

Alien Crabs

First records of two crabs from the North West Pacific *Hemigrapsus sanguineus* and *H. takanoi* at the coast of Lower Saxony, Germany

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In November 2007, in the aquarium of the visitor center of the Wadden Sea National Park of Lower Saxony on the island of Norderney, an unknown brachyuran crab was found, which was later identified as *Hemigrapsus sanguineus* (Decapoda, Brachyura, Grapsidae). On the 29th of November 2007, a specific field sampling was conducted by biologists of the NLWKN at low tide in order to verify the record of the invader.

The literature (Breton *et al.* 2002) indicates that in French coastal waters *H. sanguineus* was found under stones and rocks of the tidal zone. At an intertidal mussel bed located beneath the harbour of Norderney small basalt rocks appeared to be an ideal habitat of *Hemigrapsus*, because between 2 and 5 individuals were found under almost every rock. Almost 20 crabs were recorded within a few minutes, and with the exception of one female all individuals were identified as *H. sanguineus*. In comparison, only one juvenile common shore crab (*Carcinus maenas*) was recorded. Noteworthy was the identification of three juvenile edible crabs (*Cancer pagurus*), which has been a very rare species in the intertidal over the last years.

Identification characteristics:

- square shaped carapax with 3 teeth at each side,
- mottled colours from green, red-brown to dark violet and red-violet spots on the top side of the claws,
- pereiopods display light and dark horizontal stripes,
- males with characteristic fleshy vesicle at the base of the cheliped dactylus. This distinctive identification criterion is difficult to be observed in juvenile individuals. Furthermore, the vesicle collapses within 1 to 2 hours when the animal is conserved in ethanol.

At French, Belgian and Dutch coasts, a further invasive crab species was recorded (Breton *et al.* 2002): *Hemigrapsus takanoi* (Asakura & Watanabe 2005). This crab, originating from Asia, was first recorded in Europe in the middle of the last decade at the French Atlantic coast and in the year 2000



Top:
Hemigrapsus sanguineus ♂,
Bottom:
H. sanguineus ♀
(Photo: B. Obert)

♂ [mm]	♀ [mm]	
10,0	11,0	(<i>H. takanoi</i> ?)
12,0	11,5	
14,0	12,0	
15,5	13,0	
18,0	13,5	with eggs
18,0	16,0	
18,0	16,5	with eggs
18,5		
19,0		

Table 1:
Distribution of sex and size of the carapax of *H. sanguineus* found on the island of Norderney on 29.11.2007

in the Oosterschelde, The Netherlands (Nijland 2000). At this time, the species was still identified as *H. penicillatus* (Noël *et al.* 1997; Nijland 2000). In connection with the investigations carried out by the NLWKN at Norderney several crabs of the genus *Hemigrapsus* were found at the intertidal area under stones of an eroded groyne eastwards

of Norddeich by P. Herlyn, which were later identified as *H. takanoi*.

Hemigrapsus takanoi is slightly smaller (size of carapax $\leq 2,5\text{cm}$) and colouration is rather orange-brown. In contrast to *H. sanguineus*, the pereopods do not have horizontal stripes and have more short and robust setae on the outer sides. As in *H. sanguineus*, the claws of the males are distinctly bigger than those of the females.

The most distinct difference between the two species is the sponge-like yellow-brownish bundles of hair on the inner and outer sides of the male claws of *H. takanoi*. Often and predominantly the carapax of the females shows two bigger or smaller symmetrically arranged white spots.

Top:
Hemigrapsus takanoi ♀,
Bottom:
H. sanguineus ♂
(Photo: B. Obert)



The records confirm that since November/December 2007 the decapods *H. sanguineus* and *H. takanoi* have lived in coastal waters of Lower Saxony. In Schleswig-Holstein, several individuals of *Hemigrapsus* have been recorded since the end of 2006. Two of them (male and female) were identified as *H. sanguineus* in November 2007. The record of *H. takanoi* near Norddeich was the very first documentation at the German coast.

Literature

Breton, G. et al, 2002. A new alien crab in Europe: *Hemigrapsus sanguineus* (Decapoda: Brachyura: Grapsidae). *Journal of crustacean biology*, 22 (1): 184-189, 2002.

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Udekem d'Acoz C. d', Faasse M., 2002. De huidige status van *Hemigrapsus sanguineus* (de Haan, 1835) en *H. penicillatus* (de Haan, 1835) in de noordelijke Atlantische Oceaan, in het bijzonder in Nederland, met opmerkingen over hun biologie (Crustacea, Decapoda, Brachyura). *Het Zeepaard*, 62(4): 101-115. [English traduction available on request; includes precise line drawings].

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Noël P.Y., Tardy E., Udekem d'Acoz C. d', 1997. Will the crab *Hemigrapsus penicillatus* invade the coasts of Europe? *C.R.Acad.Sci.Paris, Sciences de la vie /Life Sciences*, 320: 741-745. [Identified as *H. penicillatus*].

Table 2:
Distribution of sex and size of the carapax of some individuals of *H. takanoi* recorded in the tidal zone near Norddeich (2.12.2007)

♂ [mm]	♀ [mm]	
9,0	10,0	
12,0	11,0	with eggs
12,0	11,2	
13,5	12,5	
14,0		
15,0		
16,0		
17,0		

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