

Dear reader,

Probably very few people in Europe know that on 9 May 1950 the first move was made towards the creation of what is now known as the European Union. Today, the 9th of May has become a European symbol (Europe Day) which, identifies the political entity of the European Union. Europe Day is the occasion for activities and festivities that bring Europe closer to its citizens and people of the Union closer to one another. Every country organizes activities around this date. This year the Netherlands opened doors for its citizens to show projects where Europe's money is spent. In the province of Fryslân Mr. S.H. Galema, member of the provincial board, opened a demo site with showcases of the European projects where the province of Fryslân is involved in. Of course Cradle to Cradle Islands project was part of this demo site. Mr. Galema emphasizes the ambition to make Europe a dynamic knowledge and innovation economy. Innovation is the key to future economic stability, high employment and social wellbeing. The European Commission stimulates European regions to work together. Learn from each

other's approach and gain more understanding of each situation and cultural background. Mr. Galema is well disposed towards the Cradle to Cradle Islands project. The close cooperation between partners in the clusters energy/mobility, water and materials has strengthened the transnational partnership resulting in the start of lots of new projects. In this last phase of the project the focus will be on the implementation of these projects and showcases. A new web portal [www.wisle.org](http://www.wisle.org) is prepared for exchange the results and good practices all over the world. Soon this will be launched as an interactive tool to inspire people. The team of Cradle to Cradle Island is looking forward to making the last year of C2CIslands a great success together with you.



Mr. S.H. Galema  
Member of the provincial  
board of Fryslân

## C2CIslands partner meeting on the Islands Föhr and Amrum

In the first week of April 2011, almost 60 participants met on the Waddenislands, Föhr and Amrum, for the fifth Cradle to Cradle Islands partners meeting. A highlight of the first meeting day was a presentation by Professor Michael Braungart (EPEA Institute), where he encouraged the participants to keep going 'step by step' into the 'new industrial revolution' of the Cradle to Cradle® philosophy. Partners learnt about new developments in the common working clusters, water, energy and materials, and the aims of the extension

projects on Roosevelt Island in New York and Varjakka in Finland. Participants had the opportunity to learn more about water and energy management on the Island on a study tour around Föhr, as well as cultural visit to the 'West coast art collection', which comprises Danish, German, Dutch and Norwegian art from 1830 to 1930.

On the second meeting day, participants travelled by boat through the World Nature Heritage Waddensea to the Island Amrum. The study tour included the beautiful beach 'Kniepsand', Frisian history on grave stones and modern tourism developments on Amrum Island. The group also learnt about the status of 'Climate friendly tourism', a pilot project from 'Insel- und Halligkonferenz' and the approach of 'Virtual World of Gaming' by Grendal Games. Partners commented how they were surprised by the differences between Amrum and Föhr.



The Cradle to Cradle Islands project works towards a clean and healthy future for the islands in the North Sea region through the implementation of innovations based on the Cradle to Cradle® concept.



WATER



ENERGY



MATERIALS



Back on the island of Föhr, the participants discussed the Afterlife of the Cradle to Cradle Islands project. The meeting closed with a Frisian dinner, historic dances, bonmouts about the island people and a speech from Heidi Braun (Head Officer Föhr-Amrum). Overall, the meeting was informative, useful and enjoyable.



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## Seminar on Cradle to Cradle®-inspired building technologies

In March 2011, Runde Environmental Centre (REC) organised a seminar about new building technologies inspired by Cradle to Cradle® thinking. Under the title 'Passive house – Active house – Eco house', REC invited architects, building companies and local authorities to discuss innovations jointly and in a practical context. Within the framework of new building

regulations in Norway which have the primary focus on energy conservation, the seminar's goal was to extend the discussion to a broader arena (e.g. material use). The event was rated highly successful by the 25 participants and fortunately the first follow-up actions were seen after a day of inspiring dialogue.

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## Storvågan Environmental Centre

The Storvågan AS, the Municipality of Vågan, the Regional government of Nordland and the Ministry of local government and regional development started a project together. The aim of the project is to give a new standard of sustainable building methods according to the Cradle to Cradle® standards. It also includes a new energy supply from Tidal Power/Morild Technology and an increased use of clean energy for transportation. The standard will be implanted in the concept of ecotourism and sustainable use of fragile natural resources, landscape and cultural recourses of the island. Co-partners in the project are Hydra Tidal and Norwegian Energy Company.

