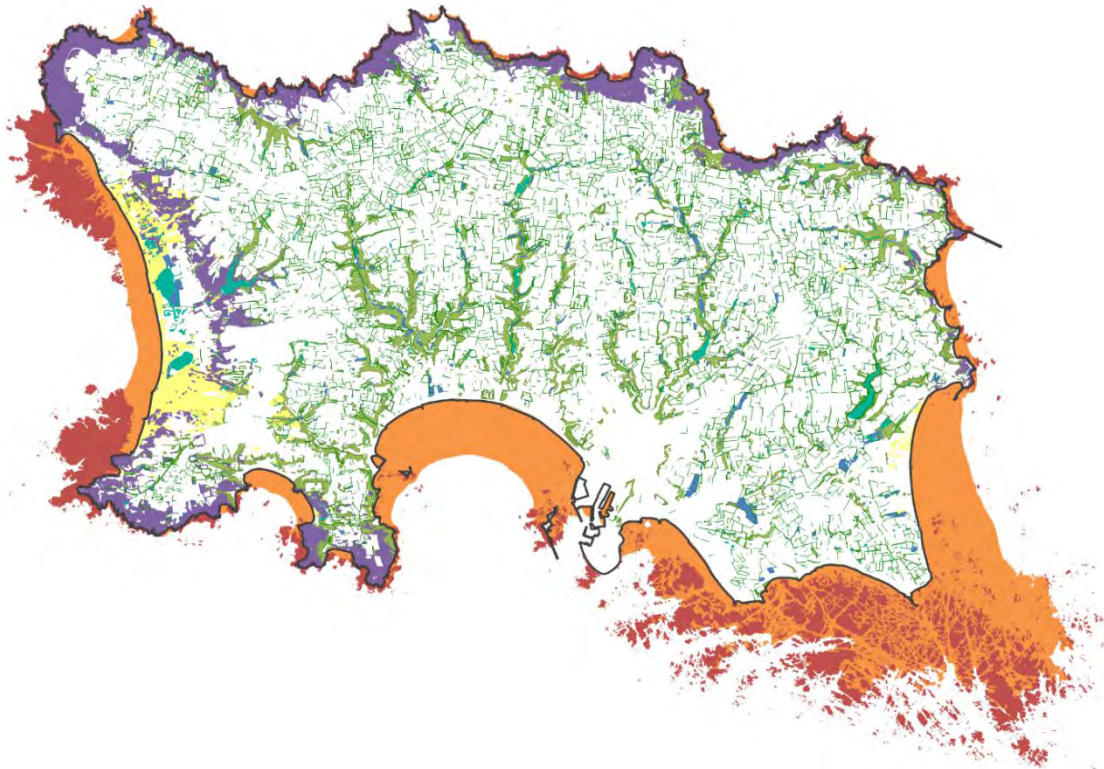
The 'natural vegetation' category includes all semi-natural habitats i.e. woodlands, dunes, grassland, cliffs and shrub much of which is found on our coastline, many of which are considered as important habitats which are



valued for their unique mix of plants and animals or their biodiversity. These areas are seen as distinct from the miscellaneous category which includes amenity land such as parks, golf courses, the airport, urban open spaces, cemeteries and sports fields. Glasshouses only includes commercial glasshouses over 200m².

The 'Biodiversity: a strategy for Jersey'⁴⁴ defined 8 habitats as 'key habitats' of local and international importance for the conservation of biological diversity.

These key habitats are a focus for conservation management and monitoring in Jersey. The priority is to protect and maintain the surviving habitats and, where possible, extend them. The 8 'key habitats' are as follows and are represented in Map 6.1 which provides their distribution in Jersey in 2011;



Legend		Size
	Boundaries (including hedges)	970 km
	Mixed Woodland	943 ha
	Coastal Sand Dune	251 ha
	Wet Meadows	131 ha
	Maritime Heath	860 ha
	Marsh and Freshwater	98 ha
	Intertidal Rock	1,406 ha
	Intertidal Sand	1,836 ha

Source: States of Jersey, Department of the Environment

Map 6.1: Distribution of Key habitats in Jersey 2011.⁴⁵

⁴⁴ [Link to Biodiversity strategy on the States of Jersey webpage](#)

⁴⁵ The data used to produce the map was gathered from the 2011 island-wide Phase 1 habitat survey and the Jersey Base Map 2006.

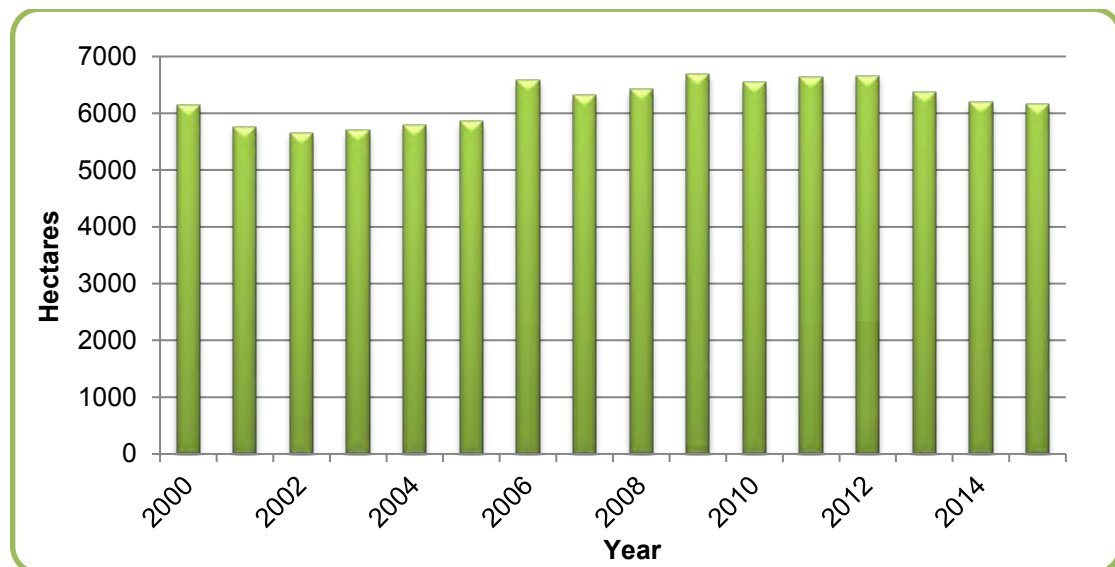


A mapping methodology known as a Phase 1 habitat survey provides a record of the location of semi-natural vegetation and wildlife habitats across the Island. Once fully analysed it will identify habitats that are most at risk and determine which habitats require more conservation effort. The information will be used to guide the designation and review of ecological Sites of Special Interest (SSIs), for informing Environmental Impact Assessments and providing vital statistical data, which provides the necessary evidence to target conservation planning and management.

Approximately 50% of the total land use in Jersey is for agricultural production. The scale and relatively intensive nature of the current agricultural systems means that farming inevitably creates an environmental pressure. Indeed evidence suggests that intensive farming is negatively impacting on water resources and soil conservation (evidence in Natural Environment indicators NE4 and NE5c regarding butterflies and birds), prompting efforts by farmers and Government to reduce the environmental impact of farming.

However, the agricultural land bank is also a 'habitat' in its own right supporting specific assemblages of plants and animals.

The indicator monitoring the total area of land farmed in previous reports has been removed as an indicator. In future the total area of land farmed in Jersey will be reported on in this section.



Source: States of Jersey, Department of the Environment

Graph 6.2: The total area of land farmed in Jersey (hectares).



In terms of monetary value, potatoes are still the most lucrative crop with exports of £29M in 2014. In real terms (allowing for inflation), the export value of potatoes has decreased since 2006. Exports would have needed to be £30.1M to keep pace with inflation.



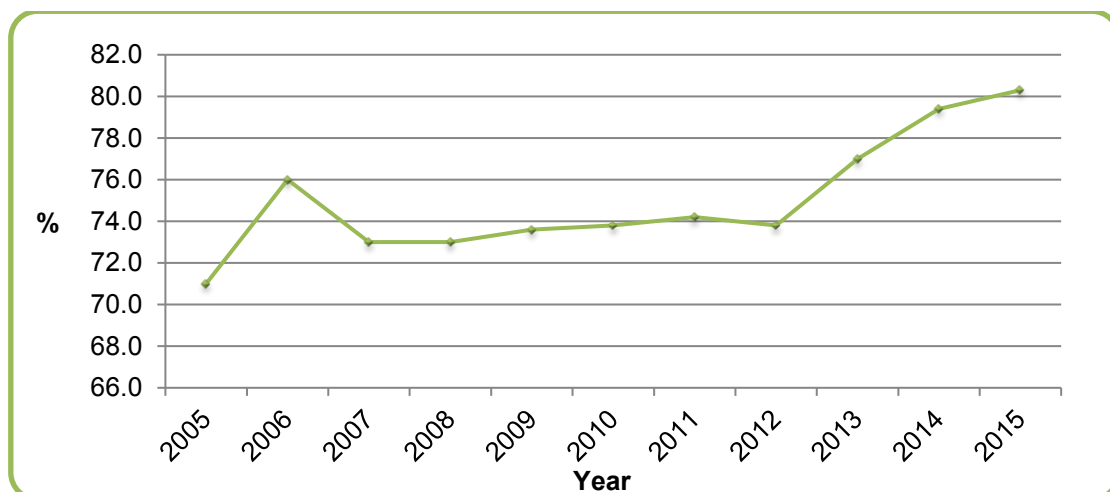
6.1.2. Agri-environment schemes

Agri-environment schemes are voluntary agreements that provide annual payments to farmers and land managers to ensure they manage their land in an environmentally sensitive way that goes clearly beyond the minimum required.

