A sand hopper (*Talitrus saltator*)

MarLIN – Marine Life Information Network
Biology and Sensitivity Key Information Review

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2005-04-04

A report from:
The Marine Life Information Network, Marine Biological Association of the United Kingdom.

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This review can be cited as:
Budd, G.C. 2005. *Talitrus saltator* A sand hopper. In Tyler-Walters H. and Hiscock K. (eds) *Marine Life Information Network: Biology and Sensitivity Key Information Reviews*, [on-line]. Plymouth: Marine Biological Association of the United Kingdom. DOI https://dx.doi.org/10.17031/marlinsp.1820.2

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Talitrus saltator
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See online review for distribution map

Distribution data supplied by the Ocean Biogeographic Information System (OBIS). To interrogate UK data visit the NBN Atlas.

Researched by	Georgina Budd	**Refereed by**	This information is not refereed.
Authority	(Montagu, 1808)		
Other common names	-	**Synonyms**	*Talitrus locusta*

Summary

Description

Talitrus saltator is an active supralittoral sand-hopper, growing up to 20 mm in length. It has a typical gammaridean body-plan, dorso-laterally compressed with three main divisions, head, pereon (thorax) and pleon (abdomen), both pereon and pleon are segmented and smooth. Antennae are distinct and one is much longer and robust than the other. Eyes are round and black, the body being grey-brown in colour.

Recorded distribution in Britain and Ireland

Locally common on all coasts of Britain and Ireland.

Global distribution

In the N.E. Atlantic and North Sea, along European coasts from southern Norway to the western Mediterranean.

Habitat

Talitrus saltator is a supralittoral amphipod usually found beneath or amongst debris and decaying algae deposited at the high water mark or during the day it may be buried at depths between 10-30 cm in the substratum.

Depth range
Supralittoral

Identifying features

- A laterally compressed robust body; pereon is broad, pleon rather compressed.
- Large head without rostrum, mouth-parts pendant (hang down) and mandible without palp.
- Antenna 1 much shorter than peduncle of antenna 2; antenna 2 more robust and flagellum appears serrated.
- In females, antenna 2, although longer than antenna 1, is much shorter and less robust than in males.
- Seven pairs of thoracic limbs, the first two pairs are modified as gnathopods.
- Gnathopods 1 and 2 are similar in both sexes. Gnathopod 1 simple but robust with an elongated 5th limb segment (carpus). The final segment of gnathopod 2 (the propodus) is 'mitten' shaped.
- Walking legs (pereopods) are robust and spined.
- Telson (flap-like tail structure) slightly wider than long with several spines.
- *Talitrus saltator* is immediately distinguishable from *Talorchestia* by examination of the ramus of the 3rd uropod (appendage of the pleon). In *Talitrus* the ramus has 4 strong dorsal spines and terminates in a spine almost as long as the ramus.

Additional information
An extensive review of the Talitridae was published by Bulycheva (1957) in which the concept of the family was reconsidered and a number of genera removed to newly erected families, Hyalidae and Hyalellidae. The separation provides a convenient ecological grouping with the truly terrestrial genera in the Talitridae, a family consisting of five genera (*Talitrus*, *Orchestia*, *Talorchestia*, *Talitroides* and *Brevitalitrus*), all of which are recorded in the British Isles. *Talitrus* are a small circumtropical genus comprising about 10 recognized species but *Talitrus saltator* is the only species that extends into the north east Atlantic area (Lincoln, 1979).

Listed by

Further information sources

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Biology review

Taxonomy

Order	Amphipoda Sand hoppers and skeleton shrimps
Family	Talitridae
Genus	Talitrus
Authority	(Montagu, 1808)
Recent Synonyms	Talitrus locusta

Biology

Typical abundance	
Male size range	8.2-16.5mm
Male size at maturity	> 8.0mm
Female size range	> 8.0mm
Female size at maturity	
Growth form	Articulate
Growth rate	See additional information
Body flexibility	High (greater than 45 degrees)
Mobility	
Characteristic feeding method	
Diet/food source	Omnivore
Typically feeds on	Partly decayed seaweed and other vegetation.
Sociability	
Environmental position	Epibenthic
Dependency	No information found.
Supports	No information
Is the species harmful?	No

Biology information

Growth rate

Williams (1978) reported that juvenile growth rates averaged 5.5 mm in 100 days decreasing to 1.3 mm in 100 days after sexual differentiation at around 8.0 mm.

