We have made the following revisions to the biological opinion.

Throughout – When discussing anticipated changes in disturbance rates, the term “bounds” when discussing upper and lower levels is revised to the term “estimates” instead. The use of “bounds” could be incorrectly interpreted as implying confidence intervals or standard errors; we did not mean to imply a statistical bounds, but rather simply indicate the values of our upper and lower estimates.

4.2.4.2

Paragraph 3 in this section is revised to read: Waterfowl hunting has increased within the Izembek Complex; a threefold times increase has been estimated over a 20-year period during the 1990s to 2010s (Leach et al. 2017); and commercial hunting on Izembek Refuge has also increased, with hunting effort from 2009 to 2024 indicating an additional threefold increase (as measured by CUDs tracked by Izembek Refuge staff; see section 4.1.5), for a total nine-fold increase in hunting from the 1990’s to current conditions....

Paragraph 4 in this section is revised to read: During a study at Izembek Lagoon in the 1980s, hunting activity that led to ~~waterfowl~~ brant disturbance occurred at a rate of 0.02 to 0.14 events per hour (averaging 0.06 events per hour; Ward et al. 1994) where hunting activity occurs. Based on increasing trends in commercially guided waterfowl hunting activity since the 1990s, we consider the observed ~~threefold~~ ninefold increase from historical levels to be a reasonable proxy for current waterfowl hunting activity in Izembek Lagoon. Using the data from Ward et al. (1994) and applying this ~~threefold~~ ninefold increase in activity, we estimate current hunting-caused disturbance to waterfowl at Izembek Lagoon currently ranges from ~~0.18~~0.54 to ~~0.45~~ 1.35 events per hour. This estimate is based on the best available information but does not capture some additional level of hunting activity that targets non-waterfowl species (e.g., large game hunting); it is unclear the extent to which hunting of non-waterfowl taxa would overlap with areas used by Steller’s eiders, whereas we are confident ~~most~~ some waterfowl hunting would overlap their areas of use based on eider foraging locations found in Maliguine et al. 2025 and hunter focus areas found in Ward et al 1994. For the purposes of understanding the disturbance effects of hunting on Steller’s eiders, we consider subsistence harvest activities to have similar effects to fall sport hunting. For the purposes of understanding the disturbance effects of hunting on Steller’s eiders, we consider subsistence harvest activities to have similar effects to fall sport hunting.

4.2.4.3

Paragraph 2 in this section is revised to read: Hunters access Izembek Lagoon for waterfowl hunting by boat and overland, and we assume equal access between these two modes. Any increase in hunting activity will result in an equal proportional increase in both land-based and boat-based hunting activities. Therefore, we consider a ~~1.5~~9-fold increase from historical levels to be a reasonable proxy for current vessel-based activity in Izembek Lagoon, based on the increase in commercially guided activity ~~(3/2 = 1.5;~~ (see section 4.2.4.2). Vessel-caused disturbance was measured separately from hunter-caused disturbance in the Ward et al. (1994) brant study, and we assume was a measurement of reactions to vessel movement and presence (as opposed to humans and gunshots). We estimate vessel-caused disturbance to waterfowl at Izembek Lagoon currently ranges from ~~0.03~~0.18 to ~~0.075~~0.45 events per hour.

4.4.3.1

Paragraph 5 in this section is revised to read: Boats operating in sea otter habitat run the risk of disturbing sea otters, displacing sea otters, or striking otters with the boat propeller or hull causing injury or death. The likelihood of vessel strikes is primarily related to vessel speed (Vanderlaan and Taggart 2007), and most documented vessel strikes of sea otters involve small, fast-moving vessels (USFWS 2020). We do not have a way to directly measure current fishing activity or other vessel uses in this location. We derive an estimate of current vessel activity from a study conducted at Izembek Lagoon in the 1980s (Ward et al. 1994). In the 1980s, brant responded to vessel events (e.g., vessel movements) at a rate of 0.02 to 0.05 events per hour (Ward et al. 1994). We assume brant responded to some but not all vessels in Izembek Lagoon, and the reaction rate reported in that study therefore gives a minimum measure of vessel activity in the lagoon during the study period. Although sea otters are not expected to show the same responses or response rate to vessels as waterfowl, information provided by the Ward et al. (1994) study serves as the best available proxy to measure baseline vessel activity in Izembek Lagoon overall. We consider a ~~1.5~~9-fold increase from historical levels to be a reasonable proxy for current vessel activity in Izembek Lagoon, see section 4.2.4.3). We therefore estimate vessel activity occurs in Izembek Lagoon at a minimum rate of ~~0.03~~0.18 to ~~0.075~~0.45 events per hour. This rate measures the activity of small vessels used during waterfowl hunting, in areas overlapping sea otter distribution in Izembek Lagoon. There is currently no published, peer-reviewed estimate of annual northern sea otter deaths attributed to vessel strike. The Service does maintain a stranding program to track stranding information and cause of death, but due to the limited spatial extent of the stranding program outside of Kachemak Bay in the southcentral population, the total injury/mortality related to vessel strikes is unknown for the southwest DPS. However, we can use existing reports and published data to extrapolate an estimated rate of vessel strike mortality for northern sea otters across Alaska.

