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Assessing the regional conservation status of sponges (Porifera): the case of the Aegean ecoregion

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Supplementary Material 1

Assessing the regional conservation status of sponges (Porifera):
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Distribution maps for the 20 examined sponges.

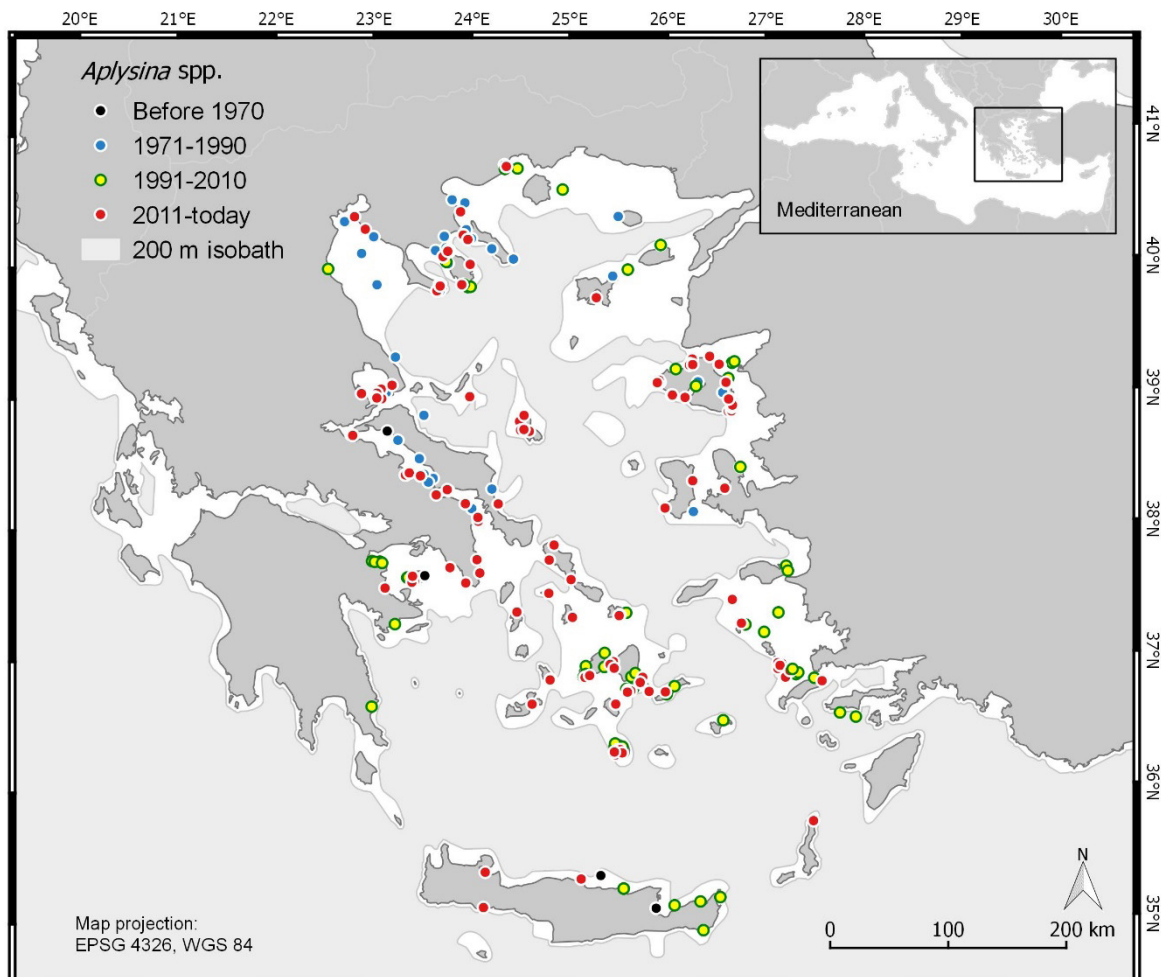


Fig. S1: Occurrence records of *Aplysina* spp. across the Aegean ecoregion.

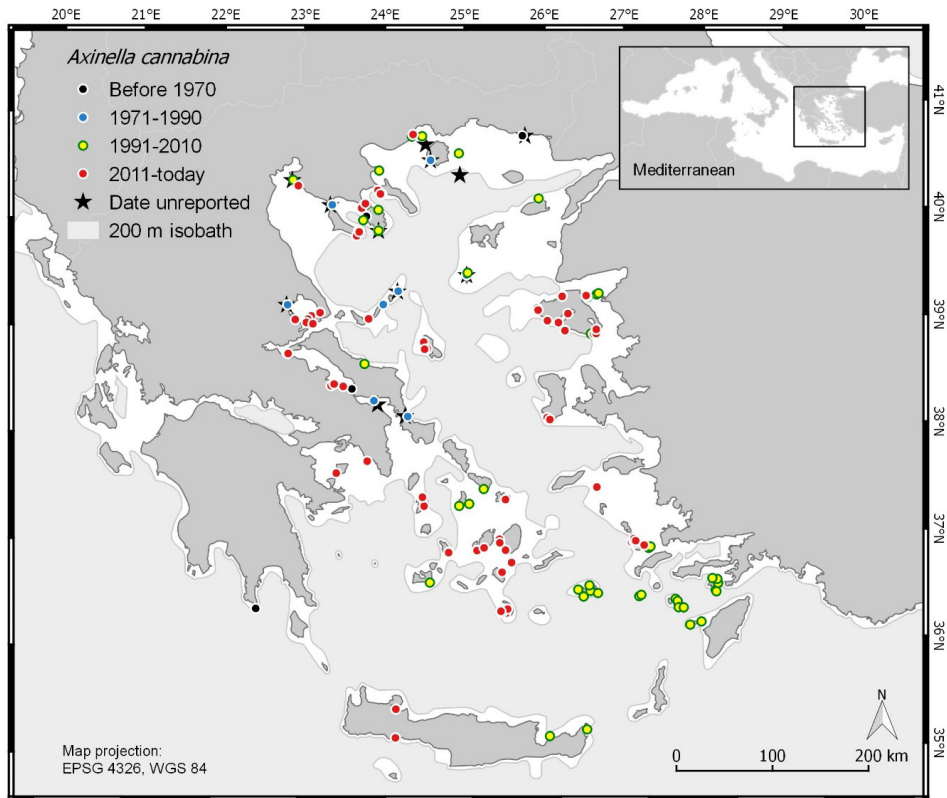


Fig. S2: Occurrence records of *Axinella cannabina* (Esper, 1794) across the Aegean ecoregion.

