

Marine recreation evidence briefing: surfing



This briefing note provides evidence of the impacts and potential management options for marine and coastal recreational activities in Marine Protected Areas (MPAs). This note is an output from a study commissioned by Natural England and the Marine Management Organisation to collate and update the evidence base on the significance of impacts from recreational activities. The significance of any impact on the Conservation Objectives for an MPA will depend on a range of site specific factors. This note is intended to provide an overview of the evidence base and is complementary to Natural England's *Conservation Advice* and *Advice on Operations* which should be referred to when assessing potential impacts. This note relates to surfing. Other notes are available for other recreational activities, for details see *Further information* below.

Surfing (boardsport without a sail)

Definition

Watersports using a board (without a kite or sail) to ride surf waves. The activity group includes surfing, bodyboarding and kneeboarding. This note does not include windsurfing or kite surfing which are covered in a separate note.

Distribution of activity

Surfing is undertaken in close inshore waters where oceanographic and meteorological conditions combine with the local physical conditions (seabed bathymetry and topography), to create the desirable wave conditions for surfing. Access is directly off the beach and hence the activity is not limited by any access infrastructure requirements.

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In general, the majority of surfing activity is undertaken off sandy shores although more experienced surfers surf off rocky shores (i.e. surf reef breaks). Surfing in England tends to be concentrated on the South West coast (north Cornwall coast particularly), South coast, Norfolk coast and Yorkshire coast.

Levels of activity

Surfing is a very popular activity and is undertaken year round although participation is higher during the warmer summer months. The Watersports Participation Survey 2015 (Arkenford, 2015) estimated that 996,000 people participated in surfing/bodyboarding/paddleboarding activities in the UK in 2015, however, a standalone statistic for surfing was not provided.

Pressures

This note summarises the evidence on the pressures and impacts arising from undertaking the activity in the marine environment.

The direct pressures considered to arise from each functional aspect of the activity are shown in Table 1 and the potential biological receptor groups affected by the pressures are shown in Table 2. The information presented on pressures associated with the activity builds upon, and is complementary to, Natural England's Conservation Advice and Advice on Operations which should be referred to for MPA specific information and sensitivities of specific MPA features to those pressures¹.

The main pressure-receptor impact pathways arising from this activity is considered to be:

- Visual disturbance of marine mammals and birds, related to the presence of the person and equipment.

Any surface abrasion/disturbance to the substrate surface in intertidal and shallow subtidal habitats arising from participants entering the sea with their equipment has been considered to be negligible. This is based on participants generally carrying their equipment (board) into the sea and any contact of the equipment with the seabed in these areas (eg dragging the board in or out of the sea) being minimal in terms of weight, duration and frequency. The pressure arising from participants walking across the shore and into the seas has also been considered to be negligible, for example, compared to the larger numbers of people undertaking general leisure activities at a beach (see *General beach life* note).

Underwater noise associated with this boardsport (such as turbulence created through board movement) will be below natural ambient levels caused by hydrodynamic processes such as tidal currents or waves. Similarly, above water noise changes caused by the activity (such as people shouting) will be barely audible against background sources such as wind or waves crashing. Hence both of these pressures have been considered to be negligible and are not considered further.

¹ <https://www.gov.uk/government/collections/conservation-advice-packages-for-marine-protected-areas>

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This note therefore focuses on the potential for visual disturbance of mobile species. Given that the surf zone is not an area where fish species generally occur, and the stationary nature of surfers awaiting waves beyond the surf zones, the impact pathway for visual disturbance of fish receptors has also been considered negligible and hence is not considered further.

For table 1 and 2 please see page 11

Impacts

Where an impact pathway has been identified between the pressures arising from the activity and a biological receptor group, a summary of the evidence of impacts has been presented below.

Marine mammals

Visual disturbance

In general, people movement may create visual stimuli which can evoke a disturbance response in mobile species such as marine mammals (eg UK CEED, 2000; Liley *et al.* 2012).

Seals which are hauled out on land, either resting or breeding, are considered particularly sensitive to visual disturbance (Hoover-Miller *et al.*, 2013). Therefore, access to the water for surfing has the potential to cause disturbance. However, popular surfing beaches with a high level of activity do not generally directly overlap with established seal colonies. If visual disturbance did occur as a result of surfing access, disturbance responses are expected to be similar to that of more general human presence on the foreshore (with a flight response typically observed up to several hundred metres away, although in some areas, such as Donna Nook, where seals are more habituated to this pressure, flight responses can be observed at much reduced distances) (Bishop *et al.*, 2015; Anderson *et al.*, 2012).

