



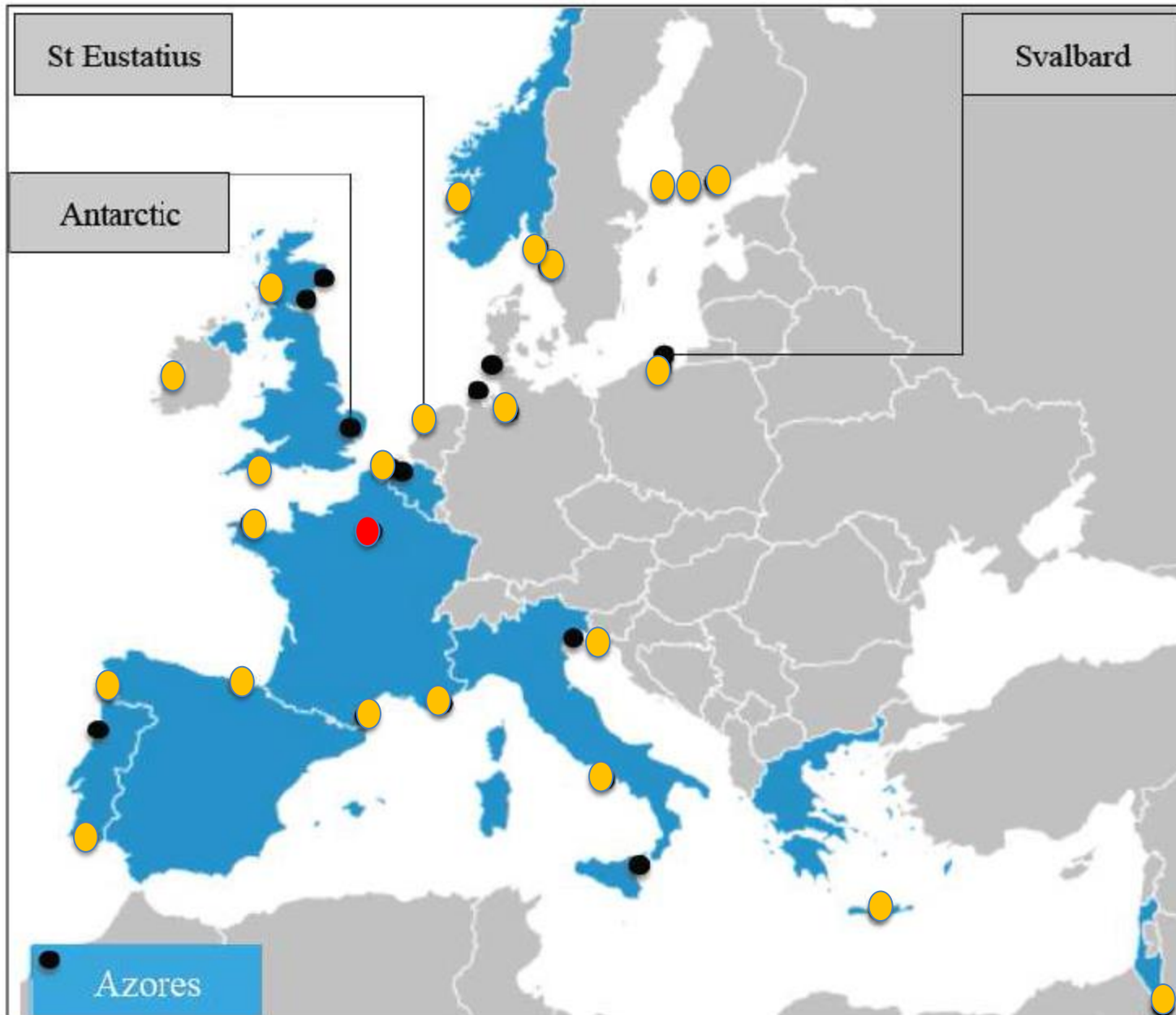
ASSEMBLE-PLUS

NA4.- Long-term sustainability of Marine Biological Stations

Ibon Cancio

(ibon.cancio@ehu.eus)

PARTNERS TO ASSEMBLE+ NA4 on SUSTAINABILITY



Partners & persons month

UPV/EHU: 18

UPMC: 6

MBA: 2

NIB: 1

NIOZ: 1

UH: 1

IOPAN: 1

NUIG: 1

UGOT: 1

HCMR: 1

HUJI: 1

SZN: 1

UiB: 1

CCMAR: 1

SAMS: 1

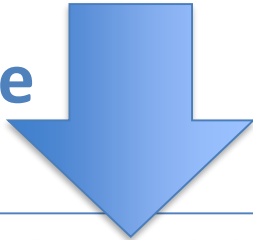
UG: 1

AWI: 1

VLIZ: 1

WHAT IS SUSTAINABILITY OF RIs FOR THE EUROPEAN COMMISSION

We were asked



Consultation on Long Term sustainability of Research Infrastructures

Fields marked with * are mandatory.

1. Introduction

The political guidelines[1] of the European Commission present an ambitious agenda for jobs, growth, fairness and democratic change, adapting EU's economy and society to the digital age, establishing an Energy Union and developing a forward looking climate change policy. While recalling the EU strong research base and the role that it can play in implementing this agenda, President Juncker stressed the need for improving Research Infrastructures (RI) and making better use of research results as "essential to strengthen innovation further, develop new activities and boost the productivity and competitiveness of our economy"[2].



Report on the Consultation on Long Term Sustainability of Research Infrastructures

May 2016



We have a report & a Commission Staff working document



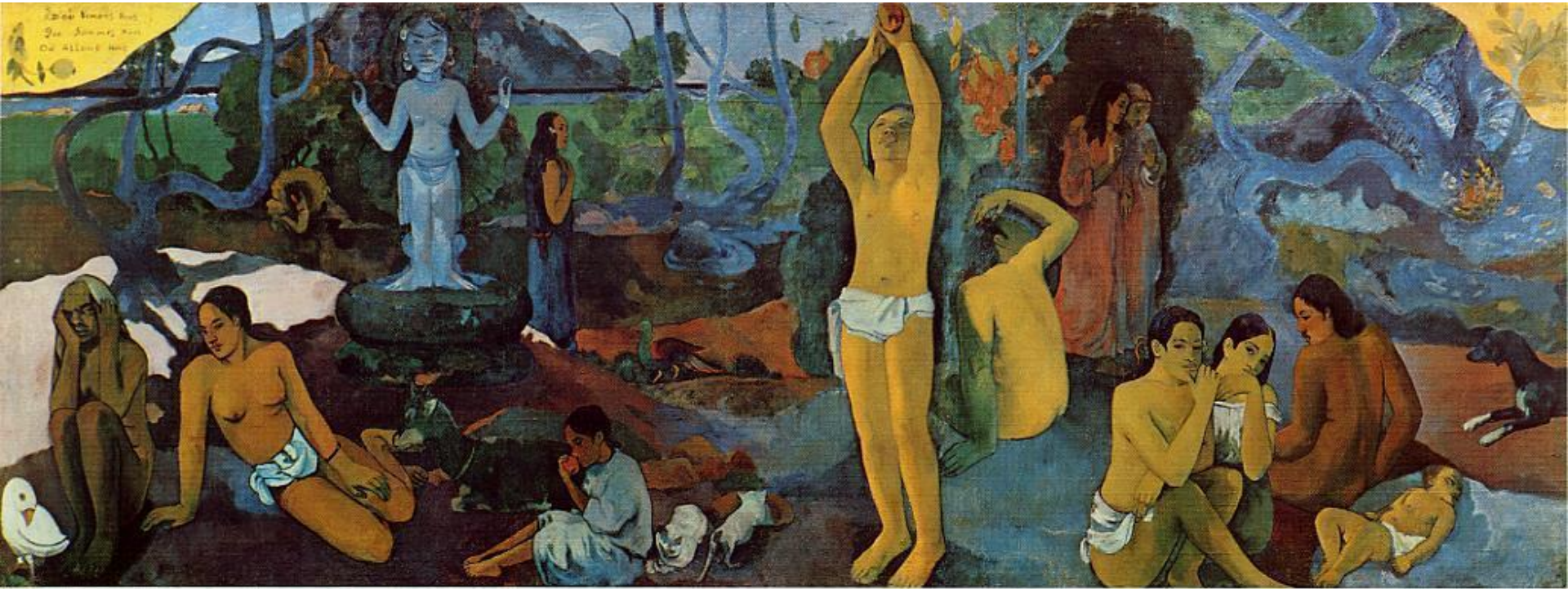
SUSTAINABILITY of RIs IN H2020 PROPOSALS is like **TEENAGE SEX**:

Everyone talks about it, nobody knows how to do it, everyone thinks everyone else is doing it & so everyone claims they are doing it

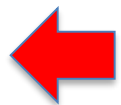


SUSTAINABILITY IN THE ASSEMBLE+ CONTEXT

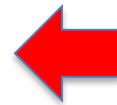
Gauguin & the 3 Agustinian questions



.- Where are we
going?



