# 9 Socio-Economic Impact Assessment, Mitigation and Management

## Table of Contents



## Table of Tables

## 9.1 Introduction

The activities and events associated with the SWAP 3D Seismic Survey have been determined based on the activities described within Chapter 4: Project Description; and the potential for interactions with socio-economic receptors identified. In accordance with the impact assessment methodology (Section 3.2.5 of Chapter 3), Scoping of the Environmental and Socio-Economic (ESIA) has been undertaken to identify survey activities that may be "scoped out" from the full impact assessment process based on Event Magnitude and the likely receptor interaction. In addition, existing controls and mitigation have been identified which include routine procedures and design measures that will be used to ensure that activities are consistent with expected socio-economic outcomes.

Those activities that have not been scoped out have been assessed on the basis of Event Magnitude and Receptor Sensitivity, taking into account the existing controls and mitigation, and impact significance determined. Monitoring and reporting activities undertaken to confirm that these controls are implemented and effective, as well as additional mitigation and monitoring to further minimise impacts, where required, are provided where necessary.

Assessments of environmental impacts and cumulative and transboundary impacts and accidental events have also been undertaken and are presented in Chapters 8 and 10, respectively.

The results of the land use classification mapping analysis described in Chapter 6 Section 6.5.2 and illustrated in Figure 6.2, 6.7, 6.8 and 6.13 was used to inform the socio-economic impact assessment, during the initial scoping phase and in the subsequent evaluation of potential impacts. The proportion of seismic lines that intersect with each type of land use classification was calculated for Priority Areas 1, 2 and 3 and the results are provided in Table 9.1. It is important to consider that the seismic lines used for the socio-economic impact assessment are indicative and may be subject to change. In addition, the land use classification mapping analysis used satellite imagery to identify the different types of land use present and, as such, was used as general information in support of the overall socio-economic assessment.

**Table 9.1: Proportion of Land Use Type Intersected by Seismic Lines**

| Priority Area | Land Use Type | Survey Line Intersection (km) | Proportion Intersected by Seismic Lines (percentage) |
|---|---|---|---|
| 1 | Bare Ground | 11.70 | 27% |
| | Commercial | 18.41 | 43% |
| | Densely Vegetated | 1.20 | 3% |
| | Recreation and Tourism | 0 | 0% |
| | Residential | 6.92 | 16% |
| | Sparsely Vegetated | 4.28 | 10% |
| | Water Body | 0.24 | 1% |
| | **TOTAL:** | **42.75** | |
| 2 | Bare Ground | 1.35 | 4% |
| | Commercial | 0.08 | 0.2% |
| | Densely Vegetated | 1.14 | 3% |
| | Recreation and Tourism | 0 | 0% |
| | Residential | 0 | 0% |
| | Sparsely Vegetated | 30.93 | 92% |
| | Water Body | 0.13 | 0.4% |
| | **TOTAL:** | **33.63** | |

| Priority Area | Land Use Type | Survey Line Intersection (km) | Proportion Intersected by Seismic Lines (percentage) |
|---|---|---|---|
| 3 | Bare Ground | 191.30 | 69% |
| | Commercial | 8.76 | 3% |
| | Densely Vegetated | 5.23 | 2% |
| | Recreation and Tourism | 0.34 | 0.1% |
| | Residential | 28.34 | 10% |
| | Sparsely Vegetated | 43.49 | 16% |
| | Water Body | 0.22 | 0.1% |
| | **TOTAL:** | **277.69** | |

The results of the land use classification mapping analysis indicates that within Priority Area 1, the dominant land use type that is coincident with the survey activities is commercial (with 43% of the total length of the survey lines within Priority Area 1, passing through this land use type) and bare ground (27%) which is generally unused. Land use within Priority Area 2 is primarily classified as sparsely vegetated (with 92% of the total length of the survey lines within Priority Area 2, passing through this land use type). Land use within Priority Area 3 is mostly bare ground (with 69% of the total length of the survey lines within Priority Area 3, passing through this land use type) and sparsely vegetated (16%). There are therefore, clear differences in the types of land uses present within each of the Priority Areas.

## 9.2 Scoping

The SWAP 3D Seismic Survey Activities and associated Events that have been scoped out due to their limited potential to result in discernible socio-economic impacts are presented in Table 9.2. The scoping process has used professional judgement based on prior experience of similar Activities and Events for similar projects in Azerbaijan and across the world.

**Table 9.2: "Scoped Out" SWAP 3D Seismic Survey Activities**

| ID | Activity / Event | Ch. 4 Project Description Reference | Justification for "Scoping Out" |
|---|---|---|---|
| **3D_S_R1** | Use of road network (by seismic and support vehicles) on other road users | 4.6.1 and 4.8.1 | • Seismic vehicles (Vibroseis trucks and Onseis units) will use the existing road network to travel to the survey locations. In addition, the survey itself will be undertaken along, across and adjacent to existing roads. Vehicles will need to travel off-road, where necessary, to access receiver / source points There will be approximately 23 vehicles available to support the 3D Seismic Survey. The vehicles will return to either Hovsan Port or one of the 3 sub-bases at the end of each day.<br>• Road closures are not planned; however, if road closures are necessary, they will be temporary and limited to the minimum time necessary to complete the operation safely.<br>• There will be no planned closure of the Baku-Salyan highway.<br>• Road closures will be organised in close liaison with relevant authorities; and will only take place after permission for the road closure has been granted.<br>• Hovsan Port and the 3 sub-bases are established facilities with existing road junctions connecting them to the public road network.<br>• As part of pre mobilisation work an existing disused access road to Hovsan Port will be upgraded to provide a dedicated access road for the project. No other upgrades to junctions or aces roads are planned as part of the survey activities.<br>• Dedicated transport coordinators will be used to control and |

