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UPDATE REPORT: Migration route and timing through the NWTT of Chinook salmon acoustically tagged in the Gulf of Alaska

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14. ABSTRACT
The migration route and timing of Chinook salmon along the coast of Washington State is not well understood. To determine when and where Chinook salmon of different genetic stocks enter and transit through the U.S. Navy Northwest Training and Testing Area (NWTT) we tagged 298 maturing adult salmon across five locations throughout the Gulf of Alaska. The tagging locations included Kodiak in October 2020 (n = 80), Yakutat in March 2021 (n = 32), Chignik in August 2021 (n = 36), Craig (n = 51) in June 2022, and Sitka in June 2022 (n = 99). At the time of tagging scale samples and fin clips were taken to determine the age, life history (subyearling vs. yearling), and genetic stock identification. So far, we have detected 53 acoustically tagged Chinook salmon (Kodiak = 9, Yakutat = 5, Chignik = 3, Craig = 12, Sitka = 24). Individuals tagged in Kodiak were detected in Prince William Sound, the south coast of Vancouver Island, and Washington coast from 17 to 320 days post tagging. Individuals tagged in Yakutat were detected along the south coast of Vancouver Island, and Washington coast from 76 to 169 days post tagging. Individuals tagged in Chignik were detected in Prince William Sound, and along the south coast of Vancouver Island from 112 to 433 days post tagging. Individuals tagged in Craig were detected along the south and east coast of Vancouver Island, and Washington coast from 49 to 137 days post tagging. Individuals tagged in Sitka were detected along the south and east coast of Vancouver Island, and Washington coast from 49 to 124 days post tagging. The scale samples and fin clips are still being analyzed. The Innovasea V16 acoustic tags implanted in individual Chinook salmon have a battery life of 5 years. Therefore, we expect to detect more individuals throughout the next year.

15. SUBJECT TERMS
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Executive Summary

The migration route and timing of Chinook salmon along the coast of Washington State is not well understood. To determine when and where Chinook salmon of different genetic stocks enter and transit through the U.S. Navy Northwest Training and Testing Area (NWTT) we tagged 298 maturing adult salmon across five locations throughout the Gulf of Alaska. The tagging locations included Kodiak in October 2020 (n = 80), Yakutat in March 2021 (n = 32), Chignik in August 2021 (n = 36), Craig (n = 51) in June 2022, and Sitka in June 2022 (n = 99). At the time of tagging scale samples and fin clips were taken to determine the age, life history (subyearling vs. yearling), and genetic stock identification. So far, we have detected 53 acoustically tagged Chinook salmon (Kodiak = 9, Yakutat = 5, Chignik = 3, Craig = 12, Sitka = 24). Individuals tagged in Kodiak were detected in Prince William Sound, the south coast of Vancouver Island, and Washington coast from 17 to 320 days post tagging. Individuals tagged in Yakutat were detected along the south coast of Vancouver Island, and Washington coast from 76 to 169 days post tagging. Individuals tagged in Chignik were detected in Prince William Sound, and along the south coast of Vancouver Island from 112 to 433 days post tagging. Individuals tagged in Craig were detected along the south and east coast of Vancouver Island, and Washington coast from 49 to 137 days post tagging. Individuals tagged in Sitka were detected along the south and east coast of Vancouver Island, and Washington coast from 49 to 124 days post tagging. The scale samples and fin clips are still being analyzed. The Innovasea V16 acoustic tags implanted in individual Chinook salmon have a battery life of 5 years. Therefore, we expect to detect more individuals throughout the next year.