5.2.1

Paragraph 3 in this section is revised to read: An observational study aimed at documenting the responses of Pacific brant at Izembek Lagoon to natural and human-caused disturbance (Ward et al. 1994) can be used as a proxy for how Steller's eiders, which share similar habitat use ~~and distribution~~ to brant in this location, might respond. ...

Paragraph 7 in this section is revised to read: Pacific brant is also a good proxy species for the Steller's eider in terms of their time budget and energy budgets during staging and migration, though they are a species targeted by hunters while Steller's eiders are not.

5.2.1.2

Paragraph 3 in this section is revised to read: In 2020, there were 165 households in King Cove compared to 21 households in Cold Bay (USCB 2020a,b). This represents an approximate 8 times increase in subsistence eligible households that may access Izembek Lagoon after construction of the proposed road (165 ÷ 21 = 7.9). The U.S. Coast Guard (Duffy et al. 2020) reports 32.2 percent of Alaskan households own boats. We expect boat ownership to be higher in coastal and rural communities, where boat use is critical to local transportation and both recreational and subsistence activities. We assume boat ownership is relatively high in King Cove, as this is a coastal, marine-dependent community with strong ties to fishing and other

water-based subsistence activities, so we assume ~~one boat for every two~~ approximately 50 percent of households may own boats. Therefore, we calculate an estimated 82.5 boats in King Cove (based on 50 percent of the 165 households) and 10.5 boats in Cold Bay (based on 50 percent of the 21 households).~~Therefore, assuming all households that own boats in King Cove take advantage of the new road providing access to Izembek Lagoon, we estimate an approximately four-fold increase in vessels that would be able to access Izembek Lagoon consequent to construction of the road (7.9 ÷ 2 = 3.95, rounded up to 4).~~

Paragraph 4 in this section is revised to read: We recognize that not all boat owners in King Cove are necessarily engaged in subsistence use – although data from ADF&G (ADF&G 2025) indicate 38.46 percent of eligible households in King Cove attempt to harvest migratory birds and 75 percent attempt to harvest salmon (the two subsistence resources for which access to Izembek Lagoon would be most desired). We also acknowledge not every boat owner in King Cove would trailer their vessel to Izembek Lagoon. Furthermore, not every vessel trip would lead to disturbance. However, because access to Izembek Lagoon would present a valuable new opportunity for subsistence harvest, we assume some proportion of households that both own a boat and attempt to harvest waterfowl would then take advantage of the increased access afforded by the road and would use Izembek Lagoon. We calculated an estimated range of increased use of Izembek Lagoon using the 38.46 percent attempting to harvest waterfowl as the upper estimate (assuming all own boats that attempt to harvest waterfowl and all would access the lagoon) and 19.32 percent (half of the above potential users) as the lower estimate (which may still overestimate future use of Izembek Lagoon). Based on these estimates, we calculate between 31.7 and 63.5 additional number of boats may use Izembek Lagoon. We similarly applied the ADF&G data for households attempting to harvest waterfowl in Cold Bay (39.13 percent) to estimate a current baseline of 8.2 boats. When compared against the current calculated number of boats from Cold Bay (8.2~~10.5~~ boats), we estimate between a 4.9- and 8.7-fold increase in potential boat use of Izembek Lagoon following construction of a road..~~use this fourfold increase as our expected upper bounds~~estimate ~~for changes in vessel disturbance rates following construction of the road.~~

Paragraph 5 in this section: The word “bounds” should be replaced with “estimate”.

Paragraph 6 in this section is revised to read: Because Steller’s eiders aggregate in flocks numbering in the tens of thousands in this lagoon, we assume any vessel trip during times of year eiders are present ~~would~~ may have overlap with Steller’s eiders and assume risk of disturbance is commensurate with the rate of increased vessel activity. We therefore are reasonably certain that boat-based disturbance will increase from current baseline conditions. While we cannot estimate the precise proportion of boat owners that will attempt to access Izembek Lagoon, we used available data to estimate the risk of disturbance to Steller’s eiders would increase between ~~two~~ 4.9 times and ~~four~~ 8.7 times above baseline levels.

Paragraph 8 in this section is revised to read: Based on the brant study, we estimate the current level of vessel traffic in the lagoon results in disturbance at a rate of ~~0.30~~ 0.18 to ~~0.0750~~0.45 events per hour (see section 4.2.4.3). We calculated lower and upper ~~bounds~~ estimates for the increased vessel-caused disturbance we expect as a result of the proposed action, based on the range of disturbance rates estimated during years with low versus average

hunting activity at Izembek. We assume vessel use during this period was primarily by hunters. Consequent to road access on the Izembek Isthmus, which would facilitate access to the existing gravel boat launch for additional boaters, we predict between a ~~twofold~~ 4.9- and a ~~fourfold~~8.7-fold increase in vessel traffic in Izembek Lagoon above current levels (comprised of people conducting subsistence hunting and fishing and other activities), which would lead to Steller's eiders experiencing a lower estimate of between ~~0.060~~0.882 to ~~0.152~~2.205 vessel-related disturbance events per hour ~~at the lower bounds~~ and an upper estimate of between ~~0.12~~1.566 to ~~0.33~~3.915 vessel-related disturbance events per hour ~~at the upper bounds~~.