Indicator NE1a - Area of farmed land under environmental stewardship schemes

Indicator	Date Range	RAG Status	RAG Comment
NE1a - Area of farmed land under agri-environment stewardship schemes	2005-2010	 AMBER	Red – Decreasing proportion of land under environmental stewardship schemes Amber – Stable proportion of land under environmental stewardship schemes
	2011-2015	 GREEN	Green – Increasing proportion of land under environmental stewardship schemes

The measurement of the proportion of land in receipt of agricultural subsidy either via the Single Area Payment (SAP) and/or the Quality Milk Payment (QMP) provides a good proxy for the amount of agricultural land under good environmental management. This is because subsidies provided to farmers are conditional on ‘cross-compliance’ which means compliance with Codes of Good Agricultural and Environmental Practice designed to protect air, soil and water. This is a conservative estimate since there are some farmers who do not claim SAP but who are supplying markets that require environmental standards to be applied through various customer assurance schemes.



Source: States of Jersey, Department of the Environment

Graph 6.3: Percentage of farmland where environmental cross-compliance applies through Single Area Payment and/or Quality Milk Payment.



There has been an increase over the last 10 years in the percentage of agricultural land being managed under the environmental cross-compliance regime associated with these payments. The challenge is to continually improve environmental management systems on all land.

Given the extent of cultivated land in Jersey, there are opportunities for significant gains if the inherent environmental value of this agricultural land can be maximised. The Countryside Renewal Scheme was created in 2005 to provide financial support to land owners/managers for environmental improvements on their holdings.

The Countryside Enhancement Scheme (CES) replaced the earlier scheme in 2012. The scheme is funded by the States of Jersey and offers financial incentives that support environmental initiatives through voluntary management agreements designed to improve Jersey's countryside. Unlike the previous scheme, the CES is not prescriptive: applicants put forward a scheme of their own design that suits the environmental features on their land area best, which includes enhancement of wildlife, landscapes, historic features and natural resources (soils and water), as well as providing new opportunities for public access.

As the CRS has now ceased, the indicators related to it will not appear in the next report. Because the replacement CES is not prescriptive and instead supports bespoke projects rather than individual components like footpath creation, it is not possible to include replacement indicators in this report. Further detail on the CES can be found on www.gov.je.

6.1.3. Habitat protection

Located at the confluence of two climatic zones, Jersey comprises of a diverse range of habitats, species and environmental features. The protection and appropriate management of these areas to keep them in favourable condition is essential if declines in biodiversity are to be halted and reversed.

The only form of statutory protection for important habitats in Jersey is provided under the Planning and Building (Jersey) Law 2002, which enables places that are considered to be of public importance in Jersey by reason of their special zoological, ecological, botanical, scientific and/or geological interest to be designated as SSIs. The Law restricts certain activities that are likely to damage the special features for which the SSI was designated.

Since 1996, a total 19 Sites of Special Ecological Interest and 22 Sites of Special Geological Interest have been designated (Map 6.2), comprising 560 Hectares of land. The Department of the Environment has an ongoing work programme to survey and identify further sites that may be worthy of legal protection due to their importance as wildlife habitats.

The Natural Environment Team within the Department of the Environment are directly responsible for the management of over 550 hectares (3000 vergées),



which represents approximately 5% of Jersey's land area, comprising both public and private land. Many of these sites are designated SSIs and are managed with the aim of conserving specific ecological or geological features, the condition of which is assessed on a rolling cycle against defined objectives.

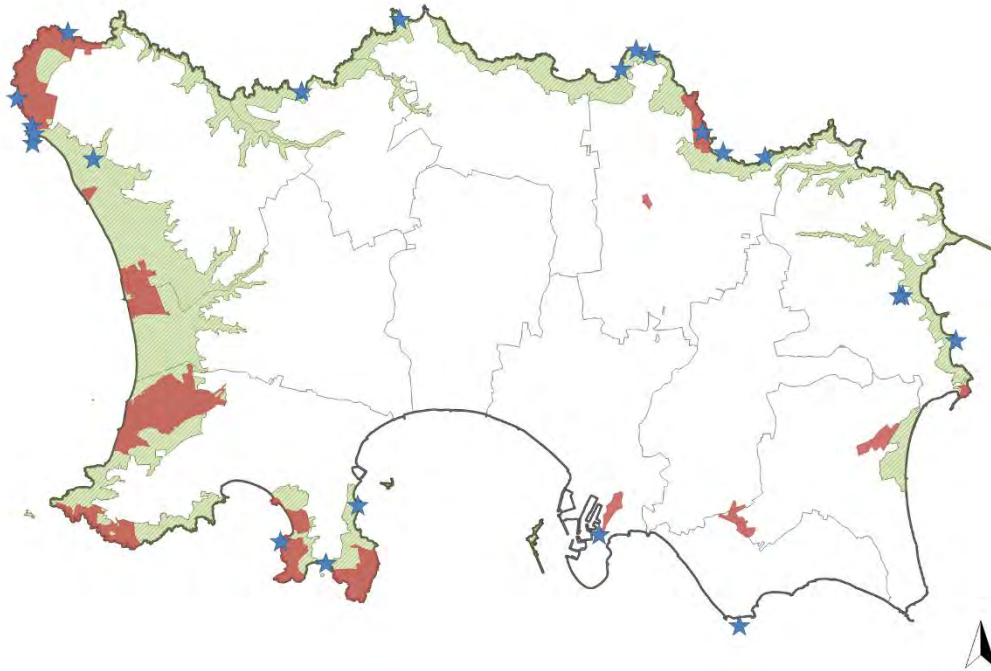
Additional non-statutory designations outlined in the 2011 Island Plan include Environmentally Sensitive Areas, Sites of Importance for Nature Conservation and a National Park zone within which the conservation of habitats, species and landscape features is given a high priority. Together this network covers many of the most valuable sites for biodiversity in Jersey.

The Coastal National Park covers 1,925 hectares (16% of the island) as well as the offshore reefs and islets, above mean high water. Included is the south-west headlands, St Ouen's Bay, the north coast, St Catherine's Bay, part of Grouville Bay as well as the offshore reefs and islets of Les Écréhous (Paternosters and Les Dirouilles) and Le Plateau des Minquiers.

The 2011 Island Plan defined the boundary of the National Park (as shown on Map 6.2) and provided guidance as to the type and forms of development seen as acceptable in this special area, where there is the strongest presumption against all forms of new development.

The National Park Management Plan and action plan have been published and whilst it is recognised that these documents will need some revision in the short term, they provide a focal point for collaborative stakeholder working to meet the following purposes of the National Park:

1. The conservation and enhancement of the natural beauty, wildlife and cultural heritage of the National Park.
2. To promote opportunities for the understanding and enjoyment of the special qualities of the National Park by the public.



Legend	
	Coastal National Park
	Designated Ecological SSI
	Designated Geological SSI

Source: States of Jersey, Department of the Environment

Map 6.2: Extent of Coastal National Park.⁴⁶

Indicator NE1b - Extent of protected areas on land

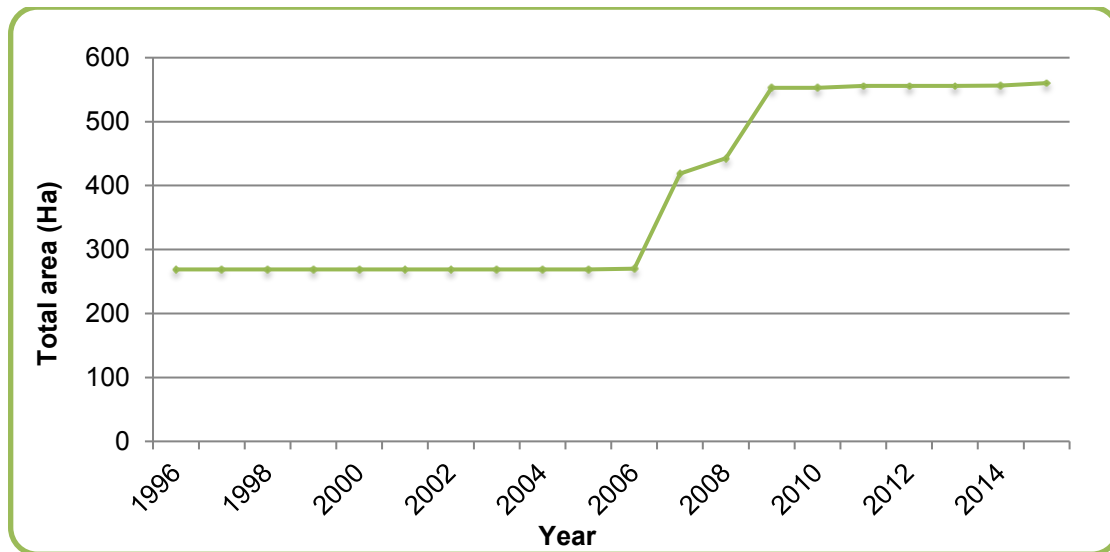
Indicator	Date Range	RAG Status	RAG Comment
NE1b Extent of protected areas on land	2005-2010	 GREEN	Red – Decrease in protected areas
	2011-2015	 GREEN	Amber – No change in protected areas Green – Increase in protected areas

This indicator covers the extent of protected areas above the mean high water level. Graph 6.4 displays the area (in hectares) of Jersey’s SSIs. In 1996 the first set of SSIs were designated to satisfy the requirements of the Convention on Biological Diversity (Biodiversity Convention), and the Convention on The

⁴⁶ Note this map does not show Coastal National Park boundary for the offshore reefs and islets of Les Écréhous (including the Paternosters and Les Dirouilles) and Le Plateau des Minquiers.




