

Request for Consideration of a Waivers in Order to Conduct Kittlitz's Murrelet Surveys in Glacier Bay

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Background

The Southeast Alaska Network (SEAN) Inventory and Monitoring Program is developing a long-term protocol for annual monitoring of Kittlitz's murrelet (KIMU) populations in Glacier Bay proper. The survey design includes annual surveys of permanent transects, oriented perpendicular to the prevailing shoreline, throughout Glacier Bay. Two observers dictate observations to a data recorder as the vessel operator follows the transect line at a speed of 10 kts.

KIMU are patchily distributed in Glacier Bay (Drew et al. 2008), and we can greatly improve the precision of our density estimates by optimizing sample allocation such that areas with (or expected to have) high KIMU densities are sampled more intensively than areas with low densities. Together, the park and SEAN have settled on the monitoring objectives of describing trends in abundance *and* distribution. As a result, it is important to allocate proportionately more sampling effort to high density areas, but to also sample low density areas over time. From 5 years of marine predator surveys in Glacier Bay (Drew et al. 2008), one can identify areas that consistently or regularly support high KIMU densities. Two of these areas – Rendu Inlet and the central area of the Hugh Miller-Scidmore-Charpentier complex (hereafter, HSC) – are presently unavailable to field crews due to seasonal non-motorized regulations. A third area – upper Johns Hopkins Inlet (JHI) – has a ¼ mile approach restriction for harbor seals. Together, these regulations preclude the SEAN KIMU project from including several of the most persistent high-density areas of the sampling frame.

Waivers Requested

The SEAN requests an annual waiver to the non-motorized regulations for Rendu Inlet and the portion of HSC identified in Figure 1. If approved, the KIMU field crew would access each of these two areas on one day each during the annual field survey (typically conducted in the first 2 weeks of July). We anticipate that crews could complete local transects in 4 hours or less. That is, for each area, crews would be present in the non-motorized area for 4 hours or less on a single day.

The SEAN also requests consideration for a request to waive the ¼ mile seal approach restriction in JHI for one day after July 15; here again, and crews would require 4 hours or less to complete work and depart. The waiver would apply to vessel travel while on-transect; though it would not always be possible, we would make every effort to adhere to the ¼ restriction while transiting between transects.

While the SEAN requests a multiyear waiver for the balance of the current study permit (valid through 2013), we understand that approval may only be entertained on a year-by-year basis. Still, we wish to underscore the importance of predictability and long-term planning that are so important to the integrity of long-term data sets. The SEAN will periodically evaluate sampling effectiveness for all sampled areas of Glacier Bay. If those future analyses demonstrate that sampling these areas can be scaled back to less than annual revisits, we would certainly do so.

Justification

Previous work (Drew et al. 2008) has shown that the HSC complex has supported high densities of KIMU year after year. Given the number of birds consistently observed in this area – as much as 15-20% of all

KIMU observed in Glacier Bay – it is extremely important to our ability to estimate KIMU abundance in Glacier Bay that the HSC complex be included in the long-term monitoring protocol and survey design.

Regarding the HSC complex, the highest densities have been centered in Hugh Miller Inlet and the waters to the west that join Hugh Miller, Scidmore Bay, and Charpentier Inlet. Some, but relatively few, birds have been observed in Scidmore Bay proper and Charpentier Inlet proper.

Rendu Inlet has supported high densities in some years (not all), but during those high density years, observers have recorded some of the highest densities observed in the Bay. The upper reaches of JHI have not been regularly surveyed in the past, though we have strong expectations that this area – like other fjord head and tidewater glacier interface areas in the Bay – regularly supports high densities of KIMU.

In all three cases – HSC, Rendu, and JHI – the waiver would specify terms of entry for a 4 hours or less on a single day for each site. While it is possible that visitors or seals would be disturbed, the duration of entry will be made as short as possible.