Background

The United States (U.S.) Navy conducts military training and testing activities in the Pacific Northwest range areas. These activities are crucial for preparing combat-ready military forces capable of defending the nation. On the other hand, the National Oceanic and Atmospheric Administration (NOAA) Fisheries is charged with managing and protecting threatened and endangered marine species in these waters. Part of their responsibilities includes issuing permits to the U.S. Navy, allowing them to conduct their training and testing activities. Both NOAA Fisheries and the U.S. Navy share common objectives, which include minimizing the impact of military training and testing activities on protected species without compromising the effectiveness of training and testing. Additionally, they aim to reduce adverse environmental effects resulting from such activities. To achieve these goals, close collaboration and communication between the two entities are essential. The data generated from these cooperative efforts provide critical information about the geographical distribution and habitat of marine species within the Navy's range areas. This information enables the Navy to adapt its training and testing activities accordingly, while implementing protective measures for salmonids and other vulnerable species. Consequently, this approach allows for a balance between the Navy's mission requirements and the conservation of protected marine life in the Pacific Northwest region.

This particular project is dedicated to the study of Pacific salmonids in the offshore waters encompassing the existing Northwest Training Range Complex (NWTRC) and the offshore Naval Undersea Warfare Center Keyport Range Complex. These two areas collectively form the Northwest Training and Testing (NWTT) Study Area. The research conducted within this project is specifically focused on a region that is crucial for both the Navy's monitoring objectives and the conservation of species of interest, as outlined in current and future monitoring plans. By concentrating on this vital region, the project aims to support the U.S. Navy's commitment to minimizing the impact of its training and testing activities on Pacific salmonids and other marine species while ensuring the effectiveness of its operations. This research will provide essential information to inform decision-making and enable the implementation of protective measures for the marine ecosystem in the NWTT Study Area.

In an effort to understand the migratory patterns and behavior of Chinook salmon tagged in the Gulf of Alaska, we used acoustic tags to track individual fish to determine if and when they transit through the Navy's NWTT Study Area. In addition to tracking their movements, the genetic stock identification (GSI) was used to determine the distinct populations of Chinook salmon. By monitoring the movements and genetic makeup of these important fish, this study aims to provide crucial insights to mitigate potential impacts of Navy activity on their migration, as well as to inform future conservation and management efforts to protect and sustain this species.

Methods

Tagging: Chinook salmon were tagged in five locations along the Gulf of Alaska (Figure 1). Chinook salmon were caught with hook and line. Each individual was immediately put into anesthetic (25 mg/L; AQUI-S® 20E) until the fish reached level III anesthesia (i.e., total loss of equilibrium and no reaction to touch stimuli, ~4 min.). Chinook salmon were surgically implanted with Innovasea 69 kHz V16-4x transmitters (diameter = 16 mm, length = 68 mm, weight = 24 g in air, sound pressure level output = 158 dB re 1 µPa @ 1 m, battery life = 1910 d, random ping rate between 70 and 110 s). The use of AQUI-S® 20E was used under Investigational New Animal Drugs (INAD) permit #11-47. Once anesthetized the fork length (nearest cm) was measured, scales were taken from the preferred area for aging, and a fin clip was taken from the anal fin for genetic analysis. To implant the transmitter a 20 mm incision was made with a sterile scalpel, the V16 transmitter and a passive integrated transponder (PIT) was inserted into the body cavity, and the incision was sutured with two or three simple interrupted surgeon's knots using an Ethicon Y513 4-0 Monocryl suture with a 19 mm reverse cutting needle. After surgery the fish was placed in a recovery tank of fresh seawater with an aerator until the fish was vigorously swimming and recovered (~5-10 min.). After recovery the fish was released near the capture location. The latitude, longitude and the time of fish release was recorded for each individual.

The tagging locations included Kodiak in October 2020 (n = 80), Yakutat in March 2021 (n = 32), Chignik in August 2021 (n = 36), Craig (n = 51) in June 2022, and Sitka in June 2022 (n = 99) (Table 1).

Genetic samples were taken for each tagged fish and additional fin clip samples were taken from individuals that were either not adequate size for tagging or not in good enough condition for tagging (Table 1). Therefore, the number of fish tagged and analyzed were different. Genetic analysis was performed by the NWFSC Conservation Biology Division to determine genetic stock. The percentage of each stock group was determined for each location.