Conservation of European Wildlife and Natural Habitats (The Bern Convention), both international conventions that were extended to Jersey in 1992 (through the UK). Since then new sites have been designated based on their ecological importance.



Source: States of Jersey, Department of the Environment

Graph 6.4: Extent of Jersey terrestrial protected areas 1995-2015.

Indicator – NE1c Condition of Areas / Sites of Special Scientific Interest

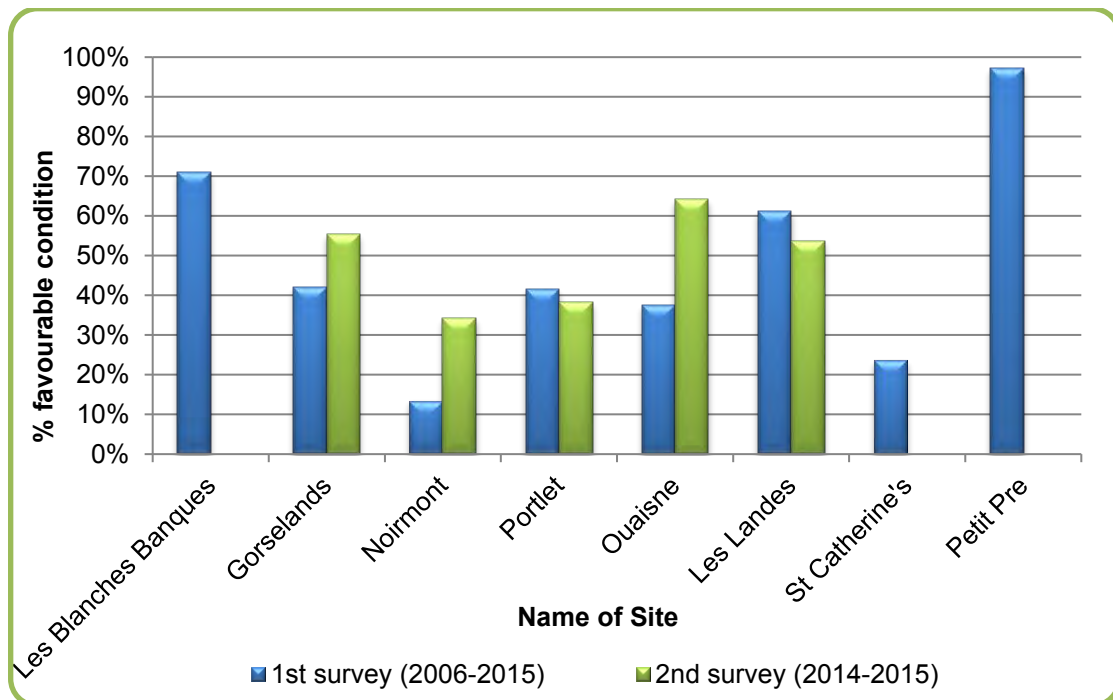
Indicator	Date Range	RAG Status	RAG Comment
NE1c Condition of areas/sites of Special Scientific Interest	2005-2010	N/A	Red – Decrease in the overall favourable condition of protected areas
	2011-2015	 GREEN	Amber – No change in the overall favourable condition of protected areas Green – Increase in the overall favourable condition of protected areas

This indicator shows the proportion of SSIs which meet set condition criteria as established in the UK’s habitat condition monitoring scheme. The common standards programme was initiated in 2005 to evaluate the outcomes of conservation management action and conservation policy on a proportion of these areas. The sites are divided into habitat patches which are representative of the site, each of which is judged against a number of predetermined measures and either determined to be in ‘favourable condition’ or ‘unfavourable’ condition.



Favourable condition status indicates that the protected site meets the agreed objectives set for the features of interest. Unfavourable condition status indicates that the protected site fails to meet the objectives. After the monitoring cycle has been carried out at least twice a third condition can be used, 'unfavourable recovering', which indicates that a habitat patch has failed to meet the objectives but has appropriate management in place which aims to achieve those standards.

Graph 6.5 shows current known habitat condition of the Islands SSIs. The assessment provides a baseline against which any changes can be measured in the next round of habitat condition monitoring. Of the five protected sites where there is comparable data, three have improved in condition and two have declined. However, the perceived decline in condition can be explained by a change in indicators which have been revised during the intervening time. On average, habitat quality has become more favourable by c.14% over the five sites which have been assessed twice. This is due to the habitat management activities carried out in those areas.



Source: States of Jersey, Department of the Environment



Graph 6.5: The condition of States of Jersey Sites of Special Interest. Initial surveys were carried out gradually as survey techniques were refined over time.

The habitat condition objectives were amended following the initial round of monitoring in 2005-2006 and changes were made to ensure robust objectives for subsequent monitoring which was repeated in 2014. This has meant that data sets taken during these years are not directly comparable but can still be used as a broad guide as to the condition of the sites. It is intended to maintain consistency of monitoring methodology going forward to enable a more accurate comparison of habitat quality overtime.





Indicator NE2 – The Conservation of Wildlife (Jersey) Law 2000 (as amended)

The Conservation of Wildlife (Jersey) Law 2000 (Wildlife Law) is the primary legislation that protects wild animals, birds and plants in Jersey. Legal protection from harmful activities extends to species that are listed in the Schedules to the Law, and applies at all stages of their life cycle, as well as to their dens or nests. The use of certain lethal methods of taking or killing all wildlife is also prohibited.

Indicator	Date Range	RAG Status	RAG Comment
NE2 - The Conservation of Wildlife (Jersey) Law 2000 (as amended)	2005-2010	 RED	Red – Significant updates to law outstanding Amber – Minor updates to law pending
	2011-2015	 RED	Green – Conservation of Wildlife (Jersey) Law completely up to date, no additional species pending for addition

The Wildlife Law has been periodically amended to ensure it remains fit for purpose, but it has not been reviewed or revised substantially since it came into force. In 2011, a review of the Law was undertaken with the aim of highlighting and proposing amendments which will improve compliance with our International commitments and ensure that our legislation keeps abreast with equivalent UK and where appropriate European legislation. In addition, they will provide for stronger protection for wildlife and more effective regulation of activities affecting protected species. Now that law drafting time has become available for 2016/17 the status of this indicator will improve.

Indicator NE3 - Biodiversity Action Plans for protected species

Indicator	Date Range	RAG Status	RAG Comment
NE3 - The development of Biodiversity Action Plans (BAP) for protected species	2005-2010	 AMBER	Red – Target number of BAPs not achieved and thus implementation delayed Amber – Target number of BAPs achieved but not fully implemented
	2011-2015	 AMBER	Green – Target number of BAPs achieved and implemented



In addition to the protection afforded to specific species through the Schedules of the Wildlife Law and planning regulations, there are also a number of international agreements to which Jersey is signatory such as the Bonn Convention on the Conservation of Migratory Species of Wild Animals and the Biodiversity Convention.

The Biodiversity Action Plans (BAPs) were first published in 2006, which are part of the Island's response to the Biodiversity Convention. From 2006 to 2011 these Action Plans were published for individual species and habitats that are under threat and require protection, with the aim of outlining the actions required to protect particular species or habitats.

Post 2011, the Biodiversity Convention adopted a revised and updated Strategic Plan for Biodiversity 2011-2020 which included 5 strategic goals and 20 'Aichi Biodiversity Targets' as a basis for halting and eventually reversing global declines in biodiversity. This new approach will be adopted in Jersey (see section 6.4) and consequently this indicator will be amended in future editions of this report.


Jersey's Action Plans provide an important and valuable reference source which assists in identifying vulnerable species that may require greater protection through being added to the Schedules of protected species in the Wildlife Law.

6.1.4. Populations of key species

Indicator NE4 – The status of butterfly indicator species

Insects represent over half of all terrestrial biodiversity and within this group butterflies are good indicators as they are large, easy to identify and popular with amateur naturalists. They have a complex lifecycle from egg to herbivorous caterpillar and pupation into an airborne adult form. Most eggs and caterpillars are reliant on specific plants and the adults are nectar drinkers and pollinators. This means that every stage of a butterfly's lifecycle is dependent upon specific plant species, many of which grow in particular habitats or ecological niches. If the habitats and niches are altered or removed then there will be an immediate effect on the local butterfly population. It is this rapid reaction to small changes in local ecosystems that makes butterflies such excellent environmental indicators.