| ID | Activity / Event | Ch. 4 Project Description Reference | Justification for "Scoping Out" |
|---|---|---|---|
| | | | monitor all vehicle movements and their responsibilities will include ensuring that all vehicles used are well-maintained; suitable for the terrain and that the drivers have received adequate training.<br>• A Journey Management Plan will be implemented to ensure efficient planning of all vehicle movements in advance.<br><br>**Conclusion:**<br>Due to the relatively small number of vehicles involved in the 3D Seismic Survey and through the implementation of management measures set out in the Traffic and Transportation Management Plan (e.g. close liaison with relevant authorities with regards to road closures), the potential for impacts to other road users is considered to be insignificant. |
| **3D_S_R2** | Use of seismic and support vehicles on community health and safety risk | 4.6.6 | • Seismic and support vehicles in Priority Areas 1, 2 and 3 will use both on the public road network and travel off-road, where required.<br>• Vehicle movements have the potential to impact community health and pose safety risks.<br>• Dedicated transport coordinators will be used to control and monitor all vehicle movements and their responsibilities will include ensuring that all vehicles used are well-maintained; suitable for the terrain and that the drivers have received adequate training.<br>• Vehicle speed limits established for different road surfaces will be adhered to at all times during the survey.<br>• For the purpose of the 3D Seismic Survey, no night-time driving, or driving during the hours of darkness, will be permitted unless in the case of an emergency)<br>• A Communication and Consultation Management Plan will be implemented and maintained as a mechanism of communicating with the communities. As part of the plan, Community Liaison Officers (CLOs) will arrange meetings with community leaders, farmers and property owners and will provide information to the local people about the seismic operations, relay information between the seismic crew and the public and address any grievances;<br>• A grievance procedure to enable public and stakeholder concerns to be addressed in effective and timely manner will be established and implemented;<br>• Permission will be obtained from land owners before private land and roads are accessed.<br><br>**Conclusion:**<br>The use of seismic and support vehicles on the public or private road network will be carefully controlled during the 3D Seismic Survey and all vehicle movements continuously monitored. The increased risk to community health and safety is considered to be insignificant. |
| **3D_S_R3** | Physical presence of nodes on community health and safety risk | 4.5.2 | • Nodes will be positioned on the ground along grid lines at a distance of 50m apart. Individual grid lines will be spaced 400m apart.<br>• The physical presence of the nodes has the potential to increase community health and safety risks and result in injury through trips and falls.<br>• A Communication and Consultation Management Plan will be implemented and maintained as a mechanism of communicating with the communities. Information provided to local people will include an overview of the planned deployment of nodes and the requirement not to interfere with them will be communicated.<br>• Communication from the local communities will be continuously monitored throughout the 3D Seismic Survey to identify any issues. Any reports of injury will be immediately reported in accordance with the reporting procedures set out |

| ID | Activity / Event | Ch. 4 Project Description Reference | Justification for "Scoping Out" |
|---|---|---|---|
| | | | with the Communication and Consultation Management Plan for investigation.<br><br>**Conclusion:**<br>Taking into consideration planned communications, it is considered that the increased risk to community health and safety is insignificant. |
| **3D_S_R4** | Use of seismic vehicles on above ground and shallow subsurface infrastructure | 4.5.2.1 | • The use of the seismic vehicles has the potential to damage above ground and shallow subsurface infrastructure due to their size and weight.<br>• Impacts from the operation of the energy source (resulting in vibration) will be localised and are not expected to cause damage to above ground and shallow subsurface infrastructure (refer to Section 8.6 of Chapter 8).<br>• Prior to the Seismic Survey commencing, a programme of pre-planning surveys will be undertaken in accordance with the Communication and Consultation Management Plan. These activities will inform the Seismic Survey design, including further informing the positioning of survey lines and which of the proposed onshore methods are suitable for which areas (i.e. vibroseis or OnSeis);<br>• Given the complexity and density of onshore infrastructure across the survey area, a comprehensive planning of survey activities will take place ahead of survey crews being deployed to the field.<br>• Pre-acquisition activities will include reconnaissance surveys, scouting and permitting activities. Preliminary survey operations will include a static control survey and associated integrity confirmation sites, setup of a communication network, mapping the extents of the obstructions and sensitive receptors, identifying and marking access routes, as well as permitting and public relations with local communities, landholders and Government Officials.<br>• Safety distances between the seismic sources and existing infrastructure will be defined by the seismic contractor prior to the survey (during the mobilisation phase) in line with the current IAGC Minimum Offset Guidelines for Land Seismic Surveys ;<br>• Seismic lines will be offset to maintain safety distances from sensitive receptors calculated using relevant guidance and project specific parameters;<br>• It is therefore considered that the potential for these impacts is low.<br><br>**Conclusion:**<br>Taking into consideration the pre-survey planning and the intention to avoid identified above ground and shallow subsurface infrastructure, the risk of damaging above ground and shallow subsurface infrastructure is considered insignificant. |
| **3D_S_R5** | Employment | 4.6.2 | • The 3D Seismic Survey is expected to require a workforce of 315 people to support both the onshore and offshore activities and will comprise a core team of international specialists, supplemented by Azerbaijani personnel.<br>• The project will employ staff for a period of approximately 9 months.<br>• BP and the seismic contractor will aim to meet the local content targets defined under the SWAP Production Sharing Agreement (PSA) which comprise 90% unskilled labour and 10% of skilled labour.<br>• It is expected that the following roles will be mostly undertaken by local non-professional staff:<br>o Onshore drivers;<br>o Offshore vessel crew;<br>o Catering personnel;<br>o Cleaning personnel; and |

| ID | Activity / Event | Ch. 4 Project Description Reference | Justification for "Scoping Out" |
|---|---|---|---|
| | | | o Security guards.<br><br>**Conclusion:**<br>Employment over the survey duration, while beneficial, will not result in a significant impact on regional employment levels and existing socio-economic conditions. |
| **3D_S_R6** | Physical presence of workforce on local communities (specifically in Hovsan Port and within local hotels) | 4.6.3 | • Accommodation for workers will be provided within Hovsan Port and at local hotels.<br>• A proportion of the national workforce is expected to commute from their homes and will use transport provided by the seismic contractor to travel to either Hovsan Port or one of the 3 sub-bases.<br>• Where accommodation is required, the worker accommodation and facilities at Hovsan Port will be supplemented by accommodation within local hotels where required with preference given to use of the Hovsan Port facilities.<br>• Use of local hotels will provide some local economic benefit, but this will be limited due to the low numbers expected to be accommodated at hotels.<br>• Whilst there is a potential for competition between the workforce and tourists for rooms within local hotels, this is expected to be minor given the low workforce numbers potentially based in local hotels.<br>• Workers accommodated in Hovsan Port will not be permitted to travel into local communities at night.<br><br>**Conclusion:**<br>The use of local hotels during the 3D Seismic Survey is not expected to be significant as the majority of the workforce will be based in Hovsan Port. Workers will not be permitted to leave Hovsan Port at night and impacts from the presence of the accommodated workforce are expected to be insignificant. |
| **3D_S_R7** | Physical presence of seismic and support vessels on offshore commercial fishing (undertaken with heavy tonnage vessels) | 4.5.1 | • The physical presence of the seismic and support vessels has the potential to disrupt commercial fishing activities undertaken in the offshore area.<br>• 1 commercial vessel is known to operate within close proximity to the 3D Seismic Survey Area: LTRV-50 "Shahriyar", which is based and departs from Pirallahi Island.<br>• The vessel is licenced to operate between Pirallahi Island and Kornilov, Pavlov and Karagedov banks (located between 50 and 100 km south of the 3D Seismic Survey Area).<br>• Between November and March it is understood this vessel operates approximately twice a month for periods of up to one week and predominately at the Makarov Bank (located 12km to the south of the 3D Seismic Survey Area). The month of March is the start of the high fishing season and the month of November marks the end of a second period of high fishing activity (Chapter 6, Section 6.6.6). However, the 3D Seismic Survey Activities will take place within Priority Areas 1 and 5 respectively during those months (Chapter 4, Table 4.1), which is outside of the route of travel of the vessel from Pirallahi Island to the Makarov Bank which is typically used for high fishing season activities.<br>• Notifications regarding the survey programme will be issued to the relevant maritime and port authorities, as well as directly communicated with sea users where necessary, in advance of the survey.<br>• Advanced positioning equipment will be used to maintain communications with other vessels and provide accurate information on the position of the source vessel and associated equipment. |