Table 1. Sample size in each location including the number of individuals tagged and the number of individuals with fin clips taken for genetic samples.

Samples	Chignik	Kodiak	Yakutat	Sitka	Craig
Number tagged	36	80	32	99	51
Number genetic samples	40	91	48	128	47

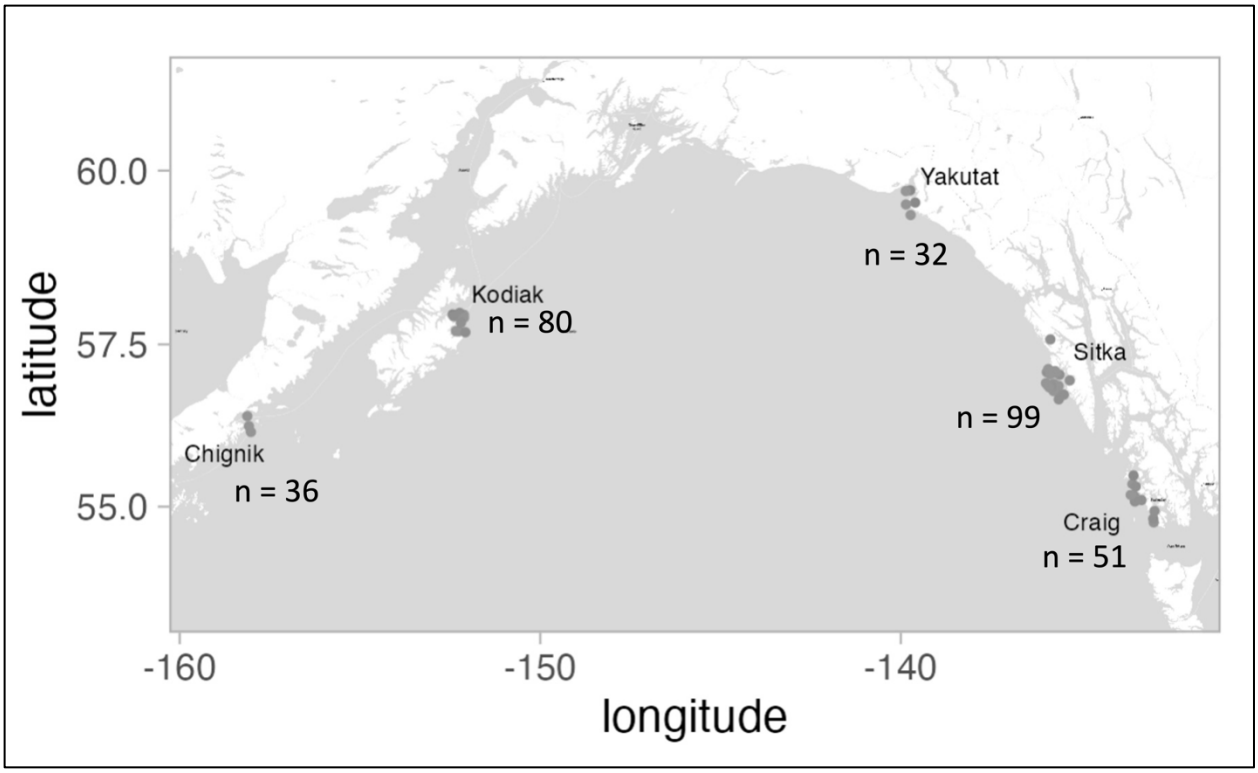

Figure 1. Chinook salmon tagging locations and the number tagged within the Gulf of Alaska.

Fish detection: We deployed InnovaSea 69 kHz VR2AR acoustic receivers along the coast of Washington State to detect acoustically tagged Chinook salmon. Individuals were also detected by acoustic receivers deployed by other groups including Department of Fisheries and Oceans Canada, Olympic Coast National Marine Sanctuary, University of Victoria, University of British Columbia, and Kintama consulting company. Additionally, detections were reported via the Ocean Tracking Network (OTN).