Paragraph 11 in this section is revised to read: Brant at Izembek Lagoon showed a consistent, prolonged response to vessels; when they responded by fleeing, flight lasted an average of 2.87 minutes. The duration of the flight response is likely an underestimate because flocks frequently left the study area when hunting triggered a flight response. Brant that were disrupted but did not flee (i.e., showed vigilance) averaged longer responses (3.7 minutes per event). We predict Steller's eiders would show a similar response. While not all Steller's eiders would be disturbed by 100 percent of vessel-related disturbance events in and near Izembek Lagoon, we expect some number would be disturbed by most vessel activity in this location. Based on the estimated range in rates of disturbance and the proportion of overall disturbance attributed to vessels, each individual brant in Izembek Lagoon fled vessel-caused disturbance for a mean of ~~2.42~~ 2.74 to ~~6.1~~6.86 seconds per hour in the late 1980s; total disruptions to each individual (accounting for time spent in vigilance) were estimated as 4.2 to 10.4 seconds per hour (as derived from Ward et al. 1994). Now, we expect individual birds are interrupted by vessel for ~~6.2~~37.45 to ~~15.6~~93.64 seconds per hour, with ~~3.7~~24.68 to ~~9.1~~61.71 seconds per hour spent fleeing in response to vessels (representing a ~~1.5~~ 9-fold increase). Consequent to construction of the proposed road, we expect individuals would be disrupted from normal activities for between ~~12.5~~183.53 to ~~31.2~~458.81 seconds per hour at the lower ~~bounds~~estimate (a ~~twofold~~4.9-fold increase) and between ~~25.0~~325.85 to ~~62.4~~545.80 seconds per hour at the upper ~~bounds~~estimate (a ~~fourfold~~8.7-fold increase); and between ~~7.3~~120.95 to ~~18.3~~302.37 seconds per hour spent fleeing at the lower ~~bounds~~estimate up to between ~~14.6~~214.74 to ~~36.5~~536.86 seconds spent fleeing at the upper ~~bounds~~ estimate. Therefore, we estimate all individual Steller's eiders at Izembek Lagoon if exposed to every vessel disturbance event would spend ~~up~~between ~~to~~ ~~0.7~~5.1 to ~~1.7~~15.2 percent of their time budget responding to increased vessel activity (an increase of between 4.1 and 12.6 percent of their time budget; see Appendices A and B for detailed calculations) ~~(25.0 seconds / 60 = 0.42 minutes, 0.42 / 60 minutes in 1 hour = 0.007; 62.4 seconds / 60 = 1.04 minutes, 1.04 / 60 minutes in 1 hour = 0.017), and 0.4 to 1 percent of their time budget fleeing (14.6 seconds / 60 = 0.24 minutes, 0.24 / 60 minutes in 1 hour = 0.004; 36.5 seconds / 60 = 0.608 minutes, 0.608 / 60 minutes in 1 hour = 0.010).~~ Prolonged or repeated disturbance (i.e., chronic disturbance) would cause birds to respond for incrementally longer periods, and birds that are able may flee the area and not return until disturbance ceases. We expect at most an increase above baseline conditions in disturbance disrupting feeding and other maintenance behaviors of up to ~~47 seconds~~7.54 minutes per hour and disturbance resulting in flight of up to ~~27 seconds~~ 7.92 minutes per hour. We do not anticipate this change will have significant impacts to individual fitness such that it would lead to reduced survival.

Paragraph 13 of this section is revised to read: In summary, we expect construction of a road along the Izembek Isthmus would increase vessel use in areas used by large numbers of Steller's

eiders. Responses to vessel activities would include some level of time and energetic costs to Steller's eiders through disruptions to foraging and resting and time spent fleeing the source. Each disturbance event would be temporary in nature, but the effects of vessel-based disturbance would be chronic and would accumulate during the open-water season of vessel use. In some years, vessel use would be year-round. Based on the 1980s study (Ward et al. 1994), we expect an individual Steller's eider would be able to accommodate a ~~0.7~~4.1 to ~~1.7~~12.6 percent reduction in normal behaviors in relation to baseline conditions, expected as a result of the predicted disturbance rates, by increasing their feeding time. We expect disturbance from increased vessel use in Izembek Lagoon would persist over a long timeframe (e.g., as long as the gravel road remains passable for vehicles trailering boats, projected to be 50 years).

5.2.1.3

Paragraph 2 of this section is revised to read: One limitation to the services currently offered by commercial operators during waterfowl sport hunting is the number of clients they can transport to Izembek Lagoon via motorized modes of travel, including by boat and ATV. We assume relieving some of the logistical constraints for commercial guides and clients, through construction of a road that improves overland motorized access and shortens walking distances, would result in increased interest and participation in hunting. Recent capacity improvements via a new commercial guide being established in Cold Bay (see section 4.2.4.2) resulted in a 105 percent increase in CUDs by sport hunters between 2020 and 2021; however, subsequent years demonstrated a stable or slightly declining trend based on CUDs (see Figure 13, section 4.1.5). We predict construction of a road ~~w~~could result in an increase of sport hunters (guided and unguided) at Izembek Refuge and the lagoon. If improved access causes additional interest in hunting, an increase in guiding services or unguided hunts, may follow a pattern similar to the increase observed from 2020 to 2021. Based on best available data, we estimate an increase of between ~~64~~ 67 and 105 percent sport-hunting activity, as measured in CUDs, above the current levels reported in 2024 (see Appendix A for details on these calculations). While these numbers do not include sport hunters that do not participate in guided hunts, we assume guided sport hunting represents the majority of non-subsistence based hunting pressure and these data are a reasonable estimate for future impacts (see section 5.2.2 for detailed discussion).