Indicator	Date Range	RAG Status	RAG Comment
NE4 Status of butterfly indicator species across key habitat types	2005-2010	N/A ⁴⁷	Red – Decline in the butterfly population
	2011-2014 ⁴⁸	 RED	Amber – Stability in the butterfly population Green – Increase in the butterfly population

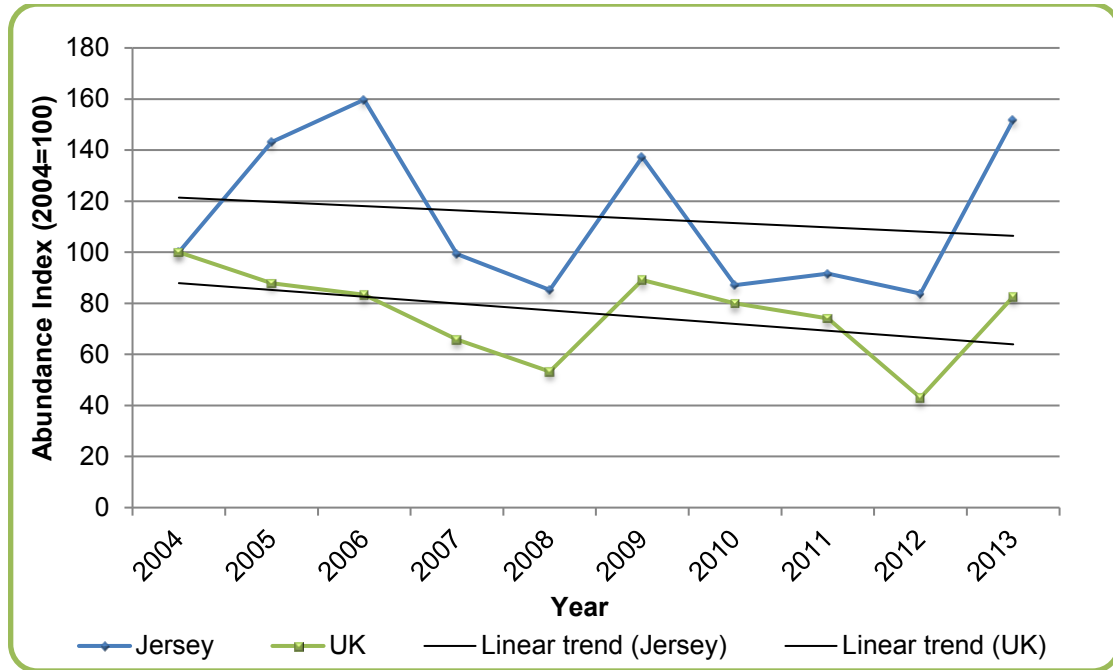
In the UK butterflies have been used as key environmental indicators since 1976 and in 2004 the Department of the Environment founded the Jersey Butterfly Monitoring Scheme, which was initiated using ‘citizen science’ or in other words the use of volunteers to gather data.

A ten year analysis of the data (2004 to 2013) was undertaken by the Department of the Environment and the results published in the State of Butterflies in Jersey report, 2015.

The report showed that between 2004 and 2013, around 34 butterfly species were regularly reported; of which 24 may be regarded as common. Over the ten years the population of these 24 common butterflies declined by 14%, compared to the UK where the same suite of species declined by 29% (Graph 6.6 below). Further analysis indicates that butterfly populations in semi-natural areas increased between 2004 and 2013 while those in urban areas decreased. Populations in agricultural areas fluctuated but were flat overall. Further monitoring will build a more robust dataset that will allow more detailed analysis of the possible causes of the variations seen across land use types.

⁴⁷ Unable to allocate a RAG Status for 2005-2010 as the data available was insufficient to determine a trend at that time.

⁴⁸ 2015 data not yet available



Source: States of Jersey Department of the Environment, Jersey Butterfly Monitoring Scheme

Graph 6.6: Trends in composite abundance for the 24 species regarded as common in Jersey compared with the UK as a whole with trend lines.⁴⁹

Historical fragmentation between and within semi-natural areas presents a threat to some of Jersey’s more habitat selective species and it is thought to explain the loss of several formerly resident species like the Glanville Fritillary and Le Miroir since the 1940s. Between the 2004 and 2013 survey it is thought that one resident species, the Swallowtail, became locally extinct. The limited data available suggests that fields under certain agri-environment management components e.g. conservation cover crops or buffer strips, do benefit butterflies. However, fields that are organically farmed do not differ from other agriculturally managed areas. This is likely to be either because organic fields do not create extensive butterfly habitats, in the way that some components of the agri-environment schemes do or it is a consequence of ‘edge effects’ as a result of the fragmented nature of organic fields in the wider countryside.

As a general indicator of ecological health, the results of butterfly monitoring offer a mixed picture of Jersey’s environment. It suggests that intensive farming, urbanisation and habitat fragmentation have left large areas of the island lacking in butterflies, especially in the interior. Populations of Jersey’s butterflies as well as other pollinating insects can be encouraged by increasing and connecting semi-natural areas and by planting insect friendly plants and careful management of verges and hedges. Gardeners and amenity managers can also help by setting aside areas for insect friendly plants.

⁴⁹ [Link to The State of Jersey’s Butterflies: Jersey Butterfly Monitoring Scheme 2004 to 2013 report on the States of Jersey webpage](#)



6.1.5. The status of bird indicator species



Bird populations are considered to be a good environmental indicator because they occupy a wide range of habitats and they tend to be near the top of the food chain. The distribution, abundance and changes over time in wild populations are equally important in telling us about the state of our environment as animal communities are good indicators of the condition of the habitat itself.

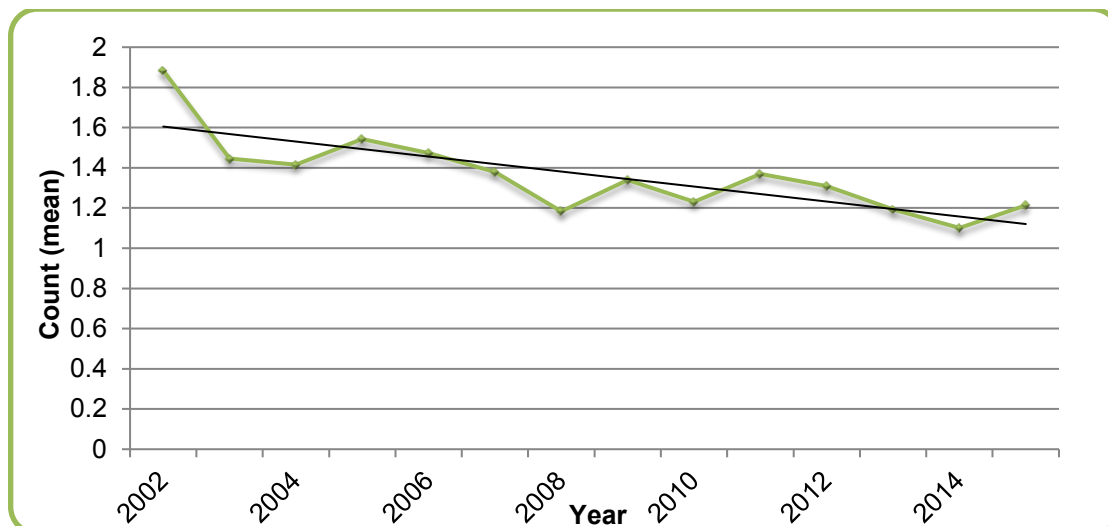
There are three data sets for birds:

- The Garden Bird Survey which provides data on commonly encountered birds, covering both resident and migrant species;
- The Wading Bird Survey which provides data on shore birds, which are under particularly severe threats world-wide;
- The Breeding Bird Survey which provides information on resident species.

Indicator NE5a Status of 12 species of garden birds

The garden bird survey is a citizen science project that takes place annually across the British Isles. Since 2002, in Jersey, islanders have been invited to record any birds that visit their gardens between 8 am and 11 am on a weekend in mid-February. A volunteer group, Action for Wildlife, administers the survey with up to 650 gardens a year supplying data.

