

17. Recreation

Executive Summary: Chapter 17. Recreation

Executive Summary

Potential impacts on recreational navigation are assessed for both the short-term, during capital dredging and disposal, and for the long-term, after the dredging phase has been completed. The impacts result predominantly from the area of the proposed widening between Dock Head and Fawley and are listed below:

1) Direct effects on Recreational Watersports Areas

The area of widening is contained within an existing secondary, buoyed, navigation channel marked on the Admiralty Charts and used by smaller commercial craft, including fast passenger ferries, particularly when a large vessel is navigating within the adjacent main channel. Widening of the main channel will impact on 13% of the overall preferred sailing area for Southampton, Weston, Netley and Netley Cliff Sailing Clubs and 10.5% of the overall preferred sailing area for Hamble and Warsash Sailing Clubs. The impact of this change on the sailing area available for clubs is considered **minor adverse significant**.

2) Risk of Collision Associated With Craft Capsizing in or near the Main Channel

This risk will be slightly increased if the main channel were to be widened and without a review of existing risk management protocol by recreational watersports clubs. The impact of the proposed changes may be regarded as **minor adverse significant**.

However, with continued risk assessment and improved communication procedures by recreational users with VTS, allowing more detailed scheduling of events, any increase in risk will be able to be mitigated. With mitigation measures in place, the impact of this change is considered to be **insignificant**.

3) Risk Associated with Craft Becoming Disabled in or near the Main Channel

This risk will be slightly increased if the main channel were to be widened, without a review of existing risk management protocol by recreational watersports clubs. The impact of the proposed changes may be regarded as **minor adverse significant**.

However, any increased risk due to the channel widening can be mitigated by formalising protocols between recreational user clubs and the Harbour Master and with such procedures in place the risk in the case of disabled craft is considered to be **insignificant**.

4) Risk Associated with Inexperienced Dinghy Helmsmen Sailing Close to the Main Channel

The risk of inexperienced helmsmen sailing into the main navigation channel will slightly increase with a widened channel. Without a review of existing risk management protocols by recreational watersports clubs, the impact of the proposed changes may be regarded as **minor adverse**

significant.

However, there will be no increase in risk providing the clubs are fully aware of vessel movement schedules and VTS are aware of the timing of sailing events. As such, adherence to existing rules and increased communication protocols should negate any increased risk as a result of the widening and the change can therefore be considered as **insignificant**.

5) Risk Associated with the Passage of Fast Passenger Craft

Under a widened channel scenario, there would be an increased level of certainty that fast passenger craft would only operate inside the main navigation channel as the new channel width would allow for two way traffic. As such the impact of this change is regarded as **moderate beneficial significant**.

In terms of the wash created by fast passenger vessels, the increase in water depth along with the reduction in channel blockage at the point of wave generation will provide a minor reduction in wave height (and hence energy). The impact of the channel deepening will, therefore, provide an impact that is **minor beneficial significant**.

6) Changes to Tidal Flow and Effects on Recreational Sailing Craft

The hydrodynamic regime associated with a widened and deepened channel has been modelled and it has been predicted that current velocity will be reduced by 5% on peak flows and no change will occur to directional flow patterns. Accordingly, this impact will be **insignificant**.

7) Impact from Dredging

Dredging plant operating within the area of the proposed dredge will present an increased risk of collision with recreational craft during the period of the dredge and the impact of this change is regarded to be **minor adverse significant**.

After the capital dredge, the approach channel will require maintenance dredging for short periods twice a year. With increased communications protocols the effect of this dredging on the recreational user community should be able to be managed and therefore the impact is considered to be **insignificant**.

8) Impact on Recreational Slipways on the East Side of Southampton Water

The existing balance between wind generated waves and ship generated waves will not be significantly altered by the widening and deepening of the main channel therefore the contribution of the scheme on undermining recreational slipways is considered to be **insignificant**.

9) Potential Loss of Moorings

The proposed area of channel widening in the vicinity of the Upper Swinging Ground encompasses a number of moorings at Marchwood Yacht Club. However, ABP is discussing the possible re-laying of moorings with Marchwood Yacht Club, which would have the effect of reducing the impact of the scheme to **insignificant**.

10) Ashlett Creek Siltation

Concern has been expressed that the proposed scheme will cause a further increase in the rate of siltation at Ashlett Creek. Analysis suggests any observed accretion is a continuation of a number of events and processes both natural and man-made, rather than as a direct result of the on going effects of previous channel deepening. However, modelling analysis suggests that widening and deepening of the channel may lead to a marginal (millimetric) increase in siltation at Ashlett Creek. Accordingly, the impact of this change is regarded as being **minor adverse significant** with respect to the potential for additional accretion after the dredge.

During the capital dredge, the act of dredging, particularly the fine alluvial material will increase suspended sediment concentrations over the intertidal areas, some of which will settle in the Creek and mooring areas. The effect on Ashlett Creek moorings is considered to be **minor adverse significant**

11) Siltation at Hythe and Hamble Marinas

During the dredging phase, there will be a localised increase in suspended sediment concentration in the water column causing a slight increase in sedimentation at both Hythe Marina and in the marinas in the River Hamble. The impact of this change during the dredging phase may be regarded as being **moderate adverse significant**, with respect to existing maintenance dredging commitments. Any increase in siltation will, however, only be confined to the dredging phase. Following the capital dredge, sedimentation in the Hythe Marina and River Hamble will not be increased.