Most cetacean species avoid the surf zone although bottlenose dolphins are frequently recorded surfing around surfers in the UK. Seals (particularly grey seals) are also regularly observed foraging in the surf zone. However, given the relatively immobile nature of surfers (i.e. when waiting for a wave), harassment and subsequently significant disturbance of these species as a result of surfing activity is unlikely.

Birds

Visual disturbance

Access to the water for surfing rather than the activity itself is more likely to cause disturbance to birds. This is because the surf zone (in areas with waves of a suitable height for surfing) is unlikely to be used by large numbers of birds compared with further offshore or on the foreshore.

In general, people movement may create visual stimuli which can evoke a disturbance response in mobile species such as seabirds (eg Liley *et al.* 2010, 2012).

Specific evidence assessing potential impacts of surfing access on birds is limited although disturbance effects are expected to be similar to that of more general human presence on the foreshore. The primary responses observed are likely to include increased vigilance,

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avoidance walking and flight responses (typically at approach distances < 100 m although distances over 200 m have been recorded for some sensitive species).

The level of any response will vary depending on a range of factors including the speed, randomness and distance of approach and also the level of habituation as a result of existing activity (IECS, 2009; McLeod, *et al.*, 2013; Guay *et al.*, 2014; Dwyer, 2010). Some disturbance effects may have more direct negative impacts (loss or failure of eggs or chicks leading to decreased breeding productivity) to birds than others (temporary displacement from feeding or roosting areas leading to increased but non-lethal energetic expenditure).

Repetitive disturbance events can result in possible long-term effects such as loss of weight, condition and a reduction in reproductive success, leading to population impacts (Durell *et al.*, 2005; Gill, 2007; Goss-Custard *et al.*, 2006; Belanger and Bedard, 1990).

Unlike many other watersports, surfing is undertaken in relatively discrete and localised areas (ie sandy beaches and to a lesser extent rocky reefs with suitable wave conditions). The most popular surfing locations (ie with the highest intensity) are large, exposed sandy beaches. These beaches are generally utilised by low numbers of waterbirds compared with other habitats (such as mudflats and estuaries) and are subject to relatively high disturbance due to more general beach recreation.

Assessment of significance of activity-pressure

The following assessment uses the evidence base summarised above, combined with generic information about the likely overlap of the activity with designated features and the sensitivity range of the receptor groups, to provide an indication of the likelihood of :

- i) an observable/measurable effect on the feature group; and
- ii) significant impact on Conservation Objectives based on the effect on the feature group.

The assessment of significance of impacts has been based on the potential risk to the achievement of the conservation objectives for the features for which a site has been designated. The assessment is made using expert judgement and is designed to help identify those activities that are likely to be of greatest or least concern, and, where possible, suggest at what point impacts may need further investigation to determine potential management requirements within MPAs to reduce the risk of an adverse effect on the integrity of the site. Note, the assessment only considers the impact pathways considered in the evidence section (pressures which were considered negligible in Tables 1 and 2 are not considered in this assessment).

The outputs are shown in Table 3. The relative ratings of likelihood of significant impact on Conservation Objectives (COs) are defined as:

- Low – possible observable/measurable effect on the feature group but unlikely to compromise COs.
- Medium – observable/measurable effect on the feature group that potentially could compromise COs.

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- High – observable/measurable effect on the feature group that almost certainly would compromise COs.

The relative risk ratings are based on the activity occurring without any management options, which would be considered current good practice, being applied. The influence that such management may have on the risk rating is discussed in the *Management options* section below.

It must be noted that the above assessment only provides a generic indication of the likelihood of significant impacts, as site-specific factors, such as the frequency and intensity of the activity, will greatly influence this likelihood. As such, further investigation of the risk to achieving COs will need to be done on a site specific basis, considering the following key site-specific factors:

- the spatial extent of overlap between the activity/pressure and the feature, including whether this is highly localised or widespread;
- the frequency of disturbance e.g. rare, intermittent, constant etc.;
- the severity/intensity of disturbance;
- the sensitivity of specific features (rather than the receptor groups assessed in table 3) to pressure, and whether the disturbance occurs when the feature may be most sensitive to the pressure (eg when feeding, breeding etc.)
- the level of habituation of the feature to the pressure; and
- any cumulative and in-combination effects of different recreational activities.