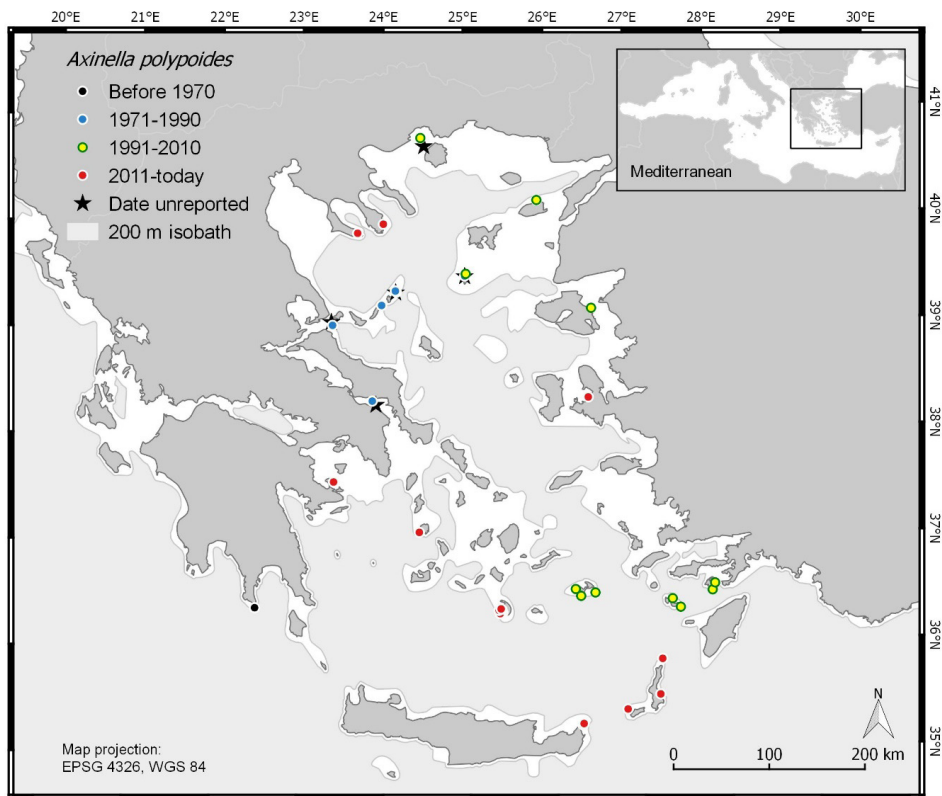


Fig. S3: Occurrence records of *Axinella polypoides* Schmidt, 1862 across the Aegean ecoregion.

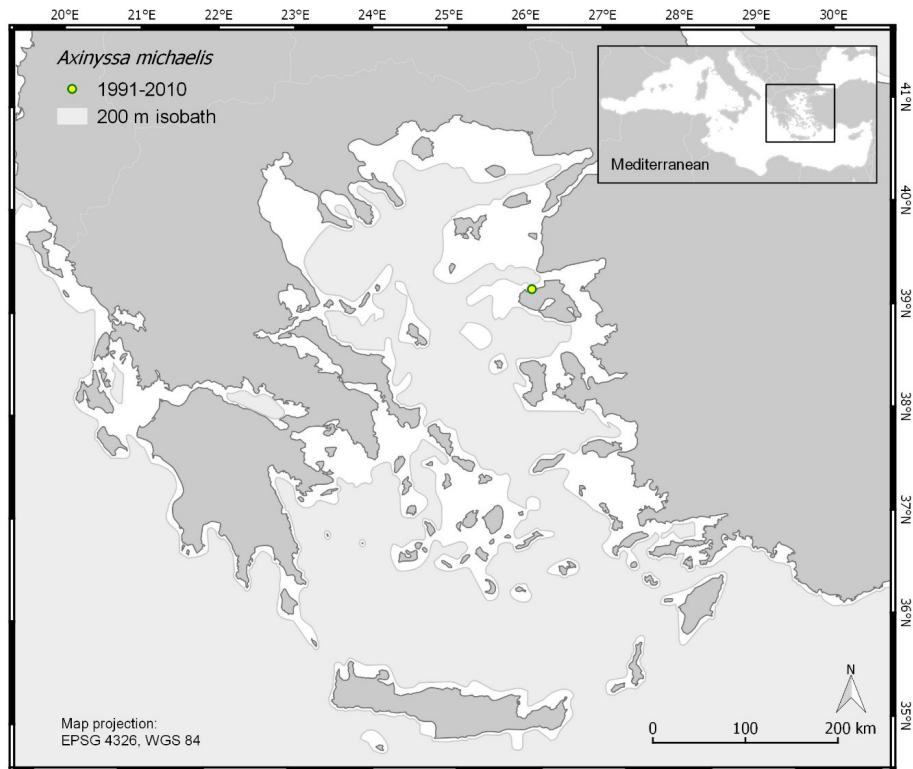


Fig. S4: Occurrence records of *Axinyssa michaelis* Kefalas & Castritsi-Catharios, 2007 across the Aegean ecoregion.

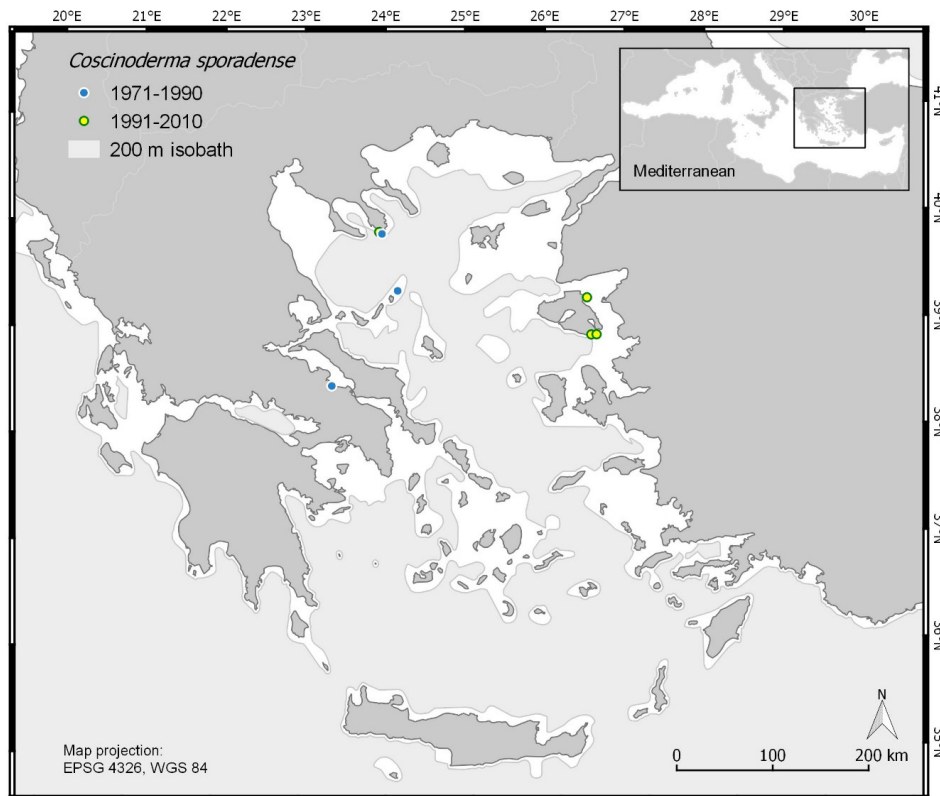


Fig. S5: Occurrence records of *Coscinoderma sporadense* Voultiadou-Koukoura, van Soest & Koukouras, 1991 across the Aegean ecoregion.

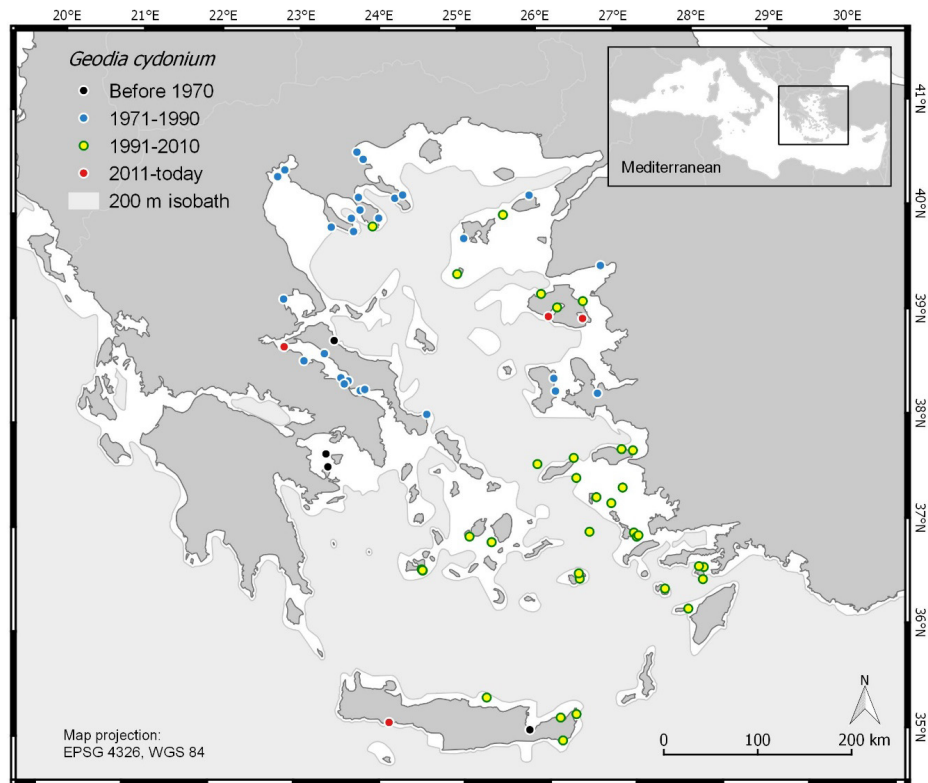


Fig. S6: Occurrence records of *Geodia cydonium* (Linnaeus, 1767) across the Aegean ecoregion.