Paragraph 3 of this section is revised to read: Izembek Lagoon is a prime waterfowl hunting location because it hosts large, dense aggregations of waterfowl species that are unique in Alaska. Based on traditional harvest by King Cove residents of ducks and geese in Kinzarof Lagoon and embayments along the southeastern coast of the Alaska Peninsula (Langdon 1982, Braund et al. 1986, Fall et al. 1993), where we expect greater effort is needed to harvest waterfowl, it is reasonably certain this community will also participate in waterfowl hunting at Izembek Lagoon with improved overland and boat-based access. We used 2016 subsistence harvest data to estimate current subsistence use of the Izembek Complex area. Using these extrapolated estimates of current subsistence use, we projected future subsistence activities in Izembek Lagoon based on two scenarios: 1) subsistence users harvesting waterfowl from King Cove would shift 100 percent of their efforts to Izembek Lagoon, and 2) 54 percent of subsistence harvest activities from King Cove would shift to Izembek Lagoon (see Appendix A for detailed discussion on these calculations). We therefore expect a minimum of a 4.2-fold and a maximum of a 7.0-fold increase in subsistence hunting in Izembek Lagoon consequent to construction of the road. Although this increase represents our best estimate for the number of

additional subsistence activities in Izembek Lagoon after construction of the road, we acknowledge this is an imperfect estimate of future subsistence use and likely an overestimate. The population of King Cove could change through time (and increase or decrease); and the rate of increase we estimate here does not capture differences in hunting effort, which we assume varies by individual and may not be the same between the two communities.

Paragraph 5 of this section is revised to read: Based on responses of brant, we estimate current hunting activity in Izembek Lagoon results in hunting-caused disturbance at a rate of ~~0.18~~0.54 to ~~0.45~~1.35 events per hour (see section 4.2.4.2). Consequent to road access on the Izembek Isthmus, we predict between a 2.3- and a 3.2-fold increase in all hunting activities (combined subsistence use and sport hunting) at Izembek Lagoon above current levels (see Appendix A for detailed discussion of these calculations). An increase in disturbance of 5 times current levels was predicted to have no effect on survival or emigration of Pacific brant at Izembek Lagoon (Stillman et al. 2021). Using Pacific brant as a proxy for the response by Steller's eiders, we predict the projected increase in hunting disturbance of 2.3 to 3.2 times the current levels will have no effect on survival of eiders, on average within the population. It is reasonable to expect that disturbance pressures will vary by location in the lagoon and by individual. Therefore, we expect some proportion of individual Alaska-breeding Steller's eiders will experience lower or higher rates of disturbance leading to reduced fitness, negatively affecting individual survival and/or reproductive success. We assume in some years, effects to individuals could have population-level consequences through effects such as reduced breeding propensity.

Paragraph 6 of this section is revised to read: We calculated expected lower and upper ~~bounds~~estimates for the increased hunting-caused disturbance we expect as a result of the proposed action, based on the range of disturbance rates estimated during years with low versus average hunting activity. We predict construction of a road across the Izembek Isthmus would lead to ~~0.4~~1.2 to ~~1.4~~4.3 hunting-related disturbance events to Steller's eiders per hour (e.g., one event would be, for example, one shot fired; ~~0.18~~0.54 x 2.3 at the low end and ~~0.45~~1.35 x 3.2 at the upper end). In larger-bodied snow geese (*Chen carulescens*), which should have higher energy reserves than Steller's eiders, two disturbances per hour at non-breeding staging areas caused energy deficits that they could not make up for through increased feeding (Belanger and Bedard 1990). The expected rate of hunter-caused disruptions to foraging and resting behaviors combined with increased energetic costs of responding would fall below the levels predicted to cause energy deficits in snow geese. While we do not have a similar calculation for equivalent impacts to Steller's eiders and acknowledge these increases in disturbance ~~would~~ could impact the ability of Steller's eiders to meet their energetic demands, especially during molt, we expect only a small proportion of Steller's eiders in Izembek Lagoon will suffer effects of this magnitude.

