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Espaces maritimes et interfaces

Eric Röttinger, Christophe Mocquet

► **To cite this version:**

Eric Röttinger, Christophe Mocquet. Espaces maritimes et interfaces. Journée Thématique n° 5: L'Hydrosphère, Academie 3: Espace, Environnement, Risques et Résilience, Jan 2023, Nice, France. hal-04111607

HAL Id: hal-04111607

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Submitted on 1 Jun 2023

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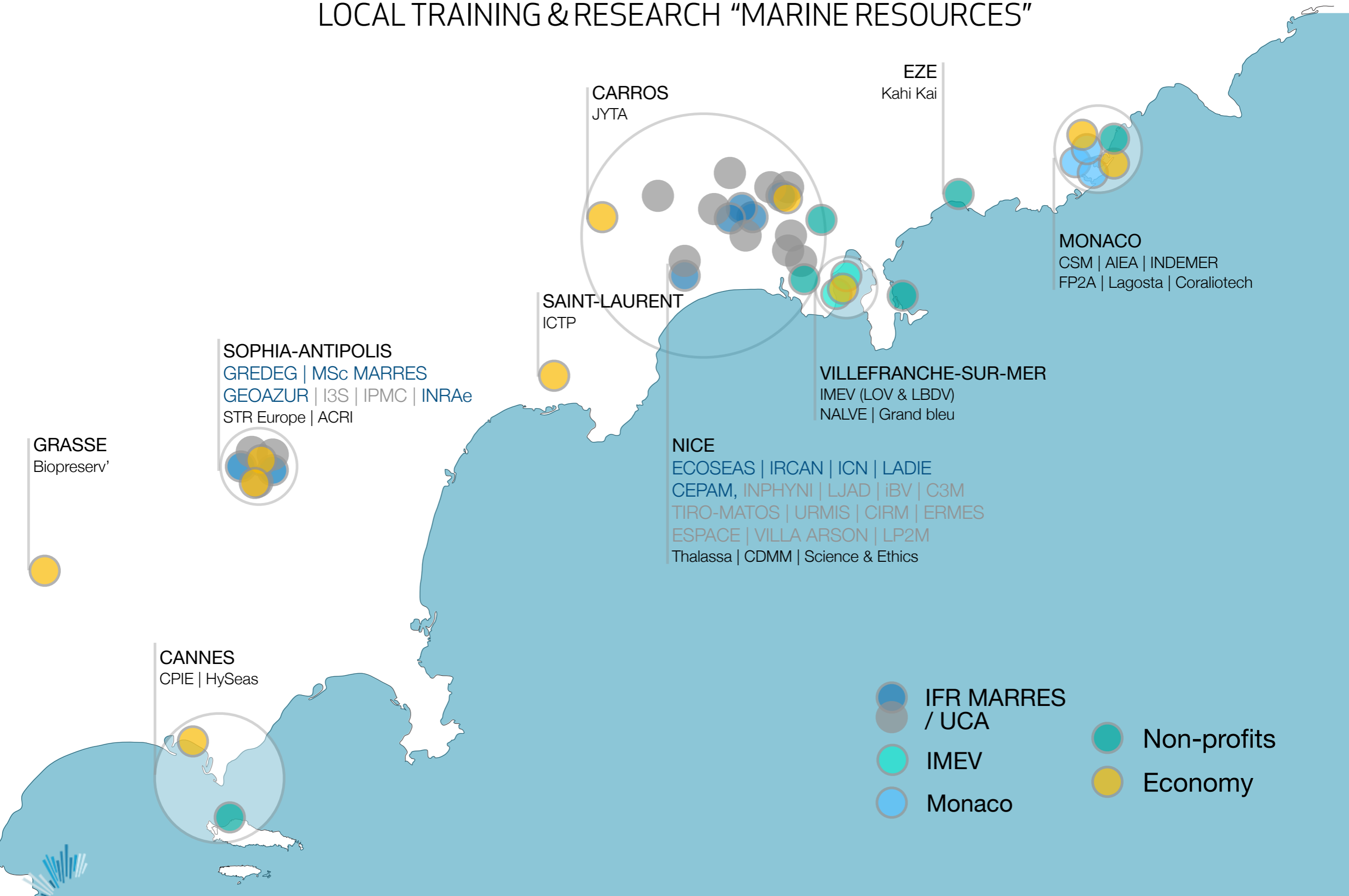
Training & Research to study, preserve and value
marine resources for well-being and health