| ID | Activity / Event | Ch. 4 Project Description Reference | Justification for "Scoping Out" |
|---|---|---|---|
| | | | **Conclusion:**<br>Given that Makarov Bank is not located within the 3D Seismic Survey Area and that the LTRV-50 "Shahriyar" vessel is licenced to operate in other locations and taking into account operational controls designed to notify vessels of the survey activities, the potential impacts to offshore commercial fishing is considered to be insignificant. |
| **3D_S_R8** | Operation of offshore energy source on recreational maritime users (water sports and divers) | | • A number of known dive sites are located to the east of the Absheron Peninsula and just to the south of Baku Bay.<br>• While diving for recreation is not known to be a popular recreational activity in the Azerbaijan sector of the Caspian Sea, three diving clubs are active in the Absheron Region.<br>• Water sports such as boating, jet ski-ing and water ski-ing is known to take place primarily along the northern east coast the Absheron Peninsula outside of the 3D Seismic Survey Area.<br>• The survey activities have the potential to affect the health and safety of recreational maritime users including divers as a result of physical disturbance and underwater sound exposure.<br>• To notify recreational maritime users of the survey activities signs will located in public spaces (including tourist areas and beaches) communicating planned activities and schedule, the potential risks to recreational maritime users associated with the survey activities and advice on avoiding the survey areas.<br>• The scope of the Communication and Consultation Management Plan will include owners of summer houses, tourist resorts and hotels to ensure the schedule and scope of the survey in each area is communicated in addition to potential impacts.<br>• As part of the pre-survey activities, maritime businesses (including diving companies) will be consulted and informed of the 3D Seismic Survey Activities and the planned schedule. As part of the consultation, dive locations will be confirmed and this information provided to seismic contractor.<br>• The dive companies will be contacted immediately prior to the 3D Seismic Survey operating in the vicinity of the dive sites. The diving companies will be asked to restrict diving activities to areas outside of the immediate survey area when 3D Seismic Survey Activities are within the vicinity of the dive locations.<br>• While the 3D Seismic Survey is being undertaken in the vicinity of the dive sites, vessel crew members will undertake observations for dive boats and divers. If a dive boat is identified, the chase vessel will immediately make contact with the dive boat operator.<br><br>**Conclusion:** Given the planned consultation and communication ahead of the 3D Seismic Survey and planned management measures during the survey (e.g. observations for dive boats and divers), the risk of interactions with recreational maritime users is considered to be insignificant. |

The SWAP 3D Seismic Survey routine and non-routine activities and their associated events which have been assessed in accordance with the full impact assessment process are presented in Table 9.3.

**Table 9.3: "Assessed" SWAP 3D Seismic Survey Activities**

| ID | Activity / Event | Ch. 5 Project Description Reference | Impact | Receptor |
|---|---|---|---|---|
| **3D_S_R9** | Physical presence of seismic vehicles and support vehicles (including node vessels), equipment (including nodes) and crew | 4.5.2 | Damage to household economic assets from seismic vehicle movements | • Land users and land owners |
| | | 4.5.2 | Generation of nuisance from the presence of seismic vehicles and support vehicles, equipment (including nodes) and crew | • Local communities<br>• Tourism business owners<br>• Recreational users of the beach and coastal areas (including tourists) |
| **3D_S_R10** | Physical presence of seismic vessels and support vessels (including node vessels) and equipment (vessel movement and survey operations in shallow water) | 4.5.1 | Potential interference with other users of the sea | • Shipping operators<br>• Small-scale coastal fishermen<br>• Recreational maritime users (water sports and divers) |
| | | 4.5.1 | Temporary disruption to fishing-based livelihoods due to reduced access to fishing areas or temporary removal of gear from the water | • Small-scale coastal fishermen |
| | | 4.5.1 | Potential health and safety impact on communities using the marine area for recreation (divers and bathers) from collision with vessel and seismic array | • Recreational maritime users (water sports and divers) |
| **3D_S_R11** | Operation of offshore energy source | 4.5.1 | Indirect impact on small scale coastal fishing activities resulting from fish behavioural reactions to underwater sound | • Small-scale coastal fishermen |

The sections below present an assessment of these Activities in accordance with the impact assessment methodology and significance criteria as presented within Chapter 3 of this ESIA.

## 9.3 Socio Economic Impacts

### 9.3.1 Onshore Impacts Associated with Physical Presence of Seismic Vehicles and Support Vehicles, Equipment and Crew

The onshore 3D Seismic Survey activities will be undertaken in Priority Areas 1, 2 and 3 covering a number of land use types including residential, commercial and agricultural areas (refer to Chapter 6 Section 6.5.2). The 3D Seismic Survey Area includes open land, which does not appear to currently be in use. There are different types of land ownership structures including private, state and municipal owned land.

The onshore activities have the potential to result in socio-economic impacts to receptors including local communities, individual households, business owners and recreational users of the beach and coastline area.