Indicator	Date Range	RAG Status	RAG Comment
NE5a Status of 12 species of garden birds	2005-2010	 RED	Red – Decreased numbers of garden birds
	2011-2015	 RED	Amber – Stable numbers of garden birds Green – Increased numbers of garden birds





Source: Dr Glyn Young, Jersey coordinator for the Garden Bird Survey

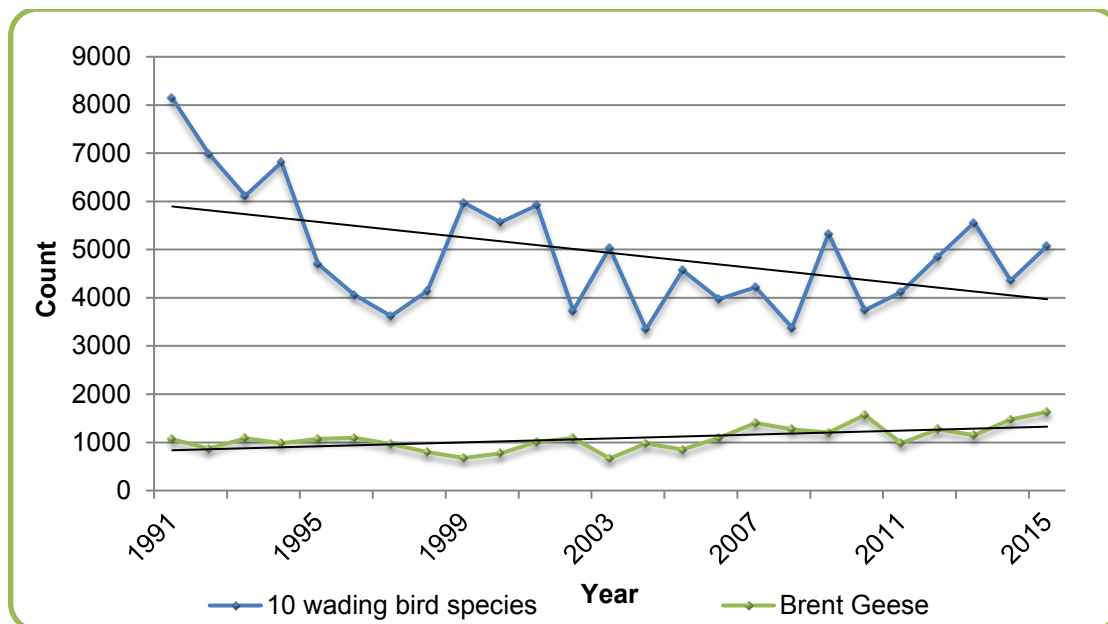
Graph 6.7: Trends in the numbers of garden birds.

Because the data are collected as a result of citizen science it is not as robust as it could be. Nevertheless, data from the garden bird survey can provide an excellent mid-winter snapshot of garden birds across the Island. Graph 6.7 shows the combined mean counts for twelve bird species that were commonly seen in local gardens between 2002 and 2015. Decreases in these twelve commonly encountered garden birds mirror a similar decline seen elsewhere in farm and woodland birds. This may be due to underlying environmental issues and change including a decline in habitat extent and quality providing suitable food, shelter and nesting opportunities for the species concerned and the decline in garden birds reflects this wide picture.

Indicator NE5b Numbers of wading birds

Since 1991 the Ornithology Section of the Société Jersiaise and the Durrell Wildlife Conservation Trust have surveyed local wading bird populations using coordinated counts at key locations around the island in winter between November and March. The surveys are conducted by experienced ornithologists who count all species of wading bird visible within a time frame of approximately half hour. The coordination and coverage of the surveys provides an estimate of the total population of wading birds.

Indicator	Date Range	RAG Status	RAG Comment
NE5b Numbers of wading birds	2005-2010	 RED	Red – Decreased numbers of wading birds
	2011-2015	 RED	Amber – Stable numbers of wading birds Green – Increased numbers of wading birds



Source: Ornithology Section (Société Jersiaise) and Durrell (unpublished data)

Graph 6.8: Total population counts in the month of January for ten species of wading bird in Jersey (Bar-tailed godwit, Curlew, Dunlin, Greenshank, Grey plover, Oystercatcher, Redshank, Ringed plover, Sanderling, Turnstone) with trend line. Also featuring Brent Geese population counts with trend line.



Graph 6.8 shows the total count in January for ten species of wading bird and for Brent Geese. The long term trend suggests that the island’s wading bird population has declined overall and that since the late 1990s the population has been variable.

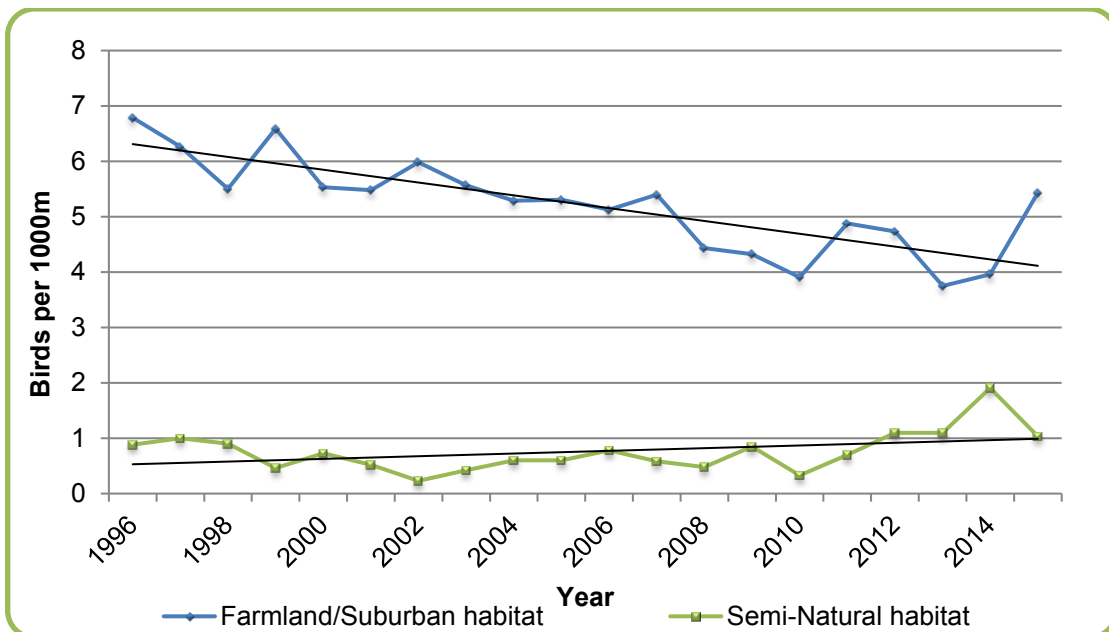
This decline is thought to be caused by factors that occur largely outside the island such as climate change and loss of summer breeding sites. However, disturbance on Jersey’s seashore by humans, dogs and vehicles perhaps play a minor role. In contrast, the Jersey population trend for Brent Geese shows a marked increase since 1991. This is believed to be due to the success of protective measures enacted in other parts of Europe but especially in Scandinavia.

Indicator NE5c Numbers of breeding birds

The Breeding Bird Survey takes place annually in April and June using volunteers to walk a transect (i.e. fixed route) twice a month within a randomly selected 1 km square. All bird species seen or heard along the transect are recorded together with details concerning their distance from the transect and abundance. The survey has been run by the British Trust for Ornithology since 1994 in the UK and since 1996 in Jersey.



Indicator	Date Range	RAG Status	RAG Comment
NE5c Numbers of breeding birds	2005-2010	 RED	Red – Decreasing numbers of breeding birds
	2011-2015	 RED	Amber – Stable numbers of breeding birds Green – Increased numbers of breeding birds



Source: Breeding Bird Survey, coordinated by Durrell

Graph 6.9: Counts of 32 species of birds occupying farmland/suburban habitats and 10 species of breeding birds occupying semi-natural habitats with accompanying trend lines.

An analysis of the dataset suggests that over 19 years the population comprising of 32 species of birds on farmland/suburban habitats is declining rapidly. In contrast populations comprising of 10 bird species on semi-natural habitats is slowly increasing.

This pattern of divergent trends between semi-natural and agricultural/suburban habitats to some extent mirrors results from other formal and informal biological survey work on the island (e.g. butterflies, see NE4). Similar trends seen in the UK data have been linked with intensive farming practices and loss of habitat due to development, drainage and conversion to pasture or plantations. Some of these factors may also apply to the local data.

The planning policy regime of the Island Plan seeks to protect wildlife and to mitigate the impact of development on wildlife. This has become increasingly effective since 2011.



The two indicators ‘the number of site protections of selected nesting birds through the planning process’ and ‘the number of bat roosts protected through the development control process’, proved unworkable as they did not give a measure of the number sites/roosts that have been protected. Measuring the number of comments included and/or integrated into the approved planning permit did not necessarily protect the nesting birds or bat roosts. Therefore, the data required for these indicators is no longer collected.

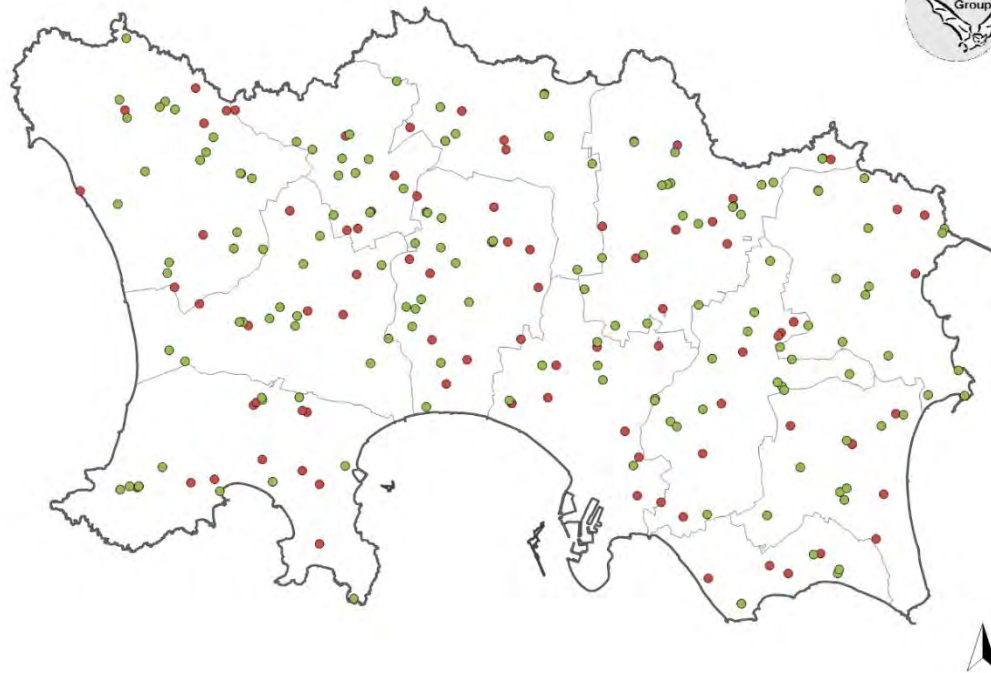
The status of bat indicator species

Bats are a vital part of our wildlife, accounting for more than half of all wild mammal species in Jersey. They occupy a wide range of habitats, including wetlands, woodlands, farmland, as well as urban areas. They are top predators of nocturnal insects and are therefore sensitive to changes in landscape as well as land use practices such as agricultural intensification, habitat fragmentation and the loss of roosts to development. These impacts are relevant to many wildlife species, making bats excellent indicators of the wider health of our environment.