### Project development

The first part of the project is completed by the report 'The Lofoten Fisheries Heritage Centre'. It will be

followed up by the main project, planned to start in September 2011, which is divided into three phases.

In phase 1, 2011- 2012, the description and planning of needs regarding to the area, buildings and infrastructure, and financing of the necessary investments will be made. The costs are estimated on NOK 4,5 mill. for the partners.

In phase 2, 2011- 2013, new partners will be sought within tourism, fisheries and culture. The project site will undergo regulation and preparation, and a new infrastructure will be established. In this phase the costs for the partners are: NOK 4,5 mill.

In phase 3, 2013- 2015, the new heritage centre will be built. The costs for the partners are: NOK 3,0 mill.

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## Cradle to Cradle ideas making waves back in time

Recently, Runde Environmental Centre was contacted by a local social scientist and activist who suggested joining forces to research Cradle to Cradle-practices on the island of Runde in the past. As a consequence of the remote location and lack of transport to and from the island, many aspects of life on Runde some 50-100 years ago bore the features of Cradle to Cradle-thinking, for instance the 'no-waste' strategy, where materials were often used repeatedly in perpetuated cycles.

Much of this traditional knowledge and many of the associated stories are on the verge of being lost as they exist only as a memory of the oldest people in the communities. Runde Environmental Centre is now searching for funding so that these stories can be collected systematically and the historical aspects of a Cradle to Cradle-life style may be linked to a new expression in modern times.

## Shetland Wave and Tidal Resource

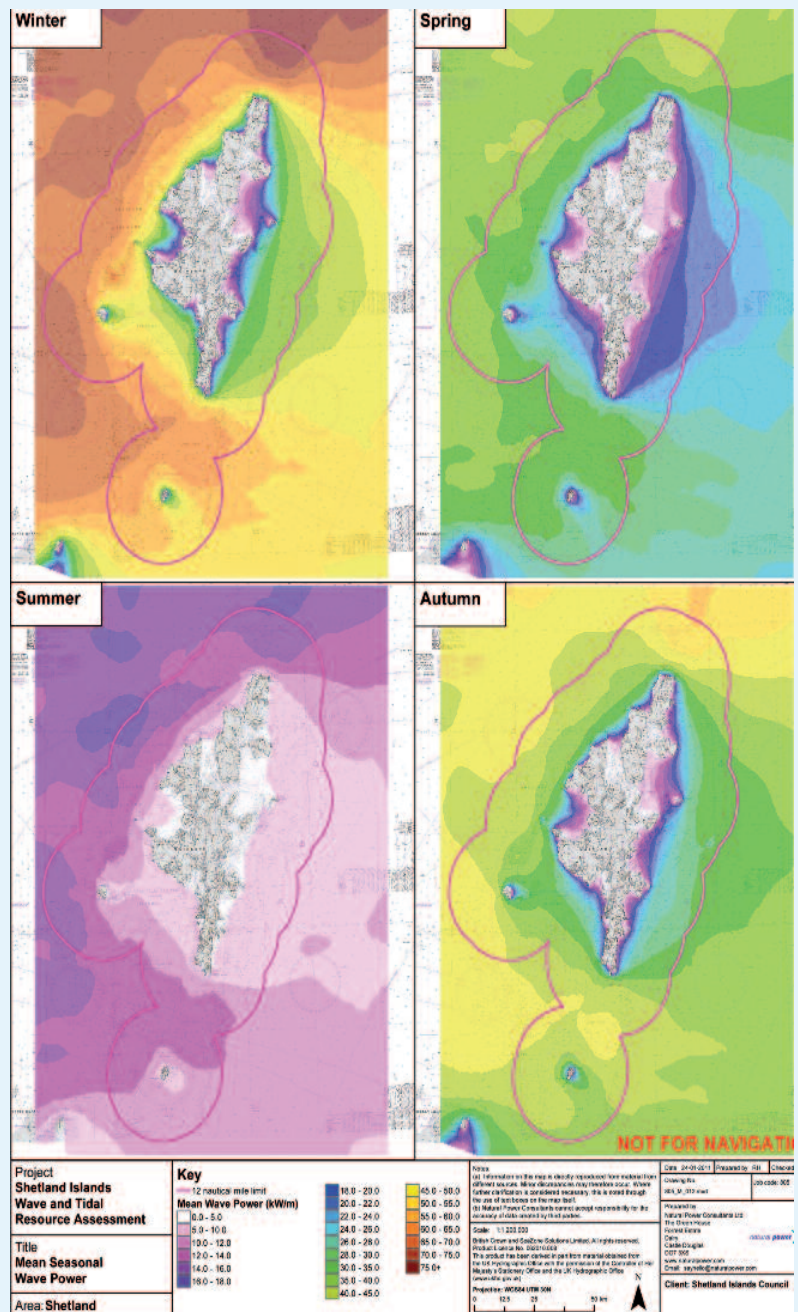
Shetland Islands Council recently completed a study of the wave and tidal resources around Shetland, collating existing knowledge of water movements around Shetland into a concise report. The study sought to map the best areas of wave and tidal energy, consequently raising awareness of Shetland's marine energy resources and assisting developers in potential site selection. The study will sit within the Shetland Marine Spatial Plan document, allowing potential developers to relate the resource hotspots with other marine activity and environmental data. Developers will then be able to make an informed decision on whether to take forward further site investigations.