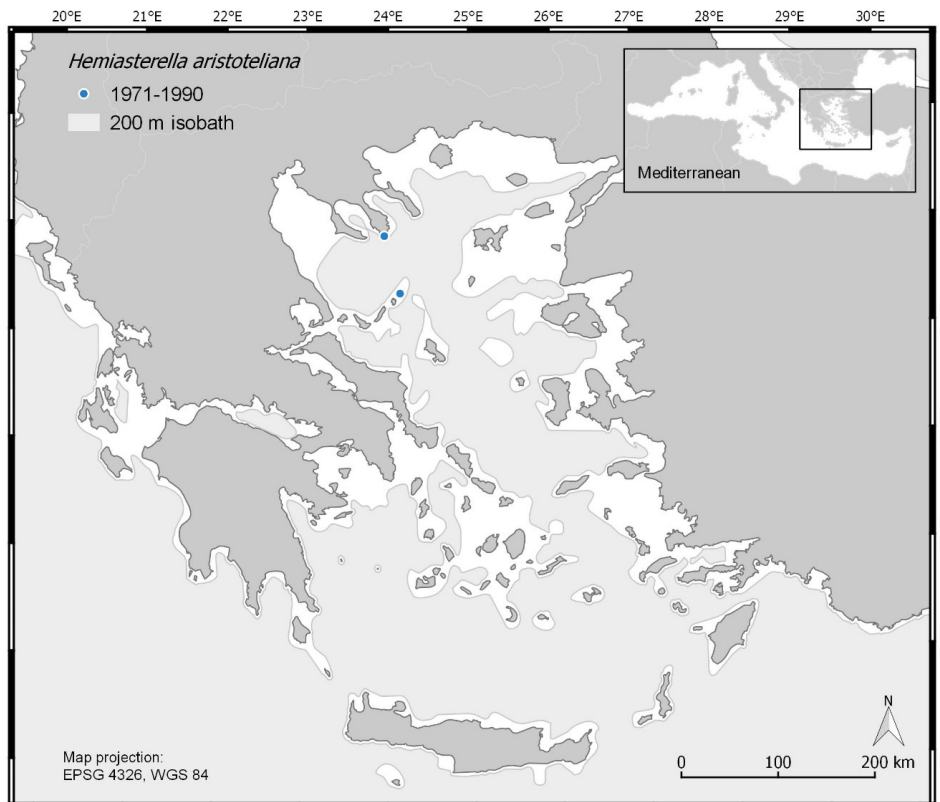


Fig. S7: Occurrence records of *Hemiasterella aristoteliana* Voultziadou-Koukoura & van Soest, 1991 across the Aegean ecoregion.

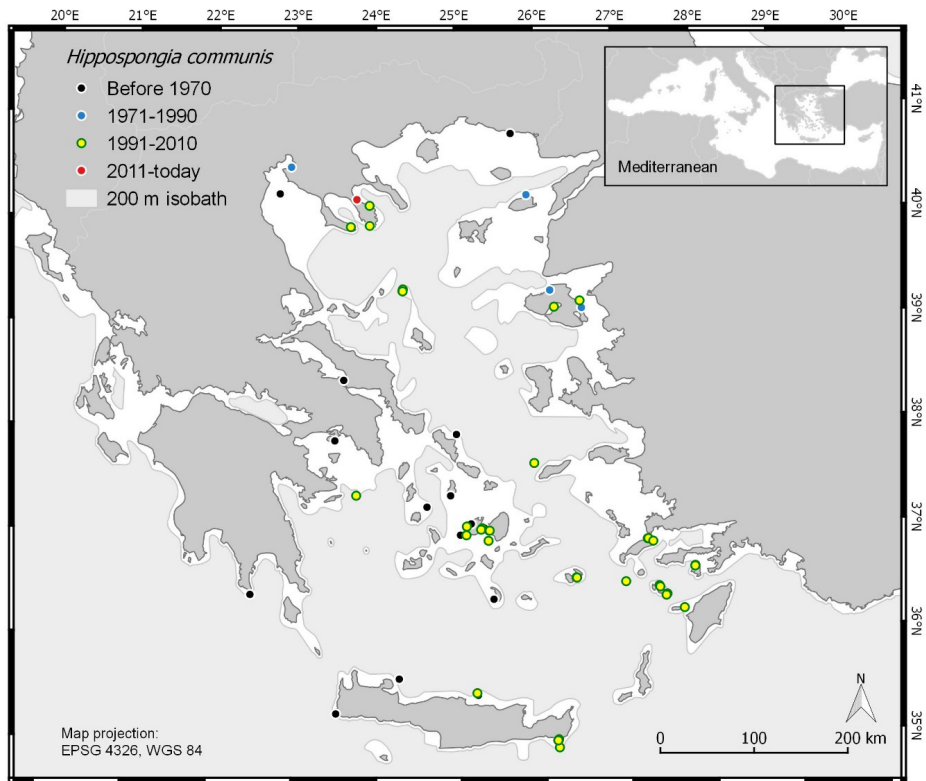


Fig. S8: Occurrence records of *Hippospongia communis* (Lamarck, 1814) across the Aegean ecoregion.

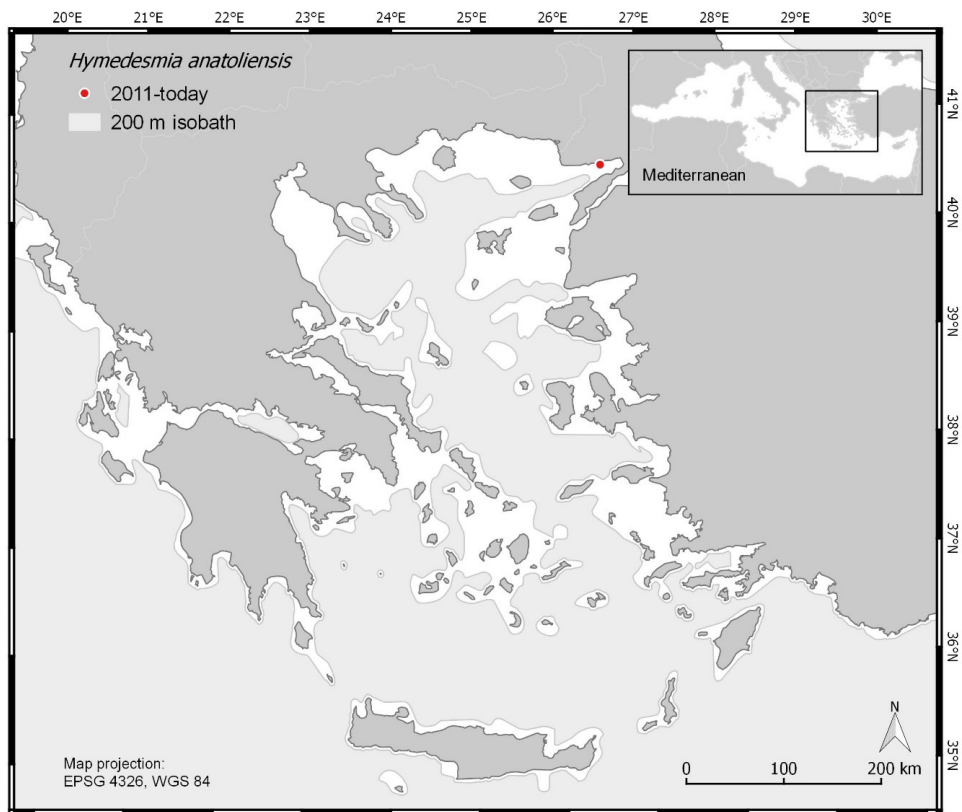


Fig. S9: Occurrence records of *Hymedesmia anatoliensis* Gözcelioğlu, Van Soest, Alvarez & Konuklugil, 2015 across the Aegean ecoregion.