Bat roosts

All Jersey bat species make use of buildings on occasion, but for some species, buildings are essential as primary roost sites. Historically bats would have utilised caves and available features in trees to roost, however many species have adapted to share our built structures, whether they are older properties, modern houses, barns or churches. Bats may also occupy a number of roosts for different requirements throughout the year so provide an indicator of the quality of a range of environmental features. Critical to the successful conservation of bats is awareness and protection of bat roosts.

The Jersey Bat Group monitors bat roost occupancy and maintains Jersey’s roost register. Occupancy is verified in a number of ways: through surveys carried out by ecological consultants as a requirement of a planning permit; survey or DNA analysis of droppings by the Jersey Bat Group or by house holders themselves. Jersey has a total of 234 recorded bat roost sites compared to 136 in 2010. In 2011-2015 61% of all known bat roosts had verified bat activity. The remaining 39% of bat roosts need to be checked or re-surveyed to determine if they are still active. This does not mean there is necessarily an increase in bats, but does represent an improved understanding of bat roost distribution as well as known species diversity.



Legend	
	Verified roost (61%)
	Unverified roost (39%)

Source: Jersey Bat Group

Map 6.3: Verified and unverified bat roosts in Jersey.

Indicator NE6 - Bat species diversity and abundance

Indicator	Date Range	RAG Status	RAG Comment
NE6 - Bat species diversity and abundance on iBats transect	2011-2015	 GREEN ⁵⁰	Red – Decrease in bat numbers Amber – Static bat numbers Green – Increase in bat numbers

The monitoring of bats at key foraging sites proved too time intensive. The Department has changed the monitoring methodology to a new approach based on transect recording and the indicator has changed to reflect this. Since 2011, the ‘iBats’ methodology⁵¹ has recorded bat echolocation calls along 11 pre-defined transect routes. This approach has allowed biannual island-wide data sets to be collected with significantly less effort.

⁵⁰ Initial results from first five years of iBats survey

⁵¹ Hawkins et al, 2016. *iBats Jersey: A Review*. Report Commissioned by the States of Jersey.



By geo-referencing these calls, a map of species locations can be generated, and trend analyses can be used to assess changes to bat populations over time. Obtaining reliable trend estimates usually requires monitoring over a period of 8-10 years so the results presented here, which cover 5 years, should be regarded as preliminary. Full trend analysis will be available in 2020.

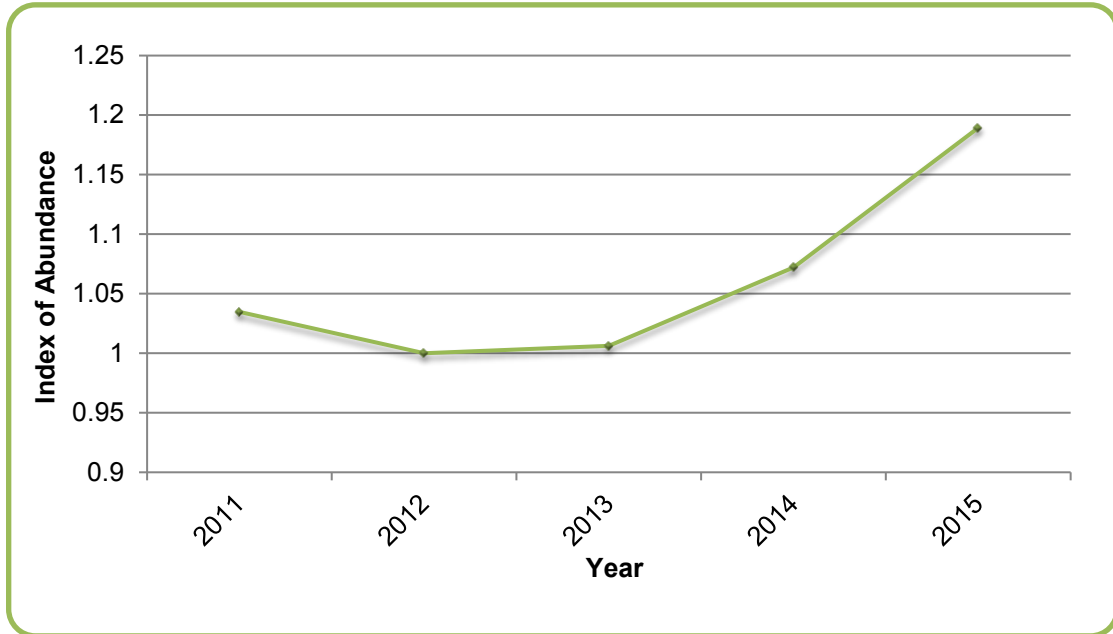
Nine bat species were recorded between 2011 and 2015 with 6 to 8 species recorded in each year. The most commonly recorded species were Common pipistrelle followed by Soprano pipistrelle and Kuhl's pipistrelle as can be seen in Table 6.1 below.

Bat species	Population diversity (%)
Common pipistrelle	81.0
Soprano pipistrelle	10.4
Unknown Pipistrelle	4.5
Kuhl's pipistrelle	2.0
Nathusius' pipistrelle	0.9
Serotine	0.6
Unknown Noctule/Serotine/Leisler's	0.1
Leisler's	0.1
Noctule	0.1
Grey long-eared	0.1
Brown long-eared	0.03
Unknown Myotis	0.03

Source: *iBats Jersey: A Review. 2016 Report Commissioned by the States of Jersey.*

Table 6.1: Bat species diversity (percentage split) over a five year period (2011-2015).

Analysis shows that overall the trend appears to be an increase in bat numbers, of approximately 19% between 2012 and 2015 (Graph 6.10). The Common and the Soprano pipistrelle were the most frequently recorded species. They showed significant increasing trends of 34% and 51% between 2012 and 2015 respectively. These results must be treated with a certain level of caution due to the short time period of monitoring so far. However, they reflect similar increases observed in the UK.



Source: *iBats Jersey: A Review. 2016 Report Commissioned by the States of Jersey.*

Graph 6.10: Trend in abundance of all bat species from 2011- 2015.



6.1.6. Non-indigenous invasive pests and diseases

Plants suffer from a wide variety of pests and diseases with some leading to severe economic or environmental damage. Some are naturally occurring whilst some are non-indigenous, imported via natural routes or by human activity. The most damaging of these organisms are regulated and known as Statutory Organisms; they must be surveyed for at points of import, areas of production and in the natural environment. If detected these organisms must be controlled and eradicated.

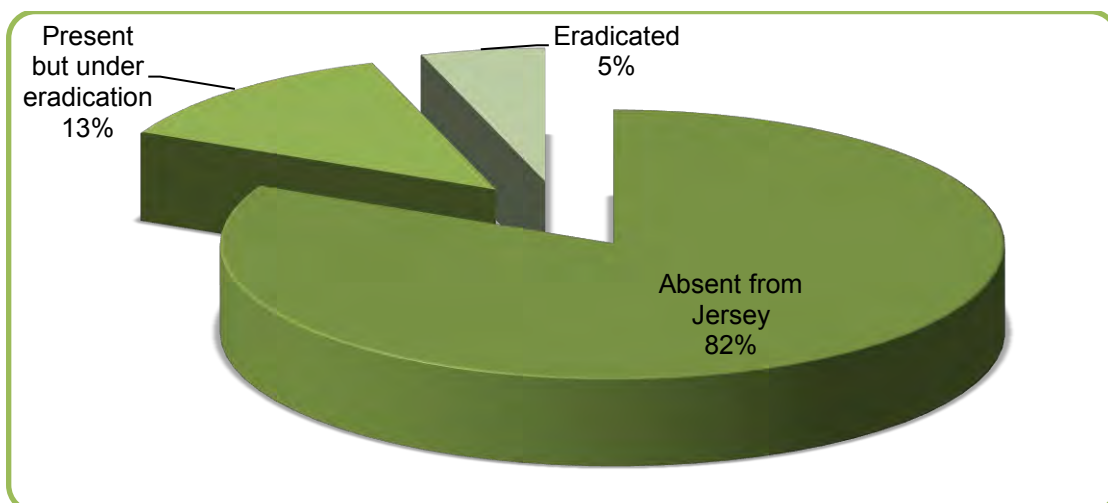
Surveys play a vitally important role in the protection of the Island's farmed, natural and urban environment and there are international obligations in respect of monitoring and control of regulated organisms. Species covered include the Colorado beetle (*Leptinotarsa decemlineata*) a pest of potatoes, Tobacco whitefly (*Bemisia tabaci*) a pest of tomatoes and fireblight (*Erwinia amylovora*) a disease of the family *Rosaceae* which includes apples, pears and hawthorn trees.



