

# 35. Diseases caused by exogenous toxins in reptiles

As with several marine mammal species, most studies of toxins in aquatic reptiles, notably marine turtles, have involved residue levels that may be sufficiently high to affect human health if consumed.

## TRACE METALS

In one study in the Torres Strait, analysis of a wide range of seafoods in most cases revealed only low levels of trace metals although livers of green turtles contained high levels of cadmium, copper and selenium, and turtle kidneys contained high levels of cadmium, selenium and possibly mercury. Turtle intestine and muscle contained high levels of mercury. Similar high levels of cadmium occur in green turtles in Hawaii (Gladstone 1996).

Overseas studies on heavy metal residues in sea turtles are few and of varied type, so comparison of apparent pollution is difficult.

Because of its presumed old age and exceptional mobility across oceans, a large leatherback turtle killed off the coast of the UK was considered an excellent indicator of several environmental pollutants. None of the values determined for heavy metals (mercury, cadmium, zinc or nickel) or for copper, lead, selenium or arsenic in the turtle were regarded as elevated above the normal background levels seen in other marine animals (Davenport *et al.* 1990).

## POLYCHLORINATED BIPHENYLS

There appear to be few reports of PCB residues in marine turtles. Total PCB concentration in the fatty tissue of the above leatherback turtle was similar to the

lowest concentrations reported from oceanic cetaceans (Davenport *et al.* 1990).

## SODIUM FLUOROACETATE

Reptile species in Australia that were experimentally poisoned with 1080 were generally more tolerant than other animals. The most common signs were lack of movement or convulsions. Signs commenced 15 hours to almost seven days after dosing, and deaths followed from 15 hours to almost 22 days post-dosing. Pathological changes were not described (McIlroy *et al.* 1985).

## CRUDE OIL

As with PCB, there are few reports of lesions in marine reptiles affected by crude oil. In one experimental study of loggerhead turtles, however, marked gross and histological changes occurred after exposure to weathered crude oil; the lesions were consistent with an acute or irritant dermatitis. Most changes were reversible and resolved within 10 days following cessation of oil exposure. None of the turtles in the experiment died after exposure to the oil for two to five days (Bossart *et al.* cited by Vogelnest 2000). In addition to affecting adults, crude oil may adversely affect eggs and hatchlings at nesting sites.

## MISCELLANEOUS TOXINS

Mortalities occurred in farmed green turtles that were fed fish contaminated with diesel fuel. Lesions in one turtle were necrosis of gastric and intestinal epithelium, and pulmonary oedema (Glazebrook and Campbell 1990).