#### 9.3.1.1 Mitigation

To minimise potential impacts from the physical presence associated with the onshore survey activities, a number of control measures have been included in the project design. These include the following:

- As part of pre-survey activities the following will be completed:
    - Land boundaries and restricted areas along the route of the planned survey lines will be confirmed.
    - Landowners and land users along the route of the planned survey lines will be identified and permission for access obtained.
    - 
- During the 3D Seismic Survey, the following will be undertaken:
    - A Conditions Walkover Survey will be conducted along the seismic survey line (ahead of the 3D Seismic Survey team) to identify the characteristics and condition of the land, structures and crops, which may be impacted by the 3D Seismic Survey Activities.
    - The seismic contractor will be required to report and record any damage to infrastructure or crops caused by the survey.
    - A Communication and Consultation Management Plan will be implemented and maintained as a mechanism of communicating with the communities and relevant authorities. As part of the plan, CLOs will arrange meetings with community leaders, farmers and property owners and will provide information to the local people about the seismic operations and record all grievances.
    - A grievance procedure to enable public and stakeholder concerns to be addressed in effective and timely manner will be established and implemented.
    - A compensation procedure to assess and manage claims, made by the public and stakeholders, for damage specifically caused as a direct result of 3D Seismic Survey activities, will be established and implemented.
- Following the completion of the survey, all legitimate claims for damage specifically caused as a direct result of the 3D Seismic Survey activities will be recorded and eligible claims will be processed with compensation provided accordingly;
- All offshore survey activities within water depths of 5m or less will take place during daylight hours only; and
- All onshore survey activities will take place during daylight hours only.

#### 9.3.1.2 Event Magnitude

***Land Owners, Land Users and Associated Assets***

As described within Chapter 4 Section 4.5.2.1, it is planned to use three types of source equipment for the onshore 3D Seismic Survey, dependant on type of terrain encountered and access limitations:

- Vibroseis trucks AHV-IV for use on flat, open areas;
- Vibroseis small scale UNIVIB trucks for use in restricted or heavily urbanised areas due to its increased manoeuvrability in narrow spaces; and
- OnSeis units for use in areas of difficult terrain and limited access, including environmentally sensitive areas.

Additional trucks and vehicles will also be used to support the seismic vehicles. Up to 3,400 nodes will be deployed at 50m spacing intervals. The type of seismic vehicles used will be selected as part of the pre-survey activities.

The combined use of the source, node and support vehicles and the associated survey equipment has the potential to result in damage to household economic assets, or a loss of temporary access to economic assets. The operation of the 4 Vibroseis trucks on open land (such as agricultural fields) and the operation of the 4 Vibroseis small scale trucks between individual land plots (for example) may result in damage to the existing condition of the ground, including crops/plants.

Cultivation of crops was observed during the socio-economic walkover survey in November 2015 across Priority Areas 1 and 2 (with the majority crops observed within Priority Area 2. Table 9.1 shows that for Priority Area 1 and 2, 3% of the total length of the seismic survey lines within each of these Priority Areas, pass through densely vegetated land (which is assumed to include crop cultivation). Survey activities are planned across the onshore 3D Seismic Survey Area during March to September which is during the main agricultural growing season (April to September). Keeping of poultry and livestock was also observed across Priority Areas 1 and 2. Both crops and livestock rearing is undertaken both for household consumption and market sale. As such it is possible that damage to agricultural crops may occur due to deployment of node and use of the seismic vehicles.

The use of seismic vehicles, support vehicles and equipment may also damage private gardens or disturb (or temporarily restrict access to) land used for recreational purposes such as public municipal open space and beaches. However, the level of disturbances and damage will be minimised and all 3D Seismic Survey activities will be notified to land owners in advance in accordance with the Communication and Consultation Management Plan.

Taking into account the 3D Seismic Survey Activities, the existing controls described above and the impact significance criteria set out in Chapter 3 of the ESIA, the event magnitude associated with the use of seismic vehicles, support vehicles and equipment with respect to land owners, land users and associated assets is presented within Table 9.4.

**Table 9.4: Event Magnitude (Land Owners, Land Users and Associated Assets)**

| Event | Explanation | Event Magnitude |
|---|---|---|
| Physical presence of seismic vehicles, support vehicles and equipment (including nodes) and crew | The use and deployment of nodes will occur over a relatively short timeframe,. The onshore crew are expected to deploy the nodes by foot and support vehicle (after the Conditions Walkover Survey has been undertaken), which is expected to avoid impacts to ground conditions to the maximum extent possible, although may result in the localised trampling of crops and disturbance to livestock where such features are present.<br><br>The use of the seismic vehicles and support vehicles may result in damage and loss of economic assets. No removal of masonry structures (e.g. walls) or of any household or economic assets or structures is planned.<br><br>This is therefore considered an event of Low magnitude. | **Low** |

***Recreational Users of the Beach and Coastal Areas and Tourism Business Owners***

Generation of nuisance from the presence of seismic vehicles, support vehicles, equipment and crew has the potential to disturb the recreational users of the beach and coastal areas; as well as tourism business activities along the coast adjacent to 3D Seismic Survey Area. The nuisance may be caused from the generation of in air sound from the crew or vehicle engines; the visual disturbance from the trucks; disturbance of the ground and tyre marks; and from a perception of people present close to residential houses that are not normally present. However, the vehicles will not be present in clusters and instead will be active along different parts of the 3D Seismic Survey line being surveyed.

Where the onshore 3D Seismic Survey is conducted in areas of land used for commercial purposes, the generation of nuisance is less likely (in comparison to residential and recreational areas) due to the range of other nearby industrial activities taking place and existing sources of in air sound (refer to Chapter 5 Section 5.4.5).

There are a number of beaches, resorts and hotels located along the coast of the Absheron Region between Hovsan and the Shahdili Spit. There are also a number of locations where water sports are known to occur within close proximity to the coastline (refer to Chapter 6, Section 6.7 and Figure 6.18).

On the beach and along the coastline, the presence of seismic vehicles, support vehicles, equipment and crew may interfere with the normal activities of tourism facilities and businesses providing services to recreational users. The 3D Seismic Survey within Priority Area 2, where the majority of beaches are located, will be undertaken during the summer months when the number of visitors and tourists are at their highest; any interference may result in damage to an area's reputation for tourism and recreational value, and a resultant reduction in business revenue as tourists and recreational users choose to limit their time on the beach and along the coastline.

Taking into account the 3D Seismic Survey activities, the existing controls described above and the impact significance criteria set out in Chapter 3 of the ESIA, the event magnitude associated with the use of seismic vehicles, support vehicles (including associated vehicle movements) and equipment with respect to recreational users and tourism business owners is presented within Table 9.5.

**Table 9.5: Event Magnitude (Land Based Coastal Recreational Users and Tourism Business Owners)**

| Event | Explanation | Event Magnitude |
|---|---|---|
| Physical presence of seismic vehicles, support vehicles, equipment (including nodes) and crew | The physical presence of seismic and support vehicles, equipment and crew generating in air sound has the potential to cause minor, short-term impacts to recreational users, and businesses involved in tourism and the operation or use of recreational facilities.<br><br>This is therefore considered an event of Low magnitude. | **Low** |

### 9.3.1.3 Receptor Sensitivity

***Land Owners, Land Users and Associated Assets***

With regard to residential land owners or land users, receptor sensitivity is expected to be Medium because of the actual and the perceived risk to local residents with regard to the integrity of their homes and potential damage to physical assets.

