

May 2014



A third on-going year for IDEALG, holding a number of advanced projects, discoveries and technological developments...



We are operational towards the forthcoming issues by providing support to the regional Breizh'Alg program and to the European Strategic Plan for Aquaculture. Our research and innovation projects are ready to invest in European calls for aquaculture and H2020 Blue Growth.
(P. Potin, Scientific Coordinator of IDEALG)

Saccharina latissima : a model species for IDEALG

Molecular markers of genetic diversity (MicroSattelites) have been developed for population studies of *S. latissima*. Such tools will support work undertaken on the evolution of *S. latissima* populations through space and time with a specific focus on natural populations growing next to aquaculture areas. The main aim will be to assess the potential impact of cultured species on natural genetic diversity...an approach without precedent ! Optimisation of on-line culture techniques of *S. latissima*, by studying for instance the effect of density sowing on productivity, is in progress. Improved strategies are also under progress regarding trait selection (texture, chemical properties...). Such approaches required the preparation of a collection of genotypes, which has now reached more than 200 individuals, in collaboration between C-Weed aquaculture, Bezhin Rosko and the Roscoff Marine Station. The question of sequencing *S. latissima* is only a matter of time : an international project is in the pipelines !



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Bacteria extracted from the gut of Abalones : an Army to degrade Seaweed compounds.

The aim of studying such bacteria is to explore the enzymatic production potential of these organisms, able to transform complex chemical compounds into digestible and often bio-active compounds. France Haliotis, a company specialised in breeding Abalones, and the Roscoff Marine Station, have deployed an experiment involving more than 200 abalones fed with 9 different seaweed diets over one year. The main goal would be to finger out preferential seaweeds and those implied in gaining weight. Furthermore, the effect of diets on bacterial and enzyme diversity within the gut micro-flora will also be studied...conclusive results are on the way !

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Seaweed in the Food sector : a case study in France

How to develop the seaweed food market in France is one main question addressed by the AgroCampus of Rennes. In 2013, a first national survey involving more than 800 people gave preliminary indicators on the seaweed consumption in France (see presentation). Complementary studies based on a series of group discussions with seaweed consumers and non-consumers are in progress. Such approaches give more detailed information on the consumption behaviour and have already triggered several new areas of study on how to promote seaweed in the food industry.

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Breaking news !

Molecule characterisation : new results

Metabolic and enzymatic screening of samples from seaweed and bacterial extracts are ongoing activities within IDEALG. A phloroglucinol-synthase from brown algae has recently been identified. Moreover, the production and structure elucidation of a Mannitol des-hydrogenase have been achieved.

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Workflow4Metabo is available !

A first tool for automatic GC-MS / LC-MS data processing. Developed by the Roscoff Marine Station and in partnership with other analytical regional platforms. Currently with restricted access ([link](#)), future users please contact: Erwan.corre@sb-roscoff.fr , Sophie.goulitquer@sb-roscoff.fr

Natural populations are monitored

IDEALG takes part in the management plan of exploited natural populations of Kelps at sea (IFREMER). On-land harvesting is, on the other hand, not under official management and harvesters seek advice for sustainable practices. The Roscoff Marine Station provides this information and is currently working in tight collaboration with harvesters in order to quantify the available resource et study the harvesting impact...[read more \(in French\)](#).

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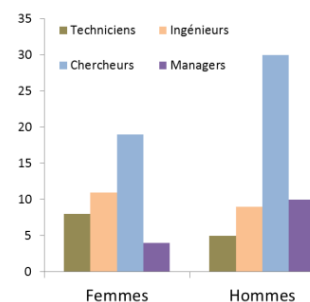
An International Advisory Board

A selection of scientific experts throughout Europe have been invited to provide advice on undergoing tasks and strategic choices within IDEALG. From left to right : Jeanine OLSEN (University of Groningen, NL), Audun SANDBERG (University of Nordland, No), Isabelle GOLDRINGER (INRA Moulon, Fr), Simon McQUEEN-MASON (University of York, UK), Melody CLARK (British Antarctic Survey, UK).