For Table 3 see page 12

Management options

Potential management options for marine recreational activities (note, not specific to surfing) include:

On-site access management, for example:

- designated areas for particular activities (voluntary agreements or underpinned by byelaws)
- provision of designated access points eg slipways, in locations likely to be away from nature conservation access (voluntary or permit condition or underpinned by byelaw)

Education and communication with the public and site users, for example:

- signs, interpretation and leaflets
- voluntary codes of conduct and good practice guidance
- wardening
- provision of off-site education/information to local clubs/training centres and/or residents

Legal enforcement, for example:

- of byelaws which can be created by a range of bodies including regulators, local authorities and landowners (collectively referred to as relevant authorities); and

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- of permitting or licence conditions

No specific examples of management measures which have been applied to surfing in the UK were described by stakeholders during the consultation.

The likely generic risk of an observable/measurable effect on mobile features (seals, cetaceans, birds) from surfing, via the pressure of visual disturbance, was assessed as **Low**, and hence the likely risk of a significant impact on Conservation Objectives was also considered to be **Low**. Where any site-specific factors are judged to increase the risk of significant impact to features (and hence Conservation Objectives), it is assumed that management measures, which are considered current good practice (eg signage/interpretation, Codes of Conduct etc), would help to ensure the likely risk of impacts would be minimised at local site-level as well.

For further information and recommendations regarding management measures, good practice messaging dissemination and uptake, refer to the accompanying project which can be accessed from [Marine evidence > Marine recreational activities](#).

National governing body and good practice messages for surfing

National Governing Body

At the time of writing there was no National Governing Body (NGB) for surfing, although the English Surfing Federation (ESF) and Surfing GB, which had merged under the banner of the ESF, were in application for NGB status. Surfing GB has a Code of Conduct, although it is focused on safety and consideration of other water and beach users, (although it does encourage surfers to be environmentally friendly by leaving the beach and other areas as they would wish to find them). The Code of Conduct is available here:

<http://surfinggb.com/wp/wp/wp-content/uploads/2013/12/SGB-Code-of-Conduct-for-Surfers.pdf>.

Good practice messaging

No national level Code of Conduct to minimise the main pressure arising from surfing (visual disturbance of marine mammals and birds) was sourced.

To the best of knowledge, the only code which explicitly refers to conduct for surfers to minimise any impacts on wildlife is The Shark Trust's Basking Shark Code of Conduct. The current assessment considered that visual disturbance to fish species, in this instance basking sharks, from surfers is likely to be negligible, however, the key messages from the Shark Trust's Code of Conduct for swimmers, divers and surfers have been listed below for completeness and include:

- maintain a distance of at least 4m from each shark and be wary of the tail;
- do not try and touch the sharks;
- do not swim towards them if they are near you; and
- no more than four people in the water within 100m of a shark at any one time.

However, given that, in general, the likelihood of impacts from surfing activities on features and a site's COs are judged to be low, the lack of a national Code of Conduct for surfing is

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not considered to be a major gap. Should evidence arise of impacts from surfers at a specific site, the need for a Code of Conduct should be re-assessed.

Further information

Further information about the National Body for surfing, other membership and training organisations, site specific conservation advice and management of marine recreational activities can be found through the following links:

- The English Surfing Association: <http://www.englishsurfing.org/>
- Surfing GB: <http://surfinggb.com/about/>
- Academy of Surfing Instructors (ASI) UK: <https://www.academyofsurfing.com/>
- Conservation Advice - Advice on Operations:
- For site specific information, please refer to Natural England's conservation advice for each English MPA which can be found on the Designated Sites System <https://designatedsites.naturalengland.org.uk/> This includes Advice on Operations which identifies pressures associated with the most commonly occurring marine activities, and provides a broad scale assessment of the sensitivity of the designated features of the site to these pressures.
- For further species specific sensitivity information a database of disturbance distances for birds (Kent et al, 2016) is available here: <http://www.fwspubs.org/doi/abs/10.3996/082015-JFWM-078?code=ufws-site>
- Some marine species are protected by EU and UK wildlife legislation from intentional or deliberate disturbance. For more information on the potential requirement for a wildlife licence: <https://www.gov.uk/guidance/understand-marine-wildlife-licences-and-report-an-incident>
- The Management Toolkit which can be accessed from [Marine evidence > Marine recreational activities](#).