***Land Based Coastal Recreational Users and Tourism Business Owners***

In relation to individuals using the beach and coastline for tourism or recreational purposes, people visiting such destinations typically travel with the purpose of enjoying the general atmosphere, tranquillity, landscape and pleasant visual setting. People visiting for recreational purposes are typically keen to benefit from the presence of local tourist facilities, such as restaurants and hotels as part of their experience at the beach.

Business owners are likely to be particularly sensitive to any reputational damage that may occur to the area or their specific tourism facilities. Tourists paying for hotel accommodation by the beach will expect to be able to enjoy the beach and coastal area free of disturbance by the 3D Seismic Survey activities.

For recreational and tourism users, the most sensitive periods for the use of seismic vehicles, support vehicles and equipment, and the presence of the crew is during weekends, public holidays and during the summer tourism season when weather conditions are favourable.

The sensitivity of land owners and land users, and recreational users and tourism business owners in relation to the physical presence of vehicles, equipment and crew is summarised within Table 9.6.

**Table 9.6: Receptor Sensitivity**

| Receptors | Explanation | Receptor Sensitivity |
|---|---|---|
| Land owners and land users | Land owners and land users are expected to be sensitive to any change in their living conditions, integrity of household assets and general well-being. Any damage to economic assets could result in grievances being raised. | **Medium** |
| Land based coastal recreational users | Recreational users of the beach and coastal area are expected to be sensitive to the 3D Seismic Survey Activities as people typically travel to such areas to enjoy the peaceful environment near the sea and use the local tourism facilities. | **Medium** |
| Tourism business owners | The owners of tourism businesses are expected to be sensitive to the presence of 3D Seismic Survey Activities which may reduce business trade on the days the survey vehicles and crew are present. | **Medium** |

#### 9.3.1.4 Impact Significance

Table 9.7 summarises impacts to land owners and land users, land based coastal recreational users and tourism business owners from the physical presence of the seismic vehicles, support vehicles, equipment and crew.

**Table 9.7: Impact Significance**

| Event | Receptor | Event Magnitude | Receptor Sensitivity | Impact Significance |
|---|---|---|---|---|
| Physical presence of seismic vehicles, support vehicles, equipment (including nodes) and crew | Land owners and land users | Low | Medium | **Minor Negative** |
| | Land based coastal recreational users | Low | Medium | **Minor Negative** |
| | Tourism business owners | Low | Medium | **Minor Negative** |

The following monitoring and reporting related to onshore impacts associated with the operation of the seismic vehicles, support vehicles and equipment; and the presence of the crew will be undertaken:

- Information gathered during pre-survey activities will be stored on file and treated as confidential material, as it will contain personal details associated with land ownership and land use.
- The types of communications delivered by CLOs and the queries received from stakeholders during the 3D Seismic Survey will be recorded and monitored, to ensure that adequate information is being provided to local residents and business owners, including the schedule and nature of activities involved in the 3D Seismic Survey.
- The types of potential damage caused (if any) will be carefully monitored (i.e. logged, recorded and managed) to ensure that the level of disruption to land owners and land users is minimised.

Land owners or land users who are vulnerable due to their age, disability or other reason, may need special assistance while the 3D Seismic Survey is being undertaken to ensure that they are aware of the range of activities being conducted on, or within close proximity to, their land.

Experience has shown from other seismic survey projects, that planning and sufficient resourcing of CLOs is required to ensure that vulnerable local residents are sufficiently and appropriately informed of survey activities to avoid alarm or stress. As such, the following controls will be adopted:

- The Communication and Consultation Management Plan will include specific provisions to provide support to different types of vulnerable people expected to be present across the survey area. People may be vulnerable due to their age disability or other reason and may need special assistance during the initial stages of the 3D Seismic Survey.
- Information provided to vulnerable people during the process of obtaining permission from land owners or land users will be clearly communicated to avoid misunderstandings associated with the purpose and range of activities to be conducted during the 3D Seismic Survey.

### 9.3.2 Offshore Impacts Associated with Physical Presence of Seismic Vessels, Support Vessels and Equipment

The offshore activities of the 3D Seismic Survey will be undertaken within an area used by international, regional and local shipping. The area is also used for coastal small-scale fishing and recreational water sports. As such, there exists the potential for impacts to shipping, small-scale coastal fishing and recreational users of the sea from the physical presence of the 3D Seismic Survey.

#### 9.3.2.1 Mitigation

To minimise potential impacts from interference with other sea users, a number of control measures have been included in the project design. These include the following:

- A Communication and Consultation Management Plan will be implemented and maintained as a mechanism of communicating with the communities. As part of the plan, CLOs will arrange meetings with small-scale coastal fishermen and will provide information to the local people about the seismic operations, relay information between the seismic crew and the public and address any grievances.
- Notifications regarding the survey programme will be issued to the relevant maritime and port authorities, as well as directly communicated with sea users where necessary, in advance of the 3D Seismic Survey. This will include communications to small-scale coastal fishermen and recreational maritime users.
- All vessels will operate in compliance with national and international maritime regulations for avoiding collisions at sea, including the use of signals and lights.
- Advanced positioning equipment will be used to maintain communications with other vessels and provide accurate information on the position of the seismic vessel and associated equipment. This will include communications with coastal small-scale fishermen and recreational maritime users.
- Safety exclusion zone will be maintained around seismic vessels to minimise the risk of collision.
- As part of the pre-survey activities, maritime businesses (including diving companies) will be consulted and informed of the 3D Seismic Survey Activities and the planned schedule. As part of the consultation, dive locations will be confirmed and this information provided to seismic contractor.
- The dive companies will be contacted immediately prior to the 3D Seismic Survey operating in the vicinity of the dive sites. The diving companies will be asked to restrict diving activities to areas outside of the immediate survey area when 3D Seismic Survey Activities are within the vicinity of the dive locations.
- While the 3D Seismic Survey is being undertaken in the vicinity of the dive sites, vessel crew members will undertake observations for dive boats and divers. If a dive boat is identified, the chase vessel will immediately make contact with the dive boat operator.
- Prior to the seismic survey being undertaken offshore reconnaissance and seabed hazard surveys will be undertaken, including marine side scan, magnetometer, and multi-beam bathymetry surveys to confirm the location of seabed hazards to allow the survey team to plan to avoid these.
- In the event that fixed fishing gear is identified on the seabed during the seabed hazard survey, the seismic survey will be planned, as far as possible, to avoid it. It is not planned to remove fixed fishing gear.
- Support vessels will be present throughout the 3D Seismic Survey. These will be responsible for keeping the seismic vessel and equipment safe from hazards such as other vessels and manmade obstructions along the survey lines. Support vessels will provide additional safety cover to the seismic vessels and can assist in the event of an emergency, whether health and safety or environmental.
- Any grievances raised by affected fishermen will be managed through a grievance procedure which sets out the processes through which complaints are logged and recorded; and the approach to managing the complaint in an appropriate and timely manner. Where corrective actions are required; they will be implemented effectively and in a timely manner.