.- What are we?



.- Where do we
come from?

NA4.- OBJECTIVES

- Analyze the past/present scientific, technological & social performance of MBSs

PAST



- Analyze the business models of MBSs Infrastructures & projection into the future.

PRESENT



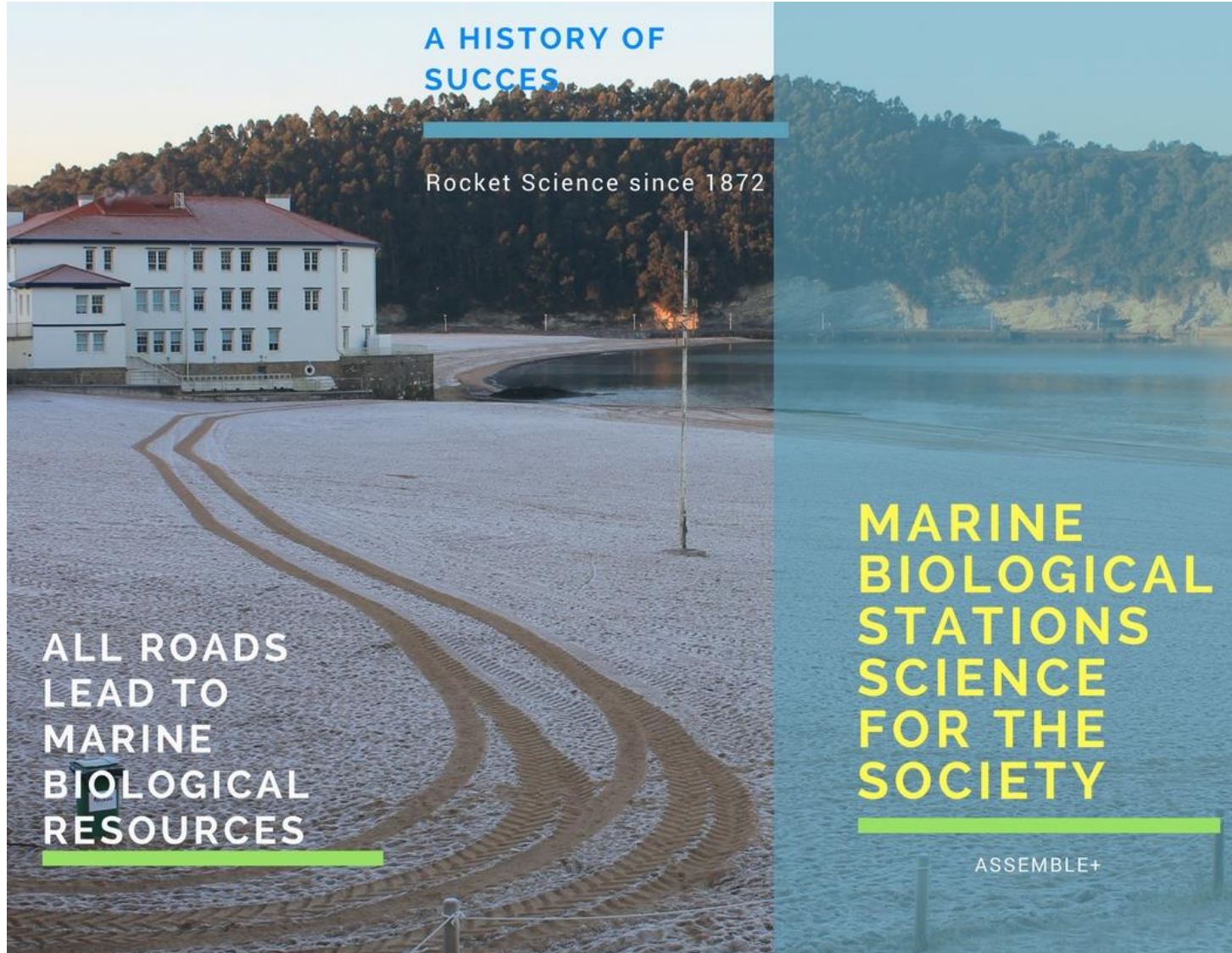
- Negotiate & secure funding streams beyond the H2020 framework.

FUTURE



Task NA4.1 Historical background & socioeconomic impact of MBSs projecting forward their sustainable future

Leader: EHU, Partner: UPMC, MBA



A HISTORY OF
SUCCES

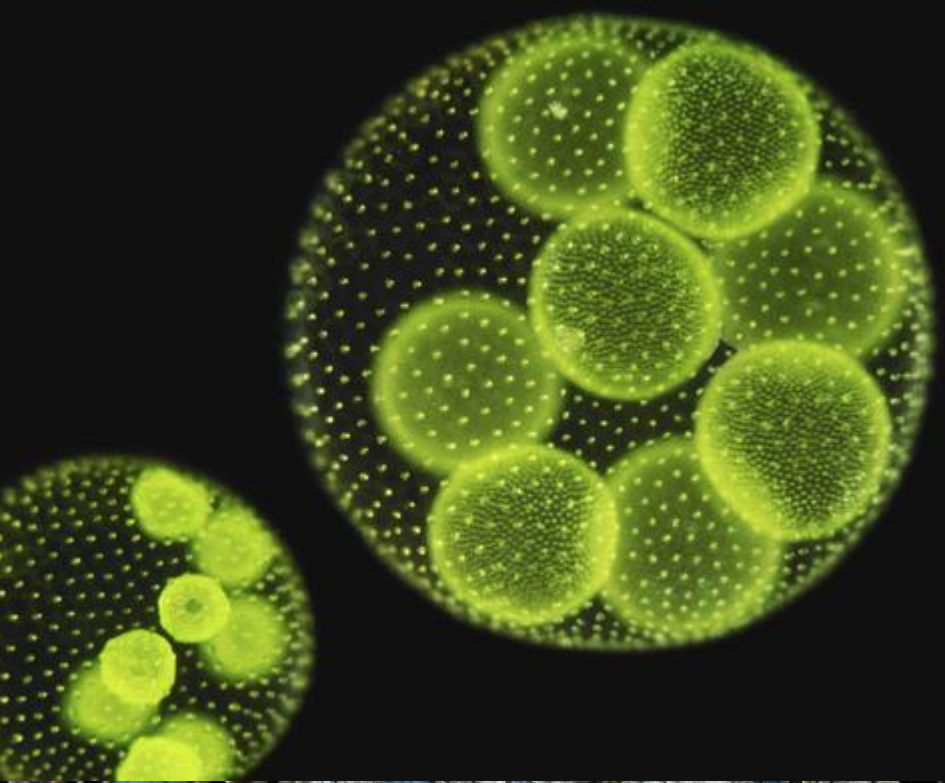
Rocket Science since 1872

ALL ROADS
LEAD TO
MARINE
BIOLOGICAL
RESOURCES

MARINE
BIOLOGICAL
STATIONS
SCIENCE
FOR THE
SOCIETY

ASSEMBLE+

COFFE
TABLE
BOOK



COFFE TABLE BOOK with nice “tales” on history, rocket science, training...with pictures...!!

1827

Deuxième Année, N° 92.

UN NUMERO : 25 CENTIMES.

Samedi 19 Novembre 1927.

Imprimerie Centrale

A BOUCHERY

47, rue St. Sébastien,
OSTENDE.

Tél. 601 — Tél. 603

Travaux de luxe et de
labour. — Editions.
Reproduction de plans.