Indicator NE7 - Incidence of crop pests and diseases

Indicator	Date Range	RAG Status	RAG Comment
NE7 - Detection and control of regulated organisms	2005-2010	 AMBER	Red – Regulated pests and diseases present but not responding to eradication and control measures with a risk that they may become permanently present.
	2011-2015	 AMBER	Amber – Minimal Regulated pests and diseases present with active eradication and control underway Green – All critical pests and diseases absent or eradicated from the Island

39 surveys for pests and diseases regulated under European, UK and local legislation are conducted annually with results reported to the UK and EU. For a proportion of these organisms Jersey is a 'Protected Zone' meaning that the organisms are not present here and the data gathered justifies our continued protected status. Protected Status stipulates that certain plant species that host/carry regulated organisms can only be imported to Jersey if they originate from similar protected zones and are accompanied by a 'Plant Passport' attesting that fact, reducing the risk of transmission of regulated organisms to Jersey and around the European Community. The surveys vary in method; formal surveys use pheromone traps in pre-determined locations year-on-year, information is gathered from point of entry inspections and visual surveys of known host sites are conducted.



Source: States of Jersey, Department of the Environment

Graph 6.11: The status of 39 critical plant pests and diseases.



Failure to comply with these survey requirements would result in EU infraction penalties being levelled at the UK but transferred to Jersey. Failure could also result in the undetected establishment of a regulated organism triggering statutory containment and eradication measures at considerable cost in terms of manpower, materials and damage to biological infrastructure. In the natural environment outbreak and eradication actions would affect biodiversity and possibly tourism. In the commercial environment it could require destruction of crops, imposition of demarcation zones and prevent export of produce whilst in the urban environment it could affect human health.

Putting aside the legislative requirement for this work, current and sustained threats particularly to tree health from Sudden Oak Death, Oak Processionary Moth, Emerald Ash Borer, Asian Hornet, Asian Long-Horned Beetle, Ash Chalara etc. and in 2016 *Xylella fastidiosa*, illustrate the growing need for government, industry and public responsibility in plant biosecurity matters. The current and emerging range of regulated organisms may present the single greatest threat to Jersey's commercial, urban and natural flora.

The effect of climate change on species' distribution and breeding, and thus likelihood of establishment, is more difficult to predict. Pest Risk Assessments indicate that climate change will allow a wider range of organisms to establish in areas that they are not normally present, but geographical and topological barriers such as seas and mountains normally prevent large scale movement.

However the scale of international trade in plant material around the globe has never been greater, overcoming natural barriers to dispersal and providing introduction pathways.

Phytosanitary regulations and communication networks around the world are 'tightening' to adapt to the challenge of regulated organisms moving in trade and whilst 'traditional' commercial trade is increasingly well regulated the same cannot be said for internet postal sale which may prove the greatest threat yet in this area of work.

In addition to the pests and diseases there are a large number of other non-native species in the Island, some of which displace native species and cause economic problems, such as Japanese knotweed (*Fallopia japonica*), New Zealand pigmy weed (*Crassula helmsii*) and Hottentot fig (*Carpobrotus edulis*).



6.2. Update on 2010 priority actions

In 2010 the following priority actions were identified for the period of 2010 to 2015. This section assesses progress against these in the last five years.

Changes in the countryside and our natural history (State of Jersey Report 2010)

The island's terrestrial biodiversity is under pressure from encroaching development and regulated organisms; there is a need to improve statutory protection.

In order to address this we must:-

- Strengthen and enforce legislation for the protection of species and their habitats;
- Continue to support and promote agri-environmental initiatives;
- Ensure that new planning policies under the Revised 2011 Island Plan (2014) concerning species and habitat protection and enhancement are implemented and monitored;
- Continue with long term monitoring (implement a long term monitoring strategy/framework).

6.2.1. A Legislative framework for the protection of species and habitats

In the last 5 years the legal protection of wildlife and habitats island-wide has continued to be provided through implementation of the Wildlife Law and the Planning & Building (Jersey) Law 2002. Together they regulate a range of activities, including development, which have the potential to cause harm to our natural environment. The policies in the Revised 2011 Island Plan (2014) also provide protection and are discussed below.

A full review of the Wildlife Law is under way, and the recommendations will be progressed to law drafting. The proposed revisions will ensure that Jersey remains compliant with its international responsibilities, and also ensure that we meet best practice in the field of nature conservation.

Prosecution under any legislation is considered a last resort as by then the damage has already occurred and is sometimes irrevocable. However, legislation sets the tone and level of importance that government places on conservation. Supporting awareness campaigns and the provision of advice through the development process encourages mitigation and compensation schemes. These are designed to ensure that our wildlife is protected and has sufficient habitat in which to thrive. Thankfully, purposeful breaches of the Wildlife Law are rare, and incidents tend to be thoughtless or accidental acts.



6.2.2. The role of agri-environment schemes

As over 50% of our land surface supports agricultural activity, it is inevitable that the impacts of those activities will affect our wider environment. The trends in the biodiversity indicators show that wildlife, especially birds (see Indicator NE5c), and butterflies (see Indicator NE4), are declining on agricultural land.

Production costs in Jersey are high compared to other jurisdictions, and our agricultural industry needs support to compete against products in local and international markets. However, production related subsidies can act to exacerbate problems caused by intensive agricultural systems and mask inefficiency. Many farmers go to great lengths to ensure that our countryside is protected and Jersey's agri-environment scheme, the Countryside Enhancement Scheme (CES) has helped to raise awareness of and mitigate against the impacts of agriculture. It has enabled a wide range of projects which have improved our countryside for society and for wildlife.

Government reform and service redesign has resulted in a gradual but significant reduction in funds available for agri-environment schemes. With money being redirected into areas of higher priority. However, the CES with a budget of £200k per year, remains an environmental improvement scheme but has been redesigned to be more effective.

The breadth and impact of the Scheme has been increased due to broader eligibility criteria allowing a wider range of applicants to apply including all farmers, growers, land managers, landowners, businesses, charities, societies, groups, schools, other States Departments and the general public. There are now 3 options to enable an applicant to undertake work that will improve and enhance the natural environment on a local, island-wide or international basis. Since 2012 the CES has funded over 80 projects. Projects comprise of activities such as, wetland restoration and management, farm biodiversity audits, conservation grazing schemes and connective hedgerow creation.

6.2.3. The Island Plan

The latest Island Plan, agreed in 2011 and revised in 2014 is the strongest yet in terms of providing a spatial planning framework for the protection of wildlife and the semi-natural habitats upon which they depend. The implementation of various policies, in particular the Natural Environment Policies⁵², have enabled a more sustainable pattern of development. These policies ensure that the unavoidable impacts associated with land and property development are identified and that mitigation, offsetting and/or compensation is applied.

Since the implementation of the current Island Plan there has been a huge increase in the range and extent of measures put in place to protect our wildlife, from habitat restoration schemes to replacement bat roosts. It is vital

⁵² [Link to the Island Plan 2011 on the States of Jersey webpage](#)



that we are housed in good quality accommodation, but the effects of these policies show that this can be achieved without detriment to our natural environment, which also supports our wellbeing. In particular, provisions for wildlife can often easily be incorporated when considered early on in development plans, whether for construction or for other economic activities. For example, simple measures such as providing gaps in fences allow hedgehogs to travel from garden to garden, helps us by eating pests of our garden plants, and enhancing our enjoyment of urban living.

The 2011 Island Plan also introduced and defined the Coastal National Park. The planning policy regime provided by this document has now been supplemented by the development and adoption of a management plan for the Park, with associated actions. A National Park Interim Working Group has been created to reflect the wishes of the broad stakeholder group with the primary role to ensure the implementation of the Management Plan and Action Plan.

6.2.4. Long term monitoring

The Biodiversity Partnership is an informal partnership of more than 30 organisations and individuals committed to preserving and enhancing biodiversity in Jersey. The role of the Partnership is to coordinate and facilitate the efforts of their members, improve the flow of information and promote awareness of the importance of biodiversity.

The partnerships initial work was fundamental in establishing the Biodiversity Centre in 2013 and is an independent biological records centre. This charity is a repository for all Jersey's historic and new biological records which are held in a species database. This resource provides *inter alia*, information including presence and abundance, distribution and long term species trends. This evidence is used for educational purposes, research, decision making and for targeting conservation policies and effort. Since its launch, the centre has collated over 400,000 digitised records of over 7,000 species which is managed, organised and shared widely with bodies and individuals for conservation purposes. All the data used in this report is available from the centre.

Since the last report in 2011, the ongoing monitoring of habitats and species has provided further evidence on the condition of the island's natural environment. Habitat quality and species' abundance continue to be measured through robust monitoring programmes which provide an evidence base for the development of policies and the status of our island's wildlife populations. There are mixed messages from these data.