12) Foreshore Siltation During the Dredging Phase

Modelling analyses have shown that accretion will be highly variable in time and space (transient), often with maxima at any location only lasting for minutes to hours on a tide. Apart from areas that are currently 'silt traps', the accumulations are generally eroded during the periods of peak ebb and flood flows, particularly on spring tides. With respect to launching and retrieving recreational craft, the impact from the temporary and transient sedimentation along the foreshore is considered to be **insignificant**.

Mitigation

A range of mitigation measures will be implemented during the dredging works and when the widened and deepened channel is in operation to minimise the impact on the recreational community. These procedures will be controlled by Vessel Traffic Services (VTS) in order to minimise disruption to existing recreational users. Sediment monitoring will be carried out before and after the proposed dredge at locations where significant sedimentation is predicted and concerns have been raised. ABP will take such steps as may be appropriate where it is demonstrated that the dredging works have caused a material increase in sedimentation, above naturally occurring rates of sedimentation, and which as a consequence, has had an adverse impact on marine operations. With mitigation in place where appropriate, however, the residual effect will be reduced to **insignificant**.

Conclusion

The majority of the recreational community within Southampton Water and the wider Solent area are not expected to experience any impacts due to the proposed Southampton Approach Channel Dredge. The loss of sailing area for the Sailing Clubs located on the Weston Shore of Southampton Water is considered to be minor adverse significant. The risks of collision and incidents are not expected to increase given that existing and continued management procedures implemented by the Clubs and ABP will be maintained and adapted to take account of the channel improvements. During dredging, any significant sedimentation will be investigated to reduce the impact to acceptable levels.

Baseline Information

- 17.1 The Solent, together with the adjacent waters and harbours that surround the proposed dredge areas, are some of the most popular and intensively used watersports areas in north-west Europe. At present, the Royal Yachting Association (RYA) who represent the interests of a wide variety of watersports enthusiasts, have approximately 60,000 registered members living within the Solent area, although they speculate that the actual number of recreational users of the Solent region may well exceed double this figure (RYA, pers. comm. June, 2008). The most popular watersport in the study area is sailing, but other sports, such as windsurfing, kayaking and water skiing, are also widely enjoyed. The region has an international reputation for hosting key events in the sailing calendar such as Cowes week and the Little Britain Challenge Cup. In addition the Solent has a rich history of involvement with 'around the world' sailing challenges. Each year, over 90,000 yachts visit the Isle of Wight and the hundreds of thousands of yachtsmen who accompany craft visiting the Solent contribute to the regional economy (Solent Forum, 2004).
- 17.2 Four aspects are considered as defining the baseline condition for recreational navigation:
- Yachting;
 - Dinghy Sailing;
 - Other Watersports; and
 - Safety Procedures.

Yachting

- 17.3 Yachting covers a variety of boating activities, which, for the purposes of this assessment has been taken to include keel boat cruising and racing, as well as motor boating.
- 17.4 The popularity of the Solent to yachtsmen is highlighted by the fact that well in excess of 50 yacht and sailing clubs have a clubhouse in the region (Figure 17.1) and at least the same number again are known to regularly use the Solent and adjacent waters for cruising and racing. Combined membership of these clubs exceeds 100,000 and many of their members are regularly involved in race regattas. These meetings are coordinated through the Solent Cruising and Racing Association (SCRA), which comprises 73 clubs from the Solent region and was involved in the running of over 400 events in the 2007 season (SCRA, 2008).

- 17.5 The Solent is home to a number of world-renowned yachting events, including Cowes Week, the Round the Island Yacht Race and the Little Britain Challenge Cup, which together attract almost 3,000 boats each year. It is also host to the Southampton International Boat Show, one of the World's largest boat shows with over 121,000 visitors in 2008 (Southampton Boat Show website)
- 17.6 A survey undertaken by The Solent Forum suggests that there are approximately 25,000 yacht moorings within the study area (Figure 17.2) of which around 10,000 (40%) are berths provided in marinas. There are currently about 40 marinas in the study area with a number of them having a capacity of several hundred craft. The largest of these facilities within Southampton Water and its sub-estuaries are Ocean Village and Swanwick Marina, which have 375 and 380 berths respectively (Reeds, 2005).
- 17.7 The region is also the home of several large sail training centres, including the UK Sailing Academy located in Cowes, and these centres regularly run practical-based courses out on the Solent. Over the past decade the study area has become increasingly popular with companies running commercial yacht charters and numerous corporate sailing days are held throughout the summer months.
- 17.8 In general, recreational sailing takes place all year round, although an increase in intensity is witnessed from March through to October. June to September represents the peak period of activity. Recreational sailing is heavily biased towards weekends, to the extent that it is estimated that approximately twice as many boats are in use at the weekend than on weekdays (Solent Forum, 2004).