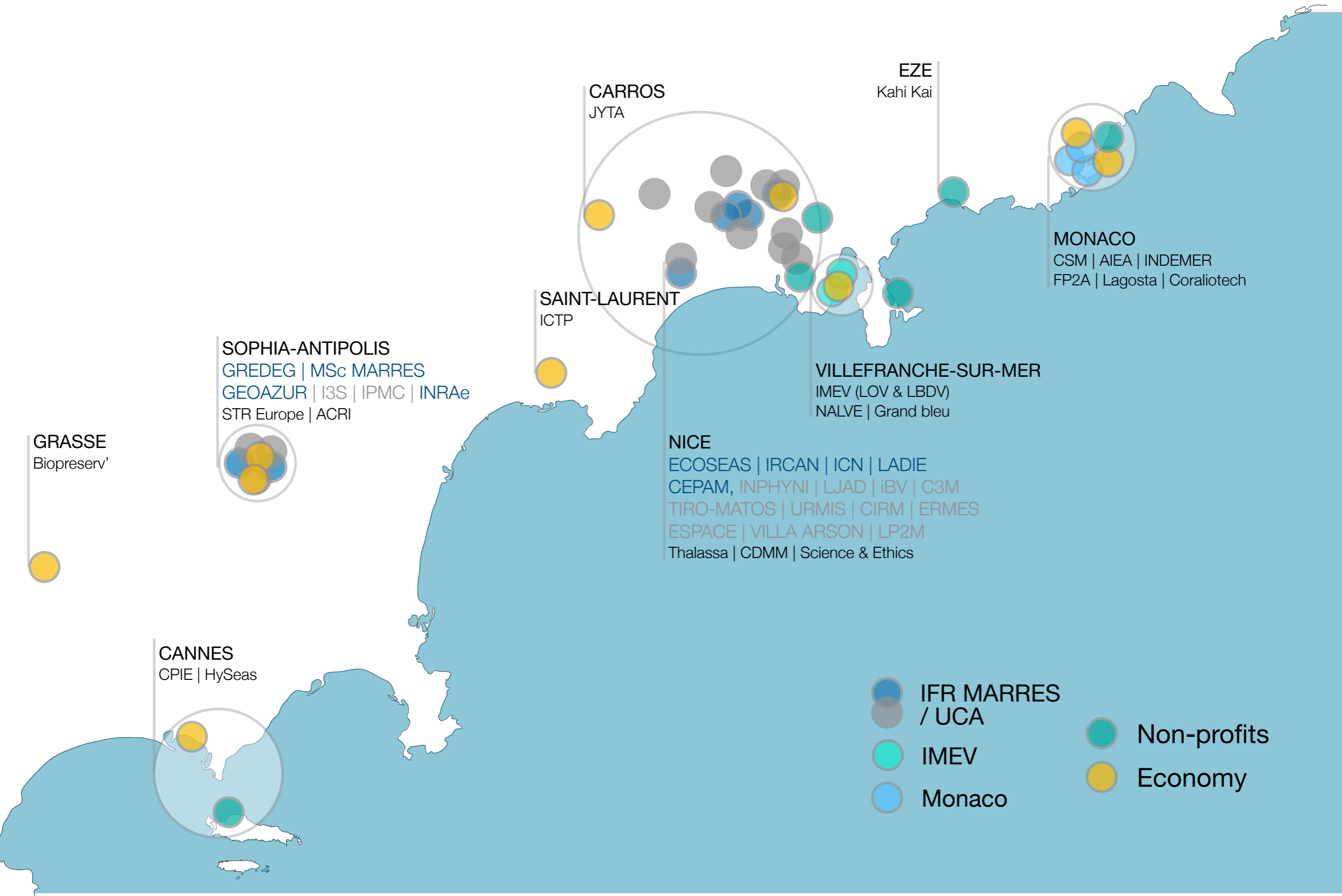
UNIVERSITÉ CÔTE D'AZUR



LOCAL TRAINING & RESEARCH "MARINE RESOURCES"



- IFR MARRES / UCA
- IMEV
- Monaco
- Non-profits
- Economy



GRASSE
Biopreserv'

SOPHIA-ANTIPOLIS
GREDEG | MSc MARRES
GEOAZUR | I3S | IPMC | INRAe
STR Europe | ACRI

CANNES
CPIE | HySeas

SAINT-LAURENT
ICTP

CARROS
JYTA

NICE
ECOSEAS | IRCAN | ICN | LADIE
CEPAM, INPHYNI | LJAD | iBV | C3M
TIRO-MATOS | URMIS | CIRM | ERMES
ESPACE | VILLA ARSON | LP2M
Thalassa | CDMM | Science & Ethics

VILLEFRANCHE-SUR-MER
IMEV (LOV & LBDV)
NALVE | Grand bleu

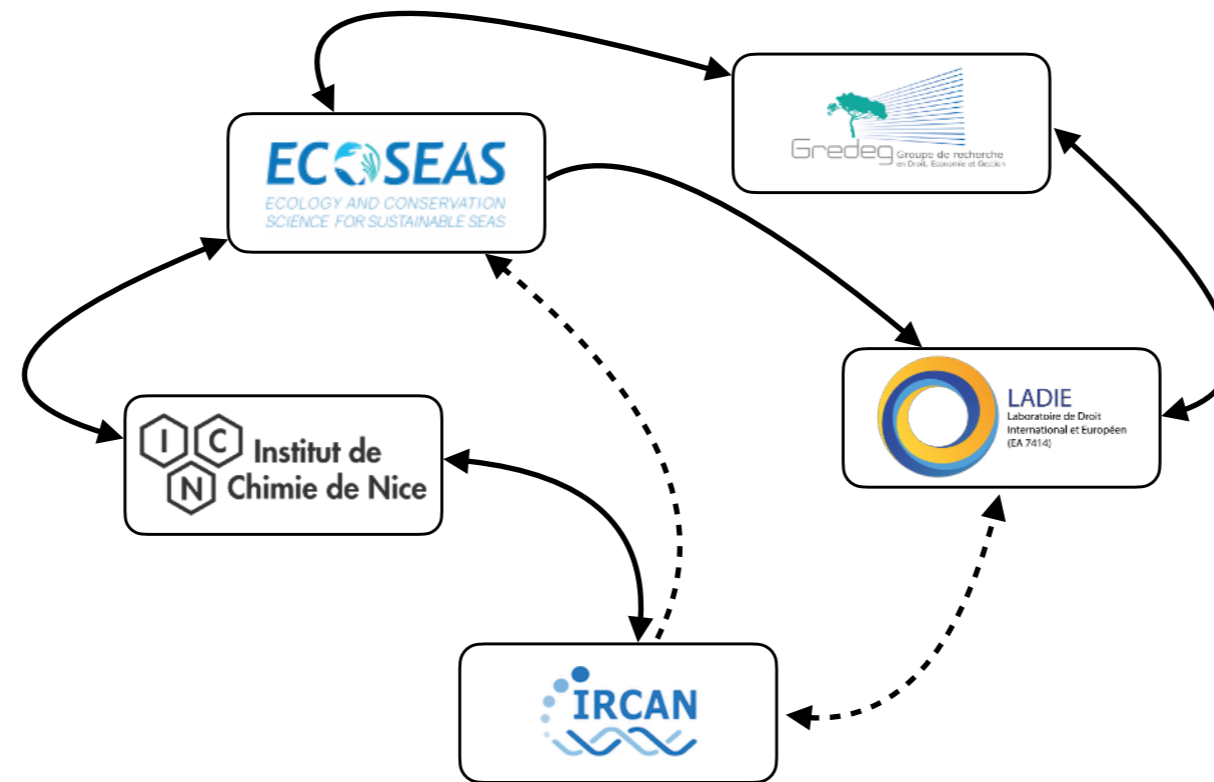
EZE
Kahi Kai

MONACO
CSM | AIEA | INDEMER
FP2A | Lagosta | Coraliotech

IFR MARRES / UCA
IMEV
Monaco

Non-profits
Economy

UCA TRAINING & RESEARCH DYNAMICS IN "MARINE RESOURCES"



