WebPanel 1. Data on surveys reported in Table 1

Hiroshima Bay, Japan

(1) Sampled 2003–present

(2) Effort: dives per year; two persons × 5–15 dives × two tanks (~2 hours) per dive

(3) Total: 320 person-hours of diving

(4) Key findings: in 2003 and 2004, we dove mainly along natural rocky and boulder shores and in eelgrass bed areas, in addition to ripraps (hewn stones) and tetrapods (four-legged concrete structures) around the concrete breakwaters. Nevertheless, we could not find any polyps on the exposed substrates. In 2005, we dove both outside (with natural boulders, ripraps, tetrapods) and inside (with ripraps, vertical concrete walls, piles and chains of floating piers, the underside of floating piers, buoys, and old, unused boats) local fishing ports and found many polyps, but only inside the ports, specifically on the underside of floating piers, buoys, and boats. In 2006–2009, we carried out a similar survey and confirmed that no polyps are found on natural exposed substrate, such as rocks and boulders; only a few were found on the vertical concrete walls, while many were located underneath the artificial substrates. We also monitored predators of polyps (total of eight species, including a snail, four nudibranchs, two shrimp, and a crab); predators were encountered on the natural hard substrates, but almost none were found in the port area, and there were none underneath the floating substrates. We also found that newly deployed floating piers sustained many polyps (average during summer: 22 polyps cm^{-2}; Figure 1c), but old ones with thick accumulations of sessile organisms harbored few polyps, indicating that sessile organisms, such as oysters, mussels, and tunicates, displace the polyps of *Aurelia aurita*, possibly because they can filter planulae from the plankton. From 2010 to the present, we have been monitoring the polyp colonies underneath a floating pier (48 m × 6 m) that was installed in a fishing port in April 2010. The polyp density on this pier ranges seasonally from 1–5 polyps cm^{-2} (only larger polyps were counted due to photographic limitations); estimated numbers of ephyrae released from this pier are 20 million per year. Net sampling showed that ephyra density inside the port was at least three times higher after installment of the pier than before.

Southampton Water, UK

(1) Sampled once each month between May 2010 and July 2011

(2) Effort: two individuals sampling for 30 minutes from a surface pontoon (ie not diver surveys)

(3) Total: 15 observation hours

(4) Key findings: all polyps were found on shells of living mussels attached to the undersides of floating marina pontoons. Other surfaces (ie nearby stone dock wall or on other epifauna) did not have polyps. Polyp abundance ranged from 0.0002–0.6 polyps cm^{-2}.

Horsea Lake, UK

(1) Sampled by diver survey between June and September 2001

(2) Effort: 5 × 1-hour dives by two divers

(3) Total: 10 hours of diving

(4) Key findings: polyps were found on mussels attached to the undersides of artificial structures (radar dome, land rover vehicle, platform, boat, etc) placed in the lake. Polyp abundance ranged from 1–9.5 polyps cm^{-2} in June to 9–20.6 polyps cm^{-2} in September. The remainder of the seabed is a mixture of soft mud–shingle sediment and no polyps were found there.

Gulf of Trieste and the northern Adriatic Sea

(1) Sampled by divers for >10 years (2000–present) searching natural rocky and boulder shores, seagrass beds, and environments probably unsuitable for polyps, such as muddy sediments

(2) Effort: annual surveys involving three researchers and several students, allocating >100 person-hours per year