Despite some success stories, it would seem that the pressure being placed on our natural resources continues to have a negative impact on the island's wildlife and habitats. Most of the indicators are suggestive of a decline in the measured trends for species and habitats; this is summarised in the sections below. Whilst apparently discouraging, it is important to recognise that in order to address environmental issues effectively, it is first necessary to be able to



quantify them. The success of biodiversity monitoring schemes, most of which are volunteer driven ensures that we have the robust data we need to help formulate policies and legislation which can reverse any measured declines.

Birds

Within Jersey's wild bird population there are species which are doing well but these tend to be generalist omnivores and habitat dwellers who can benefit from human activity. There is also good news for several species of birds of prey but many other species have continued to decline. There are, for example, 33 bird species on Jersey's 'red list', and a further 50 on the 'orange list'⁵³. These are all of conservation concern due to declining numbers.

Mammals

The island's mammal populations appear to be stable and widespread although there is concern about the number of feral cats and ferrets in the countryside and their impact on our native wildlife.

Initial results from the ongoing bat monitoring programme between 2012 and 2015 are positive. It appears that bats occur widely across Jersey and that the most common species have populations that are increasing as reflected by a 22% rise in the number of active roosts in the last five years.

Butterflies

Butterflies are a proxy measure for the state of our invertebrate fauna and are declining in numbers and diversity. Though the island's protected areas support fairly stable populations, a measured increase in butterflies on most of the island's protected and managed semi-natural sites is encouraging. However, declines were observed across the urban and agricultural landscape, which comprises three quarters of Jersey's land surface.

Habitats

Statutory protection of terrestrial habitats has continued slowly since 2011. A repeat survey of the 1998 Phase 1 habitat survey has been completed which provides a vital resource of information on all semi-natural habitats on the island and how they have changed over the thirteen year period. This provides an update on priority habitats in Jersey especially priority habitats associated with protected areas.

The Department of the Environment continue to manage nature conservation sites under public administration. In any one year there are over 100 projects underway across the various sites. The positive impact of this work is seen in Indicator NE1c where the areas under active site management show an improvement in their condition as a result of the conservation habitat management taking place.

⁵³ [Link to Conservation Status of Jersey's Birds 2011 report](#)



In 2013, a partnership with Social Security Department's Back to Work Scheme began. This scheme utilises the skills and knowledge of a local, ecological landscape contractor to help unemployed people gain the necessary skills and work ethic to return back to full time employment. The benefit is twofold, firstly for the approximately 300 individuals concerned and the skills they gain and secondly, the projects deliver additional conservation benefits above and beyond what the original departmental resources would allow.

Other partnership initiatives such as the 'Birds on the Edge' project have been introduced with the aim of restoring Jersey's north coast, to help the recovery of declining birds and other animal and plant species and encourage the return of those that have died out such as the Chough. The project is coordinated by Durrell Wildlife Conservation Trust, States of Jersey Department of the Environment and the National Trust for Jersey. Specifically the project has been restoring the island's coastal cliff habitats for wildlife through a combination of traditional and modern management techniques. Such as grazing, bracken bruising and using herbicides. A total area of 60 vergées of bracken scrub will be removed.



6.3. The priorities for 2016 - 2020

Based on the evidence from the last five years, the priorities for this area have been identified for the next 5 years as follows:

Natural Environment - The next 5 years

It is imperative that the causes for the observed decline in our island's biodiversity is understood and reversed. This decline is despite the efforts made by many organisations and individuals undertaking conservation activities.

In order to address this our priorities for the next five years include:

- Revision of Jersey's Biodiversity Strategy to meet international obligations and a changing environment. The concept of eco-system services will underpin the development of the Strategy;
- Continued implementation and development of legislation and Island Plan policies to ensure the protection of the Island's biodiversity and habitats;
- Development of Protected Areas Strategy to define the location and extent to which we need to protect land for biodiversity;
- Implementation of the Countryside Access Strategy and ensuring good public access linkages to the wider environment whilst protecting our countryside.
- Continue and strengthen plant biosecurity measures and public awareness of risk.

6.3.1. Revision of Jersey's Biodiversity Strategy

'Biodiversity: A strategy for Jersey 2000' was Jersey's first biodiversity strategy, written to meet our obligation under the Biodiversity Convention. In the intervening 15 years, much has changed in the field of ecology and environmental management. New concepts such as ecosystem services has become mainstreamed, and associated work such as the concept of environmental capital is being proposed to offset the damage caused by our economic activity. Biodiversity loss has accelerated and climate change is now affecting biodiversity daily.

The revised and updated Strategic Plan for Biodiversity international goals and targets, will underpin the review of Jersey's Biodiversity Strategy and will lead to the development of an enhanced and robust set of indicators to best report on progress.

Critical to the success of the aims of the revised Strategy will be the measuring and reporting of our biodiversity indicators. The ongoing monitoring programmes will continue to be targeted and refined to ensure that we are able to understand the effect of our policy interventions-it is essential that policy development is evidence based. The partnership between government, non-governmental organisations and private citizens in delivering these monitoring programmes is critical to their success.



The revised direction of Jersey's biodiversity strategy will consider the management of the environment as a whole, and will acknowledge and take into account the value of nature in decision-making. To do this the revised Strategy will be underpinned by the concept of ecosystem services. This approach will acknowledge the importance of biodiversity to our economy and wellbeing and ensure that they are included in the capital accounting of assets and impacts. For example, the protected areas and the access routes that connect them provide a source of recreation, enjoyment and a sense of well-being. This contribution to society should not be under-estimated. As the recent countryside access public consultations have shown, our countryside is considered to be one of Jersey's greatest assets.

In addition, the new Strategy will work alongside other key policies and the measures within them that aim to improve the local environment and protect biodiversity both implicitly and explicitly. These include the Rural Economy Strategy, the Water Plan (both expected late 2016) and the next Island Plan.

6.3.2. Island Plan

We will continue to build upon the policies in the 2011 Island Plan that target the conservation of habitats and wildlife and complement the wider environmental protection which the plan provides. This approach continues to ensure a sustainable pattern of development across the Island.

Work is underway to prepare a new supplementary planning guidance note: Mitigating Development Impacts on Biodiversity which aims to protect wildlife pre and post development. The guidance will assist property owners, agents, developers, architects and the general public in understanding what information they must submit in respect of the potential impacts of a proposed development on protected sites, species or habitat features.

The National Park recently established interim working group's goal, is to agree a stakeholder-led National Park Management Plan to distil common objectives, highlight activities that are necessary to help deliver the two key purposes of the Park, raise awareness and recognition of its environmental, economic and cultural significance both at the local level and internationally.

Jersey's inward investment offering is targeted at people who value quality of life: within the Park unspoilt beaches, unique, world-class views and scenery, clean and pure sea air are just as important hooks as the proximity to international business centres, and point to a relaxed lifestyle in a tranquil and secure location where the best bits of our environment are protected, yet accessible.

6.3.3. Conservation of Wildlife (Jersey) Law 2000

The entire Wildlife Law, and the species listed in the Schedules has been extensively reviewed in a consultation process that involved all key stakeholders. The review identified 18 recommendations and these, alongside



additional legal advice, form the basis of the proposed new changes that will be translated into an updated law. Tighter legal definitions and proposed new schedules and articles will strengthen the law.

6.3.4. Protected Areas Strategy

A protected areas strategy will be developed to define the location and extent to which we need to protect land for biodiversity. The aim is to protect habitats using existing legislation amended as required to reflect best practice. The extent of the regime will ensure coverage of a significant, representative proportion of the island's semi-natural habitats, and where possible, connective habitat corridors through an appropriate designation regime.

Over the next five years we will continue to protect our most important areas for wildlife. This will be achieved by bringing abandoned areas back into management, expanding our protected area network, and ensuring that habitat corridors provide good connections across the Island.

6.3.5. Access Strategy

Recreational opportunities are an important societal need, and informal opportunities in the countryside include, walking, running, climbing, fishing and a host of other popular pastimes. The Countryside Access Strategy has been published in July 2016. The strategy has been informed by extensive stakeholder engagement with the many different users of the access network. The remarkable response to this process shows how much Islanders value and care about getting out into the open air and making the most of our environment in many different ways.

The strategy has identified 4 priority areas of work to support the vision of safe, sustainable and cost effective access to Jersey's coast and countryside with minimal impact on biodiversity.

The Department of the Environment will be investing additional financial and staff resources into delivering a set of short, medium and long-term actions to promote better engagement and cooperative working. They will be identifying the barriers that prevent people from enjoying and visiting the countryside and seeking to remove these. There will be improved interpretation and awareness and the provision of a network that has greater provision for a broader range of users and that is safe and resilient into the future. This will benefit our wildlife populations and the health and wellbeing of Jersey society.

6.3.6. Continue and strengthen plant biosecurity measures and public awareness of risk

The Plant Health Laboratory and Agricultural Inspectorate provide an advisory and statutory plant health service, including surveys for a wide range of regulated organisms. The level of biosecurity threat, particularly to trees, has



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risen markedly in the last decade with numerous pests and diseases moving through Europe creating extensive damage in some areas. Education regarding the risks of importing biological material is more critical than ever and the Plant Health team will continue to raise the profile of biosecurity and the need for industry and the public to behave responsibly, with regard to import of plant-based materials.