Dinghy Sailing

- 17.9 In addition to yachting, dinghy sailing is popular throughout the study area. It has been estimated by the Solent Forum that there are around 60 dinghy sailing clubs within the Solent, each holding their own racing programme and organising over 100 open events annually. A number of these clubs, such as Weston Sailing Club and Netley Sailing Club in Southampton Water, regularly host national (and occasionally international) championships and regatta entries can number in the hundreds. An estimated 10,000 boats are kept in dinghy parks around the Solent, many of which are located near to the clubhouses shown in Figure 17.1. There are also a number of sailing schools providing training and support, and these are accompanied by approximately 25 Sea Scout troops and 2 Sea Cadet Units across the region who are all regularly involved in dinghy sailing as well as other water-based activities.
- 17.10 Within the region, there are approximately 100 launch points for small craft (Figure 17.3) although access to these slipways is variable. The majority of these launch points are found in Southampton Water and the eastern Solent, especially around Portsmouth and Langstone Harbour. In addition, a number of the yacht and sailing clubs shown in Figure 17.1 have their own private launching facilities, as do some waterside residents.
- 17.11 Dinghy sailing is by far the most common recreational pursuit taking place within the section of Southampton Water in closest proximity to the widening of the channel with the majority of activity being organised by Southampton, Weston, Netley, Netley Cliff, Hamble River and Warsash Sailing Clubs (Figure 17.1). Yacht racing is also organised in this area, however,

existing sailing courses already traverse the main channel and unlike dinghies, the vessels usually have an alternative means of propulsion in addition to sail making them far less vulnerable to commercial shipping. Accordingly, specific attention has been given to dinghy sailing within this assessment.

Other Watersports

- 17.12 The study region is also a popular location for a number of other watersports, including kayaking, waterskiing, windsurfing and rowing. It is common for these activities to be carried out informally from the shore, however, and as such, it has proved difficult to quantify participation accurately. At present, the British Canoe Union (BCU) have approximately 1000 members residing in Hampshire and Portsmouth although it is known that many more than this visit the region each year (BCU, *pers. comm.* 2008). The Solent Forum note that participation in waterskiing is widespread across the region and is concentrated in specifically designated areas, including Redbridge, Wootton, Lee-on-the-Solent, Calshot, Thorness Bay and Langstone Harbour. In some of these areas, waterskiing clubs have formed such as the Test Waterski Association in Southampton Water. Sea angling is also very popular with over 50 clubs actively organising trips and events around the Solent and in Southampton Water. Within the study area, there are watersports centres, such as The Hampshire Activities Centre at Calshot, which provide formal tuition and become a focal point of activity within the nearshore environment. The Solent also regularly hosts national and international powerboat events, the most recent of which was the Cowes-Torquay-Cowes Power Boat Race held in August 2008.

Safety Procedures

- 17.13 Inshore rescue organisations within the study area are coordinated by the Solent Sea-Rescue Organisation. Members of this organisation include HM coastguard, beach lifeguards and voluntary inshore rescue units, as well as the Royal National Lifeboat Institution (RNLI), who were called out to 472 incidents across the study area in 2007. Over the past 15 years there has been a marked increase in recreational related incidents within the study area with a 50% rise occurring between 1994 -2004 (RNLI website).
- 17.14 It is a requirement for watersports clubs using Southampton Water to risk assess their own activities including assessments for specific events. An appropriate risk assessment should be carried out in consultation with the ABP Southampton Harbour Master and should take into account a number of considerations including the following:
- Correct level of safety provision by clubs;
 - RYA safety boat certification for safety boat coxswains;
 - Use of weather forecasts to predict drift direction of craft;
 - Competence levels set for craft users in more demanding conditions (for example; minimum RYA accreditation for dinghy sailors);
 - Consideration of appropriate activity areas and continual monitoring of Vessel Traffic Services (VTS) shipping announcements; and
 - Monitoring of shipping movements via radio.
- 17.15 Exposure to risk may also be significantly reduced through regular communication with ABP Southampton Harbour Master: if the Harbour Master is made aware of planned activities (e.g.

sailing races or regattas), the organising club can be informed about daily ship movements in Southampton Water. The start time for these activities can also then be organised and coordinated with these movements in mind and recreational users can be given prior warning. In addition, patrol launches, which are operating in the area, can be made aware of planned recreational events well in advance.

17.16 Regular avenues for communication between ABP and stakeholder groups already exist to ensure safe operating procedures within Southampton Water. As part of this stakeholder consultation process the Port has set up the Southampton Water Recreational Users Group (SWRUG) which meets twice a year to discuss a range of issues relating to the operation of craft in Southampton Water. This Group comprises the organisers and representatives of:

- Royal Southampton Yacht Club
- New Forest District Council
- Marina Developments Ltd
- Southampton Water Sailing Association
- Natural England
- Solent Cruising and Racing Association
- Hampshire Sea Scouts
- Royal Yachting Association
- Southampton Rowing Club
- City of Southampton Rowing Association
- Cowes Combined Clubs
- Southampton Water Fishermen's Association
- Test Waterski Association
- Southampton Amateur Rowing Club
- Calshot Activities Centre

(Source: Southampton VTS website)

17.17 SWRUG's primary role is to ensure that new legislation or potential byelaws, which the Port authority is wishing to introduce, are appropriate to the needs of recreational users. It also ensures coordination between the various user groups of Southampton Water, particularly during major events such as Cowes Week when the needs of the Port, the professional shipping companies and recreational users may conflict (Goodhead and Johnson, 1996).

17.18 In addition to the SWRUG meetings, visits are made by representatives of ABP to yacht clubs within the region to discuss any issues that have arisen between commercial shipping and recreational sailing within the estuary. Pilots from the Port also attend the race start platform during large sailing race events such as the Round the Island Race.