#### 9.3.2.2 Event Magnitude

As described within Chapter 4 Section 4.2, the 3D Seismic Survey is expected to last for a total period of 9 months and cover a total offshore area of 1,430km$^2$. Offshore activities will be carried at different water depths ranging between 0m and 25m. Survey activities will include vessel movements and deployment of nodes; operation of the energy source and survey support operations and

demobilisation, where all survey equipment will be removed from the 3D Seismic Survey Area. Survey activities undertaken offshore up to 5m water depth (Transition Zone and Very Shallow Water Zone) will only be undertaken during daylight hours; with 24 hour survey activity planned in water depths greater than 5m (Shallow Water Zone). During survey operations, up to 17 vessels will be mobilised including seismic vessels, node vessels and support vessels. During daylight hours there could be up to 5 seismic source vessels operating simultaneously within a Priority Area. During night time hours only 2 seismic source vessels in the Shallow Water Zone (>5m water depth) will be operational.

A maximum of 242 nodes will be deployed each day. Spacing between the nodes in the offshore area will be 200m, with 10 nodes covering an area of approximately 2km. The interval between deployment and retrieval of the nodes in the offshore area is anticipated to be between 10 and 20 days depending on survey progress, line lengths, weather conditions and water depths.

***Shipping (International, Regional and Local)***

The seismic vessel will travel along, cross, as well as move perpendicularly to existing, identified shipping routes (as shown in Chapter 6 Figure 6.19). These routes include the international Baku-Turkmenbashy and the Baku-Cheleken shipping routes, which are used by large cargo vessels, tankers and other international shipping, as well as routes used by regional and local shipping, including vessels that supply the offshore oil and gas industry.

Taking into account the 3D Seismic Survey Activities, the existing controls described above and the impact significance criteria set out in Chapter 3 of the ESIA, the event magnitude associated with the physical presence of the seismic vessels, support vessels and equipment with respect to shipping is presented within Table 9.8 below.

**Table 9.8: Event Magnitude (Shipping – International, Regional and Local)**

| Event | Explanation | Event Magnitude |
|---|---|---|
| Presence of seismic vessels, support vessels and seismic equipment | The seismic vessels will be continuously moving and will not be present in an area for any significant period of time. Design controls include measures to communicate the 3D Seismic Survey activities to all shipping vessels prior to commencement of and during the 3D Seismic Survey. It is therefore anticipated that the effect of the 3D Seismic Survey on shipping would be short term and temporary, which is therefore considered an event of Low magnitude. | **Low** |

***Small-Scale Coastal Fishing***

Small scale coastal fishing is normally undertaken within 2-3 nautical miles of the shore. As shown within Chapter 6 Figure 6.15, there are a number of locations along the Absheron coastline where individuals known to take part in small scale fishing reside and are licenced to undertake fishing activities. During 2015, there were 381 fishermen with a licence to fish within and in the vicinity of the SWAP Contract Area[1]. As shown within Chapter 6 Figure 6.15, based on the data provided by MENR, Zira is the fishing area with the most licenced fishermen (125), followed by Hovsan (53). Small-scale coastal fishing activities are carried out throughout the year, with the low season lasting for 2 months from May to June (Chapter 8, Section 6.6.6).

Taking into account the 3D Seismic Survey activities, the existing controls described above and the impact significance criteria set out in Chapter 3 of the ESIA, the event magnitude associated with the physical presence of the seismic vessels, support vessels and equipment with respect to small scale coastal fishing is presented within Table 9.9.

[1] MENR Letter, 3 July 2015. Response to a Request for Information from BP. Ref. 4/1009-6

**Table 9.9: Event Magnitude (Small Scale Coastal Fishing)**

| Event | Explanation | Event Magnitude |
|---|---|---|
| Presence of the seismic vessels, support vessels and equipment | The seismic vessel and support vessels will be continuously moving and will not be present in an area for any significant period of time.<br><br>Presence within each Priority Area will be temporary. Within Priority Area 3, which is where the majority of small scale fishermen are licensed to fish, survey activities will take place between the end of April and June which is mostly during the low fishing season (May-June). In the event that fixed fishing gear is identified on the seabed during the seabed hazard survey, the seismic survey will be planned, as far as possible, to avoid it. It is not planned to remove fixed fishing gear. However, if removal is required, suitable monitoring and reporting measures will be implemented. Small-scale coastal fishermen will be notified of the 3D Seismic Survey Activities in advance so that they are able to plan modifications from their normal activities to reflect the position of the seismic vessels.<br><br>It is therefore anticipated that the effect of the 3D Seismic Survey on small scale coastal fishing would be slight and temporary. This is therefore considered an event of Low magnitude. | **Low** |

***Recreational Maritime Users***

There are a number of locations along the coast adjacent to the 3D Seismic Survey Area that are used for recreational activities and water sports (including diving, jet ski-ing, boating, sailing and kite surfing) particularly during the summer months. Known diving sites are located within Priority Area 1 near to Boyuk Zira Island (just south of Baku Bay) and within Priority Area 2 near to Chilov and Kichik Tava Islands (Chapter 6 Figure 6.18).

Taking into account the 3D Seismic Survey Activities, the existing controls described above and the impact significance criteria set out in Chapter 3 of the ESIA, the event magnitude associated with the physical presence of the seismic survey vessels, support vessels and equipment with respect to recreational maritime users is presented within Table 9.10 below.

**Table 9.10: Event Magnitude (Recreational Maritime Users)**

| Event | Explanation | Event Magnitude |
|---|---|---|
| Recreational maritime users | The seismic vessel and support vessels will be continuously moving and will not be present in an area for any significant period of time. During the summer when weather conditions are more favourable, is the peak season water sports and recreational use of the offshore area.<br><br>A safety exclusion zone will be maintained surrounding the offshore seismic survey vessels and equipment to avoid any accidental events involving nearshore users.<br><br>Consultation activities will include identifying and notifying dive companies of the survey activities with companies being requested to restrict diving activities to areas outside of the immediate survey area when 3D Seismic Survey Activities are within the vicinity of the dive locations. Chase vessels will be used during the survey in the vicinity of dive locations to ensure dive boats are warned of the survey activities.<br><br>It is therefore anticipated that the effect of the 3D Seismic Survey on maritime recreational users would be slight and temporary. This is therefore considered an event of Low magnitude. | **Low** |

#### 9.3.2.3 Receptor Sensitivity

With regard to shipping, vessels using the international shipping routes are equipped with communication systems and have the ability to navigate around obstacles with prior notice. These vessels generally ship goods and materials to and from Azerbaijan to other Caspian nations and further afield via the Don-Volga or Baltic-Volga canal and river systems (although these routes are not open during winter). Larger vessels are restricted to using recognised shipping lanes; however, there are numerous routes across the 3D Seismic Survey Area. Local and regional shipping typically comprises vessels equipped with communication systems, and have the ability to adapt to change.