Mobility

The leaping habit of the Talitridae is confined to the family and is achieved by the sudden extension of the intucked, short posterior end of the body. In order to achieve a leap, the species has to stand on its legs in a manner not characteristic of the Amphipoda, which normally move on their side. The sudden tail-flick is undirected and it may land anywhere. Hopping is repeated until a safe place is found (Reid, 1947).

Pattern of activity

Despite the widespread occurrence of *Talitrus saltator* in the supralittoral zone of sandy beaches along the Atlantic coasts of Europe and the Mediterranean (Dahl, 1952), most work concerning the species has focused on its behaviour, in particular influences on the locomotor activity rhythm of

the species e.g. Williams (1980, 1979, Williams, J.A., 1983).
During the day, *Talitrus saltator* is found buried in the substratum above the high tide line but, at night it emerges on the ebb tide to forage intertidally on the strandline algae. It must, however, return to the high supralittoral before the flood tide. Williams, J.A. (1983) found that this activity was under a precise endogenously controlled rhythm, which in constant conditions will free-run for > 100 days without variation.
Following specific light cues at dawn (a threshold light intensity of 1.5 lux, Williams, 1980), nocturnal surface foraging activity ceases and the sand hopper moves upshore in order to locate burrowing sites above the previous high tide level. This dawn upshore migration is also controlled by an endogenous circadian rhythm, probably independent of that controlling emergence and foraging (Hayward, 1994), as following peak nocturnal activity, the sand hopper quite suddenly switches to orientated movement in the direction of light/dark boundaries (horizon). A behaviour that Edwards & Naylor (1987) demonstrated experimentally.
The activity cycle of *Talitrus saltator* is also entirely circadian. Its nocturnal activity in the intertidal zone occupies a six to eight hour period which, peaks between 0100 and 0300 hours GMT regardless of tidal state and cycles over a period of 24.46 hours. Owing to the requirement for the activity pattern to be phased with the seasonally changing night/day ratio (nL/D) a perceptible daily shift is apparent (Hayward, 1994). Williams (1980) found that the dawn light transition, rather than dusk, was used by *Talitrus saltator* to synchronize its periods of activity with the nL/D cycle.
The pattern of behaviour seems to serve two purposes. Firstly, it prevents the sand hoppers' burrow zone being completely inundated during the next high tide and consequently a semi-lunar horizontal displacement of the burrow zone occurs (Williams, 1979).
Secondly, the activity is related to humidity. Moisture conservation is a major stress for crustaceans living a transition between marine and terrestrial life-styles and behavioural mechanisms used to locate and maintain humid microhabitats during the diurnal quiescent phase of their circadian activity cycle is vital.

Population differences
Differences in physical morphology and behaviour are reported (Scapini *et al.*, 1999). For instance, where tides are virtually absent in parts of the Mediterranean, the sand hopper moves landwards beyond high water to forage (Scapini *et al.*, 1992). It navigates back to the supralittoral zone, using celestial orientation, with a circadian timing that is reinforced by visual clues (e.g. Mezzetti & Scapini, 1995; Ugolini & Scapini, 1988).
In conclusion, endogenous behaviour rhythms are especially important in mobile intertidal organisms for the maintenance of a zoned distribution on the shore and for the synchronization of whole population behaviour, vital for reproduction.

Habitat preferences

Physiographic preferences	Open coast, Strait / sound, Sea loch / Sea lough, Enclosed coast / Embayment
Biological zone preferences	Supralittoral
Substratum / habitat preferences	Strandline
Tidal strength preferences	Not relevant
Wave exposure preferences	Not relevant
Salinity preferences	No information
Depth range	Supralittoral

Other preferences	The optimum sand particle diameter for *Talitrus saltator* is in the range of 330-600µm (Dahl, 1946; Williams, 1983b).
Migration Pattern	Non-migratory / resident

Habitat Information

During the winter quiescent populations can be found burrowed above the extreme high water spring tide mark, at depths up to 50 cm (Bregazzi & Naylor, 1972; Williams, J.A.,1976). From field studies, Williams (1983b) found that the majority of adults burrowed down in to the substratum until sand with at least 2% moisture content is encountered. Recently hatched juveniles are considered to be physically incapable of burrowing in order to avoid desiccation (Williams, 1978) and are consequently found amongst freshly deposited seaweed that maintains a relatively high humidity of 85-90% over the low tide (Williamson, 1951).