Compte-Chèques postaux, 18460

JOURNAL DE LA CÔTE

OSTENDE Les plages du Littoral BRUGES

BI-HEBDOMADAIRE

RÉDACTION ADMINISTRATION : 47, Rue Saint Sébastien, 47 :: OSTENDE

TÉLÉPHONES : Rédaction 1312 - Administration 623

ABONNEMENT :

pour 1928 :

1 an fr. 25.00

On s'abonne au bureau du
journal et dans tous les
bureaux de poste.

L'Institut Maritime d'Ostende

Les travaux seront réalisés méthodiquement par tranches successives. L'Institut d'Etudes Maritimes d'Ostende dont nous avons parlé à plusieurs reprises est une institution très importante et très complexe pour qu'on puisse songer à lui donner en peu d'années son développement complet, et c'est pourquoi sa réalisation doit être et sera progressive.

Cependant l'étude de plan d'ensemble de l'édifice et des installations prof. Gibson, dans lequel l'eau tombe en pluie sur une masse de sable qu'elle traverse rapidement de haut en bas. L'action de ces filtres est très remarquable: sans être stérilisante, elle est étonnamment bactéricide. Cette dernière action paraît due à une suractivité de l'oxygène par suite de l'énorme amplification de la surface de contact de l'eau traversant la masse de sable avec l'air qui circule entre les grains. A titre d'expérience on établit

sa base est constituée par la Section Belge de l'Expédition internationale de la Mer, avec son organisation, son matériel, ses documents, ses contacts avec les centres étrangers, ses multiples collaborateurs, sa connexion avec le Conseil international de Copenhague, son personnel spécialisé, ses relations avec les universités et les musées, et enfin ses résultats déjà obtenus et ses travaux en cours. Fondé à

La collaboration du Travail et du Capital

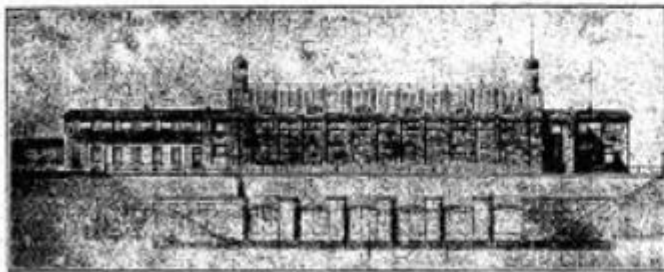
Nous croyons utile de revenir sur la conférence donnée le 25 octobre à la Chambre de Commerce et qui avait pour sujet la collaboration du travail et du capital.

Il est indispensable, en présence des conditions adverses que des agents désintéressés non seulement de l'ordre social mais du travail même, s'efforcent d'implanter dans les milieux sociaux, que tout ce qui touche à l'industrie et au commerce, employeurs et employés, s'efforcent par leur action de faire que leurs efforts soient le plus possible efficaces.

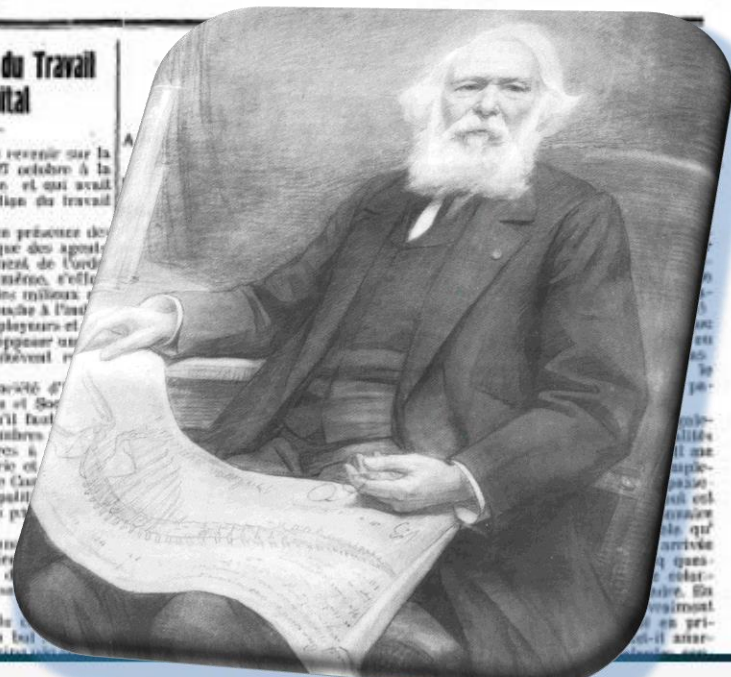
Le rôle de la Société d'Etudes Politiques, Economiques et Sociales est d'abord de faire connaître, que c'est aux Chambres de Commerce, organisations libres à l'initiative de l'industrie et du commerce. Les Chambres de Commerce ne s'occupent pas de la prospérité du pays, elles s'occupent de la prospérité de leur pays.

Il faut que le patronat ait la patience de laisser à l'initiative de l'industrie et du commerce l'initiative de leur pays.

On s'est si bien rendu compte de l'initiative de leur pays.



L'INSTITUT DE LA MER.



An article from 'Journal de la Côte' of 19 November 1927 informs coast dwellers of the new marine scientific institute "Zeewetenschappelijk Instituut" or "Institut Maritime" in Ostend. © Journal



Stazione Zoologica Anton Dohrn Napoli



1872

Aug 24
Bonn.
Brockhaus, West.

My dear Sir
Very many thanks for your kind
& pleasant letter. - I heartily
rejoice at the success of
your great Naples undertaking;
& I fully believe that you
have thus done a great
service to science. I
shall be proud & pleased to
send to your Library, whenever
you desire it, a complete set
of my books. - [...]

With very good wishes,
Believe me
My dear Sir
Yours very truly
Ch. Darwin



**Anton Dohrn payed
the construction of
the building & used
the bench admission
fees to finance
research projects**

*“I heartily rejoice at the
success of your great
Naples undertaking & I
fully believe that you
have thus done a great
service to science”*

Darwin dixit:

Task NA4.1 Historical background & socioeconomic impact of MBSs projecting forward their sustainable future

CHAPTER III

The Founding and Early History of the Marine Biological Laboratory



I. EARLY STRUGGLES: 1886–97

THE first step in the foundation of the Marine Biological Laboratory was taken by the Woman's Education Association in accordance with their decision to replace the Annisquam Laboratory by an independent and permanent institution, as mentioned in the last chapter. In 1886 the Association addressed a circular letter to many of the leading biologists of the country and, receiving favorable replies, issued an invitation to a preliminary meeting on March 5, 1887, at the Boston Society of Natural History. This meeting, attended by twenty-two persons, including representatives of the Woman's Education Association and of the Boston Society of Natural History and professors from Harvard University, the Massachusetts Institute of Technology, and Williams College, with singular unanimity and vigor started the movement on its way to success.

A committee of twelve members was appointed by the meeting "to perfect plans for the organization of a permanent sea-side laboratory, to elect trustees and to devise ways and means for collecting the necessary funds." The committee promptly decided that the new laboratory should combine research and instruction, and they appointed seven trustees. An appeal for funds was issued, and a course of lectures on natural history was arranged for the winter of 1887–88. Mr. Charles B. Cory wrote and supervised an original operetta from which a considerable sum was realized, and an additional appeal in the spring of 1888 brought funds of an amount sufficient for a modest beginning. Accordingly, the laboratory was incorporated in March, 1888, in the commonwealth of Massachusetts under the name of the "Marine Biological Laboratory" (III, A, 1; A, 2). The following officers of the corporation were chosen, and Professor Alpheus Hyatt was elected the first president and Miss Anna D. Phillips the first secretary:

THE FOUNDING AND EARLY HISTORY

35

TRUSTEES

WILLIAM G. FARLOW
EDWARD G. GARDINER
ALPHEUS HYATT

SUSAN MINNS
CHARLES S. MINOT
WILLIAM T. SEDGWICK

SAMUEL WELLS

TREASURER

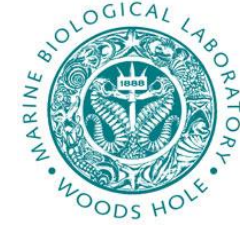
WILLIAM STANFORD STEVENS

CLERK

ANNA D. PHILLIPS

The sum actually raised by these efforts amounted to about \$10,000. The subscriptions from eighty-three contributors, including \$800 from the Woman's Education Association, amounted to \$7,909.50; the lectures brought in \$1,485.61, the operetta \$431.50, and Mrs. H. D. Wilmarth contributed \$100 for the library-to-be. The financial beginnings were small; but faith and hope were high and broadly based in the Massachusetts community, to whom the founding of the Marine Biological Laboratory is to be exclusively credited.