Based on information collected during the socio-economic survey undertaken in November 2015, small-scale coastal fishing is undertaken in the vicinity of the 3D Seismic Survey Area and is the main source of income for those households that the fishermen belong to. These households are therefore vulnerable to change. Small scale coastal fishing is undertaken throughout the year with the low and mid-low season being May to August and December to February. Equipment used includes fixed nets (including gill nets), fish traps and seine nets.

Recreational users of the maritime area include local, regional and international visitors who use the maritime area for recreation typically during the summer when weather conditions are more favourable (July - August). Activities undertaken include bathing, diving and other recreational water sports such as sailing and kite surfing. Along the Absheron Peninsula, there are a number of alternative recreational beaches and tourist spots that are available for recreational users to access while the 3D Seismic Survey Activities are in progress.

The sensitivity of shipping, small scale coastal fishing and recreational maritime users to the physical presence of the seismic vessels, support vessels and equipment is summarised within Table 9.11.

**Table 9.11: Receptor Sensitivity**

| Receptors | Explanation | Receptor Sensitivity |
|---|---|---|
| International Shipping | International shipping is considered to be of international importance; and is equipped to navigate around obstacles and plan to avoid exclusion zones subject to appropriate coordination with port authorities. Given that international shipping vessels are equipped with communication systems; that survey operations will be communicated to vessels in advance; and that project design controls will be in place to establish safety exclusion zones around the 3D Seismic Survey vessels, international shipping is therefore considered to be of Low sensitivity | **Low** |
| Local/Regional Shipping | Local and regional shipping provides local and regional services and have the capacity to adapt to change. Local and regional shipping vessels are equipped with communication systems; and project design controls will be in place to establish safety exclusion zones around the 3D Seismic Survey vessels, and communicate survey operations to vessels in advance. Local/regional shipping is considered to be of Low sensitivity. | **Low** |
| Small scale coastal fishing | Small scale coastal fishing is understood to be undertaken by fishermen whose main household income is derived from the sale of their catch[2]. The high season for small scale fishing is March to April and September to November which coincides with 3D Seismic Survey Activities within Priority Areas 1, 3, 4 and 5. It is understood that favoured fishing grounds are located within Priority Areas 3 and 5[3]. The 3D Seismic Survey will likely be present within areas used for small scale fishing for a short duration; and the impacts to fish have been assessed as minor negative. However, as the fishermen are reliant on the activity for their household income and predominantly used fixed nets, they are vulnerable to change in their livelihood status. | **Medium** |

[2] The fishermen interviewed within Priority Areas 1 and 3 indicated that fishing is their primary source of household income.
[3] Figure 6.15 of Chapter 6 Socio-Economic Description

| Receptors | Explanation | Receptor Sensitivity |
|---|---|---|
| Recreational maritime users | Given that the 3D Seismic Survey Activities will not be present for extended periods of time at a single location and there are alternative beaches and tourist spots along the coast of Absheron Peninsula, it is considered that recreational users have the potential to adapt to the temporary restrictions of the 3D Seismic Survey by accessing alternative recreational locations. However, for some users, specially local and regional users who own summer houses at a particular location, their capacity to adapt to this change will be less. Recreational maritime users are therefore considered Medium sensitive receptors. | **Medium** |

#### 9.3.2.4 Impact Significance

Table 9.12 summarises impacts to shipping operators, small scale coastal fishing and maritime recreational users due to the physical presence of the seismic vessels, support vessels and equipment.

**Table 9.12: Impact Significance**

| Event | Receptor | Event Magnitude | Receptor Sensitivity | Impact Significance |
|---|---|---|---|---|
| Presence of the seismic vessels, support vessels and equipment | International, Local and Regional Shipping | Low | **Low** | **Negligible** |
| | Small scale coastal fishing | Low | **Medium** | **Minor Negative** |
| | Recreational maritime users | Low | **Medium** | **Minor Negative** |

The following monitoring and reporting related to small scale coastal fishing as a result of the physical presence of the seismic vessels, support vessels and equipment will be undertaken:

- Any existing fixed equipment which is removed or damaged as a result of the 3D Seismic Survey which the seismic vessel crew cannot confirm is not associated with small scale fishing will be monitored (i.e. logged and recorded). The log will include a description of the equipment, the date it was removed or damaged and the location encountered.

### 9.3.3 Offshore Impacts Associated with Operation of Offshore Energy Source

The operation of the sound source as the survey vessels move along each survey line has the potential to impact fish within the water column, having an effect on fish behaviour. This could potentially affect both offshore commercial fish catch and small scale coastal fish catch. Section 8.3 of Chapter 8 summarises the results of the underwater sound modelling undertaken to quantify the effect of the seismic source on marine animals with regard to potential reversible and irreversible injury or behavioural effects based on recognised thresholds.

The modelling indicates that existing sound levels in the shallowest waters (0 to 2m) are very low and, as such there exists the potential to injure fish at a distance of less than 1m from the source (Chapter 8, Table 8.5). For the vessel operating in water depths between 2 and 5m, potential mortal or recoverable injury may occur if fish are present within a distance of up to a maximum of 20m away from the source. Also, TTS in all fish is only predicted from modelled SEL values at distances up to a maximum of 105m from the Bubbles source and between 385 and 700m from Geotigers.

As described within Chapter 4 of the ESIA, the 3D Seismic Survey will involve up to 5 vessels working simultaneously in the same Priority Area. As such, modelling has been undertaken to consider a

number of vessel/receptor start locations and simplified movement scenarios. Sound modelling results (Chapter 8, Table 8.6) suggest that sound levels are expected to be below the SPL thresholds associated with either potential mortality or recoverable injury in fish of any hearing sensitivity for all of the vessel/receptor scenarios considered. Therefore, the likelihood of these potential impacts occurring is considered to be low. In addition, the sound levels are predicted to be below the SEL thresholds associated with either mortality or recoverable injury in fish of any hearing sensitivity for all of the vessel/receptor scenarios considered. Therefore the likelihood of these potential impacts occurring is considered to be low.