Life history

Adult characteristics

Reproductive type	Gonochoristic (dioecious)
Reproductive frequency	Annual episodic
Fecundity (number of eggs)	See additional information
Generation time	<1 year
Age at maturity	See additional information
Season	May - August
Life span	1-2 years

Larval characteristics

Larval/propagule type	-
Larval/juvenile development	Ovoviviparous
Duration of larval stage	Not relevant
Larval dispersal potential	10 -100 m
Larval settlement period	Not relevant

Life history information

Sexes are separate. It is possible to distinguish between sexes in specimens with a body length between 8.0 and 8.5 mm (Williams, 1978). For a description of embryonic development in *Talitrus saltator* see Williams (1978, Figure 1). All eggs within a single brood are at the same stage of morphological development. For a female of 12.6 mm length the mean number of eggs per brood is 13, larger females may carry a slightly larger brood of 15.
As in all crustaceans, mating and the release of juveniles, are synchronised with the moult cycle. Adults pair during their nightly migration down the beach and mate in the sand once the female has completed her moult. In the Isle of Man, Williams (1978) first caught egg bearing females in samples during May with high reproductive activity occurring between May and late August so that by September all brood pouches were found to be empty. This breeding cycle is in contrast to those of other intertidal amphipods and isopods (Hayward, 1994) in that the breeding period is

shorter and controlled by day length (*Talitrus saltator* breeds when the natural day length is in excess of 14 hours (Williams, 1985)) irrespective of air and sea temperature (Williams, 1978). Williams (1978) found two generations to be present over a year and females died during their second overwintering period, before the males. Williams (1978) calculated the lifespan of females to be ca 18 months and 21 months for males. Juveniles become sexually differentiated within three to four months of hatching and do not contribute to a precocious, secondary breeding population in the summer, they usually reach maturity by the autumn and do not breed until the following summer. The overwintering population consists of young adults, with an additional number of juveniles arising from the last brood of the season and a few large sexually mature adults that were the last to breed. Such adults die in February, so that the young adults and maturing juveniles that overwintered, constitute the new breeding population (Williams, 1987; Hayward, 1994).

Sensitivity review

This MarLIN sensitivity assessment has been superseded by the MarESA approach to sensitivity assessment. MarLIN assessments used an approach that has now been modified to reflect the most recent conservation imperatives and terminology and are due to be updated by 2016/17.

Physical Pressures

	Intolerance	Recoverability	Sensitivity	Confidence
Substratum Loss	High	Very high	Low	Moderate

Talitrus saltator lives in close association with the sandy substratum of the supralittoral and intertidal zones. During the day the inactive sand hopper remains burrowed within the substratum, emerging at night to forage in the intertidal or amongst strandline debris. Despite being mobile (specimens have been observed to travel 80 m at night (Williamson, 1951b)) the sand hopper is likely to have a high intolerance to substratum loss as it is reliant upon it for protection from desiccation and predators. Recoverability has been suggested to be very high as the species is locally widespread and young adults and maturing juveniles would probably remain in areas adjacent to the disturbance, so would colonize and breed.

Smothering	Low	Very high	Very Low	Moderate

Talitrus saltator inhabits a non-permanent burrow in sand just above the high-water strandline material or within strandline material itself. The species can burrow to depths of 50 cm where during daylight hours it remains inactive but emerges during the night to forage on strandline debris. Adults of the species are unlikely to be adversely affected by an additional covering of 5 cm of sediment consistent with that of the habitat, although juveniles are not considered physically robust enough to burrow up through an additional covering of sediment (Williams, 1978). Thus mortality of the most recent cohort might be expected. Intolerance has been assessed to be intermediate but recovery very high, as young adults and maturing juveniles are likely to survive.
intolerance of the species would be expected to be higher if the smothering material was atypical for the habitat or if the material was impermeable or viscous e.g. oil.

Increase in suspended sediment	Not relevant	Not relevant	Not relevant	Not relevant

Increased suspended sediment is unlikely in the supralittoral. The factor has therefore been assessed not to be relevant.

Decrease in suspended sediment	Not relevant	Not relevant	Not relevant	Not relevant

Decreased suspended sediment is unlikely in the supralittoral. The factor has therefore been assessed not to be relevant.