Woods Hole was quickly selected as the site; a piece of land, 78 × 120 feet, was purchased in close proximity to the fisheries station; Professor C. O. Whitman was appointed the first director; and B. H. Van Vleck, instructor. It was decided to begin construction at once and to open the Laboratory in the summer of 1888. A frame-shingled building, 63 × 28 feet, was quickly erected and equipped and was opened for work on July 17, 1888. The Woman's Education Association presented the glassware, boats, furniture, fixtures, and apparatus of the Annisquam Laboratory. The first announcement was not sent out until some time in June (III, A, 3), and the attendance at the first session of the Laboratory was accordingly small—seven investigators and eight students. in addition to the director and instructor.





Tim Hunt

2001



Tim Hunt

Born: 19 February 1943, Neston, United Kingdom

Affiliation at the time of the award: Imperial Cancer Research Fund, London, United Kingdom

Prize motivation: "for their discoveries of key regulators of the cell cycle"

Field: cell physiology, molecular biology



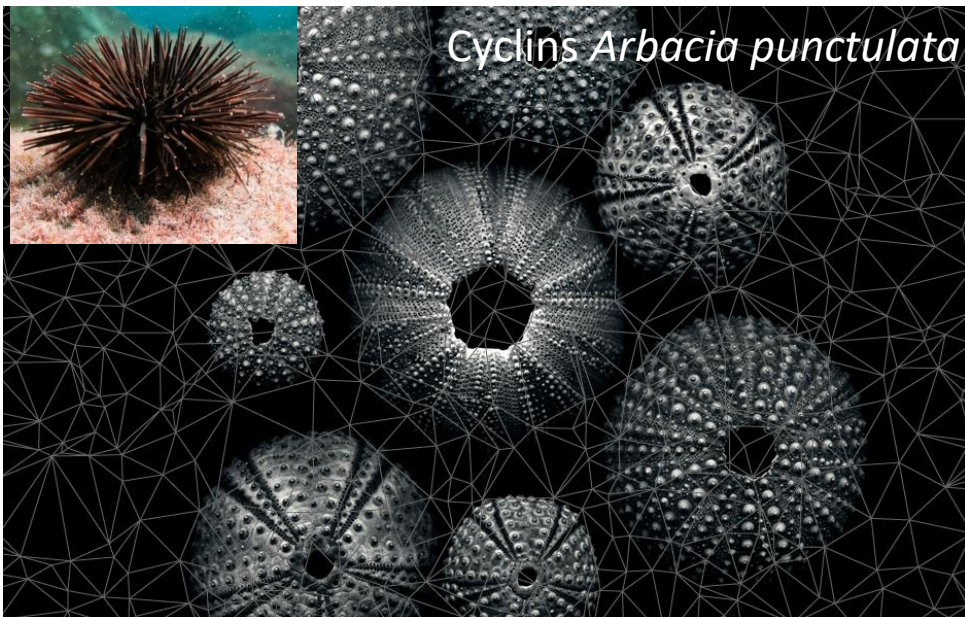
The Discovery of Cyclin (I)

Tim Hunt

Cancer Research UK
Clare Hall Laboratories
South Mimms
Herts EN6 3LD
United Kingdom

We invited Tom Humphreys to Cambridge in 1976, for an EMBO workshop on translational control; Tom worked on protein synthesis in sea urchin eggs. I lent him my yellow bicycle (in those days, you couldn't rent bikes in Cambridge) and we became friends. Tom was director of the Embryology Course at the Marine Biological Laboratory (MBL), Woods Hole, and asked if I would like to teach there next summer. I was thrilled; ever since I heard Henry Borsook talk about it in 1965, I had wanted to study protein synthesis in sea urchin eggs, impossible in land-locked Cambridge. So with some trepidation, and knowing no embryology, I went to teach at the MBL in June 1977 and started to learn how to work with sea urchin eggs. Howy Jacobs came as my assistant. The course was extremely well set up for looking at early embryos, but almost completely lacking in equipment for molecular biology. No gel tanks, no Eppendorf tubes, no liquid nitrogen, no -80° freezers. It was an enjoyable summer, and I learned a lot about sea urchin eggs and their fertilization, but no serious molecular experiments were done.

I returned to teach at the MBL in 1979, and this time could be more productive, being better prepared. I packed my suitcase full of Eppendorf tubes and tips from home, even a peristaltic pump and crucially, gel tanks, plates, combs, and silicone rubber gaskets. In those days, too, one could travel on planes with a polystyrene bucket full of dry ice and rabbit reticulocyte lysate; the agricultural inspectors were perfectly comfortable with rabbit blood. Ed Southern had the lab next



STRAWMAN of THE BOOK

Published by the Basque Univ. Press (prioritise control on diffusion)



1.- **HISTORY OF MBSs**, access to biological diversity on site, **organizational issues** and institutional changes (association to Universities, public, private...), the link public aquarium research institution:

2.- **MARINE BIOLOGY RESEARCH**, MBRs: fundamental research in biological/medical sciences

- .- MBSs the cradle of embryology, rediscovery of genetics, modern microscopy
- .- Fisheries & aquaculture
- .- Environmental biological-observatories
- .- Marine Biotechnology
- .- Rocket Science in the frontiers of biological research
- .- The last frontier in bioprospection and biodiscovery

Access to MBSs for the scientific community of users

3.- **TEACHING & OUTREACH, SCIENCE DISEMINATION, CITIZEN SCIENCE**

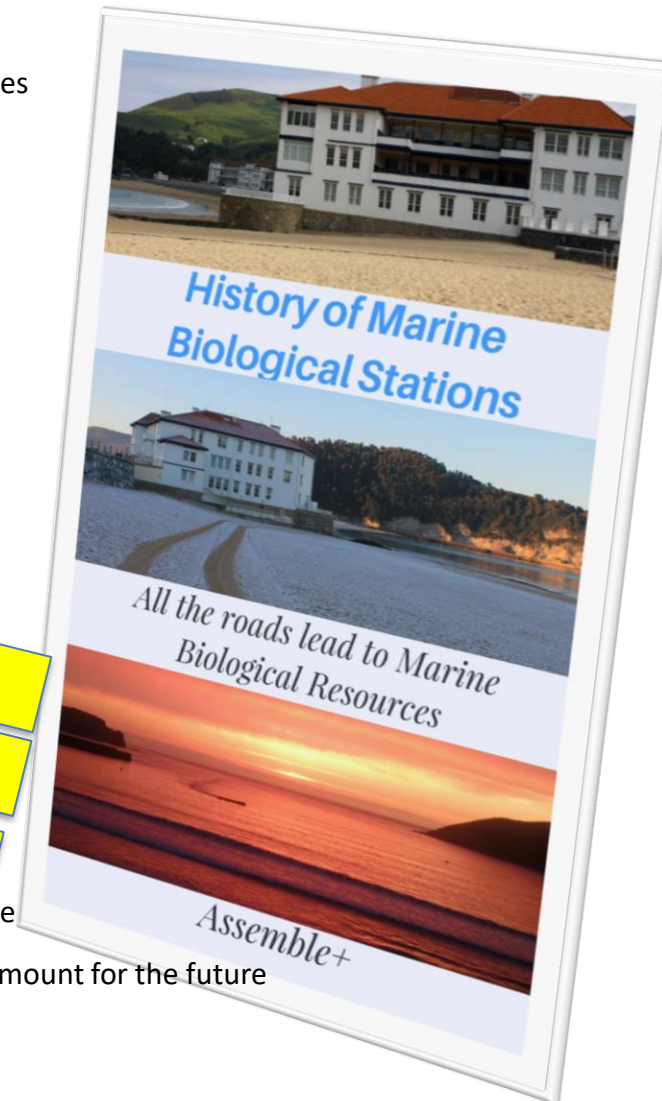
4.- **SHOWCASING MBSs IN EUROPE**

- .- Roscoff,Villafranche sur Mer, Banyuls sur mer
- .- SZN
- .- MBA and SAMS
- .- VLIZ
- .- IUI Eilat
- .- Newly created stations: PiE-UPV/EHU and ECIMAT
- .- ...