#### 9.3.3.1 Mitigation

To minimise potential impacts from the generation of underwater sound, a number of control measures have been included in the project design to reduce interference with the marine environment. These include the following:

In water depths greater than 2m the following measures will be undertaken:

- Seismic source soft-start (or ramp up) procedures will be implemented for the sound sources used in water depths greater than 2m conducted each time activation of the source array recommences after a period of inactivity;
- Prior to the seismic source being activated using a soft-start procedure, marine mammal monitoring will be conducted for 30 minutes to observe (dedicated) whether there are any seals within a 500 m Mitigation Buffer Zone around the sound source. If seals are sighted, the soft-start procedure will be delayed for at least 20 minutes to ensure no seals are within the Mitigation Buffer Zone; and
- Ensure limited/restricted use of airguns during line change (if line change takes longer than 20 minutes).

#### 9.3.3.2 Event Magnitude

***Small-Scale Coastal Fishing***

Based on data collected during the socio-economic survey conducted in November 2015, fish species typically caught by small scale coastal fishermen include herring species, kutum (*Rutilus frisii*), grey mullet (*Liza auratus*), vobla (*Rutilus caspicus*), bream (*Abramis brama*), and carp (*Cyrpinus carpio*). As presented in Chapter 5, Table 5.21, these species are all known to have swimbladders and therefore have medium or high hearing sensitivity. All would react quickly to the commencement of the soft start procedure, swimming away from the energy source and returning once the source has passed. The effect of underwater sound on fish, and therefore on fish catch of small scale coastal fishing activities will be of short duration, temporary and reversible. A noticeable change in fish catch directly attributable to sound from the seismic sources is not anticipated.

Taking into account the 3D Seismic Survey Activities, the existing controls described above and the impact significance criteria set out in Chapter 3 of the ESIA, the event magnitude associated with the operation of the offshore energy source with respect to small-scale coastal fishing is presented within Table 9.13 below.

**Table 9.13: Event Magnitude (Small-Scale Coastal Fishing)**

| Event | Explanation | Event Magnitude |
|---|---|---|
| Indirect effect of the operation of offshore energy source | The seismic vessels will be continuously moving and will not present in an area for any significant period. Control measures are designed to minimise the effect of underwater sound on ecological receptors including fish in the marine environment.<br><br>Presence of the 3D Seismic Survey within the area potentially used by small-scale coastal fishermen is expected to be of short duration. Fish within these areas will move away from energy source as it passes but will return quickly after the underwater sound levels are below injury and temporary effect thresholds.<br><br>It is therefore anticipated that the indirect effect of the 3D Seismic Survey on small-scale coastal fishing would be slight and temporary. This is therefore considered an event of Low magnitude. | **Low** |

### 9.3.3.3 Receptor Sensitivity

Small-scale coastal fishermen are known to rely on fishing activities to support their livelihoods and to fish all year round; although the low and mid-low season is May to August and December to February. There may be some behavioural disturbance to fish as a result of the seismic sound source, but this is expected to be very short term (i.e. the fish will return to the area after the sound source has moved away) (Chapter 8, Section 8.3.2.2).

The overarching trend in the availability of fish species for commercial fishing purposes in the Caspian Sea is known to be decreasing; with significant decreases in the main commercial species of kilka (*Clupeonella delicatula*) and the rare and prohibited species such as beluga (*Huso huso*) and sturgeon (*Acipenser stellatus Pallas*). The reason for this decrease is not known; however it is thought to be associated with continued pollution of the Caspian Sea over many years from industrial and agricultural industries, spread of invasive species (the jellyfish (ctenophore) species Mnemiopsis), unregulated fishing, increasing human influence in sensitive areas and climate change[4].

The sensitivity of small-scale coastal fishing to underwater sound associated with the operation of the offshore energy source is summarised within Table 9.14.

**Table 9.14: Receptor Sensitivity**

| Receptor | Explanation | Receptor Sensitivity |
|---|---|---|
| Small-scale coastal fishing | Small scale coastal fishing is understood to be undertaken by fishermen whose main household income is derived from the sale of their catch. The high season for small scale fishing is March to April and September to November which coincides with 3D Seismic Survey Activities within Priority Areas 1, 3, 4 and 5. It is understood that favoured fishing grounds are located within Priority Areas 3 and 5. The 3D Seismic Survey will likely be present within areas used for small scale fishing for a short duration; and the impacts to fish have been assessed as minor negative. However, as the fishermen are reliant on the activity for their household income and predominantly used fixed nets, they are vulnerable to change in their livelihood status. | **Medium** |

[4] Salmanov, Z., Qasimov, A., Fersoy, H. & van Anrooy, R., 2013. Fisheries and Aquaculture in the Republic of Azerbaijan: a review. FAO Fisheries and Aquaculture Circular No. 1030/4. Ankara, FAO. Available at: http://www.fao.org/docrep/017/i3113e/i3113e00.htm Accessed August 2015

#### 9.3.3.4 Impact Significance

Table 9.15 summarises impacts to small-scale coastal fishing due to the effect of the operation of the offshore energy source during the 3D Seismic Survey.

**Table 9.15: Impact Significance**

| Event | Receptor | Event Magnitude | Receptor Sensitivity | Impact Significance |
|---|---|---|---|---|
| Operation of offshore energy source | Small-scale coastal fishing | Low | Medium | **Minor Negative** |

## 9.4 Summary of Residual Socio-Economic Impacts

The assessments presented within this Chapter show that that potential impacts are minimised as far as practicable and necessary through the implementation of the existing control measures and no additional mitigation is required.

Tables 9.16 summarises the residual socio-economic impacts associated with the routine and non-routine 3D Seismic Survey Activities.

**Table 9.16: Summary of 3D Seismic Survey Socio-Economic Impacts**

| Event | Event Magnitude | Receptor Sensitivity | Impact Significance |
|---|---|---|---|
| Physical presence of seismic vehicles, support vehicles, equipment (including nodes) and crew | Low | Medium (Land owners and land users) | **Minor Negative** |
| | | Medium (Recreational users of the beach and coastal areas, including tourists) | **Minor Negative** |
| | | Medium (Tourism business owners) | **Minor Negative** |
| Physical presence of seismic vessels, support vessels and equipment (vessel movement and survey operations in shallow water) | Low | Low (International, Local and Regional Shipping) | **Negligible** |
| | Low | Medium (Small-Scale Coastal Fishing) | **Minor Negative** |
| | Low | Medium (Recreational Maritime Users) | **Minor Negative** |
| Operation of offshore energy source | Low | Meduim (Small-scale coastal fishing) | **Minor Negative** |