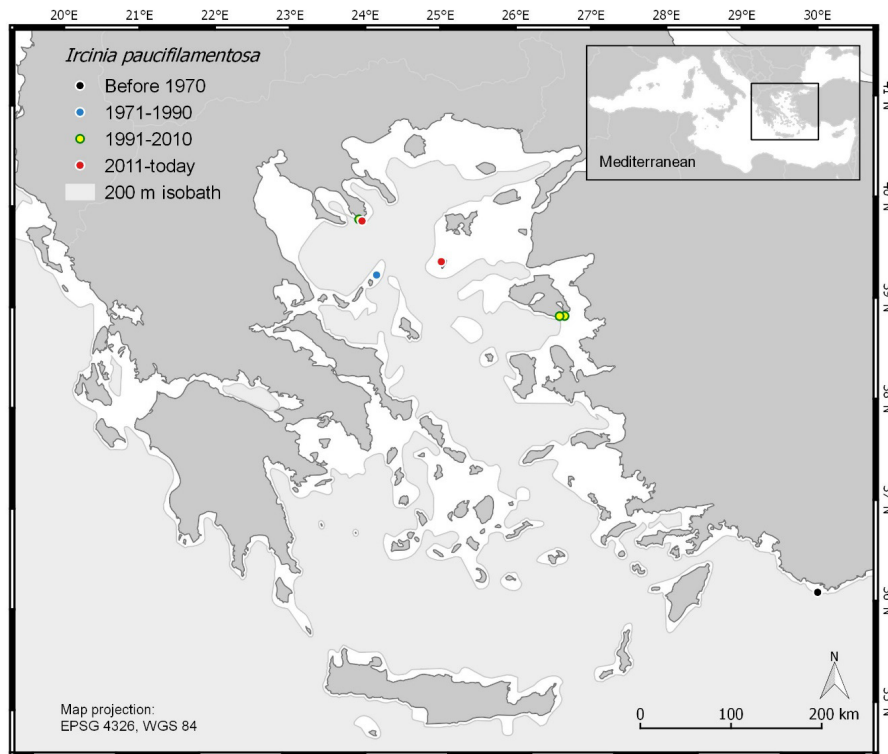


Fig. S10: Occurrence records of *Ircinia pauciflamentosa* Vacelet, 1961 across the Aegean ecoregion.

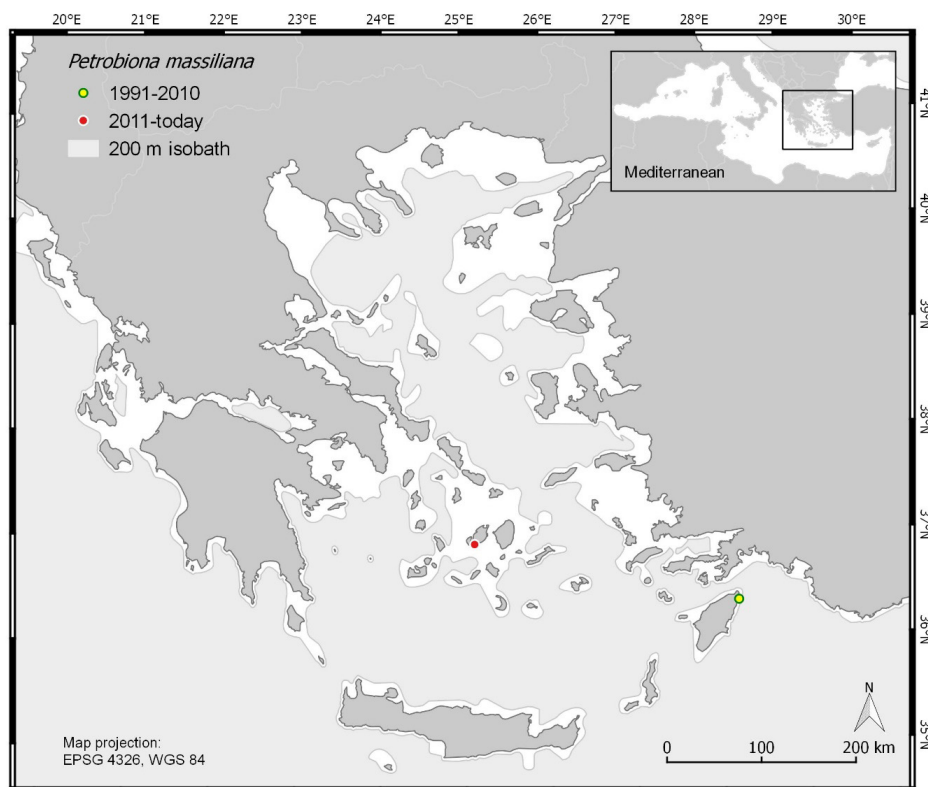


Fig. S11: Occurrence records of *Petrobiona massiliana* Vacelet & Lévi, 1958 across the Aegean ecoregion.

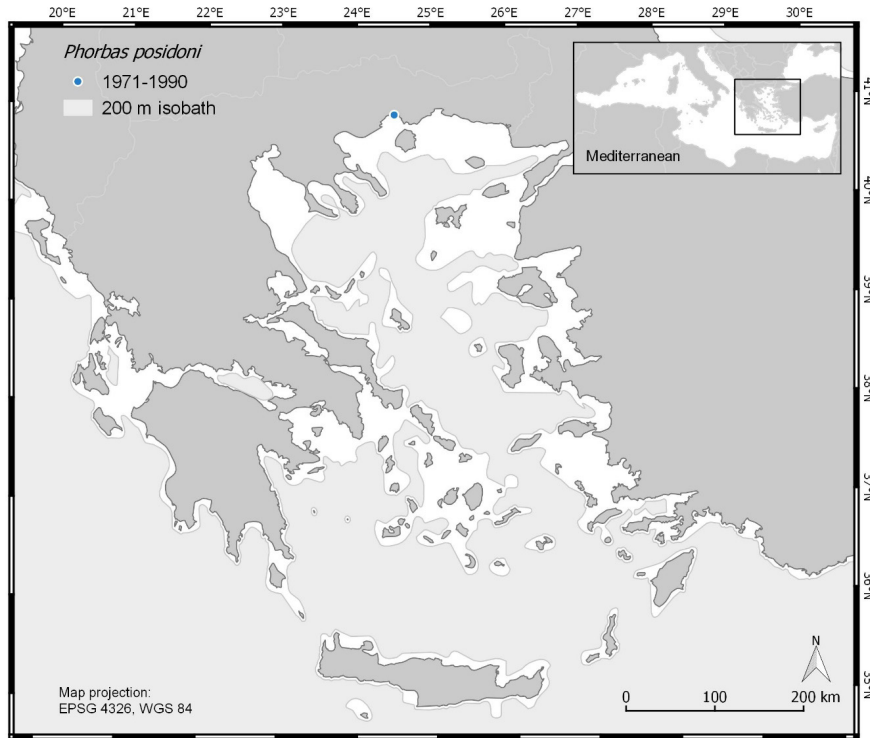


Fig. S12: Occurrence records of *Phorbis posidoni* Voultsiadou-Koukoura & van Soest, 1991 across the Aegean ecoregion.