2018

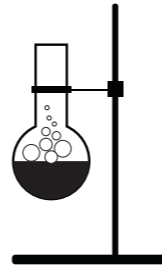
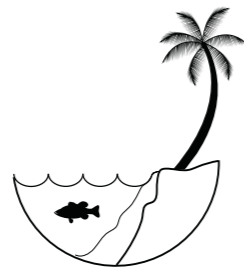


2020

MISSION OF THE IFR MARRES



FROM ECOLOGY, BIOLOGY AND THE CONSERVATION OF MARINE RESOURCES,
TO WELL-BEING AND HEALTH



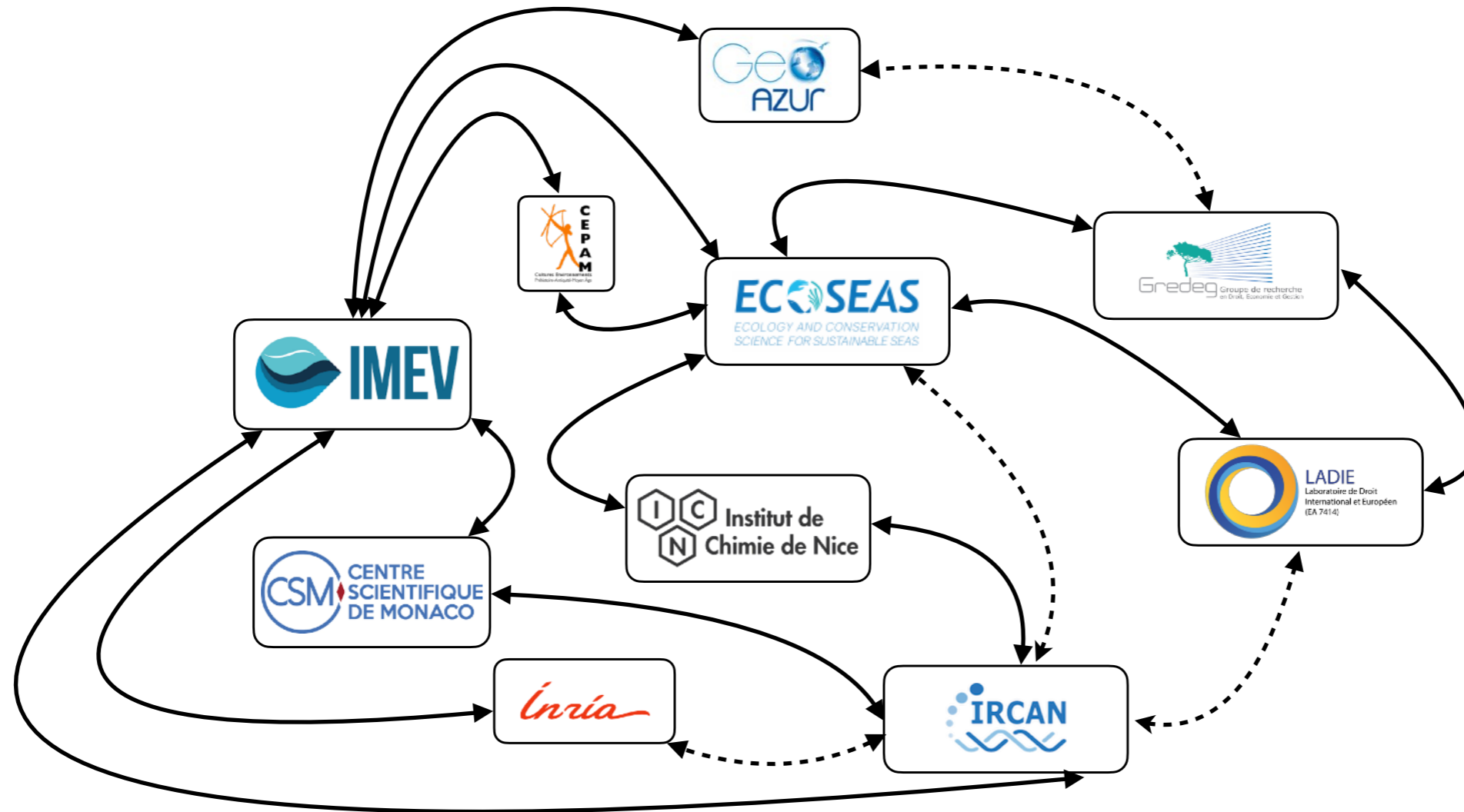
STRUCTURING "MARINE RESOURCES" RESEARCH WITHIN UCA & SITE

FOSTER TRANSVERSAL, INTERDISCIPLINARY & AMBITIOUS COLLECTIVE RESEARCH

VALUE THIS RESEARCH WITH SOCIO-ECONOMIC PARTNERS & LOCAL AUTHORITIES



TRAINING & RESEARCH DYNAMICS IN "MARINE RESOURCES"