Impact Assessment

17.19 The following sections have been drawn from concerns raised in consultation meetings with various user clubs, bodies and club representatives (including Presentation at Marchwood Yacht Club, 5 December 2007; Recreational Workshops 1 and 8 April 2008 City Cruise Terminal, Western Docks; Presentation to SSWA 17 July 2008 Netley Sailing Club; Presentation at Hythe Marina, 18 September 2008). Particular reference has been made to the dinghy sailing, which takes place along the eastern side of Southampton Water. Whilst it is

acknowledged that other water-based recreational activities take place in this area (e.g. windsurfing, jet skiing, kayaking), dinghy sailing is organised by clubs located along this coastline and is reliant on the specific facilities that they provide (e.g. slipways, dinghy parks).

17.20 The following aspects are considered in detail to determine the impact of the main channel widening and deepening on the recreational community:

- Direct effects on Recreational Watersports Areas;
- Risk of Collision Associated With Craft Capsizing in or near the Main Channel;
- Risk Associated with Craft Becoming Disabled in or near the Main Channel;
- Risk Associated with Inexperienced Dinghy Helmsmen Sailing Close to the Main Channel;
- Risk Associated with the Passage of Fast Passenger Craft;
- Changes to Tidal Flow and Effects on Recreational Sailing Craft;
- Impact from Dredging;
- Impact on Recreational Slipways on the East Side of Southampton Water;
- Potential Loss of Moorings;
- Ashlett Creek Siltation;
- Siltation at Hythe and Hamble Marinas; and
- Foreshore Siltation During the Dredging Phase

Effects on Recreational Watersports Areas

17.21 The majority of the proposed channel deepening takes place within the existing footprint of the main channel. However, it is proposed to widen the main channel on the eastern side of Southampton Water. This area of widening is contained within an existing secondary, buoyed, navigation channel marked on the Admiralty Charts and used by smaller commercial craft, including fast passenger ferries, particularly when a large vessel is navigating within the adjacent main channel. The area is in proximity to the preferred dinghy sailing areas used by Southampton, Weston, Netley Cliff, Netley, Hamble River and Warsash Sailing Clubs (Figure 17.1) and extends from approximately Weston Shelf (north) to Hook (south) with racing and training taking place predominantly but not exclusively outside the limits of the (existing) maintained navigational channel (Figure 17.4). (Competitors who do enter the area of the marked channels are required to obey the International Collision Regulations and local byelaws and avoid impeding the passage of any large vessels constrained within the channel.

17.22 Both Netley Sailing Club and Weston Sailing Club organise a number of weekend race regattas each year with up to four 1-hour races per day with fleets of over 50 dinghies. These events are important both nationally (and on occasions, internationally) and are a key source of income for the clubs.

17.23 The International Sailing Federation (ISAF) has recommended that sailing courses at important national and international sailing events should either follow an 'Olympic Triangle' format (involving a series of legs between three race marks) or a simple 'windward-leeward' race configuration (ISAF website). When important regattas and national championship events are held at Netley and Weston Sailing Clubs, both course configurations are considered. Regardless of which race format is adopted, the key to a competitive, fair race is a good windward leg and this may be defined as a leg which is close to directly into the wind from a

starting line. However, in Southampton Water when an onshore (south-westerly) or offshore (north-easterly) wind is blowing, the windward racing leg is short (<1km) since it is constricted by the main channel edge and the shore. Widening of the main channel will lead to a shortened windward leg when the wind is blowing either off or onshore and these conditions are experienced for approximately 46% of the year at Southampton (see Appendix I).

- 17.24 During the consultation process carried out with the recreational community, a number of Clubs, located on the eastern side of Southampton Water, indicated that their preferred sailing area lies between the shoreline and the current maintained channel. This preferred sailing area totals approximately 580 ha (taking the LAT boundary as the landward limit of the sailing area and the edge of the main navigation channel as the seaward limit) (Figure 17.4). The preferred area, however, includes the secondary buoyed navigation channel used by commercial vessels, including high speed craft. The proposed widening of the maintained navigation channel will impact on 13% of the overall preferred sailing area for Southampton, Weston, Netley, Netley Cliff Sailing Clubs and 10.5% of the overall preferred sailing area for Hamble and Warsash Sailing Clubs. (These percentages should be considered as a worst case since at low tide, craft cannot be launched and at high tide the sailing area extends further landward than the LAT boundary).
- 17.25 Owing to established ISAF recommendations for sailing racecourse configurations, a reduction in sailing area may provide constraints when important race meets take place along the Netley-Weston shore. However, there is no direct evidence to suggest that the reduction in sailing area would result in a negative consequence to the clubs sailing calendar, with the magnitude of the change being restricted to the main regatta events. It is, therefore, concluded that the impact of the widening on the sailing area available for these six Clubs (assuming races occur outside the main navigation channel) is **minor adverse significant** provided information procedures are set in place between the sailing clubs and VTS.