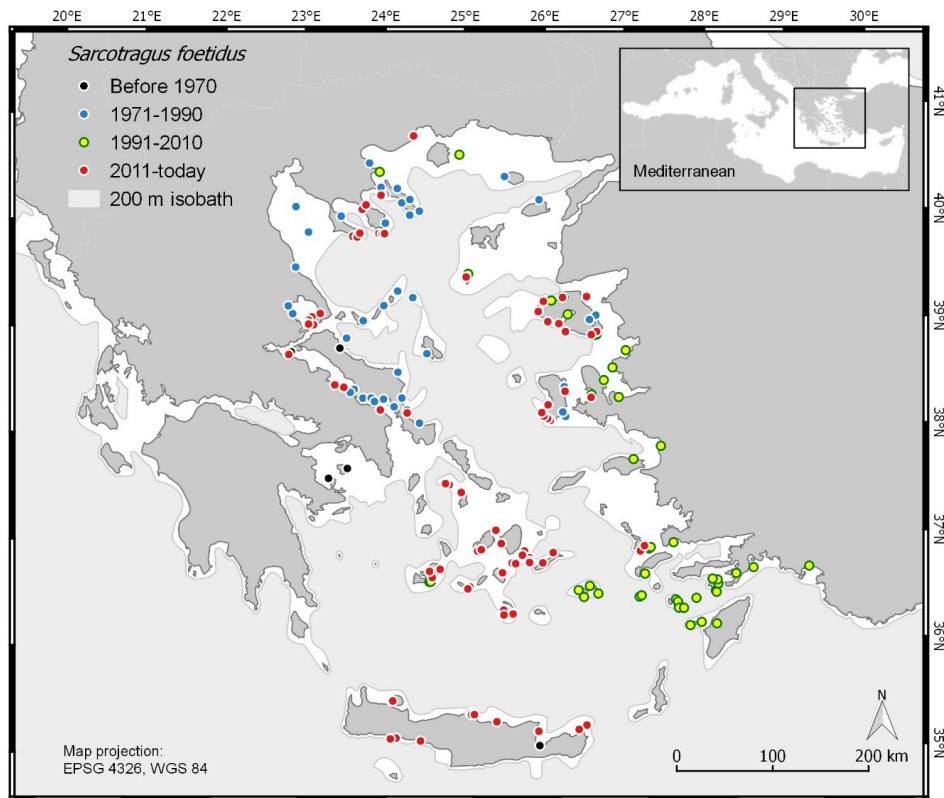


Fig. S13: Occurrence records of *Sarcotragus foetidus* Schmidt, 1862 across the Aegean ecoregion.

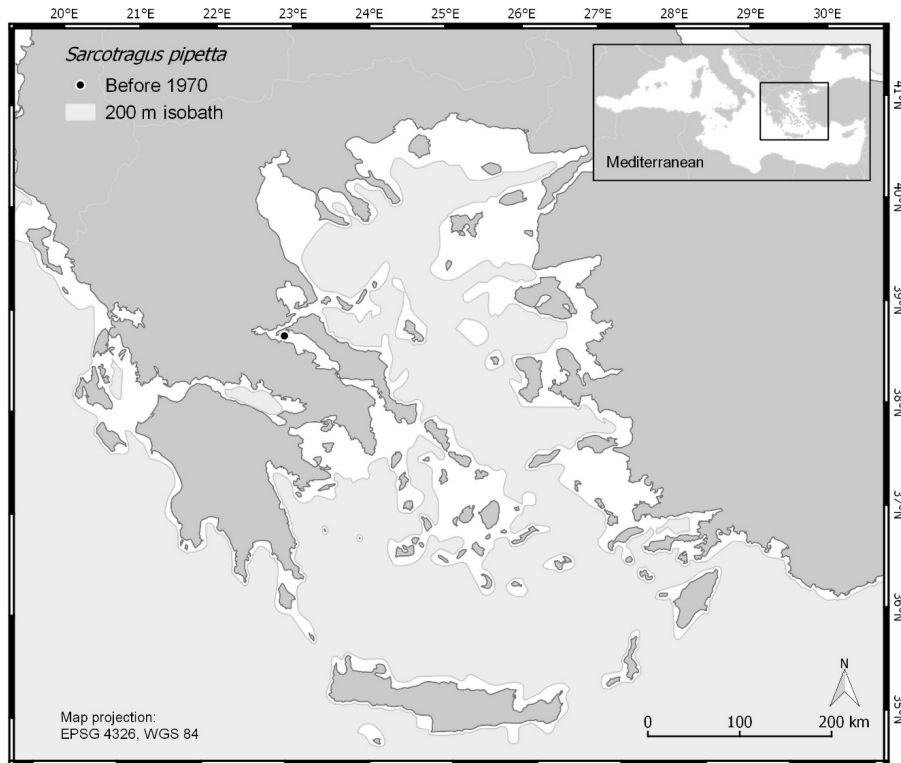


Fig. S14: Occurrence records of *Sarcotragus pipetta* (Schmidt, 1868) across the Aegean ecoregion.

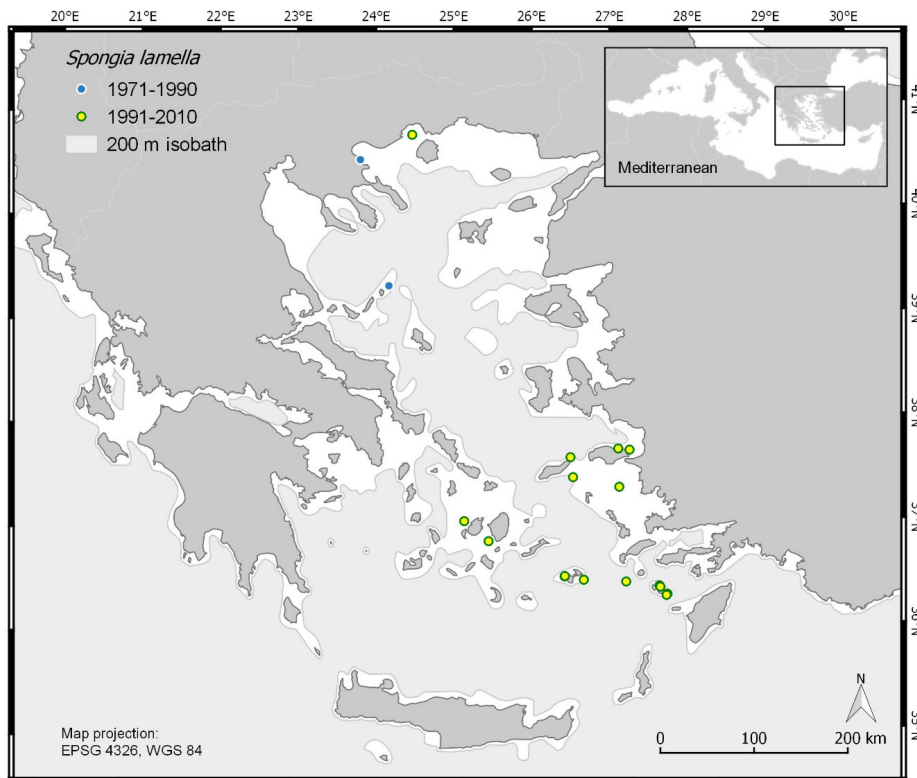


Fig. S15: Occurrence records of *Spongia lamella* (Schulze, 1879) across the Aegean ecoregion.