Paragraph 7 of this section is revised to read: Due to the similarity of ~~distribution and~~ habitat use between Steller's eiders and Pacific brant at Izembek Lagoon, Pacific brant responses to hunting disturbance in this location are a reasonable proxy for how Steller's eiders would respond and what the magnitude of that response would be with the understanding that Brant are targeted for hunting while Steller's eiders are not. Brant responses to hunting activity at Izembek Lagoon were consistent and prolonged, with an average of 90 percent of individuals in the brant

flock having a response and 82 percent taking flight (out of 65 percent of flocks having a response and 39 percent of flocks responding in flight) for an average flight duration of 96 seconds (Ward et al. 1994). The duration of the flight response is likely an underestimate because flocks frequently left the study area when hunting triggered a flight response. Brant that were disrupted but did not flee (i.e., showed vigilance) averaged longer responses (139.1 seconds per event). Prolonged or repeated disturbance (i.e., chronic disturbance) would cause birds to respond for incrementally longer periods, and birds that are able may flee the area and not return until disturbance ceases. The amount of disruption to normal behaviors estimated here would have high energetic costs. While not all Steller's eiders would be disturbed by 100 percent of hunting-related disturbance events in and near Izembek Lagoon, some number would be disturbed by ~~most~~ waterfowl hunting activities in this location ~~because waterfowl hunting targets species with which Steller's eiders associate.~~ However, Steller's eiders typically form single species flocks that do not intermingle with brant or other targeted waterfowl (Dau et al. 2000, USFWS/Williams et al. 2016). At Izembek Lagoon, brant first alerted to hunters on land at distances of 0.93 mile (1.5 kilometers; Ward et al. 1994); while the disturbance distance for boats was not reported, it seems reasonable to expect it was greater than the distance to hunters and potentially similar to the distance to aircraft (1.6 miles or 2.6 kilometers). Thus, a large proportion of birds in any given area of the lagoon ~~would be impacted~~ may display increased alertness and other disturbance response behaviors caused by hunting on-shore or on-the-water.

Paragraph 8 of this section is revised to read: We expect hunting-related disturbance events would add up to a measurable portion of the daily time budget for Steller's eiders, which have low energy reserves and a limited ability increase time spent foraging in a day (Laubhan and Metzner 1999, Ouellet et al. 2013). Based on the plausible range in rates of disturbance and the proportion of overall disturbance attributed to hunting-related activities, each individual brant in Izembek Lagoon fled hunter-caused disturbance for a mean of 2.0 to 5.1 seconds per hour in the late 1980s; total disruptions to each individual (accounting for time spent in vigilance) were estimated as 6.9 to 17.2 seconds per hour (as derived from Ward et al. 1994). After converting these data to current conditions as described in section 4.2.4.2, we expect individual birds are currently interrupted for ~~20.6~~61.89 to ~~51.6~~154.73 seconds per hour, with ~~6.1~~27.99 to ~~15.2~~69.98 seconds per hour spent fleeing during the hunting season (representing a ~~threefold~~ ninefold increase). Consequent to construction of the proposed road, we expect individuals would be disrupted from normal activities (e.g., foraging, preening, bathing, resting, etc.) for between ~~13.4~~142.36 and ~~33.5~~355.89 seconds (~~0.2~~2.37 and ~~0.6~~5.93 minutes) per hour at the lower ~~bounds~~estimate up to ~~45.4~~198.06 and ~~113.5~~495.15 seconds (~~0.8~~2.27 and ~~1.9~~5.67 minutes) per hour at the upper ~~bounds~~estimate, with time spent in flight between ~~19.5~~64.39 and ~~48.8~~160.98 seconds (~~0.3~~1.07 and ~~0.8~~2.68 minutes) per hour at the lower ~~bounds~~estimate and ~~66.0~~89.58 and ~~165.0~~223.95 seconds (~~1.1~~1.07 and ~~2.8~~3.73 minutes) per hour at the upper ~~bounds~~estimate (see Appendix B for detailed discussion of these calculations). Therefore, we estimate all individual Steller's eiders at Izembek Lagoon that are exposed to disturbance events would spend ~~0.4~~1.79 to ~~1.4~~6.22 percent of their time (using the lower end of the lower ~~bounds~~estimate and the upper end of the upper ~~bounds~~estimate; see Appendix B) budget responding to hunting activity by fleeing, which is an increase of between 1.0 and 4.3 percent of their time budget above current baseline conditions.

Paragraph 10 of this section is revised to read: In summary, it is reasonably certain construction of a road along the Izembek Isthmus would increase waterfowl hunting pressure in areas used by large numbers of Steller's eiders. Responses to hunting activities would include some level of time and energetic costs to Steller's eiders through disruptions to foraging and resting and time spent fleeing the source. Each disturbance event would be temporary in nature, but disturbance from hunting would be chronic during the legal hunting seasons and effects to Steller's eiders would accumulate. Hunting-related disturbance to Steller's eiders is expected to be of sufficient frequency that it would cause adverse effects to some individuals through disruptions to normal behaviors that leads to time costs and energy deficits. We expect on average individuals exposed to these disturbance events would be disrupted from normal activities for ~~1.1~~2.37 to ~~2.8~~8.25 minutes per hour, with ~~0.3~~1.07 to ~~0.8~~3.73 minutes per hour spent fleeing, depending on whether the average hunter in any given year represents low effort (the low end of our predicted range) or approaches the historical average (the high end of our predicted range). Therefore, we calculate all individual Steller's eiders at Izembek Lagoon that are exposed to disturbance events would spend ~~1.3~~3.95 ~~-~~to ~~4.6~~13.75 percent of their time budget responding to hunting activity and ~~0.4~~1.79 to ~~1.4~~6.22 percent of their time budget fleeing.