Risk of Collision Associated with Craft Capsizing in or Near the Main Channel

- 17.26 Whilst small recreational craft usage largely takes place outside the main navigation channel, it is possible that a capsized recreational vessel could drift into the main channel and become endangered by shipping. This risk is greatest when the wind is between the north and southeast, which occurs for 35% of the year, based on annual mean wind direction for 1998-2007 from Lee-on-Solent (see Chapter 16). A widened channel will increase this risk by bringing dinghy sailing events closer to the main navigation channel. Without a review of existing risk management protocol by recreational watersports clubs, the impact of the proposed changes may be regarded as **minor adverse significant**.
- 17.27 However, It is important to note that the risk of collision associated with craft capsizing in or near the main channel remains regardless of whether the main navigation channel is widened or not. Furthermore, existing protocol requires that watersports clubs involved in the organisation of activities in Southampton Water are responsible for arranging suitable risk management measures, which must include a comprehensive risk assessment and liaison with the Southampton Harbour Master. For sailing clubs, risk management will also include the provision of an appropriate number of safety boats, which can quickly provide assistance to incapacitated dinghies. An essential part of the risk assessment process involves assessing the suitability of the chosen area of water for the specific recreational activity given the

prevailing weather conditions. This protocol should be formalised with the event organiser formally submitting risk assessments to the Harbour Master demonstrating that any increase in risk at the time of the event is considered and managed. For example, in unfavourable weather conditions, it may be necessary to re-locate events away from the main navigation channel or to increase the level of safety provision.

- 17.28 With continued risk assessment and improved communication procedures with VTS, allowing more detailed scheduling of events, any increase in risk will be able to be mitigated. Accordingly, with these management measures in place, the impact of this change is considered to be **insignificant**.

Risk Associated with Craft Becoming Disabled in or Near the Main Channel

- 17.29 In light wind conditions, it is possible that recreational sailing craft could become disabled and drift into the main navigation channel. This scenario is most likely to occur when sailing fleets are closer to the edge of the main navigation channel in order to take advantage of the stronger wind conditions usually encountered there. However, because of the tidal streams, which run up and down Southampton Water, this scenario would be expected to occur very infrequently. Indeed, according to Port records, such a situation has not been reported to VTS, nor has any situation been observed or recorded as a result of this scenario with respect to commercial shipping. Since the recreational area would be slightly reduced with a widened channel, the risk of craft becoming disabled and drifting into the main navigation channel increases. Without a review of existing risk management protocol by recreational watersports clubs, the impact of the proposed changes may be regarded as **minor adverse significant**.
- 17.30 However, as with the scenario of capsizing craft, this risk remains regardless of whether the main navigation channel is widened or not and watersports clubs involved in the organisation of activities in Southampton Water are responsible for arranging suitable risk management measures for their events. Any increased risk due to the channel widening can be mitigated by formalising protocols between recreational user clubs and the Harbour Master. With such procedures in place the risk in the case of disabled craft is considered to be **insignificant**.

Risk Associated with Inexperienced Dinghy Helmsmen Sailing Close to the Main Channel

- 17.31 The sailing clubs located along the eastern side of Southampton Water have reported an increase in the number of young members in the 8-14 age range who are regularly participating in activities out on the water. The unfamiliarity of these sailors to their surroundings means there is a higher risk of them becoming disorientated and sailing into the main navigation channel area. Since the sailing area would be slightly reduced with a widened channel, the risk of inexperienced helmsmen sailing into the main navigation channel will slightly increase. Without a review of existing risk management protocol by recreational watersports clubs, the impact of the proposed changes may be regarded as **minor adverse significant**.
- 17.32 As with the scenario of recreational craft capsizing in/near to the main navigation channel, this risk remains regardless of whether the main navigation channel is widened or not. With youth events (which are managed in accordance with RYA guidelines that stipulate minimum coach to student and safety boat to student ratios), there should be no increase in risk providing the

clubs are fully aware of vessel movement schedules and VTS are aware of the timing of sailing events. Other management measures include the use of temporary area markers to define boundaries to help delineate the area past which it would be undesirable for younger and inexperienced helmsmen to navigate. As such, adherence to existing rules and increased communications protocol should negate any increased risk as a result of the widening. Therefore, the risk associated with inexperienced sailors under club supervision is considered to be **insignificant**.

Risk Associated with the Passage of Fast Passenger Craft

- 17.33 During the consultation process carried out with the recreational community, two distinct themes regarding fast passenger ferries transiting Southampton Water were raised. The first is the risk of collision associated with fast craft operating outside the main navigation channel, the second is the wash generated by high speed craft and the effects on dinghies. It is understood that the principal source of concern is the proximity of fast craft to recreational craft, in particular sailing fleets.
- 17.34 Currently, fast passenger craft on occasion pass within the buoyed, secondary channel especially when the main channel is occupied by a larger vessel. To date, according to the Port's records, no complaints have been received by the Harbour Master from either yacht clubs or dinghy sailors regarding this occurrence. However, it is recognised by the Harbour Master's Department that fast craft operating outside the main channel, especially in-bound fast craft (navigating on the Netley side) present a risk of collision to recreational users and the Admiralty Chart carries a warning to this effect.
- 17.35 Under a widened channel scenario, there would be an increased level of certainty that fast passenger craft would only operate inside the main navigation channel as the new channel width would allow for two way traffic. In the limited instances when two large vessels are passing, preventing an overtaking manoeuvre by the fast passenger craft within the new channel, passage planning will be put in place for the fast passenger craft whereby they will be instructed to reduce speed and remain in the marked channel until a passing opportunity presents itself, rather than navigating outside the main navigation channel on the Netley side. This is within the remit of the Port of Southampton Bye-Laws number 12, an extract of which reads "The Master of a high speed craft when underway shall make use only of such channels as are authorised by the Harbour Master".
- 17.36 Using the above scenario with fast passenger vessels restricted to the main navigation channel once the channel is widened, the risk of collision with recreational vessel navigating on the Netley side of Southampton Water will, therefore, be reduced in comparison to the present situation. The impact resulting from a widened channel allowing two way traffic in-combination with adherence to currently published Harbour Bye-Laws with targeted control of high speed vessels in areas of concern will provide an impact that is **moderate beneficial significant**.
- 17.37 In terms of the wash created by fast passenger vessels, this is addressed in detail in the Commercial Navigation Chapter. The increase in water depth along with the reduction in channel blockage at the point of wave generation will provide a minor reduction in wave height (and hence energy). Therefore, the wave climate presently experienced will be marginally