Dessication	Not relevant	Not relevant	Not relevant	Not relevant

The high water mark Talitridae are terrestrial but show little structural modification for their lifestyle, e.g. they have no obvious adaptations to limit water-loss, and their branchial method of respiration is typically aquatic. It is thus likely that the desiccating power of the air plays an important role in defining the species habitat and determining its habit (Williamson, 1951). Consequently the movement of *Talitrus saltator* between high water spring tide and high water neap tide marks is related to the sand hoppers efforts to reduce diurnal desiccation stress (Williams, 1996) as unprotected individuals above the substratum survive only approximately 0.5 -1 hour (Williamson, 1951). Intolerance of *Talitrus saltator* to desiccation would be

reported to be high, except for its mobility and habit which protect it from the factor. Consequently, not relevant has been reported.

Increase in emergence regime Tolerant Not relevant Not sensitive Not relevant

Under stressful conditions such as finding itself on especially dry substrata the supralittoral talitrid *Talitrus saltator* demonstrates zonal orientation, which is the means by which it promptly regains the most optimal zone of the beach for itself. Thus *Talitrus saltator* has been assessed to be tolerant of an increase in emergence because the species is sufficiently mobile to avoid the change in the factor and has behavioural mechanisms to reduce diurnal desiccation stress that would be associated with an increase in emergence.

Decrease in emergence regime Not relevant Not relevant Not relevant Not relevant

Talitrus saltator is not found far from the sea, being confined to the region near the high-water mark in order to avoid desiccation and it is doubtful that the species enters the sea voluntarily, e.g. Walker (1895) (cited in Reid, 1947) observed that at very high tides, numbers of the species were driven into the Port Erin laboratory (Isle of Man). The species can swim with the help of its tail-flip if accidentally inundated by the tide (Vogel, 1985). Dahl (1946) experimented with the reactions of certain Talitridae to water and found that *Talitrus saltator* could tolerate immersion for over a week. If accidentally immersed it is likely that *Talitrus saltator* would be able to use its tail-flip to swim (Vogel, 1985) and exit the water. However, the circadian pattern of activity, under endogenous control, serves to prevent the species being inundated with water (see general biology) and consequently this factor has been assessed not to be relevant to the species.

Increase in water flow rate Not relevant Not relevant Not relevant Not relevant

Increased water flow is not a factor of relevance in the supralittoral zone. The factor has therefore been assessed not to be relevant.

Decrease in water flow rate Not relevant Not relevant Not relevant Not relevant

Decreased water flow is not a factor of relevance in the supralittoral zone. The factor has therefore been assessed not to be relevant.

Increase in temperature Low Immediate Not sensitive Moderate

Talitrus saltator occurs to the south of the British Isles, so is likely to be tolerant of a chronic temperature increase of 2°C. Bregazzi & Naylor (1972) observed that the timing of activity was temporarily advanced by increased temperature but otherwise the activity pattern possessed a large measure of temperature independence. Specimens brought in to laboratory conditions from a field temperature of 10.5°C were introduced to (within 3 hours) and maintained for 15 days at constant temperatures of 15, 20 and 25°C. For *Talitrus saltator* maintained at the highest temperatures the activity mid-point advanced by as much as three hours to occur before midnight. However, alterations in activity were compensated for within two to ten days.

Acute temperature increases may therefore temporarily disrupt activity of the sand hopper but owing to insufficient evidence for adverse effects in the field intolerance has been assessed to be low. Immediate recovery has been recorded as the locomotor activity rhythm is synchronized within a few days.

Decrease in temperature Intermediate Immediate Very Low Moderate

Talitrus saltator remains inactive in high shore burrows for much of the winter in more northern latitudes. In the laboratory, exposure to low temperature (2 or 3 °C) was accompanied by the onset of inactivity, a precipitous decrease in oxygen uptake and a marked

increase in the concentrations of the major ions in the haemolymph (Spicer *et al.*, 1994). In addition to causing a complete cessation of activity, chilling (2-3°C for 8 hours) also causes a delay in the successive activity peaks following return to normal temperatures. Maximum delay occurred if chilling began during the inactive period of the sand hopper and was of equal duration to that of the chill. At other times the delay was less than that of the chill (Bregazzi, 1972). Thus it is possible that exposure to decreased temperatures in the field would enforce a period of inactivity causing disruption to the species normal behaviour with potential consequences for the maintenance of a position with appropriate moisture, e.g. the substratum may be come to dry or the temporary burrow become inundated with water. The effects of an unusually cold winter are likely to be a simple physical one, whereby quiescent sand hoppers freeze within the substratum, causing cell and tissue damage and eventually rupture of cell and body walls. Other supralittoral members of the Talitridae with a similar habit to *Talitrus saltator* were reported to be adversely affected by the severe winter of 1962/63 in particular sand hoppers of the genus *Orchestia* were found dead in considerable numbers (Crisp, 1964). Intolerance has been assessed to be intermediate as the behaviour of the sand hopper is likely to be disrupted by mild chilling, but death as a result of freezing is probable in severe winters. Recovery from mild chilling has been assessed to be immediate following an initial disruption to its activity.