Specifically regarding the JHI request, we consulted with Jamie Womble to ensure that this request is structured to minimize impact to seals. Two considerations offer assurances that risk of disturbance is minimized. First, the proposed July survey date would be midway between bimodal peaks in harbor seal abundance in JHI during pupping (peak ~June 15) and molting (peak during the first couple weeks in August). Relatively few seals and little ice are present in JHI during the KIMU survey dates. Second, because the peak of pupping is June 15 and pups are typically weaned at 3-5 weeks, there is a very low probability that we would disturb mother-pup pairs. Recent observations by Colleen Young working in JHI indicate that the latest observation of a mother-pup pair in JHI in 2008 was July 12 (a single observation). Taken together, the timing and duration of entry is such that, even if seals are disturbed, one can have high confidence that the disturbance would be biologically insignificant.

Irresolvable Conflicts and Alternatives Considered

We considered surveying the non-motorized waters from dory or kayak. However, adding a new survey platform (of a dory or kayak, platform height < 1 m) to our standard motorized platform (which has observers eye-level about 2.5 m above waterline) would substantially affect detection probabilities of birds. Therefore, data collected from a dory or kayak would effectively represent a second study and would require us to develop a completely independent data analysis system. This is because estimates of KIMU density are very strongly influenced by an empirically produced detection function, which itself is strongly influenced by sampling features such as platform height. The KIMU density estimates generated from data collected from non-motorized craft would not be directly comparable to the estimates generated from the primary survey design/platform, which covers more than 90% of Glacier Bay. The investment required – in terms of time, complexity, and required analytical expertise – make development of a non-motorized methodology untenable. If we cannot conduct motorized surveys in these areas from our standard platform, we would expect to remove these important, high-density areas from our survey effort.

Resolvable conflicts

Optimally, we would survey the entirety of the HSC complex. However, we recognize that the HSC area is an exceptional resource for non-motorized visitation of Glacier Bay. We revisited detailed data from the 1999-2003 USGS marine predator surveys (Drew et al. 2008), and determined that most –

approximately 80-90% of the KIMU observed in this area – occurred in Hugh Miller Inlet and the waters to the west that connect Hugh Miller Inlet to the mouths of Scidmore Bay and Charpentier Inlet. To preserve the integrity of the non-motorized area to the maximum extent possible while still ensuring that the exceptionally high KIMU densities in the area would be available to survey, we have scaled back an earlier version of our proposal and we have excluded Scidmore Bay proper and Charpentier Inlet proper from this waiver request (Figure 1). We anticipate “missing” a small number of birds that may be present in those areas each year, but the benefit this potential compromise approach (i.e., adequately monitoring the central portion of what appears to be a sizeable and persistent KIMU “hot spot”) far outweighs the prospect of no motorized access at all.

There are several other areas with seasonal non-motorized regulation around which the project can schedule. In particular, field crews can be sure to complete survey transects in Wachusett Inlet before the closure period of 7/16-8/31, and can likewise schedule transects in upper Muir Inlet for after the seasonal closure is lifted on 7/16. In the future, the park may consider extending the ‘no vessels’ regulation in JHI to 7/15, as recent data suggests that date would offer more complete protection for unweaned pups. In recognition of that possibility and the new data collected in JHI, this KIMU project would schedule entry to JHI for 7/16 or later. Though perhaps not material to the park’s decision on the present request, these scheduling efforts introduce some risk for completion of the JHI and upper Muir transects; these areas are among the farthest from Bartlett Cove and are afforded only 1-2 days (maximum, dependent on weather) at the end of the scheduled field effort (typically ending on or near July 18) to complete transects in upper Muir Inlet. However, this approach offers the best balance of working within existing park regulations and also minimizing the scope of the present exception request.

Request for Decision

If possible, we would appreciate a decision on this request by Friday, April 16, 2010. We need to move quickly to add or eliminate candidate transects in these three areas as we prepare the survey design and field protocol for the 2010 season.

Literature Cited

Drew, G. S., S. Speckman,, J. F. Piatt, J. M. Burgos, and J. Bodkin. 2008. Survey Design Considerations for Monitoring Marine Predator Populations in Glacier Bay, Alaska: Results and Post-hoc Analyses of Surveys Conducted in 1999-2003. Administrative Report. U. S. Department of the Interior, U. S. Geological Survey, Reston, Virginia, USA.