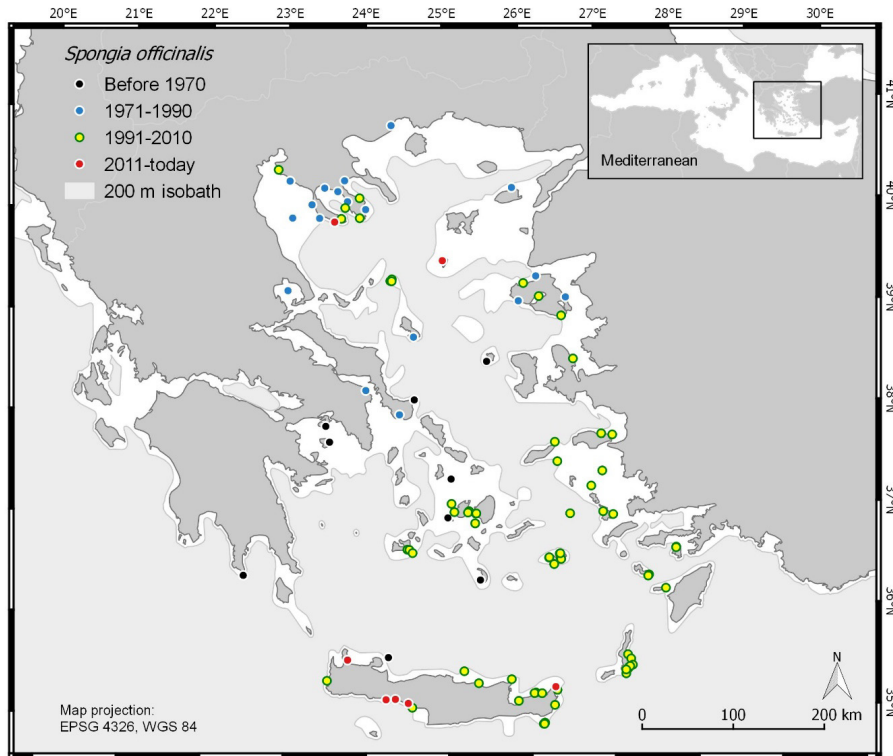


Fig. S16: Occurrence records of *Spongia officinalis* Linnaeus, 1759 across the Aegean ecoregion.

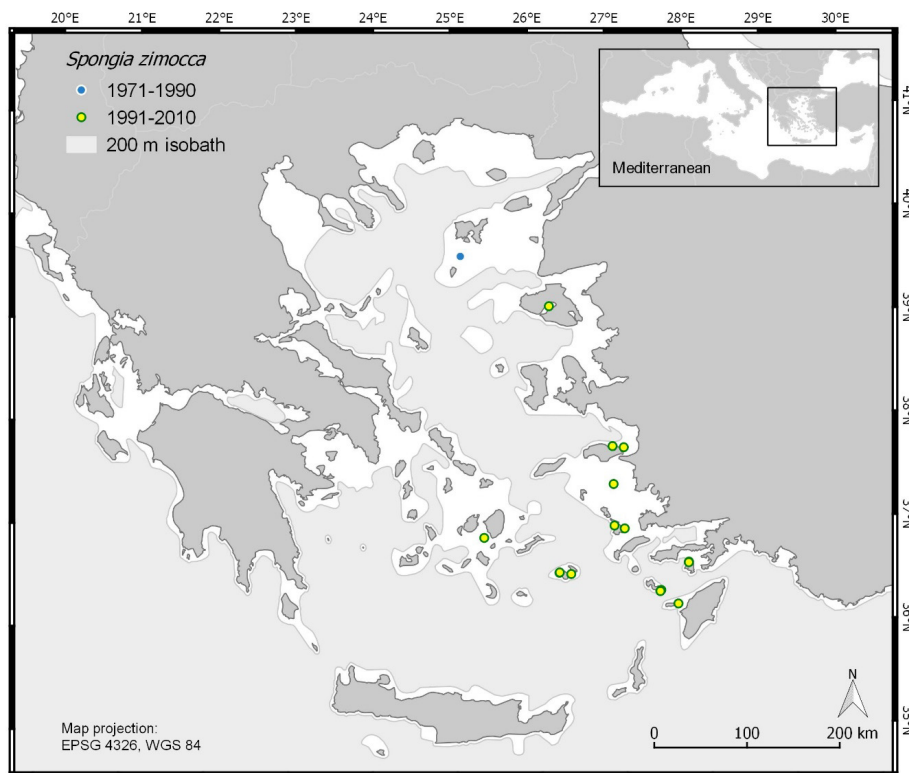


Fig. S17: Occurrence records of *Spongia zimocca* Schmidt, 1862 across the Aegean ecoregion.

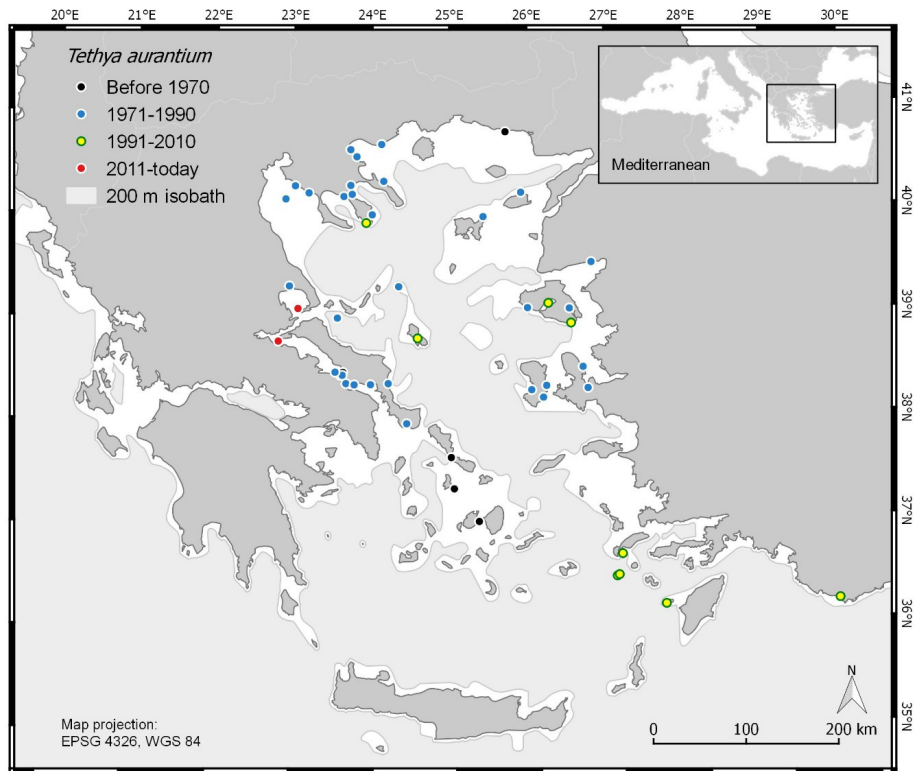


Fig. S18: Occurrence records of *Tethya aurantium* (Pallas, 1766) across the Aegean ecoregion.

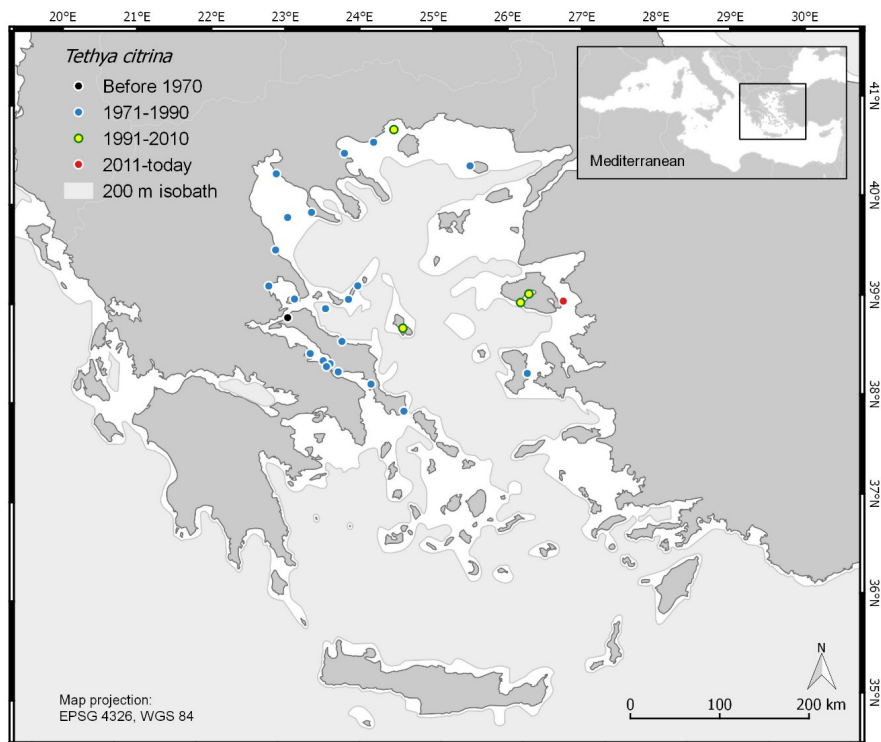


Fig. S19: Occurrence records of *Tethya citrina* Sarà & Melone, 1965 across the Aegean ecoregion.