Increase in turbidity Not relevant Not relevant Not relevant Not relevant

Increased turbidity is not a factor of relevance in the supralittoral zone. The factor has therefore been assessed not to be relevant.

Decrease in turbidity Not relevant Not relevant Not relevant Not relevant

Decreased turbidity is not a factor of relevance in the supralittoral zone. The factor has therefore been assessed not to be relevant.

Increase in wave exposure Not relevant Not relevant Not relevant Not relevant

Talitrus saltator is sufficiently mobile to avoid exposure to wave action. The factor has therefore been assessed not to be relevant.

Decrease in wave exposure Not relevant Not relevant Not relevant Not relevant

Talitrus saltator is sufficiently mobile to avoid exposure to wave action. The factor has therefore been assessed not to be relevant.

Noise Tolerant Not relevant Not sensitive Low

Talitrus saltator is unlikely to be able to detect environmental noise at levels sufficient to cause disturbance.

Visual Presence Low Immediate Not sensitive Low

Talitrus saltator demonstrates possession of 'form-vision', in that it shows a positive orientation to certain silhouettes. Williamson (1951b) demonstrated such visual orientation under experimental conditions in the laboratory, where the sand hopper showed positive orientation towards the foot of an incline and sometimes towards a vertical, dark-light boundary. Individuals Talitrus saltator become very agitated if uncovered and hop until they land in shelter. Part of the disturbance is probably a reaction to increased light rather than visual disturbance. Nevertheless, there is an energy consequence and a tentative low intolerance has been suggested.

Abrasion & physical disturbance Intermediate High Low Not relevant

Talitrus saltator is a highly mobile species that is sufficiently mobile to avoid abrasion at the

benchmark level. It occurs in the upper eulittoral where it is unlikely to be exposed to mooring or anchoring, and at low tide is protected from the effect of trampling in its burrows. However, the invertebrate communities of strandline debris, including amphipods (e.g. *Talitrus saltator*) was shown to be markedly affected by beach cleaning (Llewellyn & Shackley, 1996). Beach cleaning removes the strandline debris of seaweeds and other flotsam which provide food for *Talitrus saltator* and other amphipods and invertebrates. Juveniles amphipods may use the debris as protection against desiccation until old enough to burrow, so that the annual juvenile recruitment to the population may be lost if strandline debris is removed (Llewellyn & Shackley, 1996). In addition the use of tractors to pull automated rakes, compacts the sand and can crush infauna. Therefore, intolerance has been recorded as intermediate. Recoverability is likely to be very high.

Displacement	Not relevant	Not relevant	Not relevant	Not relevant

Talitrus saltator is a mobile species which easily re-locates once physically removed from a substratum. The factor has therefore been assessed not to be relevant.

Chemical Pressures

	Intolerance	Recoverability	Sensitivity	Confidence
Synthetic compound contamination	High	High	Moderate	Very low

In general, crustaceans are widely reported to be sensitive to synthetic chemicals (Cole *et al.*, 1999) and intolerance to some specific chemicals has been observed in amphipods. Amphipods have been reported to be sensitive to TBT and leachates from antifouling paints (Laughlin *et al.*, 1982). Ten day LC_{50} values of 1-48ng/TBT/l were reported for gammaridean amphipods (Meador *et al.*, 1993). Intolerance has been assessed to be high, assuming deterioration of the contaminant (in the absence of information to the contrary for this species) and recovery high as the species is widespread and likely to recruit rapidly.