5.- **SOCIO/ECONOMIC IMPACT OF MBSs EMBEDDED IN SMALL COMMUNITIES**

6.- **ASSOCIATIONS OF MBSs** (forming of community): NAML, MARS and WAMS, Euromarine

7.- **EVOLVING MBSs IN THE XXist CENTURY**: Redefining the concept for MBSs, EMBRC paramount for the future



Task 2 - Mid- & long-term sustainability of MBSs

(Lead: UPMC, Partners: EHU, NIB, NIOZ, UH, IOPAN, NUI, GU, HCMR, HUJI, SZN, UiB, CCMAR, SAMS, UGOT, MBA, AWI, VLIZ)

1.- **SWOT analysis** on MBSs' mission & strategic plan (Adapted to current strategic research environment?). Missions compared against the topic description in this INFRAIA call. **Workshop (M 8), internal audit on (dis)advantages, opportunities & threats**, and plan for a thorough analysis of business plans.



Workshop, May 2018



2.- How are MBSs performing today (**present**), and what are their prospects (**future**)?
Internal analysis to be streamlined through periodic questionnaires:

- 1-Organizational structure;
- 2-Products, programs and services;
- 3-Funding streams;
- 4-Customer and Market analysis;
- 5-Marketing;
- 6-Competitors;
- 7-Performance & metrics for evaluation (KPIs).



A **benchmarking analysis** with an external audit (subcontracted) for a **non-biased conclusion** (M30).

PRESENT

INFRAIA-1-2016-2017

Call topic

Marine biological stations. This activity aims at improving & further integrating access to a wide range of marine biology & ecology resources for research, including: marine biodiversity & associated historical time-series data; culture collections of marine biological resources; marine model organisms, including specific genetic resources; up-to-date equipment for biological research (“omics”); and rare & unique facilities for experimental biology and ecology. It should also stimulate knowledge & technology transfer to industry & to public policy-makers. Synergies with relevant ESFRI Infrastructures, in particular EMBRC, should be duly exploited.

USERS

In house or external ACADEMIA, SCIENTISTS, INDUSTRY, SMEs...
(Public-private funds, competitive research calls)

ACCESS

OUTCOME

**MARINE
BIOLOGICAL
STATIONS**

Curiosity-driven excellent
Science

BENEFITS

BLUE GROWTH
ECONOMY, JOBS
COHESION
BENEFIT SHARING

H2020

National Funds

Regions

Industry

Structural Funds
Investment Funds

KNOWLEDGE
TECHNOLOGY
TRANSFER

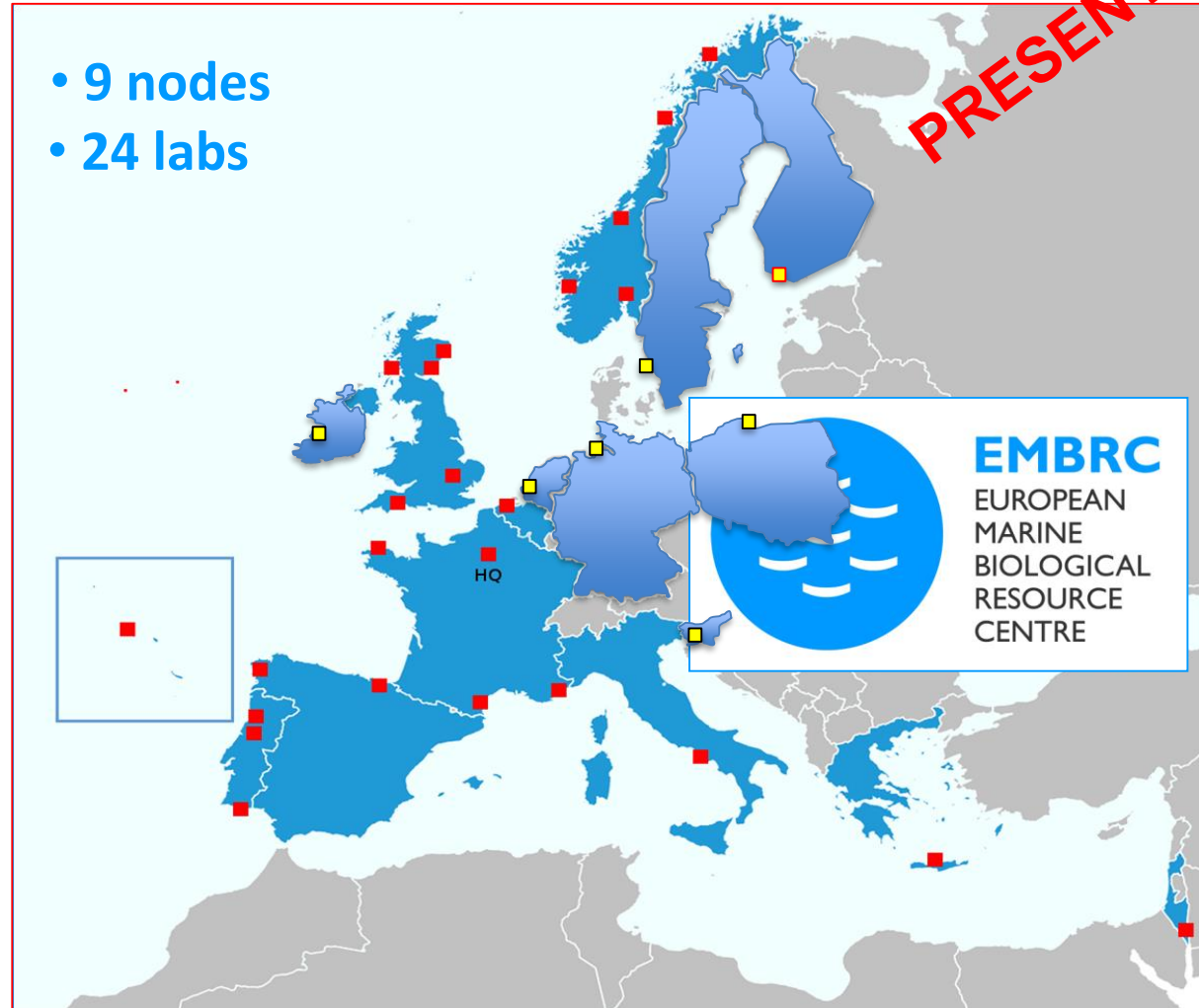
Task 2 - Mid- & long-term sustainability of MBSs

(Lead: UPMC, Partners: EHU, NIB, NIOZ, UH, IOPAN, NUI, GU, HCMR, HUJI, SZN, UIB, CCMAR, SAMS, UGOT, MBA, AWI, VLIZ)