MSc
MARRES



Federative Research Institute
MARINE RESOURCES



UNIVERSITÉ CÔTE D'AZUR



INTERDISCIPLINARY EXPERTISE - LOCAL, NATIONAL & INTERNATIONAL



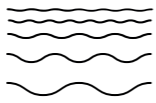
Biology



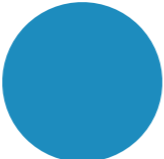
Chemistry



Health



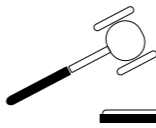
Environnement



Ecology



Conservation



Law



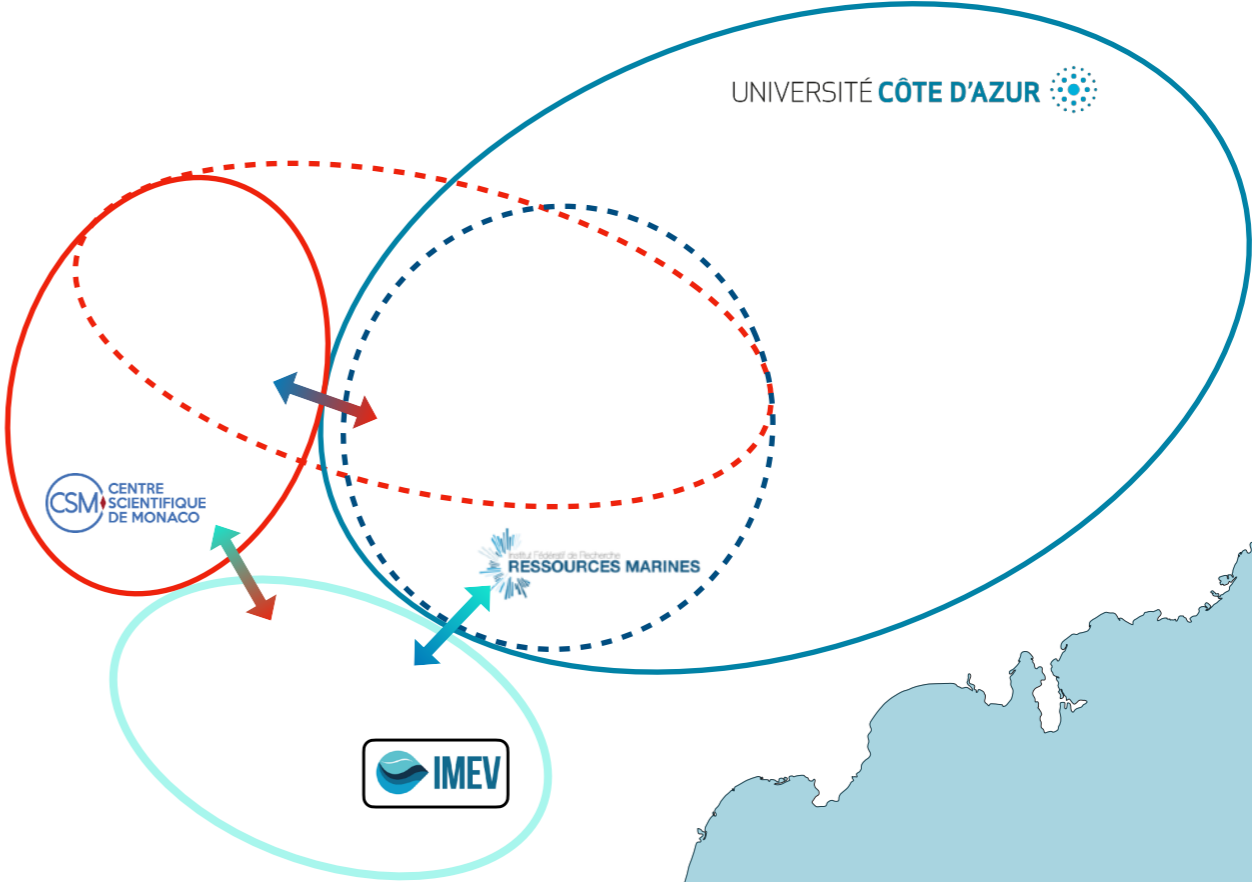
Economy



Geology



Archeology



Integrated management and sustainable development of marine resources for health & well-being

Axe 1 Ecology & integrated Management

Aim 1 Environmental assessment

Aim 2 Management / decision-making

Aim 3 Innovation for conservation

Axe 2 Sustainable valuation

Marine Natural Products **Aim 1**

Marine Bioinspiration **Aim 2**

Innovation for research / society **Aim 3**

Axe transversal 1 - Facilities & Services (existing or to be developed)

Axe transversal 2 - Training by research

Axe transversal 3 - Economic impact & acceptability

Axe transversal 4 - Science and Society

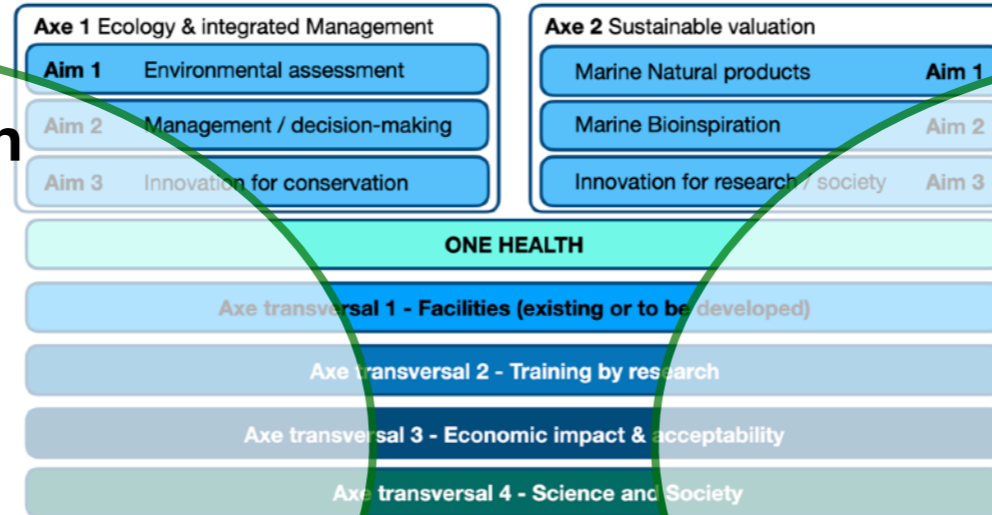
ONE HEALTH

DEVELOPMENT OF AMBITIOUS RESEARCH PROJECTS



Integrated management and sustainable development of marine resources for health & well-being

Conservation
MPA Nice



Innovation

BlueLeaf (MSc MARRES)
Viridis (2023)
Blue (2024)
UCA Cosmetics (2025)

INALVE
Marem Biotech (2023?)