Heavy metal contamination		Not relevant		Not relevant

Talitrus saltator has been used as a spatial and temporal heavy metal biomonitor (Rainbow *et al.*, 1989, 1998; Fialkowski *et al.*, 2000). Bioavailable sources of trace metals to talitrids are available in solution and in food, the latter consisting of decaying macrophytic material on the strandline. Such material acts as an adsorption site for heavy metals locally, as sandy substrata does not adsorb contaminants as easily as other substrata.
The species is an efficient bioaccumulator of heavy metals and whose moult cycle does not interfere with its biomonitoring potential. Specimens (0.01g) of the sand hopper from the Isle of Cumbrae, a non metal polluted site in the Clyde, Scotland, had zinc concentrations between 145-181 µg /Zn/g and copper concentrations of 35.8 µg/Cu/g (Rainbow & Moore, 1990). In comparison, *Talitrus saltator* (0.01g) from a heavy metal polluted site in Dulas Bay, Anglesey, Wales (Foster *et al.*, 1978; Boult *et al.*, 1994) had a zinc concentration of 306 µ g/Zn/g and a copper concentration of 112 µ g/Cu/g. In the Gulf of Gdansk, Poland, comparable concentrations for zinc were in the region of 200-400 µ g/Zn/g with bottom sediment zinc concentrations of 0-20 µg/g and 40µ g/g in the most polluted areas (Fialkowski *et al.*, 2000). It is likely that the most significant contamination pathway to the amphipod is that of pollutants adsorbed to vegetative matter that is consumed rather than that concentrated in the water column. However, insufficient information has been recorded as no evidence concerning the effects of heavy metal contamination on the species was found.

Hydrocarbon contamination	High	Very high	Low	Moderate

Oil deposits on the strand line and amongst seaweed would probably incapacitate and kill, e.g.

by smothering, small crustaceans such as *Talitrus saltator*. Following the *Torrey Canyon* oil tanker spill in 1967 quantities of *Talitrus saltator* were found dead at Sennen, Cornwall, as were other scavengers of the strandline, e.g. *Ligia* and *Orchestia*. Signs of detergent damage were reported at Constantine Bay where sand hoppers were found in a lethargic state at the base of dunes after spraying (Smith, 1968). Intolerance has therefore been assessed to be high. Recoverability has been suggested to be very high. Smith (1968) suggested that because sand hoppers bury themselves in the sand that a proportion of the population would survive and act as a breeding population.

Radionuclide contamination Not relevant Not relevant

Insufficient information.

Changes in nutrient levels Not relevant Not relevant

Insufficient information was found concerning effects of changes in nutrient concentrations for this species. The growth of *Talitrus saltator* is not directly dependent on the availability of nutrients in the water column.

Increase in salinity Not relevant Not relevant Not relevant Not relevant

Talitrus saltator demonstrated the ability to hypo-regulate at higher external concentrations (>800mOsm), it hyper-regulated at lower concentrations, maintaining a haemolymph concentration between 750-850 mOsm (Morritt, 1988). However, the benchmark assesses intolerance of species to changes of salinity in their preferred zone, which in this instance is the supralittoral fringe. Consequently increased salinity has been considered not to be relevant.

Decrease in salinity Not relevant Not relevant Not relevant Not relevant

Talitrus saltator demonstrated the ability to hypo-regulate at higher external concentrations (>800mOsm), it hyper-regulated at lower concentrations, maintaining a haemolymph concentration between 750-850 mOsm (Morritt, 1988). However, the benchmark assesses intolerance of species to changes of salinity in their preferred zone, which in this instance is the supralittoral fringe. Consequently decreased salinity has been considered not to be relevant.

Changes in oxygenation Not relevant Not relevant Not relevant Not relevant

At the benchmark level intolerance is assessed against changes in the amount of dissolved oxygen in water. *Talitrus saltator* is restricted to the supralittoral zone which experiences spray and splash only. Therefore an assessment of intolerance to changes in water column oxygenation was not considered relevant.

Biological Pressures

	Intolerance	Recoverability	Sensitivity	Confidence
Introduction of microbial pathogens/parasites		Not relevant		Not relevant

No information was found concerning microbial pathogens and *Talitrus saltator*.

Introduction of non-native species	Tolerant	Not relevant	Not sensitive	Very low

No known alien species are currently reported to have an adverse effect on the survival of *Talitrus saltator*.

Extraction of this species Not relevant Not relevant Not relevant Not relevant

Talitrus saltator is not a species targeted for extraction.

Extraction of other species	Not relevant	Not relevant	Not relevant	Not relevant

Talitrus saltator is not dependant on any other species that are specifically selected for extraction.

Additional information

Importance review

Policy/legislation

- no data -

Status

National (GB) importance	-	**Global red list (IUCN) category**	-

Non-native

Native	-		
Origin	-	**Date Arrived**	-

Importance information

The Talitridae act as scavengers by feeding on the decaying weed thrown up by the tide.

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