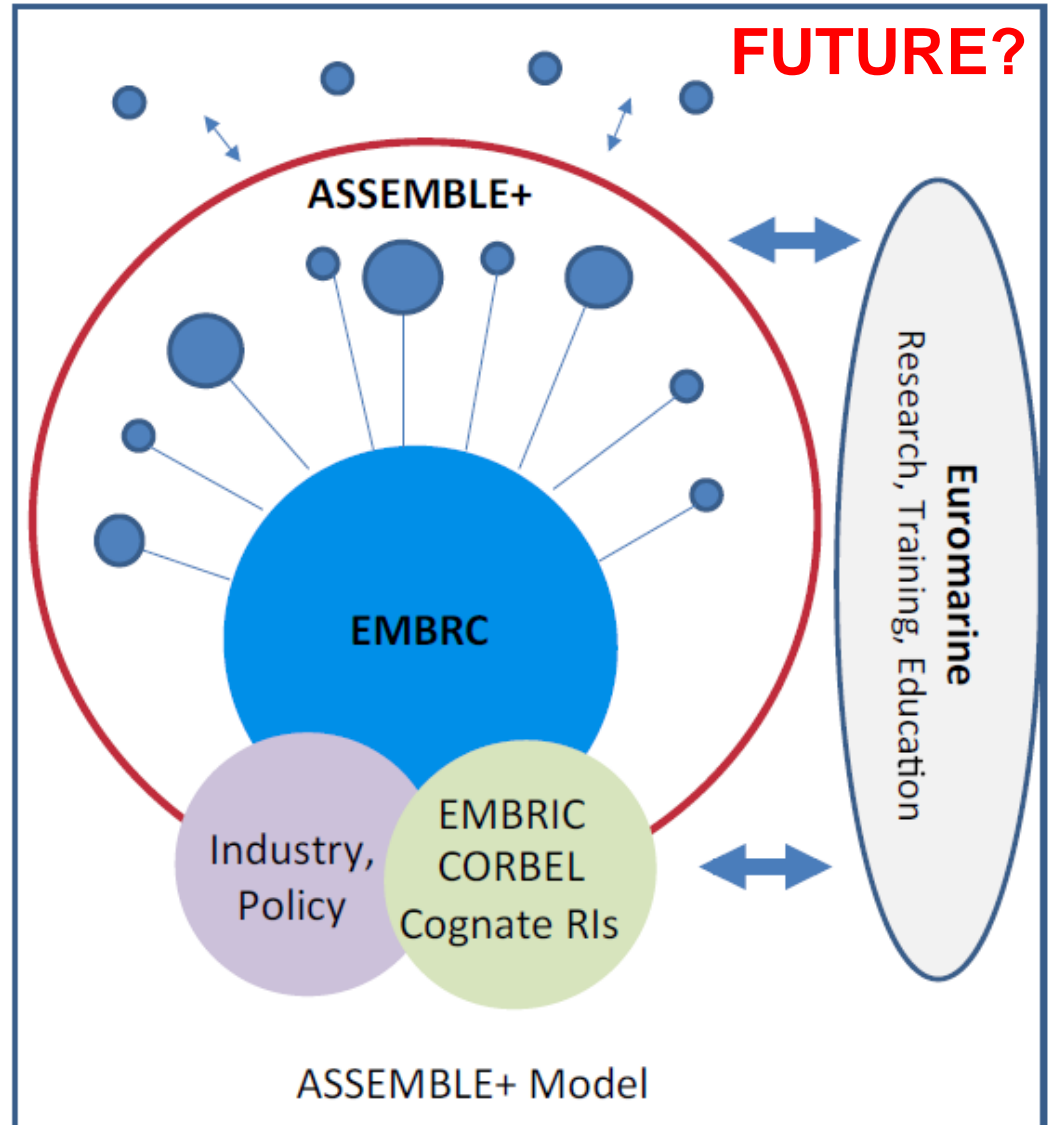
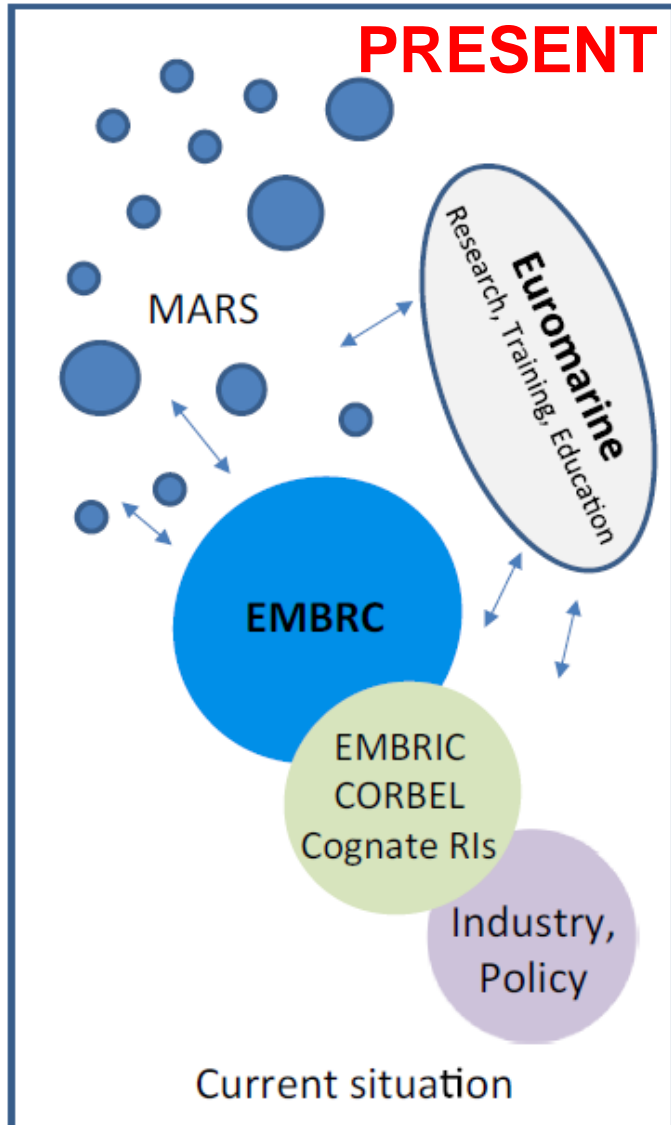
A realistic **business plan** for the “ecosystem of mature European MBSs, including **EMBRC**”, will be shaped for the future with a **common set of tested KPIs** to monitor performance.



A **conference (M27)** of the ASSEMBLE+ community (MBSs directors + national/regional stakeholders) hosting integration of new countries into EMBRC (**EMBRC+**).



THE BUILT COMMUNITY OF MARINE BIOLOGICAL STATIONS



Task 3 – Negotiation with scientific & financial stakeholders towards sustainability of MBSs post H2020

(Leader: EHU, Partner: UPMC)

MISSIONS

- .- MBSs will establish **bilateral negotiations** with **regions & nations** using tools & support (back-up of the community) provided for those negotiations.
- .- **Funds securing MISSIONS** to visit relevant stakeholders & influence RI funding policy: Science Ministry of France (EMBRC-HQs), DG-Mare, DG-Enviro, DG-Research, DG-Regio, JPI-Oceans...
- .- A **brokerage event** (M45), **with stakeholders** to discuss RI (EMBRC & others) operation funding, & design of a concerted funding scheme.

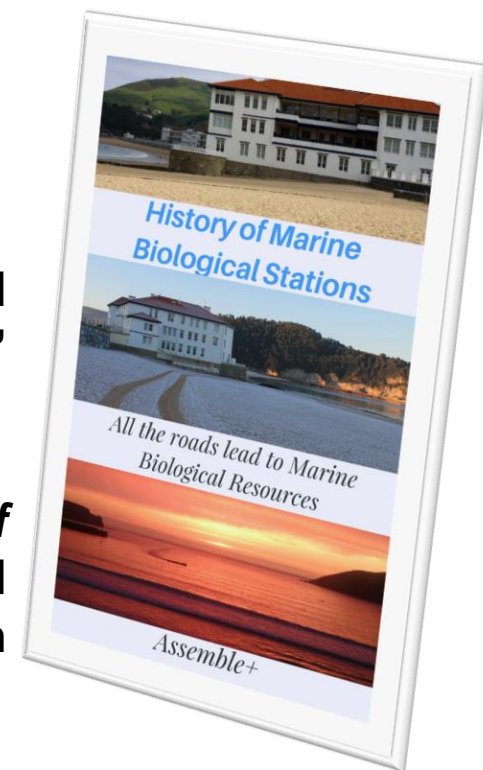


Deliverables NA4

NA4.D1.- Outreach book “**History of Marine Biological Stations: contributions to Science and Social Challenges**” (month 24).