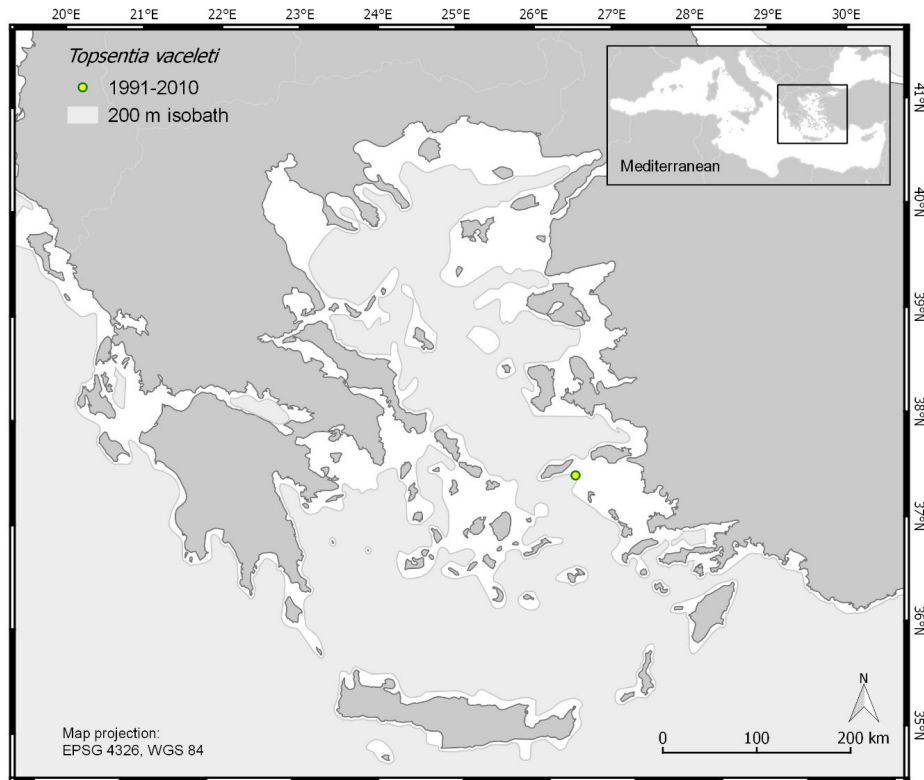


Fig. S20: Occurrence records of *Topsentia vacaleti* Kefalas & Castritsi-Catharios, 2012 across the Aegean ecoregion.

Supplementary Material 2

List of sources on the distribution of the examined sponges.

- Anonymous, 2008. *Development of innovative measures for the support of commercial sponge fisheries in the Aegean Sea*. Greek Ministry of Agriculture, 3rd Operational Program of Greece, Final Report, 208 pp. (In Greek).
- Antoniadou, C., Voultziadou, E., Chintiroglou, C., 2006. Sublittoral megabenthos along cliffs of different profile (Aegean Sea, Eastern Mediterranean). *Belgian Journal of Zoology*, 136, 69-79.
- Çinar, M.E., Ergen, Z., 1998. Polychaetes associated with the sponge *Sarcotragus muscarum* Schmidt, 1864 from the Turkish Aegean coast. *Ophelia*, 48, 167-183.
- Çinar, M.E., Katağan, T., Ergen, Z., Sezgin, M., 2002. Zoobenthos inhabiting *Sarcotragus muscarum* (Porifera: Demospongiae) from the Aegean Sea. *Hydrobiologia*, 482, 107-117.
- Dailianis, T., 2011. *Macro- and microtaxonomic study of Mediterranean bath sponges with morphometric and molecular approaches*. PhD Thesis. Aristotle University of Thessaloniki, Greece, 196 pp. (In Greek).
- Dailianis, T., Tsigenopoulos, C., Dounas, C., Voultziadou, E., 2012. Genetic diversity of the imperiled bath sponge *Spongia officinalis* Linnaeus, 1758 across the Mediterranean Sea: patterns of population differentiation and implications for taxonomy and conservation. *Molecular Ecology*, 20, 3757-3772.
- Ergen, Z., Çinar, M.E., 1994. Ege Denizinde dağılım gösteren *Cystoseira* fasiesinin kalitatif ve kantitatif yönden araştırılması. p. 138-149. In: *XII Ulusal Biyoloji Kongresi, Edirne, 6-8 July 1994*. Turkey (In Turkish).
- Ergen, Z., Kocataş, A., Katağan, T., Çinar, M.E., 1994. Gencelli Limanı (Aliğa – İzmir) bentik faunası. *Ege Üniversitesi Fen Fakültesi Dergisi*, 16, 1047-1059 (In Turkish).
- Ergüven, H., Ulutürk, T., Öztürk, B., 1988. Gökçeada'nın Porifera (sünger) faunası ve üretim imkanları. *İstanbul Üniversitesi Su Ürünleri Dergisi*, 2, 173-189 (In Turkish).
- Evangelopoulos, A., Gerovasileiou, V., Poursanidis, D., Katsiaras, N., Sini, M. *et al.*, 2013. *Underwater surveys for the investigation of benthic flora and fauna in the buffer marine area of Nisiopi Island*. Natural History Museum of the Lesvos Petrified Forest, Final report, 220 pp. (In Greek).
- Geldiay, R., Kocataş, A., 1972. İzmir Körfezinin benthosu üzerine preliminier bir araştırma. *Ege Üniversitesi Fen Fakültesi Monografiler Serisi*, 12, 3-33 (In Turkish).
- Gerovasileiou, V., Chintiroglou, C., Vafidis, D., Koutsoubas, D., Sini, M. *et al.*, 2015. Census of biodiversity in marine caves of the Eastern Mediterranean Sea. *Mediterranean Marine Science*, 16, 245-265.
- Gerovasileiou, V., Voultziadou, E., 2012. Marine caves of the Mediterranean Sea: a sponge biodiversity reservoir within a biodiversity hotspot. *Plos One*, 7, e39873.
- Gözcüoğlu, B., Van Soest, R.W.M., Alvarez, B., Konuklugil, B., 2015. New species of sponges (Porifera, Demospongiae) from the Turkish coast. *Turkish Journal of Zoology*, 39, 555-559.
- Hermans, J., Dubois, P., Andre, L., Vacelet, J., Willenz, P., 2009. Growth rate and chemical features of the massive calcium carbonate skeleton of *Petrobiona massiliana* (Baeriida: Calcaronea: Calcispongiae). *Journal of the Marine Biological Association of the United Kingdom*, 90, 749-754.
- Kefalas, E., Castritsi-Catharios, J., 2007. Taxonomy of some sponges (Porifera: Demospongiae) collected from the Aegean Sea and description of a new species. *Journal of the Marine Biological Association of the United Kingdom*, 87, 1527-1538.
- Kefalas, E., Castritsi-Catharios, J., 2012. A new species of Halichondriidae, *Topsentia vaceleti* n. sp. (Halichondrida, Demospongiae, Porifera), collected from coralligenous bottoms of the Aegean Sea. *Zootaxa*, 3314, 58-68.
- Kefalas, E., Castritsi-Catharios, J., Miliou, H., 2003. The impacts of scallop dredging on sponge assemblages in the Gulf of Kalloni (Aegean Sea, northeastern Mediterranean). *ICES Journal of Marine Science*, 60, 402-410.
- Kefalas, E., Tsirtsis, G., Castritsi-Catharios, J., 2003. Distribution and ecology of Demospongiae from the circalittoral of the islands of the Aegean Sea (Eastern Mediterranean). *Hydrobiologia*, 499, 125-134.
- Kocataş, A., 1978. İzmir Körfezi kayalık sahillerinin bentik formları üzerinde kalitatif ve kantitatif araştırmalar. *Ege Üniversitesi Fen Fakültesi Monografiler Serisi*, 12, 1-93 (In Turkish).
- Koutsoubas, D., Gerovasileiou, V., Poursanidis, D., Sini, M.I., 2007. *Environmental preliminary assessment of marine areas off Lesvos areas – potential target areas for the development of Diving Marine Parks*. Prefecture of Lesvos, Final report, 80 pp (In Greek).
- Laborel, J., 1960. Contribution à l'étude directe des peuplements benthiques sciaphiles sur substrat rocheux en Méditerranée. *Recueil des Travaux de la station Marine d'Endoume*, 33, 117-173 (in French).
- Laborel, J., 1961. Sur un cas particulier de concrétionnement animal. Concrétionnement à *Cladocora caespitosa* L. dans le Golfe de Talante. *Rapport du Commission Internationale de la Mer Méditerranée*, 16, 429-432 (in French).
- Pansini, M., Morri, C., Bianchi, C.N., 2000. The Sponge Community of a Subtidal Area with Hydrothermal Vents: Milos Island, Aegean Sea. *Estuarine, Coastal and Shelf Science*, 51, 627-635.
- Pérès, J.M., Picard, J., 1958. Recherches sur les peuplements benthiques de la Méditerranée nord-orientale. *Annales de l'Institut Océanographique de Monaco*, 34, 213-291 (in French).
- Pulitzer-Finali, G., 1983. A collection of Mediterranean Demospongiae (Porifera) with, in appendix, a list of the Demospongiae hitherto recorded from the Mediterranean Sea. *Annali del Museo Civico di Storia Naturale 'Giacomo Doria'*, 84, 445-621.
- Pulitzer-Finali, G., Pronzato, R., 1981. The Keratosa in a collection of Mediterranean sponges mainly from the Italian coasts. *Annali del Museo Civico di Storia Naturale 'Giacomo Doria'*, 83, 127-158.