(3) Total: >1000 hours of surveys

(4) Key findings: numerous transects along the shore and perpendicular to the coast were completed, but scyphozoan polyps were never found on any natural hard substrate. In 2004–2007, several dives (2–3 per season per year) were made near fish farms, but no polyps were detected. During an ecological survey of the port of Koper in 2009, *Aurelia* spp polyps were found, the majority of which were attached to the undersides of oyster shells growing on dock pillars. In March 2010, we began a monthly monitoring program of the polyp population in five marked areas. An additional survey was conducted to determine whether polyps were living on more pillars than the one monitored regularly. The difficulties of working in the port restricted our survey to one pier (built in 1998 and enlarged in 2004, overall comprising 574 pillars). All pillars examined had polyp populations. Monthly surveys showed that the abundance of polyps varied seasonally, from a minimum of six polyps cm^{-2} in late winter to a maximum of 27 polyps cm^{-2} in summer. Strobilation occurred during November–February; the maximum proportion of strobilating polyps (82%) was in November, and the maximum observed number of ephyra disks per polyp was 18. The potential number of ephyrae released from the polyp population in the port of Koper was estimated to be 5×10^{10} ephyrae in November. Net zooplankton samples have been collected bimonthly since 2004 near our oceanographic buoy (http://buoy.mbss.org/portal/index.php?option=com_content&task=view&id=12&Itemid=26), located about 10 miles from the port. *Aurelia* spp ephyrae were detected very rarely in those samples; high ephyra abundances were detected only in net tows taken within the port area. In earlier zooplankton samples, ephyrae of *Pelagia noctiluca* were found in 1978/79 and 1984/85. Recently, zooplankton was also sampled twice (ends of July and November 2004) at 11 locations along three transects from the eastern to western coast of the "open" northern Adriatic. In November, ephyrae were found at five offshore locations and were fairly abundant at one station (0.4 individuals m^{-3} in vertical tows from near bottom to surface). Past samples taken monthly from similar transects in 1978/79 and January 1980 contained no ephyrae offshore in the northern Adriatic. The only documented natural substrate containing *Aurelia* spp polyps in the Adriatic is

continued

WebPanel 1. – *continued*

found in a marine lake on the southern Adriatic island of Mljet. In 2011, *Aurelia* spp polyps were detected in two other eastern Adriatic ports (Split and Ploče). Polyps were also identified growing beneath oyster shells from photographs of fouling communities taken during an ecological survey of Croatian offshore gas platforms (summer 2011).

Port of Sant Carles de la Rapita, Catalunya, Spain

(1) Sampled by snorkeling surveys

(2) Effort: two individuals snorkeling for 2 hours each

(3) Key findings: *Obelia dichotoma* polyps (hydroids) were found growing on plastic debris in the harbor. *Phyllorhiza punctata* jellyfish were also observed in the harbor. *Obelia dichotoma* hydroid colonies were found attached to a long plastic cover extending along the full length (about 200 m) of a new dock. No *O dichotoma* polyps were observed on other substrates. Most of the hydroid colonies had several medusa buds that were nearly ready to release medusae and polyps that had clearly just released medusae. Plankton samples collected in the harbor with a small bongo net of 200-μm mesh size revealed *O dichotoma* medusa density to be 4 individuals m^{-3}.

Mar Menor, Murcia, Spain (*Cotylorhiza tuberculata* polyps)

(1) Sampled by SCUBA divers

(2) Effort: details lost with deceased co-author, F Pagés

(3) Key findings: after an intensive survey of the lagoon, *Cotylorhiza tuberculata* polyps were found on samples of oyster shells and on piers above abandoned oyster cultures. Pagés (2001) reported that one of the causes of the proliferation of *C tuberculata* in the Mar Menor was the abundance of suitable substrate for the polyps provided by the millions of empty oyster shells on the bed of the lagoon.

WebTable 1. Summary of ANOVA testing the substrate preferences of jellyfish planulae

Effect	*DF*	*F*	*P*
Cotylorhiza tuberculata			
Substrate (S)	3	15.56	< 0.0001
Position (P)	1	10.48	0.0026
S × P	3	3.8	0.0205
Chrysaora quinquecirrha			
Substrate (S)	15	5.28	< 0.0001
Light (L)	1	1633	< 0.0001
S × L	15	104.8	< 0.0001

Notes: the experiment with *Cotylorhiza tuberculata* involved exposed and sheltered locations; the experiment with *Chrysaora quinquecirrha* involved assessments of the effects of light and darkness. DF = degrees of freedom.

WebReferences

Pagés F. 2001. Past and present anthropogenic factors promoting the invasion, colonization and dominance by jellyfish of a Spanish coastal lagoon. In: Briand F (Ed). Gelatinous zooplankton outbreaks: theory and practice. Monaco-Ville, Principality of Monaco: CIESM. Workshop Series 14.