Data analyses: Detection histories for each individual that include individual ID, tagging date, genetic stock ID, detections locations labeled with the number of days since tagging, and date of last detection were mapped using Program R.

Results

The proportion of different genetic stock IDs varied across tagging locations (Table 2, Figure 2). In Chignik (n = 40), the highest proportion of individuals originated from West Vancouver Island (70.0%), followed by Southeast Alaska (22.5%), and Upper Columbia River summer/fall (7.5%). In Kodiak, (n = 91), most individuals originated from Southeast Alaska (60.4%), followed by Upper Columbia River summer/fall (11.0%), West Vancouver Island (9.9%), Willamette River spring (7.7%), South Thompson River (4.4%), North/Mid Oregon coast (3.3%), West Cascade spring (2.2%), and West Cascade fall (1.1%). In Yakutat (n = 48), most individuals originated from West Vancouver Island (41.7%), followed by Southeast Alaska

(27.1%), Willamette River spring (18.8%), Upper Columbia River summer/fall (6.3%), West Cascade spring (2.1%), West Cascade fall (2.1%), and East Vancouver Island (2.1%). In Sitka (n = 128), most individuals originated from Upper Columbia River summer/fall (32.0%), North/Mid Oregon coast (19.5%), West Vancouver Island (15.6%), Southeast Alaska (14.8%), South Thompson River (12.5%), East Vancouver Island (2.3%), West Cascade fall (2.3%), and Snake River fall (0.8%). In Craig (n = 47), most individuals originated from West Vancouver Island (36.2%), Upper Columbia River summer/fall (19.1%), Southeast Alaska (17.0%), West Cascade fall (10.6%), North/Mid Oregon coast (6.4%), South Thompson River (4.3%), East Vancouver Island (4.3%), and South Puget Sound (2.1%).

Table 2. The percentage of each stock group at each location.

Genetic stock group	Chignik	Kodiak	Yakutat	Sitka	Craig
North/Mid Oregon coast	0.0%	3.3%	0.0%	19.5%	6.4%
Snake River fall	0.0%	0.0%	0.0%	0.8%	0.0%
Upper Columbia River summer/fall	7.5%	11.0%	6.3%	32.0%	19.1%
Willamette River sping	0.0%	7.7%	18.8%	0.0%	0.0%
West Cascade spring	0.0%	2.2%	2.1%	0.0%	0.0%
West Cascade fall	0.0%	1.1%	2.1%	2.3%	10.6%
South Puget Sound	0.0%	0.0%	0.0%	0.0%	2.1%
South Thompson River	0.0%	4.4%	0.0%	12.5%	4.3%
West Vancouver Island	70.0%	9.9%	41.7%	15.6%	36.2%
East Vancouver Island	0.0%	0.0%	2.1%	2.3%	4.3%
Southeast Alaska	22.5%	60.4%	27.1%	14.8%	17.0%