MÉTROPOLE
NICE CÔTE D'AZUR

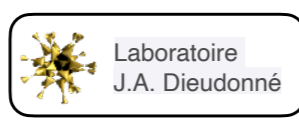
UNIVERSITÉ
CÔTE D'AZUR
FONDATION

MÉTROPOLE
NICE CÔTE D'AZUR

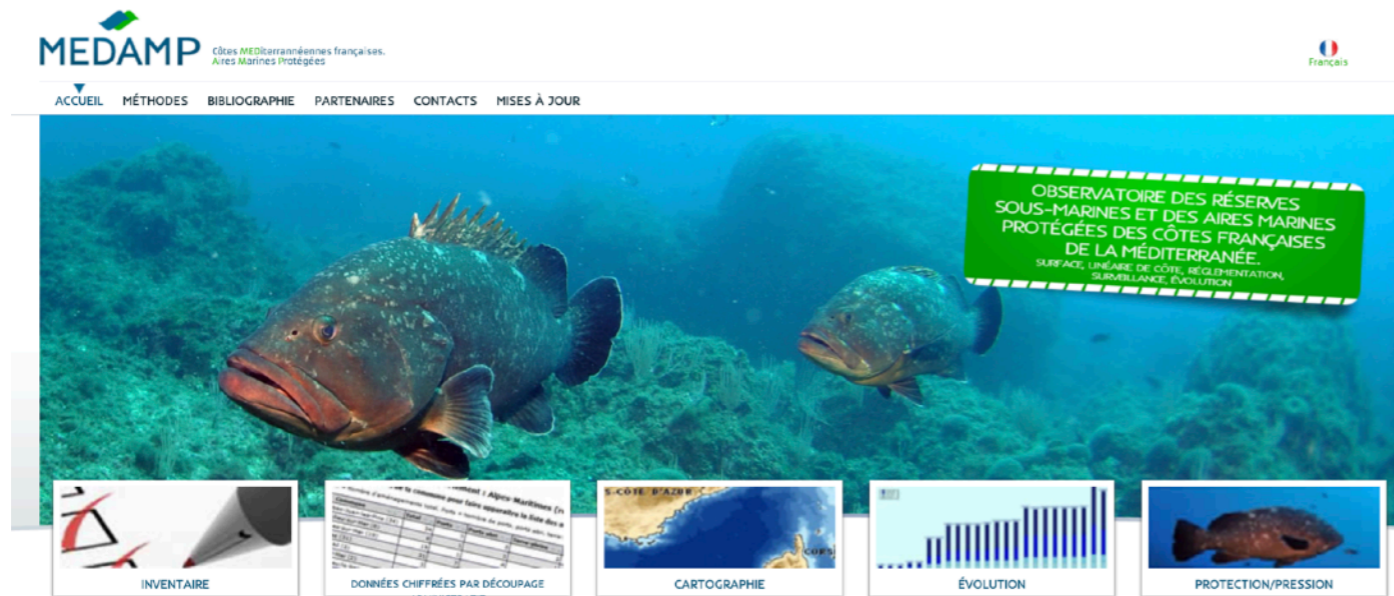
MÉTROPOLE
NICE CÔTE D'AZUR



GESTION INTÉGRÉE DES RESSOURCES MARINES (MARE)



PI: Cécile SABOURRAULT - ECOSEAS



Nouvelle AMP (Baie de Nice) - MNCA

AXE 1- Préservation/restauration de la biodiversité (ECOSEAS, ICN, LJAD/INRIA)

AXE 2 - Valorisation économique des ressources durables (GREDEG, ECOSEAS, ITCA, ICN)

AXE3 - Gestion durable, indicateurs juridiques et économiques (LADIE, GREDEG, ECOSEAS)



TARA PACIFIC EXPEDITION



TARA Consortium

80 scientists
18 laboratories, 8 countries



Sampling

40 sites: 3 coral species
10 samples/species/site
+ fish, plankton, water...