Paragraph 12 of this section is revised to read: Therefore, based on use of Izembek Lagoon and the behavior of Steller's eiders, due to the expected increase in waterfowl hunting alone, most Steller's eiders in Izembek Lagoon would experience increased disturbance, and in some years effects of disturbance would lead to lowered individual physiological condition that subsequently reduces survival and future productivity. Disturbance that displaces birds from preferred sites within the Izembek Complex, causes a redistribution of Steller's eiders away from the area or affects pair-bonding and courtship behaviors would have secondary impacts that would also affect future breeding propensity and reproductive success. The effects to Steller's eiders of increased hunting activity in Izembek Lagoon would persist for the foreseeable future, as we expect hunters will continue to travel along the road via trucks and ATVs beyond the period of active maintenance, as long as the surface remains passable), would impact all individuals to some extent, and in some years would affect large numbers of birds at once. During fall we expect usage of Izembek Complex of between 48 and 59 Alaska-breeding Steller's eiders (11.8 to 14.5 percent of the listed entity; see section 4.2.1) in a typical year with a reasonable range of 26 to 97 (6.4 to 23.9 percent of the listed entity). During the wintering period we expect usage of Izembek Complex of an average of 201 Alaska-breeding Steller's eiders (49.5 percent of the listed entity), with a range of 176 to 243 (between 43.3 and 59.9 percent of the listed entity; see section 4.2.2). ~~through spring, 6,000 to 41,000 Steller's eiders use Izembek Lagoon, and we assume 1 percent of these birds belong to the Alaska-breeding population (which is estimated as 406 birds).~~ The estimated numbers of Alaska-breeding Steller's eiders that use the affected portion of the action area during fall through spring (up to ~~nearly all~~ two thirds of the population) make it reasonably certain these effects ~~would~~ could affect a substantial portion (up to all) of the listed entity during high impact years. However, hunting activity primarily occurs in the fall, prior to the arrival of many wintering birds. We expect most hunting activity would overlap with less than 40 percent of the listed entity and potentially only approximately 15 to 20 percent in a typical year. Hunter-caused disturbance effects would be additive to existing stressors (e.g., a reduction in prey quality and abundance at Izembek Lagoon) and to other stressors anticipated in the Izembek Complex consequent to the proposed action.

5.2.3

Paragraph 3 of this section (final sentence) is revised to read: Therefore, we estimate between a ~~twofold~~ 4.9-fold and ~~fourfold~~ 8.7-fold increase in the risk of vessel strike to Steller's eiders (see section 5.2.1.3 for discussion on the anticipated change in vessel activity in Izembek Lagoon).

Paragraph 4 of this section is revised to read: The best estimate we have for the current rate of collisions and strike of Alaska-breeding Steller's eiders with marine vessels in and near the action area (i.e., on the southern end of the Alaska Peninsula) is estimated as 0.01 to 0.04 birds per year. Best available data supports this rate as representing a typical year and not a year with unusual mortality events (e.g., this rate excludes the 150 eiders killed during a single night in 1980 near False Pass). We assume birds killed on the southern end of the Alaska Peninsula would belong to the local population concentrating in Izembek Lagoon and further assume this collision rate and associated risk of injury or mortality to any individual bird in the local population would be even across the southern Alaska Peninsula (and actually may be higher in Izembek Lagoon, where there are relatively higher numbers of Steller's eiders). We do not have data on rates of collision in Izembek Lagoon specifically; nor do we have a measurement of vessel traffic rates in Izembek Lagoon or the southern Alaska Peninsula region overall (including for periods with reported collisions). We predict one additional eider will suffer injury or death caused by vessel collision every ~~6.25~~2.9 to ~~50~~ 20.4 years, based on the range we anticipate for an increase in vessel activity (Table 7). We acknowledge not all risk would lead to strike. However, this estimate captures only the potential increase in vessel activity related to subsistence hunting and does not include vessels used for other activities. We do not expect increased risk in strike for Steller's eiders in Kinzarof Lagoon or Cold Bay, since these areas are already accessible to King Cove residents by boat.

Table 7 is revised to read:

Table 1. Estimated change in vessel strikes of Steller's eiders under two scenarios for increase in vessel activity in Izembek Lagoon: a ~~twofold~~ 4.9-fold increase and a ~~fourfold~~ 8.7-fold increase.

	Low End		**High End**	
	Birds per Year	**Years per Bird**	**Birds per Year**	**Years per Bird**
Current Estimate	0.01	100	0.04	25
4.9-fold increase	~~0.02~~0.05	~~50~~20.4	~~0.08~~0.20	~~12.5~~5.1
8.7-fold increase	~~0.04~~0.09	~~25~~11.5	~~0.16~~0.35	~~6.25~~2.9

5.4.2

Paragraph 2 of this section is revised to read: Increased vessel traffic is expected in Izembek Lagoon following construction of the road. We expect the increased use would primarily be from small vessels associated with subsistence activities. An increase in small vessel activity in