reduced in terms of fast passenger ferry wash. The impact of the channel deepening will, therefore, provide an impact that is **minor beneficial significant**.

Changes to Tidal Flow and Effects on Recreational Sailing Craft

- 17.38 The proposed channel widening has been modelled (see Chapter 8) with a resultant reduction in tidal current velocity predicted by the model of around 5% on peak flows and no change to directional flow patterns. Accordingly, this impact will be **insignificant**.

Impact from Dredging

- 17.39 The proposed channel widening would involve dredging plant operating along the eastern side of Southampton Water. These vessels will present an increased risk of collision with dinghies during the period of the dredge (which is expected to take 38 weeks for all areas of Southampton Water) since they will be operating alongside the existing main navigation channel. The impact of this change is regarded to be **minor adverse significant** but will be managed by notices to mariners and communications protocols for the dredge contractors.
- 17.40 Following the capital dredge, the widened area is expected to require maintenance dredging for short periods twice a year, whereby the dredger will lie in the widening area for circa 1 hour in every 6 hours during each campaign. (This increase in maintenance dredging will approximately equate to an additional 13-18 barge loads per annum). With appropriate communications protocols the effect of this dredging on the recreational user community, particularly the dinghy sailing clubs, should be able to be managed. The impact of the additional maintenance dredging commitment is, therefore, considered to be **insignificant**.

Impact on Recreational Slipways on the East Side of Southampton Water

- 17.41 A concern has been expressed by a consultee that a slipway located along the eastern side of Southampton Water has become undermined and destabilised. It has been suggested that this problem is related to sediment erosion caused by ship-generated wash and that the proposed main channel dredge will further exacerbate the problem by shifting the main channel closer to the shore.
- 17.42 Between 1996 and 2005, fourteen topographic profiles were surveyed regularly by ABPmer along the Weston, Netley and Hamble Shore frontages as part of the Southampton Water Monitoring programme, undertaken for ABP Southampton (ABPmer, 2007c). Variable rates of erosion and accretion were observed both within and between the surveyed profiles from this stretch of coastline although rates of erosion of around 25mm/yr were not uncommon.
- 17.43 Undermining of recreational slipways occurs because the rate of erosion is greater than sediment supply to the area causing a net (localised) sediment deficit. Current flow speeds at the times the slipways are inundated are only strong enough to transport fine sediments and will not erode coarser sediments. However, wave activity provides erosive energy for some of the material which can then be moved away from the area by the flows, creating potential erosion should fine sediments exist that are not consolidated, armoured or have high cohesive strength. The relative contribution of port related activity to the observed coastal erosion is considered below.

- 17.44 Within Southampton Water, waves reaching the foreshore slipways are generated by both shipping, recreational leisure craft and natural processes. The relative contribution from each of these three sources will vary depending on location and level of the area in the tidal frame. Where the coast is exposed to longer fetch lengths or is south-westerly facing, wind-generated waves make a significant contribution to incident energy at the coast. Conversely, where the coast is exposed to shorter fetch lengths or is sheltered to the southwest, vessel-generated waves are likely to make the greater contribution to overall energy imparted on the foreshore. Wind-wave energy currently accounts for approximately 90% of the overall wave energy impacting the foreshore at Netley with vessel-generated wash only contributing 10% (Chapter 16). It follows that the observed recreational slipway undermining is predominantly caused by wave generated erosion, the largest proportion due to natural processes and undermining would occur regardless of whether Southampton Water was used by shipping.
- 17.45 The same analysis also shows that deepening the main channel will serve to marginally lower the relative contribution of ship-generated waves on the Netley foreshore (Chapter 16).
- 17.46 It should also be noted, however, that during the next 8 years (2008-2016) the occurrence of higher water levels will increase (due to the lunar nodal cycle effects). This will therefore, increase the propensity of wave energy at the shoreline and around the slipways. It is therefore, possible that erosion potential at the slipways and upper shoreline will increase, due to natural tidal variations alone.
- 17.47 A reduction in longshore sediment supply may also cause localised erosion and slipway undermining. This may have come about due to alterations to existing sea defences along the eastern side of Southampton Water.
- 17.48 As a result of the above discussion, the approach channel deepening is not predicted to exacerbate the observed slipway erosion and is considered to have an **insignificant** impact.