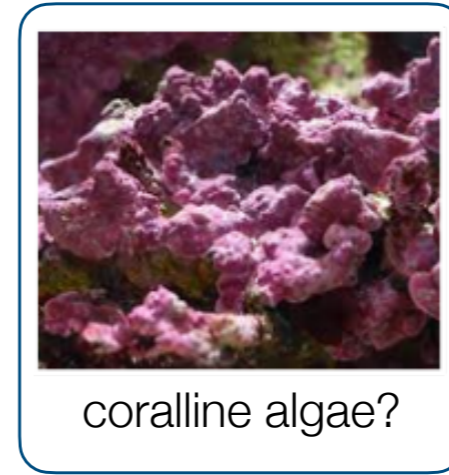
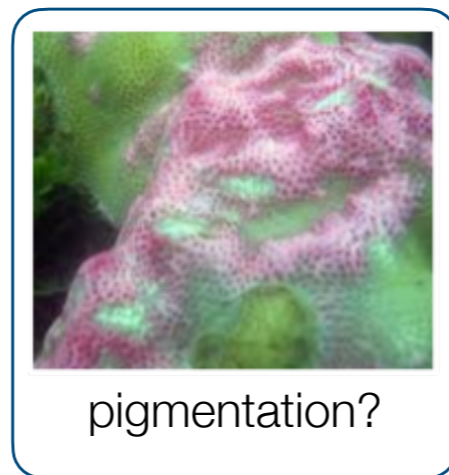
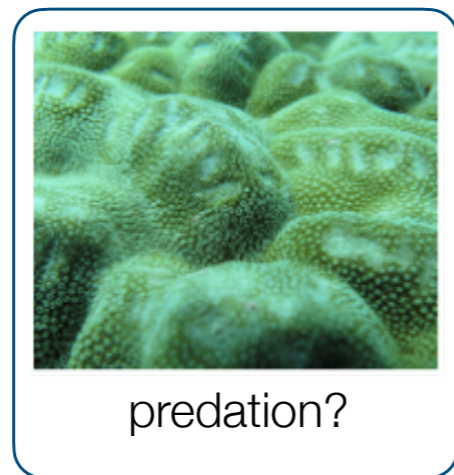
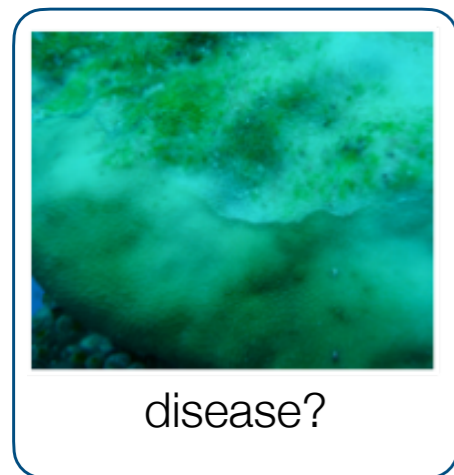
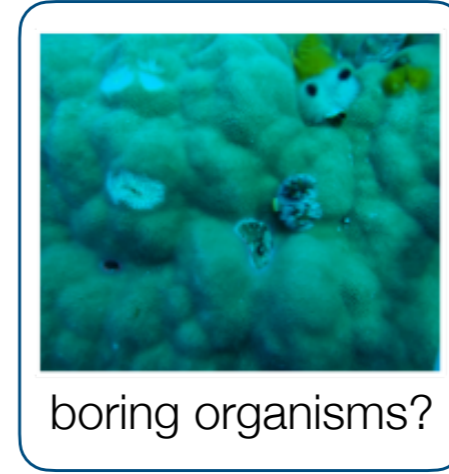
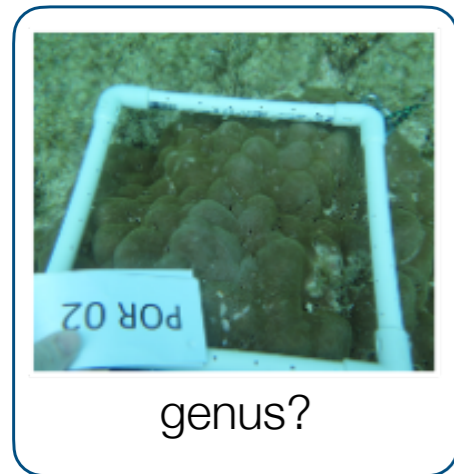
Multi-omics, physiological,
contextual & historical data



57 000 samples; incl. 900 coral (meta)genomes and associated data (past & present)

- Evaluate the state of coral reefs through an integrative approach
- New predictive tools for reef health
- Evolution of stress-response / longevity mechanisms

IMAGE ANNOTATION TO DEVELOP ADDITIONAL DATASETS



Manual annotation

11 420 images ~ 4 months



AI annotation

11 420 images ~ few seconds



PhD : Megan CLAMPITT

STRONG CONNECTION TRAINING & RESEARCH



Megan CLAMPITT (2020) - CORALS & AI
IRCAN / MSI



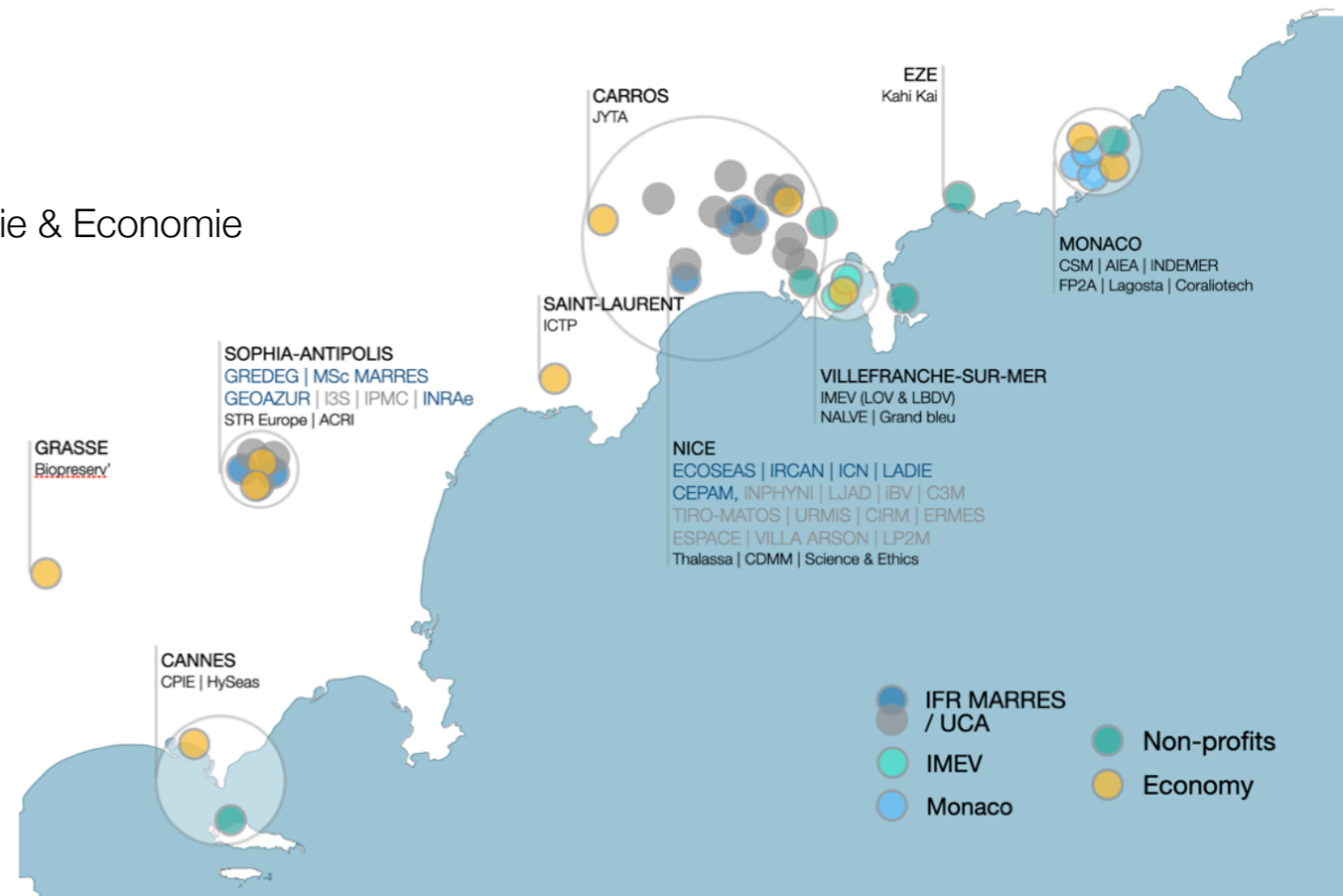
Kylian BURGI - AI & Species Detection
ECOSEAS / INRIA