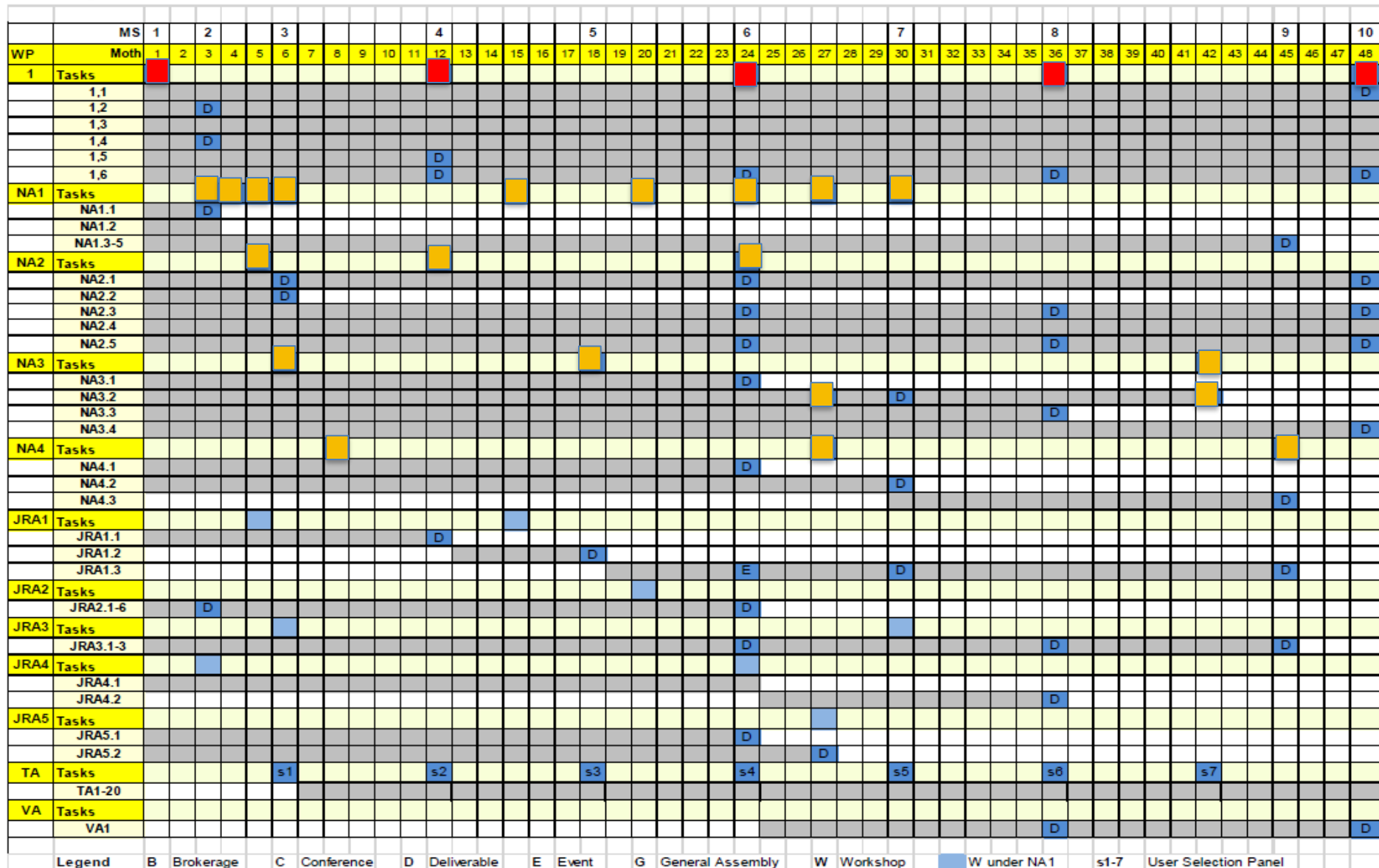
NA4.D2.- A realistic “**Business plan for an ecosystem of mature European Marine Biological Stations**” with a tested model of KPIs to monitor performance into the future (month 30).

NA4.D3.- Framework agreement to ensure provision of funding sources & due mechanism to fund **EMBRC+** into the next budget cycle/framework program (month 48).





3.1.2. Timing of the different work packages and their components (GANTT chart)



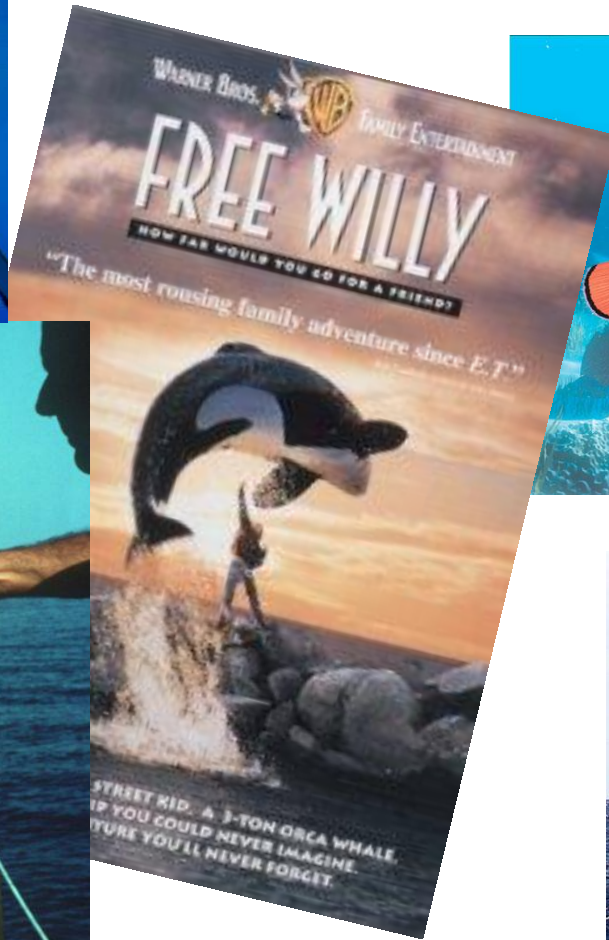
 General assembly  Workshop, conference or brokerage event



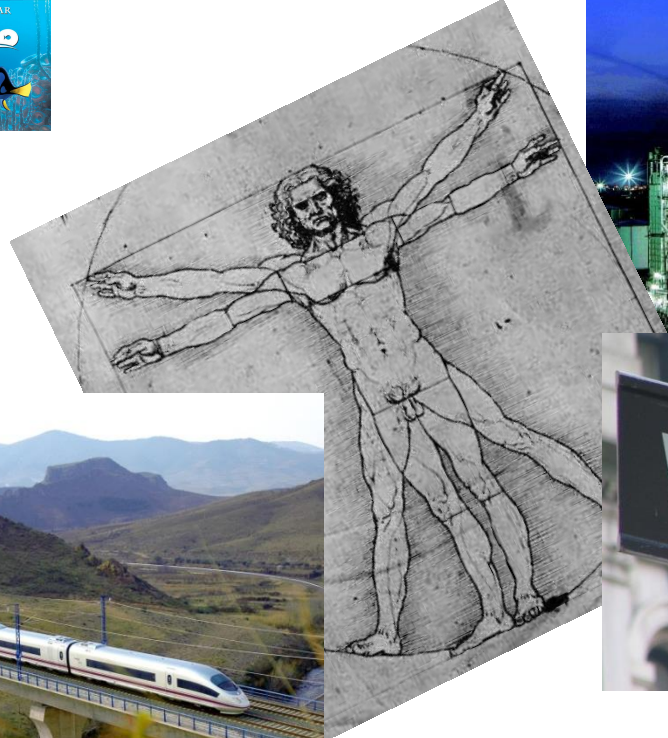
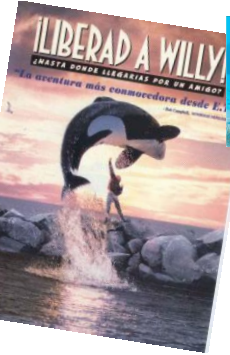
**Marine Biological
Stations (the seashore
boys & girls) for the
future**



The Study of Marine Ecosystems and Resources might seem something heroic, cute and sweet...!!



The Study of Marine Ecosystems and Resources might seem something heroic cute and cuddly...!!