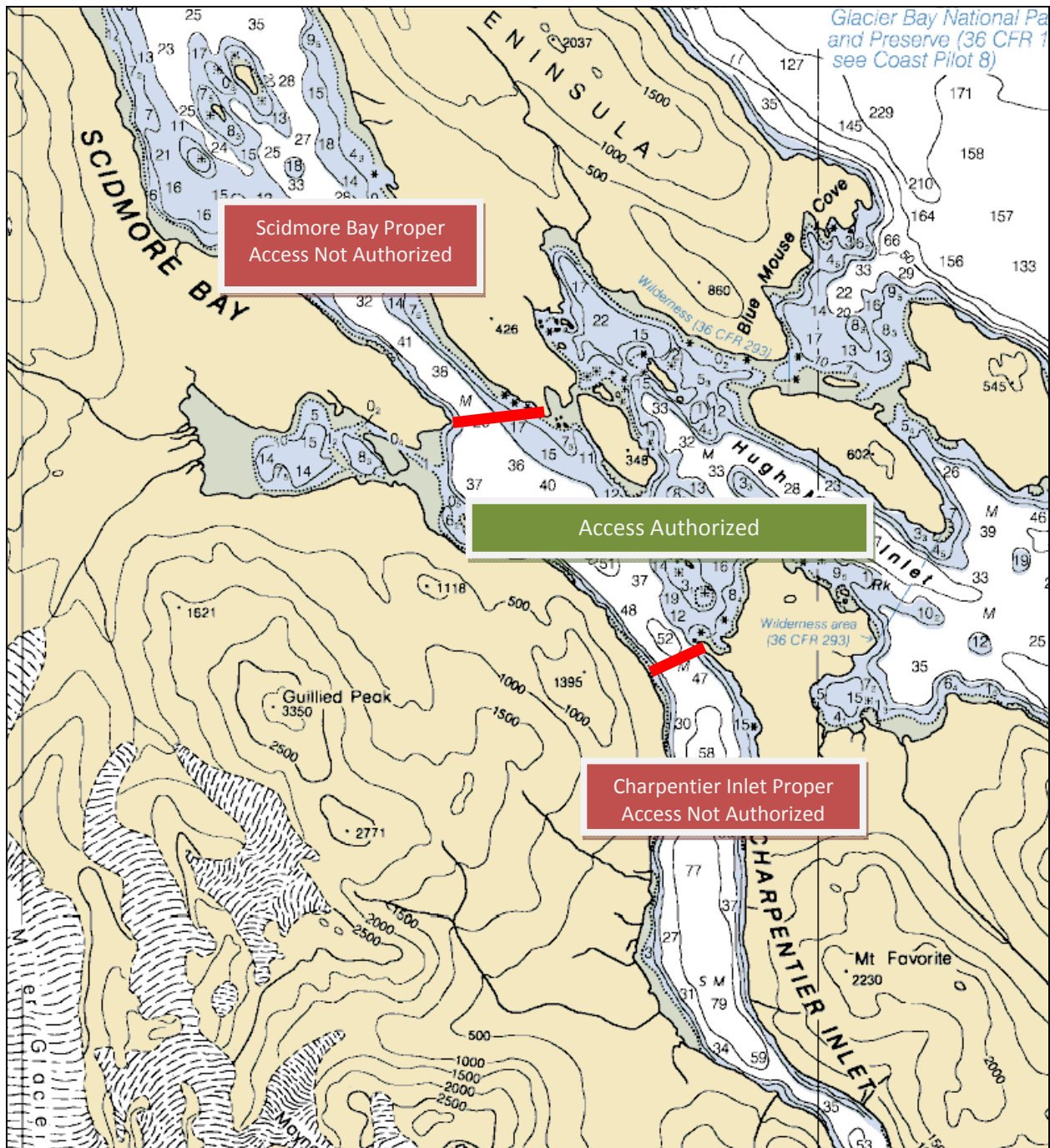


Figure 1. The proposed area for exception to non-motorized waters regulation for Kittlitz's murrelet monitoring includes Hugh Miller Inlet and the central waters between the mouth of Scidmore Bay and Charpentier Inlet. Access would not be allowed in Scidmore Bay proper (north of the red line) and Charpentier Inlet proper (south of the red line).