Julie MARTY-GASTALDI - MPA Ecologie & Economie
ECOSEAS / GREDEG



Keyla PLICHON - CORALS & Health
IRCAN





Institut Fédératif de Recherche

RESSOURCES MARINES

Thank you for your attention

Espace maritime et interfaces **combiner protection des océans et développement durable**



Séminaire Hydrosphère

Académie 3 – Université Côte d'Azur
30 janvier 2023 - Nice

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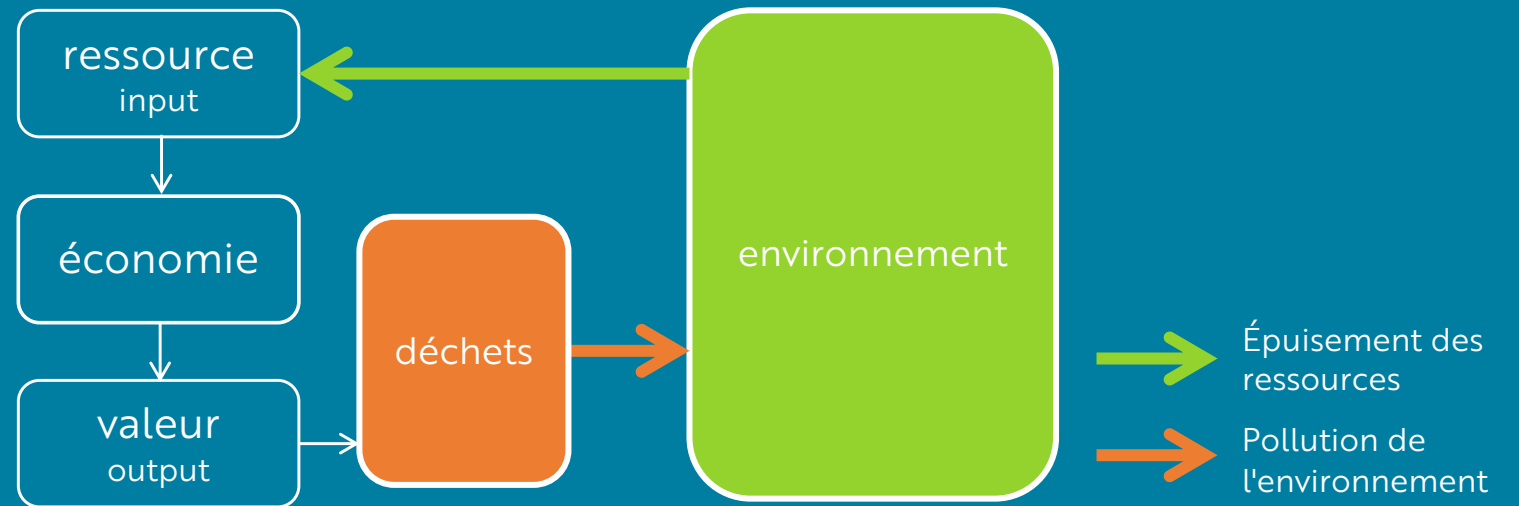
Espace maritime et interfaces