Loss of Moorings

- 17.49 The narrow strip of channel widening in the vicinity of the Upper Swinging Ground is at the very edge of the small craft moorings in the vicinity of Marchwood Yacht Club. Whilst the base of the dredge will not affect the existing moorings, the channel side slope will. Figure 17.5 shows the existing moorings that will be affected by the dredge. Discussions have been undertaken with the Club and replacement mooring locations have been agreed ~~ABP is also discussing the re-laying of moorings with Marchwood Yacht Club~~ which would have the effect of reducing the impact of the scheme from **moderate adverse significant** to **insignificant**.

Ashlett Creek Siltation

- 17.50 ABP have been made aware of the high rates of siltation at Ashlett Creek which has caused problems with accessibility and mooring: Ashlett Creek Sailing Club has noted that on a 3.7m tide, 40% of moorings have a depth of water of less than 12" and it has been alleged that this increase in siltation has resulted from the previous Southampton Water main channel dredge in 1997. It has also been argued that propeller action from large ships agitates sediment on the seabed, causing it to settle out in the mooring area on an ebb tide. These effects are said to be

particularly noticeable with a strong easterly wind and it has been suggested that the proposed changes to the main channel will exacerbate the existing problem.

17.51 At Ashlett Creek, observed accretion is a continuation of a number of events and processes both natural and man-made. These are summarised below:

- As noted in 17.2.8, those areas of Southampton Water that are sheltered from south-westerly wind waves are likely to experience the lowest levels of incident energy on the foreshore. Where incident energy is low, sedimentation can occur whilst in areas experiencing high wave energy erosion is commonly observed. This goes some way to explaining why the eastern waterfront in Southampton Water is generally experiencing erosion whilst the sheltered areas of the western waterfront (such as Ashlett Creek) are experiencing siltation and seabed accretion.
- Sediment accretion is also facilitated by the presence of both Calshot Spit (to the south) and the reclaimed land promontory with ExxonMobil Refinery (to the north): both these land masses create areas of reduced flow speeds in their lee (Calshot Spit on the flood and the Fawley reclamation on the ebb), thus any suspended sediment transported into the area is more likely to be deposited, with lower energy to resuspend the material. This process will occur, regardless of shipping within Southampton Water and is a consequence of the morphology of the estuary albeit created by anthropogenic intervention in the case of the Fawley Reclamation.
- The 1996/7 capital dredge in Southampton Water is likely to have increased sediment supply to Ashlett Creek: modelling of the change in sedimentation patterns arising from the proposed approach deepening indicates that tidally induced accretion in the vicinity of Ashlett Creek could be increased by about 2% without consideration of wave disturbance, equating to an increase of a few millimetres a year. The 1996/7 dredge was smaller than that currently proposed and did not affect the estuary locally. On this basis accretion as a result of the previous dredge over the accretion rate that must have existed before would have been of the order of 1-2mm/year.
- During the past decade, two other events have taken place that would also have had the potential to increase the sediment supply to the creek. These events were the clearing of the ExxonMobil intake channels and the dredging of the intake channel to Calshot Power Station, which were both undertaken by water injection dredging techniques and would locally have increased suspended sediment concentrations in the area.
- Agitation of the channel bed by propeller action will cause sediment resuspension and an increase in the concentration of sediment in the water column. However, the extent to which this is responsible for siltation at Ashlett Creek is not clear. (It should be noted though that the last dredge did not have an effect on vessel usage around Fawley, therefore any sedimentation increase was not due to an increase in the number of vessels using the deepened channel).

17.52 During the proposed capital dredge, the act of dredging, particularly the fine alluvial material (in the worst case) will increase suspended sediment concentrations over the intertidal areas and some of which will settle in the Creek and mooring areas. The worst case predictions from the model simulations is a depth of accumulation up to about 0.12m for the full dredge, without consideration of wave induced disturbance effects. Depending on the level of consolidation that will occur, this relates to a volume of accretion of the order of 1125-3000m³ spread throughout

the channel and mooring area. Thus during the actual dredge the effect on Ashlett Creek moorings is considered to be **minor adverse significant**.

- 17.53 After the capital dredge has been completed, the deeper main channel will provide greater clearance between the sea bed and the hull of passing ships and this will reduce the impact of the propeller jet on the bed and reduce suspended sediment concentrations in the water column. However, the modelling analysis presented in Chapter 8 suggests that this beneficial effect arising from deepening of the main channel will be offset by an alteration in current speeds and direction which could lead to a very marginal increase in sedimentation at a rate of less than about 5mm/year. Accordingly, the impact of this change is regarded as being **minor adverse significant**.