Izembek Lagoon would increase spatial overlap between vessels and large numbers of sea otters, which would increase the risk of vessel strikes. These small vessels operate at higher speeds, which also adds to risk. As for vessel-based disturbance, the amount of increased collision risk to sea otters resulting from increased vessel use of Izembek Lagoon would depend on the number of additional vessels using the area; the specific activities occurring and their duration, frequency, and intensity; accessibility of otters and their habitats during these activities; time of year; vessel speed; and other factors that are difficult to predict and assess. In the absence of better data, we use the estimated increase in vessels for subsistence purposes as a proxy for increase in strike – this is the predominant source of the expected increase in vessel use following construction of the road. Therefore, we estimate up to ~~two~~ four to ~~four~~ nine northern sea otters would be injured or killed via vessel strike per year in Izembek Lagoon after the road is constructed (1 sea otter per year multiplied by ~~2~~ 4.3 or ~~4~~8.7, rounded; see section 5.2.1.2 for discussion on the anticipated change in vessel activity in Izembek Lagoon). Although not all risk would lead to strike, this represents our best estimate based on available information. Additionally, this only accounts for the potential increase in vessel activity from subsistence hunters and does not include other activities. We do not calculate an expected increase for Kinzarof Lagoon since this area is already accessible to King Cove residents by boat.

5.6.1

Bullets 2 and 3 in this section is revised to read:

- Disturbance caused by increased vessel activity
  - We expect all individuals using the Izembek Complex could be exposed to ~~will experience~~increased vessel-caused disturbance. On average, we calculate the effect on those individuals exposed to be an increase of ~~0.7~~4.1 to ~~1.7~~12.6 percent reduction in normal behaviors.
- Disturbance caused by an increase in hunting activities
  - We expect all individuals using the Izembek Complex could be exposed to ~~will experience~~ increased hunting-related disturbance. On average, we calculate the effect on those individuals exposed to be an increase of ~~1.7~~2.2 to ~~6.0~~9.5 percent ~~combined~~ reduction in normal behaviors~~. We expect this to be in the form of a 1.3 to 4.6 percent reduction of time~~ caused by increased vigilance behaviors, a subset of which would be between ~~and a 0.4~~1.0 to ~~1.4~~4.3 percent reduction of time caused by fleeing.

Bullets 6 in this section is revised to read:

- Injury or death caused by vessel strike
  - We expect 1 Alaska-breeding Steller's eider to be killed every ~~6.25~~2.9 to ~~50~~ 20.4 years as a result of vessel strike.

5.6.3

Bullet 2 of this section is revised to read:

- Injury or death caused by vessel strike
  - We expect up to ~~2~~ 4 to ~~4~~ 9 northern sea otters would be injured or killed via vessel strike per year in Izembek Lagoon due to increased vessel activity after the construction of the road.

7.1

Paragraph 2 of this section is revised to read: We do not expect many Alaska-breeding Steller's eiders would be permanently removed from the population as a result of activities that are reasonably certain to occur and would not occur but for the proposed action. We expect an increase in the risk of vessel strike to Steller's eiders within Izembek Lagoon would result in up to 1 Alaska-breeding Steller's eiders removed from the population every ~~6.25~~2.9 to ~~50~~ 20.4 years over the life of the road (e.g., a period of 50 years; or up to ~~8~~ 17 birds over the same period). We do not expect the proposed action to cause an increase in other vertical structures and therefore do not expect any additional collision risk beyond that caused by vessels. Therefore, we expect collision risk to individual Steller's from vessels and vertical infrastructure to remain very low in and near the action area when this calculated small increase in vessel collisions is combined with environmental baseline levels (see section 4.2.4.4). We expect an increase in the risk of inadvertent harvest of Steller's eiders during waterfowl hunting would result in up to 1 Alaska-breeding Steller's eider per year removed from the population for the foreseeable future (e.g., over the life of the road and decades beyond). It would be difficult to measure any change in population numbers resulting solely from the disturbance, injury, or mortality of listed Alaska-breeding Steller's eiders caused by the effects of the action; however, we expect this total to be few if any on an annual basis. Assuming there are approximately 406 Alaska-breeding Steller's eiders (as discussed in the Status of the Species), this would represent a loss of ~~only a fraction of 1 percent (i.e.,~~ less than 1 percent~~)~~ of the population per year. Loss of these individuals would be additive to the ongoing effects anticipated in other biological opinions (see section 4.6) and to numbers currently inadvertently taken each year during hunting of waterfowl (see section 3.1.4.4). The change expected from the effects of the proposed action is small compared to the ongoing effects discussed in the Environmental Baseline and the additive impact of the additional losses is not expected to have an appreciable impact on the overall numbers of Alaska-breeding Steller's eiders.