Combiner protection des océans et développement durable

Une longue histoire



adapté de Boulding 1966

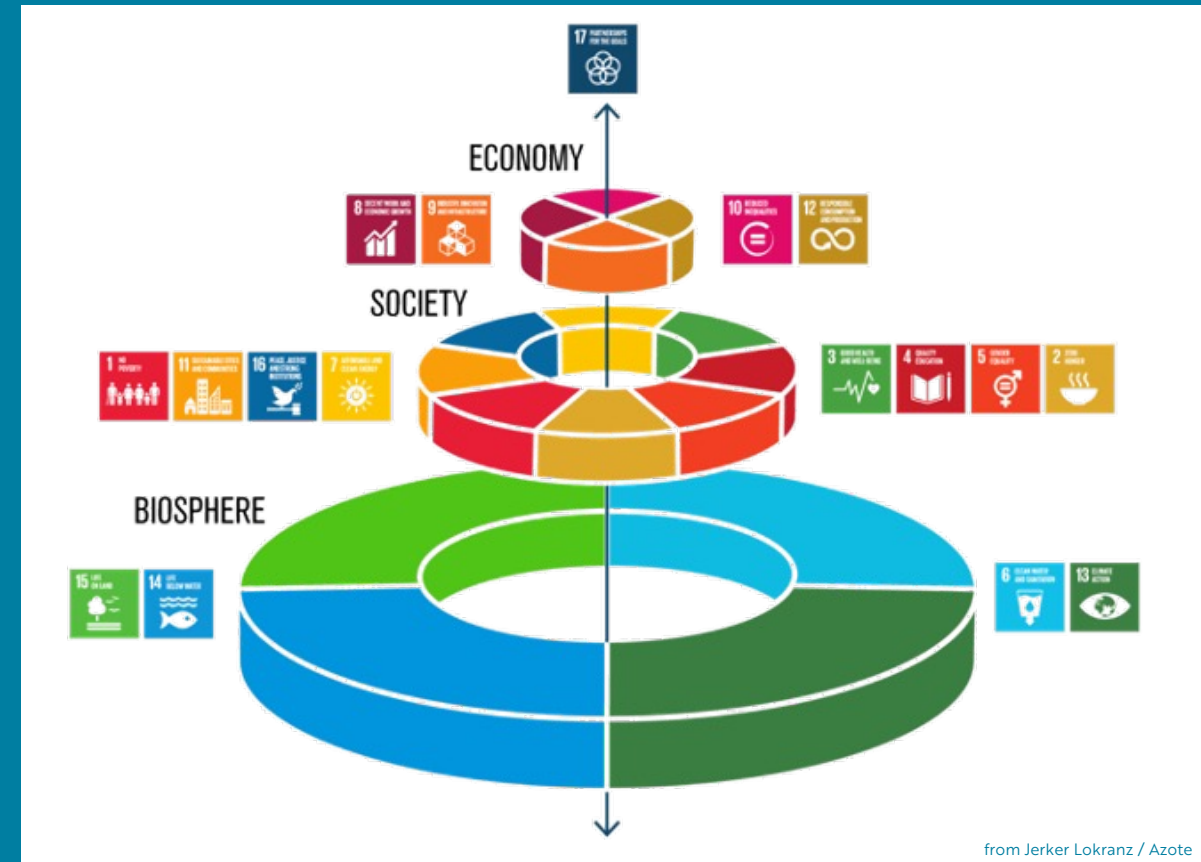


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Espace maritime et interfaces

Combiner protection des océans et développement durable

UN SDGs: les objectifs de développement durable de l'ONU



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Espace maritime et interfaces

Combiner protection des océans et développement durable

L'interdisciplinarité de la conservation marine



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Espace maritime et interfaces

Combiner protection des océans et développement durable

Succès



BLUE
SEEDS

Blue finance



coral
GUARDIAN

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Espace maritime et interfaces

Combiner protection des océans et développement durable

Cas d'étude: les herbiers marins



Urquart 1824, Weycott et al. 2009, Terrados & Bodrum 2014, Nordlund et al. 2018

Services d'approvisionnement

2

Services de régulation



Services culturels

.3

Campagne et al. 2015

Christophe Mocquet

Espace maritime et interfaces

Combiner protection des océans et développement durable

Cas d'étude: les herbiers marins



Christophe Mocquet christophe.mocquet@univ-cotedazur.fr

Besoins



SCIENCE

Evaluation des SE

- ▶ quantifier séquestration carbone



CONSERVATION

améliorer la gestion des SE et de la biodiversité

- ▶ protection et restauration



INNOVATION

promouvoir un cadre institutionnel, générer des incitations

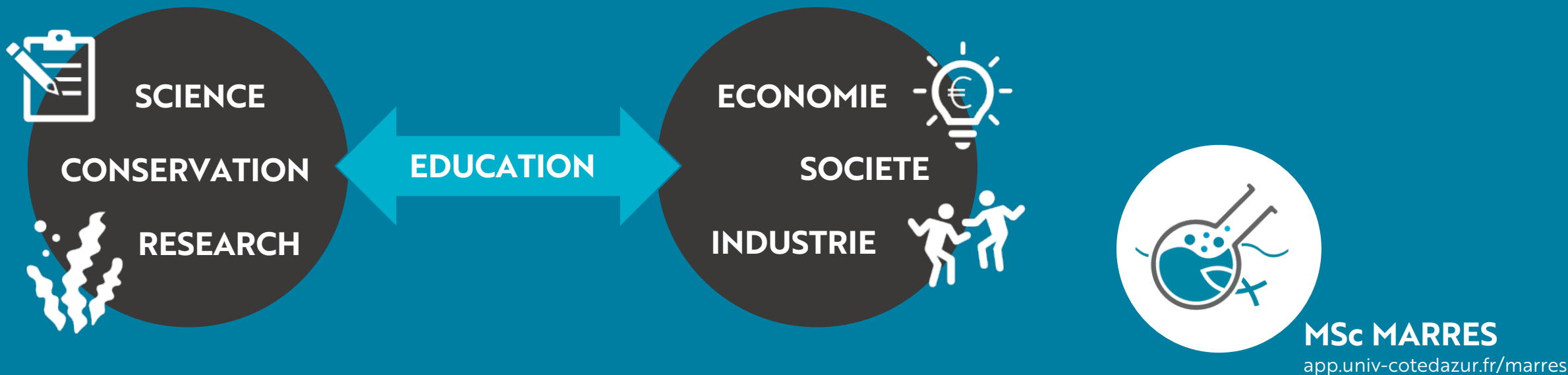
- ▶ marché carbone

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Espace maritime et interfaces

Combiner protection des océans et développement durable

L'Enseignement Supérieur comme passerelle



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