The study was undertaken by the marine renewables team of consultants Natural Power Ltd. The very latest computer modeling techniques were used on data collected from a wide range of sources including, UK Hydrographic Office, UK Met Office, marine buoy data, seabed surveys, fishing vessel data, port authority data, oil and gas surveys and the Shetland Islands Council. A mathematical model was used to produce computer predictions of wave and tidal resource around Shetland. The wave energy resources were modeled to a resolution of 500m squares and the tidal data in Yell Sound and Bluemull Sound at a 50m square resolution. A series of maps are now available displaying the output of the model, which clearly indicate the seasonal variance in wave energy and variance in tidal flow through channels and around headlands.

The results of the study were presented at the 'All Energy Conference and Exhibition' held in Aberdeen

during May 2011. Since the event, several interested developers have been in touch, wanting to find out more about Shetland's marine resources and investigate potential opportunities to develop marine

renewables in Shetland waters. The study highlighted several areas of tidal flow that we intend to conduct further data collection on that will provide verification of the model.





## Innovation Centre Spiekeroog. The “Pay-per-Lux” model A Cradle to Cradle® business model

This project showcases how the vision of C2C Islands, to implement Cradle to Cradle® solutions in the fields of energy, water and materials on the islands, leads to innovative business models. The “Pay-per-Lux” is the development of an innovative solution in the field of energy and materials, applying the Cradle to Cradle® principle of Products for Service. The project draws inspiration from The “Pay-per-Lux” pilot at RAU Architects, Amsterdam.

The Cradle to Cradle® concept of Braungart & McDonough divides products into Products for Consumption in the Biological Cycle and Products for Service in the Technical Cycle (see Fig. 1).

Based on this concept, Thomas Rau, an architect based in Amsterdam, developed the idea of a Cradle to Cradle® Office. The ambition was to acquire as many Cradle to Cradle® products (Steelcase, Desso, Mosa, Satino), as Products for Service, as possible. The products are provided by the companies for a defined period of use as service without actually selling the products. Resultantly, the companies remain owners of the materials contained in the products.

In this context, the company Philips Lighting, which had already been working with EPEA for some time, developed the “Pay-per-Lux” model – primarily for the RAU office pilot project.

The aim was to develop a visionary partnership with economically interesting perspectives from both sides. Philips Lighting maintained ownership of the materials with the assumption that the recycling costs would be paid out of material value increase over time, and RAU would pay only for the use of the lights rather than buying the products from Philips Lighting (“Performance Lease®”). Since the Pay-per-Lux model has been installed at RAU Architects, the office is no longer paying the energy bill for the lighting, as this is covered by Philips Lighting as part of a 5-year-service-contract. Thus Philips Lighting is encouraged to constantly improve the effectiveness and efficiency of their lights since future energy savings directly benefit them. The costs for RAU are less than € 0.01 per lux used, and when the lights are out, there are no costs!