Paragraph 3 of this section is revised to read: We expect minimal impact to Alaska-breeding Steller's eider reproduction as a result of the effects of the proposed action. Steller's eiders do not nest in the action area; therefore, we expect no direct loss of reproductive success. We expect only a small number of individuals will be killed, injured, or suffer sufficient reduction in fitness to have decreased survival, resulting in minimal change to the breeding population. Disturbance in wintering and spring staging areas may disrupt courtship behaviors, potentially reducing pair formation or reproductive timing. However, we expect the maximum change in disturbance levels (i.e., disruption of normal behaviors, which includes courtship in addition to feeding, preening, bathing, etc.) to amount to ~~2.7~~13.2 minutes per hour (see Appendix B, Table B-3) to those individuals exposed to disturbance. This increase is additive to the environmental baseline conditions, with the result being a total in disturbance impacts amounting to ~~3.8~~17.35 minutes per hour, which represents ~~only 6.3~~ 28.9 percent of their overall time budget. We do not expect this ~~small~~ increase in disturbance time and total disturbance time to result in a significant reduction in courtship behavior for the population as it is unlikely that all Steller's eiders present in the lagoon will be exposed to all disturbance events at the same time or that disturbance events will occur~~r~~ on a continuous basis. Overall, we anticipate activities associated with the proposed action will result in a minor reduction in reproduction and productivity, through the loss of a small number of individuals and a minimal disruption of courtship behaviors; these changes are

not expected to result in an appreciable reduction in reproduction for the Alaska-breeding Steller's eider.

7.3

Paragraph 2 of this section is revised to read: We do not expect many sea otters would be permanently removed from the population by the effects of the action and that the number of individuals permanently removed would be relatively small compared to the entire population. We estimate up to ~~four~~ nine sea otters a year from the Bristol Bay MU would experience injury or death via vessel strike after the road is constructed for the foreseeable future....

Appendix A and Appendix B

Both Appendices A and B have the following revisions and are attached.

- The primary conclusions of Appendix B are contained in three tables: B-1. B-2, and B-3.
- The revisions in these three tables are highlighted here:

Original Table B-1 that incorporates math errors:

Time Period	**Disturbance events per hour**		**Seconds of flight per hour**		**Seconds of disturbance per hour**	
	Lower Estimate	Upper Estimate	Lower Estimate	Upper estimate	Lower estimate	Upper estimate
Historic (1980s)	0.06	0.15	2.00	5.10	6.90	17.20
Current (2020s)	0.18	0.45	6.10	15.20	20.60	51.60
Plausible future (2.3x increase)	0.41	1.04	14.00	35.10	47.50	118.60
Plausible future (3.2x increase)	0.58	1.44	19.50	48.80	66.00	165.1

Revised Table B-1 with math errors corrected:

Time Period	**Disturbance events per hour**		**Seconds of flight per hour**		**Seconds of total disturbance per hour**	
	Lower Estimate	Upper Estimate	Lower Estimate	Upper estimate	Lower estimate	Upper estimate
Historic (1980s)	0.06	0.15	3.11	7.78	6.88	17.19
Current (2020s)	0.54	1.35	27.99	69.98	61.89	154.73
Plausible future (2.3x increase)	1.24	3.11	64.39	160.96	142.36	355.89
Plausible future (3.2x increase)	1.73	4.32	89.58	223.95	198.06	495.15

Original Table B-2 that incorporates math errors:

Time Period	**Disturbance events per hour**		**Seconds of flight per hour**		**Seconds of disturbance per hour**	
	Lower Estimate	Upper Estimate	Lower Estimate	Upper estimate	Lower estimate	Upper estimate
Historic (1980s)	0.02	0.05	2.40	6.10	4.20	10.40
Current (2020s)	0.03	0.08	3.70	9.10	6.20	15.60
Plausible future (2x increase)	0.06	0.15	7.30	18.30	14.70	36.60
Plausible future (4x increase)	0.12	0.30	14.60	36.50	25.00	62.4

Revised Table B-2 with math errors corrected:

Time Period	**Disturbance events per hour**		**Seconds of flight per hour**		**Seconds of disturbance per hour**	
	Lower Estimate	Upper Estimate	Lower Estimate	Upper estimate	Lower estimate	Upper estimate
Historic (1980s)	0.02	0.05	2.74	6.86	4.16	9.27
Current (2020s)	0.18	0.45	21.98	54.96	37.45	93.64
Plausible future (4.9x increase)	0.88	2.21	120.95	302.37	183.53	458.81
Plausible future (8.7x increase)	1.57	3.92	214.74	536.86	325.85	545.80

Original Table B-3 that incorporates math errors:

Time Period	**Disturbance events per hour**		**Seconds of flight per hour**		**Seconds of disturbance per hour**	
	Lower Estimate	Upper Estimate	Lower Estimate	Upper estimate	Lower estimate	Upper estimate
Historic (1980s)	0.08	0.20	4.40	11.20	11.10	27.60
Current (2020s)	0.21	0.53	9.80	24.30	26.80	67.20
Plausible future (minimum)	0.47	1.19	21.30	53.40	62.20	155.20
Plausible future (maximum)	0.70	1.74	34.10	85.30	91.00	227.5

Revised Table B-3 with math errors corrected:

Time Period	**Disturbance events per hour**		**Seconds of flight per hour**		**Seconds of disturbance per hour**	
	Lower Estimate	Upper Estimate	Lower Estimate	Upper estimate	Lower estimate	Upper estimate
Historic (1980s)	0.08	0.20	5.85	14.63	11.04	26.46
Current (2020s)	0.72	1.80	49.97	124.94	99.35	248.37
Plausible future (minimum)	2.12	5.31	185.33	463.33	325.88	814.70
Plausible future (maximum)	3.29	8.24	304.32	760.81	523.91	1040.95