



XXIV Congresso della  
Società Italiana di Ecologia  
S.It.E.



# L'Ecologia oggi: Responsabilità e Governance

## Abstract

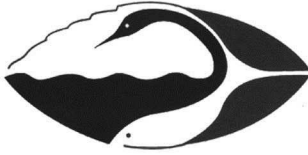
**15 - 17 settembre 2014**

**Dipartimento di Scienze della Vita  
e Biotecnologie**

**Università degli Studi di Ferrara**

*<http://congressositeferrara2014.unisalento.it/>*

*[congressosite2014@unife.it](mailto:congressosite2014@unife.it)*



S.It.E. - Società Italiana di Ecologia

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**UNIVERSITÀ  
DEGLI STUDI  
DI FERRARA**  
- EX LABORE FRUCTUS -

**S8c. P1 Research & technological development to improve economic profitability and environmental sustainability of sea urchin farming**

Chiantore M.<sup>1\*</sup>, Shpigel M.<sup>2</sup>, Rosenfeld H.<sup>2</sup>, Kelly M.<sup>3</sup>, James P.<sup>4</sup>, Fanelli G.<sup>5</sup>, Basile G.<sup>6</sup>, Chamberlain J.<sup>7</sup>, Addis P.<sup>8</sup>, Angioni A.<sup>8</sup>, Jóhannsson R.<sup>9</sup>, Asmundsson O.O.<sup>10</sup>, Tamponi G.<sup>11</sup>, Hannon C.<sup>12</sup>, Gudnason A.<sup>13</sup>, Tarrab K.<sup>14</sup>, Pecorino D.<sup>1</sup>, Asnaghi V.<sup>1</sup>

<sup>1</sup>DiSTAV, University of Genoa, Genoa, Italy; <sup>2</sup>Israel Oceanographic and Limnological Research, Eilat, Israel; <sup>3</sup>Scottish Association for Marine Science, Oban, UK; <sup>4</sup>Nofima AS, Trömso, Norway; <sup>5</sup>CNR-IAMC, Taranto, Italy; <sup>6</sup>Gigante Srl, Taranto, Italy; <sup>7</sup>Dunmanus Seafood Limited, Bantry, Ireland; <sup>8</sup>DiSVA, University of Cagliari, Cagliari, Italy; <sup>9</sup>Matis, Reykjavic, Iceland; <sup>10</sup>Thorisholmi ehf, Stykkisholmur, Iceland; <sup>11</sup>Cedimar Srl, Cagliari, Italy; <sup>12</sup>Abalone Connemara Teoranta, Galway, Ireland; <sup>13</sup>Sæbýli ehf, Eyrarbakki, Iceland; <sup>14</sup>Ardag Cooperative Agricultural Society Ltd, Eilat, Israel; \*e-mail: chiantor@dipters.unige.it

Sea urchin gonads are a delicacy consumed worldwide, especially Asia, Australasia, the Mediterranean Countries and South America. Nowadays, massive demand for it has led to overfishing and decrease of natural stocks. One solution to fill the gap between supply and demand is sea urchin aquaculture, although one major bottleneck is present: growth of juvenile sea urchins to market size over a profitable time.

ResUrch consortium includes SME and RTD partners from 6 countries. SME participants are Thorisholmi ehf and Sæbýli ehf from Iceland; Dunmanus Seafood Limited and Abalone Connemara Teoranta from Ireland; Cedimar Srl and Gigante Srl from Italy; Ardag Cooperative Agricultural Society Ltd from Isarel.

RTD performers are the University of Genoa, the University of Cagliari and the National Research Centre from Italy; Nofima AS from Norway; the Scottish Association for Marine Science from the United Kingdom; Matis ohf from Iceland; Israel Oceanographic and Limnological Research from Israel.

The ResUrch project aims include: reducing the time from hatchery to market size; creating protocols for sea urchin husbandry and production at sea and land-based production sites; control of the gametogenic cycle to improve roe market value; validation of these results in a commercial scale and evaluation of the technical and economic feasibility of the innovations. ResUrch kick-off meeting was held in Cagliari (Italy) hosted by UNICA 9–10 January 2014, and it will last 2 years.

**S8c. P2 Conservative management strategy in an old-growth forest**

Granata M.U.<sup>1\*</sup>, Gratani L.<sup>2</sup>, Sartori F.<sup>1</sup>, Varone L.<sup>2</sup>, Catoni R.<sup>2</sup>

<sup>1</sup>University of Pavia, Via S. Epifanio 14, 27100 Pavia, Italy; <sup>2</sup>Sapienza University of Rome, P.le A. Moro, 5, 00185 Rome, Italy; \*e-mail: mirkoumberto.granata@unipv.it

Differences in shade tolerance are frequently important determinants of forest structure and dynamics. The main objective of this research was to analyze leaf trait variations among tree species growing in a broadleaf deciduous forest (Natural Reserve "Siro Negri", Italy) in response to the intra-canopy light variations. We tested the relationship between shade-tolerance and leaf plasticity considering that different plastic responses may contribute to the range of environments that species inhabit. Our results support the overall trend that light-demanding species would be more plastic than shade-tolerant species. The measured phenotypic plasticity for the considered species is in the range of broadleaf deciduous species. Among them, *Quercus robur* and *Robinia pseudoacacia* (shade intolerants) have a higher phenotypic plasticity than *Acer campestre* and *Corylus avellana* (shade tolerant). Temperature and CO<sub>2</sub> concentration increase might act as potent agents of natural selection among species favoring the more plastic species. In particular, air temperature increase might allow reproduction of *Phytophthora cinammomi*, a pathogen largely affecting *Q.robur* while CO<sub>2</sub> concentration increase might favor *R. pseudoacacia* because of its high growth rate. The conservative management of the forest carried out since the establishment of the Reserve has probably limited the presence of *R. pseudoacacia*. It is important to maintain this type of management since creation of gaps could allow regeneration of *R. pseudoacacia* over *Q. robur*. Forests with old-growth characteristics like the investigated forest are important reference sites for management approaches involving a broad range of ecosystem functions and services.