Siltation at Hythe and Hamble Marinas

- 17.54 During the dredging phase, the seabed will be agitated by the dredger causing a localised increase in suspended sediment concentration in the water column. At Hythe Marina, this is likely to lead to an increase in siltation for the period of the dredge since each locking or levelling activity will potentially increase the quantity of sediment imported and when the lock gates to the marina are closed, current velocity within the marina will be reduced and settling out will occur. Modelling analysis suggests that in Hythe Marina Channel, the maximum volume of sedimentation arising from the capital dredging operations is not likely to exceed 300m³. Sedimentation rates will be spatially variable and any increase in siltation will be confined to the dredging phase only.
- 17.55 The modelling predictions presented in Chapter 8 suggest a similar rise in sedimentation will be observed at the marinas in the River Hamble during the dredging phase (see Figure 17.2). The total increase in sedimentation in the River Hamble is unlikely to be greater than 4000m³ and as in Hythe Marina Channel, sedimentation will be transient and rates are likely to be spatially variable.
- 17.56 The impact of this change may be regarded as being **moderate adverse significant** with respect to existing sedimentation and maintenance dredging commitments. However, modelling suggests that during and following the capital dredge, sedimentation within Hythe marina entrance channel will not be increased.
- 17.57 As a moderate adverse significant impact has been predicted, a remedial strategy will be required as mitigation for the sedimentation arising during the dredge (Chapter 21). Sediment monitoring will be carried out before and after the proposed dredge at locations where significant sedimentation is predicted and concerns have been raised. [ABP has agreed with the River Hamble Harbour Authority to undertake](#) will take such steps as may be appropriate where it is demonstrated that the dredging works have caused a material increase in sedimentation, above naturally occurring rates of sedimentation, and which as a consequence, has had an adverse impact on marine operations. With mitigation in place where appropriate, however, the residual effect will be reduced to **insignificant**.

Foreshore Siltation During the Dredging Phase

- 17.58 Concern has been expressed by recreational user groups of Southampton Water that during the proposed dredging phase there will be an increase in suspended sediment in the water column and a consequent rise in sedimentation along the foreshore. It is feared that the presence of a soft mud layer along the foreshore will impede efforts to launch and retrieve craft.
- 17.59 Modelling of suspended sediment concentrations and sedimentation rates during the dredging phase have been considered in Chapter 8 and the results are presented in more detail in Appendix C. Changes in sedimentation will be highly variable in time and space (transient), often with maximum accumulations at any location only lasting for minutes to hours on a tide. Apart from areas that are currently 'silt traps', the accumulations are generally eroded during the periods of peak ebb and flood flows, particularly on spring tides. With respect to launching and retrieving recreational craft, the impact from the temporary and transient sedimentation along the foreshore is considered to be **insignificant**.

Mitigation Measures

- 17.60 Management measures will be incorporated during the dredging works and when the widened and deepened channel is in operation to minimise the impact on the Port's many users including the recreational community.
- 17.61 The following procedures will be put in place and controlled by VTS to minimise disruption to existing recreational users. Proposed management measures are summarised below:

Control Measures During Dredging

- Recreational users will be informed by liaison meetings and through active communications with VTS to keep clear of the dredging plant.
- Notices to Mariners will be issued by the Harbour Master's department during the dredging works to advise all users of plant operating in specified areas. Exclusion zones could be set around the dredgers to ensure small craft are not endangered;
- Race and Training Officers will be reminded to continue to communicate with the Harbour Master's department whilst the dredge plant is in the vicinity of the sailing club operating areas. It is the responsibility of the Race Officer to inform VTS of the intent to carry out racing, including active communication prior, during and on completion of racing;
- Dialogue between the Southampton Water Sailing Clubs and ABP will significantly reduce the level of inconvenience to all parties. The Port should be informed of organised club sailing activities as it may be possible to manage the phasing of the dredging programme so as to minimise the adverse impact on racecourses. This would supplement any existing management measures;
- Dredging plant will display the appropriate shapes and lights to warn all users of dredging operations; and
- Sediment monitoring will be carried out before and after the proposed dredge at locations where significant sedimentation is predicted and concerns have been raised. ABP will take such steps as may be appropriate where it is demonstrated that the

dredging works have caused a material increase in sedimentation, above naturally occurring rates of sedimentation, and which as a consequence, has had an adverse impact on marine operations.

Control Measures During Operation

- Dialogue between the Southampton Water Sailing Clubs and ABP would significantly reduce the level of inconvenience to all parties. The Port must be informed when large race regattas are scheduled as it may be possible to manage the phasing of commercial shipping so as to minimise the adverse impact on racecourses. This is an ongoing measure.
- The Harbour Master will issue guidance under the existing Port of Southampton Bye-Laws to instruct fast passenger craft not to operate outside the main navigation channel when two large vessels are passing in the area of Weston Shore. The fast craft will be instructed to wait until a passing opportunity presents itself rather than navigating outside the main navigation channel on the Netley side.
- The existing moorings at Marchwood Yacht Club will be relocated.

Conclusions

- 17.62 The Port has sought to understand the concerns of the recreational community in connection with the proposed main channel improvements. Whilst the majority of the recreational community within Southampton Water and the wider Solent area are not expected to experience any impacts due to the proposal, it is acknowledged that there will be an impact on the preferred sailing area for the Sailing Clubs located on the Weston Shore of Southampton Water. This is considered to be a minor impact but would not affect the day to day running of these Clubs.
- 17.63 The risks of collision and incidents are not expected to increase given that existing and continued management procedures implemented by the Clubs and the harbour authority are maintained and adapted to take account of the channel improvements. The identified mitigation measures and dialogue between all parties is anticipated to continue to ensure the safety of all users of the marine environment.
- 17.64 During the capital dredge, suspended sediment concentrations will be increased in the water column, but no significant build ups are expected around the foreshore of Southampton Water and the Solent. However, there will be additional sedimentation in low energy areas, which are already subject to sedimentation, such as Ashlett Creek and Hythe Marina.