*photo: © Hartmut Brings, Spiekeroog*



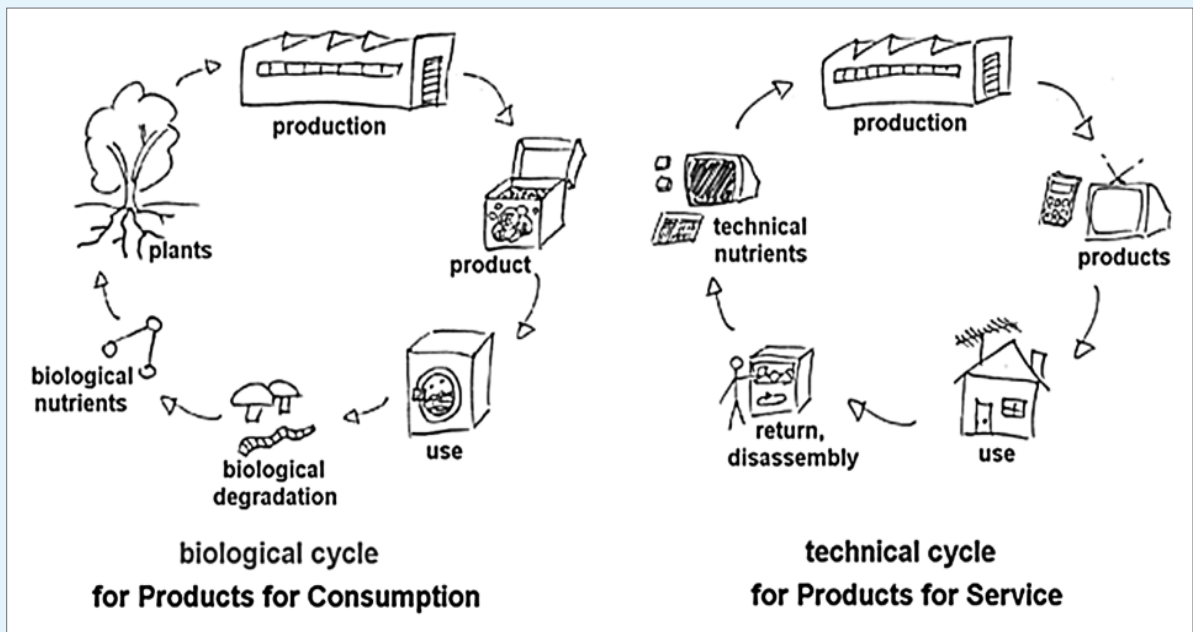


Figure 1. Products for Consumption in the Biological Cycle and Products of Service in the Technical Cycle

## Cradle to Cradle books

### Inspired by Cradle to Cradle®

It can be ordered as a hardcopy or downloaded from [www.frannythonhauser.nl/images/2011-april-hiteq.pdf](http://www.frannythonhauser.nl/images/2011-april-hiteq.pdf).

### About the book

The publication describes international education cases and cases from industry, such as carpet manufacturer Desso and waste management services, Van Gansewinkel. It contains examples of the Cradle to Cradle® approach at all levels of education, examples of a curriculum in primary education and information about jobs for students.

### Duurzaam Gebouwd/Cradle to Cradle Criteria for the built environment

It can be ordered as hardcopy or downloadable PDF from <http://www.duurzaamgebouwd.nl/bookstore>.

### About the book

Extensive books, cover stories and documentary films have been published and broadcasted about Cradle to Cradle® (C2C) since the 1990s and translated into at

least a dozen languages. However, many planners are not yet familiar with how to integrate C2C features into the built environment, as beneficial materials. The purpose of this booklet is to provide planners with guiding criteria for developing a building with measurable C2C features. The criteria focuses on maximizing beneficial impacts instead of just minimizing negative ones. A valuable publication for all professionals with a desire to work with C2C in the built environment.



## C2C Islands as innovation centers for sustainable and Cradle to Cradle® solutions

Spiekeroog, Texel and Ameland – three islands planning to modernise their public lighting with LED-solutions in the coming period - were inspired by the Pay-per-Lux model. Together with Catharena van Zyl from EPEA, Birgit Schade (Spiekeroog), Bert Dennenberg (Texel) and Jester Nynke Schoustra (Ameland), the islands started discussing the possibility of applying this model to the C2C Islands at the partner meeting on Samsø in Denmark in October 2010. In March 2011, the first meeting between Texel, EPEA and Philips Lighting took place in Amersfoort, and in April, Philips Lighting visited Spiekeroog. Most of the streetlights are about 45 years old and use fluorescent tubes which are due to be replaced within the next few years. At the meeting with Philips Lighting and EPEA, the Mayor of Spiekeroog, Bernd Fiegenheim and Ansgar Ohmes, the managing director of the Nordseebad Spiekeroog GmbH, agreed to start with a pilot project at the harbour of Spiekeroog.

