

## 5 UNAVOIDABLE ADVERSE ENVIRONMENTAL EFFECTS

### 5.1 IMPACTS ON PHYSICAL RESOURCES

Some unavoidable adverse effects on water and sediment quality would be expected to occur as a result of the proposed action. Operational discharges of drilling muds and cuttings, produced water, and small amounts of hydrocarbons into the water column during routine offshore oil and gas operations would lower local water and sediment quality. These discharges could temporarily raise the levels of some water quality and sediment parameters above normal within 100 to 2,000 m (328 to 6,562 ft) of the discharge point during drilling, and intermittently/continuously during the production period.

An increase in emissions of air pollutants would be expected to occur, particularly in areas that do not already have extensive oil and gas activities. Emissions of nitrogen oxides and reactive hydrocarbons would increase ozone concentrations in the immediate vicinity of the offshore operations for intermittent periods during the term of the proposal.

Seismic surveys, infrastructure construction and removal, and support vehicle traffic would result in unavoidable but short-term increases in ambient noise levels in the survey areas, project locations, and vessel and helicopter routes. More long-term increases in ambient noise levels would occur during normal operations; the duration of increased ambient noise levels would correspond directly to the duration of production operations.

### 5.2 IMPACTS ON ECOLOGICAL RESOURCES

Marine mammals would be adversely affected by noise and disturbances associated with routine offshore activities (seismic surveys, vessels, aircraft, drilling, and dredging) during relatively brief periods of time. Some marine mammals would exhibit short-term responses to noises and disturbance, such as confusion or avoidance. Bowhead whales, for example, will exhibit avoidance behavior to noise-producing activities. Should an oil spill contact marine mammals, some individuals would experience short-term effects, while a small number could die. An oil spill would also adversely affect local marine mammal prey resources in small areas affected by a spill.

Disturbances of terrestrial mammals by offshore related aircraft, vehicles, facilities, human presence, and habitat alteration from construction activities are unavoidable. Disturbance of caribou, bears, and other animals in Alaska would be temporary and would not affect their overall distribution and abundance.

Marine and coastal birds would be adversely affected by noise and disturbances associated with routine offshore and onshore activities. Habitat alteration from the construction of onshore facilities would affect a small portion of the available habitat. Should an oil spill contact marine and coastal bird habitat, some birds would experience short-term effects, while

1 some birds that feed in or rest on the water could be coated with oil and die. An oil spill could  
2 also adversely affect local marine and coastal bird prey resources.

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4 Wetland and estuarine habitat alteration resulting from pipeline and other related coastal  
5 construction could have an unavoidable adverse impact on fish nursery areas and terrestrial  
6 mammals; however, regulations are in place to minimize these impacts. An oil spill contacting  
7 fish habitat would have an adverse effect on local fishery stocks and food webs.

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9 Although individual sea turtles may be injured or killed by support vessel collisions,  
10 population-level effects would be minimal. The most likely impacts from noise would be short-  
11 term behavioral changes such as diving and evasive swimming. If an oil spill were to contact sea  
12 turtles, some individuals might not recover from exposure, but sea turtle populations as a whole  
13 would not be threatened.

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15 Unavoidable adverse effects on seafloor habitats and associated organisms could occur  
16 from anchoring, drilling discharges, structure emplacement and removal, and pipeline  
17 emplacement.

### 18 19 20 **5.3 IMPACTS ON SOCIAL, CULTURAL, AND ECONOMIC RESOURCES**

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22 Commercial and, to a lesser extent, recreational fisheries will be adversely affected by  
23 loss of fishing areas occupied by offshore vessels, platforms, and exposed pipelines, particularly  
24 in areas where oil and gas activities have not previously occurred. Oil spills could contaminate,  
25 injure, or kill shellfish, finfish, eggs, and larvae in the vicinity.

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27 Unavoidable adverse effects could be expected to occur to tourism and recreation areas  
28 from floating debris and oil spills that contact beach areas. Effects on scenic quality could also  
29 be expected to occur.

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31 The proposed action with its ancillary activities will place increased demands on coastal  
32 communities, particularly in areas where oil and gas activities are not currently occurring. A  
33 large oil spill could disrupt their economies. Some unavoidable adverse effects on subsistence  
34 harvests in the Alaska region may result from routine offshore oil and gas activities. These  
35 offshore and onshore activities could cause localized displacement or loss of small numbers of  
36 subsistence resources. If oil spills were to contact bowhead and beluga whales and walrus,  
37 there could be a reduction of total annual harvests of these species. In such a case, short-term  
38 loss of some subsistence resources and potential repercussions on the culturally significant  
39 sharing system would be unavoidable.

40  
41 Unavoidable adverse effects to archaeological resources could occur as a result of the  
42 proposed action. Construction and siting of offshore and onshore oil and natural gas facilities  
43 such as platforms, pipelines, or processing facilities could displace, damage, or destroy  
44 archaeological resources.