- Riedl, R., 1966. *Biologie der Meereshöhlen*. Paul Parey, Hamburg, 636 pp. (In German).
- Salomidi, M., Giakoumi, S., Gerakaris, V., Issaris, Y., Sini, M. *et al.*, 2016. Setting an ecological baseline prior to the bottom-up establishment of a marine protected area in Santorini Island, Aegean Sea. *Mediterranean Marine Science*, 17, 720-737.
- Sarıtaş, M.Ü., 1972. Engeceli Limanı'nın silisli sünger (Porifera) faunası hakkında preliminier bir çalışma. *Ege Üniversitesi Fen Fakültesi İlmî raporlar serisi*, 143, 3-22 (In Turkish).
- Sarıtaş, M.Ü., 1973. Edremit, Altınoluk Sahilinde *Posidonia oceanica* (L.) üzerinde tesbit edilen bazı sünger türleri. *Ege Üniversitesi Fen Fakültesi İlmî raporlar serisi*, 168, 3-21 (In Turkish).
- Sarıtaş, M.Ü., 1974. İzmir Körfezi'nde yaşayan silisli süngerler (Porifera) üzerinde sistematik araştırmalar. PhD Thesis. Diyarbakır University, Turkey, 54 pp. (In Turkish).
- Sini, M., 2015. *Ecology and diversity of coralligenous assemblages in the Aegean Sea*. PhD Thesis. University of the Aegean, Mytilene, Greece, 162 pp. (in Greek).
- Sini, M., Katsanevakis, S., Koukouroufli, N., Gerovasileiou, V., Dailianis, T. *et al.*, 2017. Assembling Ecological Pieces to Reconstruct the Conservation Puzzle of the Aegean Sea. *Frontiers in Marine Science*, 4, 347.
- Szymanski, J.M., 1904. *Hornschwamme von Aegina und Brioni bei Pola*. Inaugural Dissertation, Breslau, 52 pp (in German).
- Topaloğlu, B., 2001. Gökceada kuzey sahili sünger faunası üzerine bir ön çalışma. p. 97-102. In: *Ulusal Ege Adaları 2001 Toplantısı Bildiriler Kitabı*. Öztürk, B., Aysel, V. (Eds). Türk Deniz Araştırmaları Vakfı, İstanbul. (In Turkish).
- Vacelet, J., 1961. Quelques éponges remarquables de Méditerranée. *Revue des travaux de l'Institut des pêches maritimes*, 25, 351-354 (in French).
- Vamvakas, C., 1971. Contribution to the study of soft substrata benthic biocoenoses of Greek Seas. Area W. Saronikos Gulf. *Hellemic Oceanology and Limnology*, 10, 1-152.
- Voultsiadou, E., 2005. Sponge diversity in the Aegean Sea: check list and new information. *Italian Journal of Zoology*, 72, 53-64.
- Voultsiadou, E., Kyrodinou, M., Antoniadou, C., Vafidis, D., 2010. Sponge epibionts on ecosystem-engineering ascidians: The case of *Microcosmus sabatieri*. *Estuarine Coastal and Shelf Science*, 86, 598-606.
- Voultsiadou, E., Vafidis, D., 2004. Rare sponge (Demospongiae, Porifera) from the Mediterranean Sea. *Journal of the Marine Biological Association of the United Kingdom*, 84, 593-598.
- Voultsiadou, E., Vafidis, D., Antoniadou, Ch., 2008. Sponges of economical interest in the Eastern Mediterranean: an assessment of diversity and population density. *Journal of Natural History*, 42, 529-543.
- Voultsiadou-Koukoura, E., 1986. *Systematics zoogeography and ecology of the demosponges (Porifera) of the continental shelf in the North Aegean Sea*. PhD Thesis. Aristotle University of Thessaloniki, Greece, 493 pp. (In Greek).
- Voultsiadou-Koukoura, E., Koukouras, A., 1993. Contribution to the knowledge of Keratose sponges (Dictyoceratida, Dendroceratida, Verongida: Demospongiae, Porifera) of the Aegean Sea. *Mitteilungen aus dem Zoologischen Museum in Berlin*, 69, 57-72.
- Voultsiadou-Koukoura, E., van Soest, R.W., 1991. *Phorbas posidoni* n. sp. (Porifera, Poecilosclerida) from the Aegean Sea, with a discussion of the family Anchinoidea. *Journal of Natural History*, 25, 827-836.
- Voultsiadou-Koukoura, E., van Soest, R.W.M., 1991. *Hemiasterella aristoteliana* n. sp. (Porifera, Hadromerida) from the Aegean Sea with a discussion of the family Hemiasterellidae. *Bijdragen tot de Dierkunde*, 61, 43-49.
- Voultsiadou-Koukoura, E., van Soest, R.W.M., Koukouras, A., 1991. *Coscinoderma sporadense* sp. n. from the Aegean Sea with comments on *Coscinoderma confragosum* (Porifera, Dictyoceratida). *Zoologica Scripta*, 20, 195-199.
- Yazıcı, M., 1978. Gökceada ve Bozcaada civarında saptanan Porifera türleri. *Biyoloji Dergisi*, 28, 109-121 (in Turkish).