The criteria for this lighting project are:

- To install the most energy-efficient LED-technology with a guaranteed take-back and actual recycling of the lamps by Philips Lighting,
- The lamps must be designed for optimal recovery of materials and the safe handling of toxic substances in

production, use and recovery phases must be secured.

- Furthermore, Spiekeroog has requested that the lamps would be updated regularly when more efficient lamps are available on the market (approx. every 5 years).

The Municipality of Spiekeroog considers the implementation of innovative and sustainable public lighting as a great opportunity to set an example and inspire the many tourists who visit the island and also stimulate other governments and organisations. When implemented, this Service Product business case will be the first installed for outdoor lighting worldwide. Spiekeroog – an innovation centre for Cradle to Cradle® solutions!



## Varjakka

In Varjakka, there is and has been a lot going on during the spring and summer of 2011.

Varjakka started planning enlargement of the harbor, placing emphasis on the Cradle to Cradle® concept as much as possible, which is scheduled to be finished in early autumn. The future will show our success. Once the harbour is completed, plans will commence on developing a holiday house zone which will adopt Cradle to Cradle® thinking.

Plans were completed for a history and nature trail, which will undergo construction from August. The trail will use locally sourced materials, such as wood. Nature trail workers will visit schools to educate about nature and history. In the next phase, sustainable development and Cradle to Cradle issues are possible topics.

Work started on the renovation of cultural heritage buildings. The first renovation will be finished by the summer of 2012. Wood will be used for heat, wind energy will possibly be used for energy, and dry compost will be used in the toilets.

## News in brief

In November 2010 the Lund University organized a study tour to the 'bright Green Island' Bornholm, Denmark, as part of a wider study on sustainable development on islands around the world.

EPEA organized the Cradle to Cradle Festival in Berlin, Germany from January 26 to March 16, 2011. This festival attracted over 6000 international guests and visitors, and the C2CI project was represented in the exhibition.

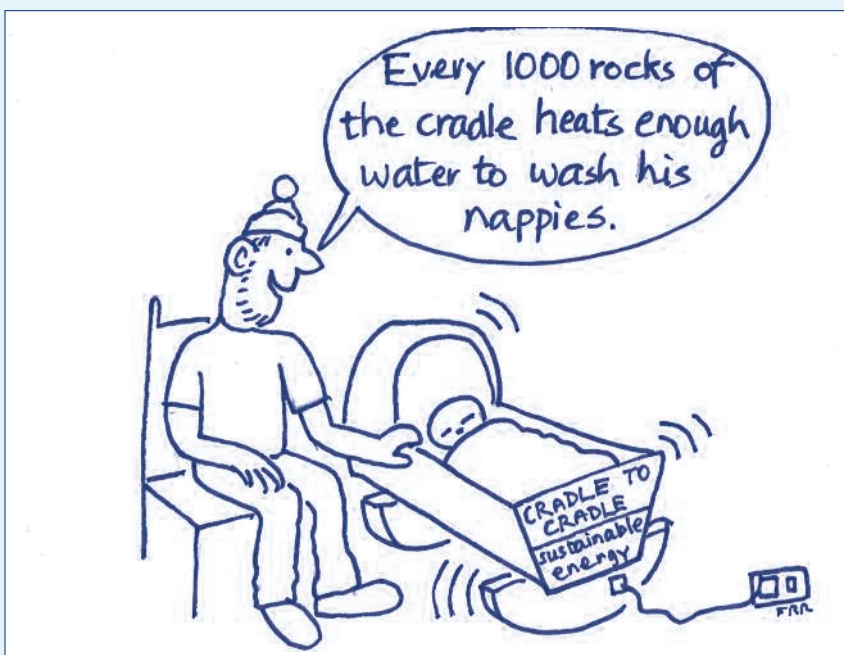
The Municipality of Spiekeroog became a shareholder of the regional energy-provider Friesenenergie GmbH on the mainland. Another knowledge exchange and link exists to the institutions administration of the biosphere reserve Niedersächsisches Wattenmeer, City of Oldenburg and Carl von Ossietzky University of Oldenburg.