The gender dimension: a good start!

103 people are registered partners within IDEALG: A good gender balance with, nevertheless , a slight predominance of men on research scientist and manager positions. Since 2011, 30 people have been recruited on 1 to 3 year contracts : 16 women and 14 men.



- *Temporal variation in organic matter supply in kelp forests: linking structure to trophic functioning.* Leclerc et al. (2013). MEPS.
- *Trophic significance of kelps in kelp communities in Brittany (France) inferred from isotopic comparisons.* Leclerc et al. (2013). Marine Biology.
- *A metabolic approach to study algal-bacterial interactions in changing environments.* Dittami et al. (2014). Molecular Ecology.
- *Structure/Function Analysis of a Type III Polyketide Synthase in the Brown Alga Ectocarpus siliculosus Reveals a Biochemical Pathway in Phlorotannin Monomer Biosynthesis.* Meslet-Cladière et al. (2013). The Plant Cell
- *The β -Glucanase ZgLamA from Zobellia galactanivorans Evolved a Bent Active Site Adapted for Efficient Degradation of Algal Laminarin.* Labourel et al. (2014) J Biol Chem.
- *RT-qPCR Normalization Genes in the Red Alga Chondrus crispus.* Kowalczyk et al. (2014) PLoS One.
- *Mannitol metabolism in brown algae involves a new phosphatase family.* Groisillier et al. (2014) J Exp Bot.

1 Invention disclosure statement on the production of brown algae mutants (January 2014, CNRS-Bezhin-Rosko)

1 Soleau Cover on the triggering of maturity for *Saccharina latissima* (2014, ALEOR)

2 Patents on the production of sulfated Oligo-galactans (April 2014, CNRS)

Public outreach, support and forthcoming events....



July 2013 : IDEALG at the International Phycology Congress (IPC-2013) in Orlando, USA. Presentation of the Chondrus Génome (Jonas Collén) organisation of a Workshop on *Saccharina latissima* (Mark Cock – Myriam Valero).



Oct. 2013 : Annual IDEALG Forum, open to the public, gathered more than 80 participants at the Roscoff Marine Station. An event supported by the Cluster 'Pole Mer Bretagne', CBB développement, University of Bretagne Occidentale and Investir en Finistère. Presentation of major results and two round-tables on « Ressources » et « Biotechnologies ». [Report \(in french\)](#).



Nov. 2013 : Philippe Potin at the 4th BioMarine Convention in Halifax. IDEALG supports blue biotechs. [Final report](#).



IDEALG represented in the Breizh'Alg Comity , a regional program for seaweed aquaculture.

March 2014 : IDEALG intervention at the 'Journées de l'Algue' in Rennes. Quentin Lebras (Agrocampus Ouest) et Monique Ras (UEB-SBR) took part in a round table exchanging on Seaweed as an alternative for sustainable food...[read more](#).



IDEALG supports the French Phycology Society (SPF).



April 2014 : Philippe Potin invited in South Korea and China...

Two weeks visiting the extensive cultures of *Pyropia*, *Undaria pinnatifida* and *Saccharina japonica*. An opportunity to create scientific interactions on similar problematics shared between France and Asia. This visit was triggered by the Seaweed International Symposium which was held on the 16-20th of April on the Island of Wando, and by the Seaweed International Expo-2014.



ALGOLIFE project approved by the Pole Mer Bretagne Atlantique will be seeking scientific expertise from IDEALG



June 2014 : IDEALG presented at the British Phycology Society in Galway. A focus on the Seaweed Industry in France and the near future perspectives with current developing projects...



Save the date !

Octobre 15th 2014

Annual IDEALG-Forum will take place at the [SeaTech Week](#) in Brest



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