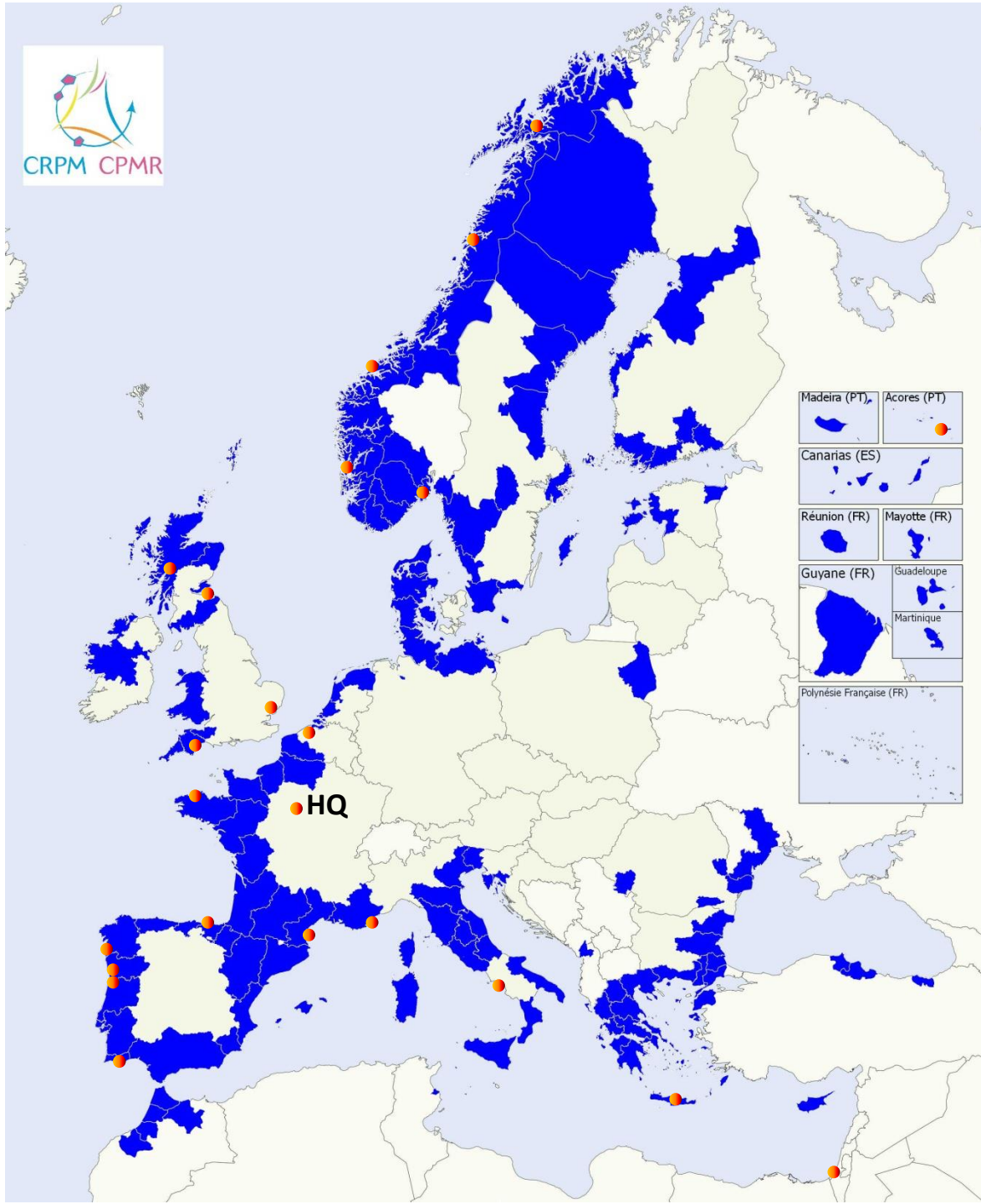


...cute!! But the real important things are somewhere else, aren't they?

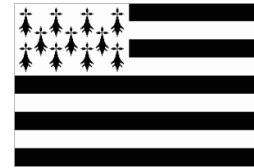


Task 1 – Establish a common collaborative framework with regional stakeholders

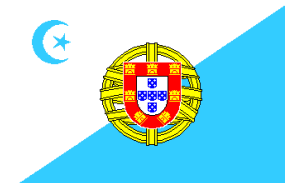
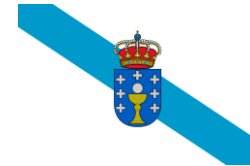
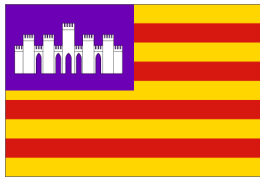
Conference of Peripheral Maritime Regions



Signature of a MoU



EMBRC
EUROPEAN
MARINE
BIOLOGICAL
RESOURCE
CENTRE



Workshop “RIs for the development of the sustainable exploitation of Marine Biological Resources & Blue Biotech in the European Regions”



Bring together representatives from the “**Biotech & Marine Bioresources Regions: researchers, industry and public authorities**” (month 9). Representatives of National Governments invited as observers.



Issues to be addressed:

- Presentation of EMBRC-ERIC
- Marine Biological Resources and Blue Biotechnologies in the Regions
- EMBRC & EMBRC-hosting Regions: how to benefit each other?
- Access to EMBRC for the other Regions.
- ESI funds (ERDF, CF, EMFF)
- Regional bioresearch clusters

.- Task 2.- Mapping of the regions that have highlighted blue biotechnologies in their smart specialisation strategies

Smart Specialisation Strategy (S3) is an approach to economic development through **targeted support** to Research & Innovation (R&I).

It will be the basis for **ESI Fund** interventions in R&I as part of the **Regional & Cohesion Policy's** contribution to the **Europe 2020 jobs and growth agenda**.

S3 involves developing a vision, identifying competitive advantage, setting strategic priorities and making use of smart policies to **maximise the knowledge-based development potential of any region**.






History of Marine Biological Stations



All the roads lead to Marine Biological Resources



Assemble+

 The Nobel Prize in Physiology or Medicine 2001
Leland H. Hartwell, Tim Hunt, Sir Paul Nurse

Tim Hunt 2001



Tim Hunt


Born: 19 February 1943, Neston, United Kingdom

Affiliation at the time of the award: Imperial Cancer Research Fund, London, United Kingdom

Prize motivation: "for their discoveries of key regulators of the cell cycle"

Field: cell physiology, molecular biology



 The Nobel Prize in Chemistry 2004
Aaron Ciechanover, Avram Hershko, Irwin Rose

Avram Hershko 2004



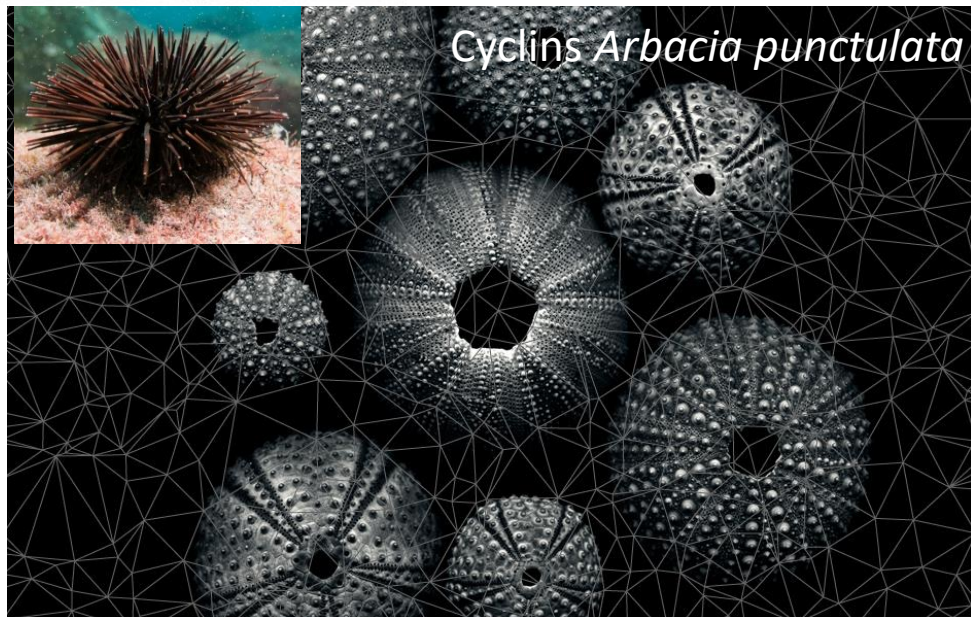
Avram Hershko

Born: 31 December 1937, Karcag, Hungary

Affiliation at the time of the award: Technion - Israel Institute of Technology, Haifa, Israel

Prize motivation: "for the discovery of ubiquitin-mediated protein degradation"

Field: biochemistry



Ubiquitin in *Spisula solidissima*