The Pure Energy® Centre discussed the roadmap for Shetland Transport with the Shetland Renewable Energy Forum (SREF). Substantial amount of feedbacks have been received on this roadmap and adjustments will be made during this period.

The Municipality of Spiekeroog coordinated the cooperation of German project partners and the contents for a presentation on the Cradle to Cradle Islands project an Interreg IVB brochure of the Federal Ministry of Traffic, titled 'Beispielhaft! – Projekte zur transnationalen Zusammenarbeit in Europa' (English translation: 'Examples: Projects for transnational cooperation in Europe'). The brochure is published in the whole federal area.

The report on Distributed Treasures-Island Economies was completed by the Lund University, including the Cradle to Cradle® concept, in addition to case studies of different islands around the world. The report has gained international recognition and will serve as input into further research on the applicability of the Cradle to Cradle® concept and related concepts.

IRRI, EPEA, Aalborg University and the province of Fryslân are working together with the Dutch company Grendel Games to design a Cradle to Cradle game. The game is fun to use and will educate on the Cradle to Cradle® concept. The game will be presented at the final meeting in 2012.



The German island Spiekeroog just opened a Cradle to Cradle exhibit which will run until the beginning of September 2011 and welcomes all visitors to the island to come and see it. The exhibit is also available for other partners, who want to host it on their island.



The Pure Energy® Centre met with the fishing industry to propose the use of fish in a biogas plant. The initial discussions show that the fishing industry is currently not ready for such an initiative and is investing in food processing to use the waste fish.

Aalborg University participated in a conference titled "Knowledge collaboration & learning for sustainable innovation" on 25-29 October 2010 in Delft, the Netherlands. A presentation was given on "Local food on Runde as part as Cradle to Cradle® thinking".

Maria Palm has left the municipality of Tjörn and therefore also our project, for a new job. Ida Mattfolk will join C2CI as new project leader for Tjörn.

Han Brezet of Delft University of Technology, and Simon Tijsma of the province of Fryslân travelled to New York to meet the partners of Urban Answers from 10- 16 June 2011. They discussed participation in a workshop in Fryslân next Autumn. This Summer, Koen Kegel, also of Delft University of Technology, is in New York to prepare the workshop.

In Autumn 2012, the Municipality Texel will replace 60 sculptures on the port of Oudeschild. The new light fittings have low-energy lamps and will also provide shade. With the Cradle to Cradle® concept in mind the materials of the new light fittings are recyclable. The project takes place in association with EPEA.

"A student from the Delft University of Technology is currently designing a Cradle to Cradle® picnic set for Ameland as part of his degree. The set will be locally produced, used and disposed. Another part of his work will be a blueprint for local Cradle to Cradle design that can be used by all the partners of the C2CI project."

Julia Model, a student from HZ University of Applied Sciences, researched the effect of artificial objects (in this case floating buildings) to enhance the biodiversity in the Lake Grevelingen, as part of the marina project. The research question was inspired by the Cradle to Cradle® principle 'Celebrate Life'. Her final report is presented in July 2011.

The Cradle to Cradle Islands project: a partnership of 12 islands and 12 other organisations (government bodies, educational, environmental and water organisations) cooperating for a healthy and clean future for islands in the North Sea Region.

The partnership: (NL) Provincie Fryslân (Lead Partner), Delft University of Technology, Wetsus, Vitens, Ameland, Texel, Wetterskip Fryslân, HZ University of Applied Sciences; (UK) PURE Energy Centre, Shetland Islands Council, IRRi; (G)

Spiekeroog, Insel- und Halligkonferenz, OOWV; EPEA Internationale Umweltforschung GmbH; (DK) Aalborg University, Samsø Energiakademi, Norddjurs; (SE) Lund University/Ven en Tjörn; (N) Runde Environmental Centre and Storvågan Environmental Centre.

Would you like to know more or want to contribute to the project? Visit our website or contact us.

- Website: [www.c2cislands.org](http://www.c2cislands.org)
- Contact: [info@c2cislands.org](mailto:info@c2cislands.org)

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EPEA

The Interreg IVB North Sea Region Programme



provinsje fryslân  
provincie fryslân



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