Information Notes for other marine recreational activities which can be accessed from [Marine evidence > Marine recreational activities](#) and include the following activities:

- boardsports with a sail (windsurfing and kitesurfing)
- coastering
- diving and snorkelling
- drones (recreational use at the coast)
- general beach leisure
- hovercraft
- motorised and non-motorised land vehicles (including: the use of quad bikes, scramble bikes and cars on the foreshore and the activities of sand yachting, kite bugging and landboarding)
- light aircraft (including small planes and helicopters, microlights, paramotors and hang gliding)
- motorised watercraft;
- non-motorised watercraft (including dinghy, day boats or other small keelboat without a motor and the paddlesports sea kayaking, surf kayaking, sit-on-top kayaking, canadian canoeing and stand up paddle boarding)

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- personal watercraft
- wildlife watching (from land and from vessels)

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ISBN 978-1-78354-459-2

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Table 1 Potential direct pressures arising from surfing

	Abrasion/disturbance of the substrate surface	Abrasion/disturbance below substrate surface	Underwater noise changes	Above water noise changes	Visual disturbance
Access (to sea, on foot with equipment)	Negligible	X	X	Negligible	✓ ¹
Activity (surfing in sea)	X	X	Negligible	Negligible	✓ ¹
X - No Impact Pathway					
1 - Pressure relates to the presence of the person and equipment during the activity					

Table 2 Biological receptors potentially affected by the pressures arising from surfing

	Abrasion/disturbance of the substrate surface	Abrasion/disturbance below substrate surface	Underwater noise changes	Above water noise changes	Visual disturbance
Intertidal Habitats	Negligible	Impact pathways scoped out	Impact pathways scoped out	Impact pathways scoped out	Impact pathways scoped out
Subtidal Habitats					
Fish	Impact pathways scoped out		Negligible	Negligible	Negligible
Marine Mammals					✓(hauled out seals)
Birds					✓

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Table 3 Assessment of indicative likelihood of significant impacts from surfing activity

Pressure	Likely overlap between activity and feature (confidence)	Evidence of impact (confidence)	Sensitivity of feature to pressure (confidence)	Likelihood of observable/measurable effect on the feature	Likelihood of significant impact on Conservation Objectives
Visual disturbance – seals (hauled out on land)	Low - popular surfing beaches with a high level of intensity do not generally directly overlap with established seal colonies (expert judgement)	No direct evidence of visual disturbance from surfers accessing sea Evidence of 'flight response' of seals to general human presence on the foreshore (analogue pressure; high confidence)	High - hauled out seals are sensitive to visual disturbance (medium) Common seals are more sensitive to pressure than grey seals	Low - based on low likelihood of overlap of pressure and feature	Low
Visual disturbance – seals in water	Medium – seals (particularly grey seals) regularly observed foraging in the surf zone (expert judgement)	No direct evidence of visual disturbance from surfing activity No analogous pressure	Low (expert judgement based on relatively immobile nature of surfers when waiting for a wave)	Low - based on low sensitivity of feature to this pressure	Low
Visual disturbance - cetaceans	Medium – bottlenose dolphins frequently recorded surfing around surfers in the UK (expert judgement)	No direct evidence of visual disturbance from surfing activity	Insensitive - feature considered insensitive to pressure (expert judgement)	Low – based on insensitivity of feature to this pressure	Low
Visual disturbance – birds	Low - popular surfing locations (large exposed sandy beaches with high levels of activity) generally do not overlap with nesting seabird colonies or large numbers of birds roosting/loafing on the foreshore or coastal infrastructure. Such beaches are generally utilised by low numbers of waterbirds compared with other habitats (e.g. mudflats and estuaries) (expert judgement)	No direct evidence of visual disturbance from surfers accessing sea Evidence of disturbance (increased vigilance, avoidance walking and flight responses) from general human presence on the foreshore (analogue pressure; high confidence)	Low–High (medium) Sensitivity will differ between species. Some species e.g. red-throated diver, curlew, are highly sensitive to disturbance; other species e.g. gulls, have high thresholds (low sensitivity) to disturbance Certain behavioural activities are considered more susceptible to disturbance e.g. nesting seabirds or breeding birds (expert judgement)	Low – based on low likelihood of overlap of pressure and feature	Low