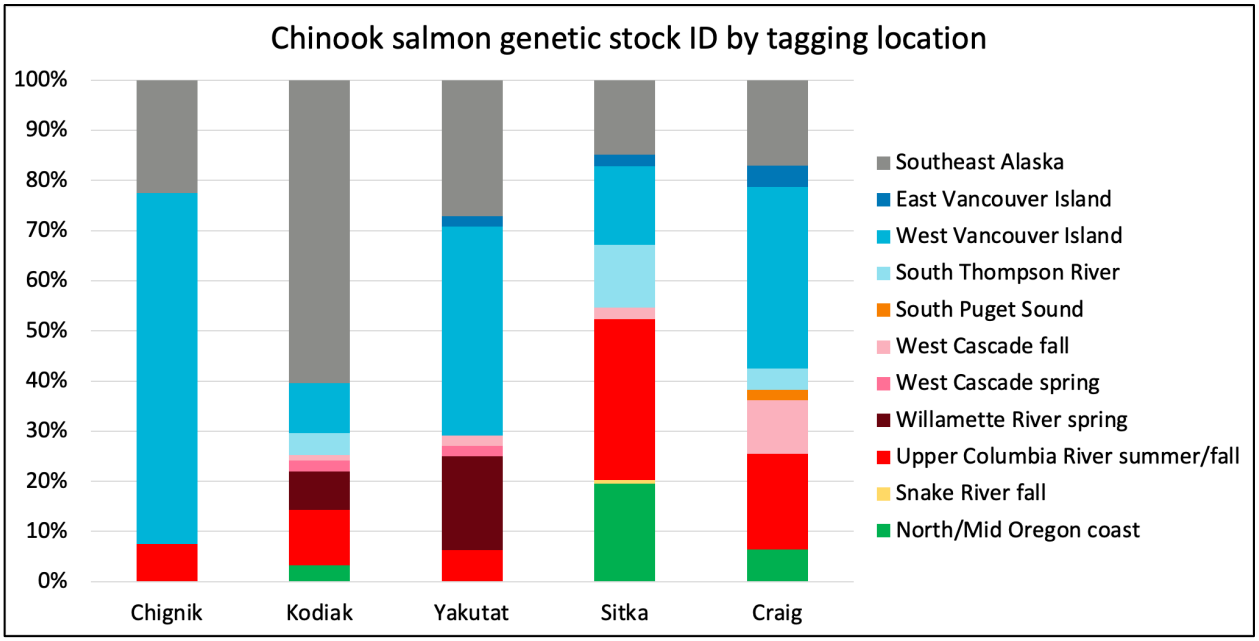

Figure 2. Stacked bar plot showing the percent of different genetic stock IDs captured at each of the tagging locations. Colors indicate genetic stock ID.

Genetic analysis identified three genetic stocks that are within ESUs listed as threatened under the ESA. These include South Puget Sound (n=1 in Craig), Snake River spring (n=1 in Sitka), and Willamette River spring (n = 7 in Kodiak, n = 9 in Yakutat).

To date we have detected 53 (17.8%) out of 298 acoustically tagged Chinook salmon (Kodiak = 9, Yakutat = 5, Chignik = 3, Craig = 12, Sitka = 24). Individuals tagged in Kodiak were detected in Prince William Sound, the south coast of Vancouver Island, and Washington coast from 17 to 320 days post tagging (See Supplementary Material). Individuals tagged in Yakutat were detected along the south coast of Vancouver Island, and Washington coast from 76 to 169 days post tagging (See Supplementary Material). Individuals tagged in Chignik were detected in Prince William Sound, and along the south coast of Vancouver Island from 112 to 433 days post tagging (See Supplementary Material). Individuals tagged in Craig were detected along the south and east coast of Vancouver Island, and Washington coast from 49 to 137 days post tagging (See Supplementary Material). Individuals tagged in Sitka were detected along the south and east coast of Vancouver Island, and Washington coast from 49 to 124 days post tagging (See Supplementary Material).

See Supplementary Material for individual detection histories of each acoustically tagged Chinook salmon.

Conclusion

This update on the ongoing study focusing on Chinook salmon migration tagged in the Gulf of Alaska provides promising insights into their migratory patterns and behavior by utilizing acoustic tags and genetic stock identification. The preliminary results illustrate the varying genetic stock compositions at different tagging locations and successfully track individual fish as they transit through the Navy's NWTT Study Area. The study showcases the potential of this approach to offer valuable insights that can help mitigate potential impacts of Navy activities on the migration of Chinook salmon and other marine species.

As the research progresses, more results will become available, contributing to future conservation and management efforts aimed at striking a balance between the U.S. Navy's mission requirements and the protection of protected marine life in the Pacific Northwest region. The collaboration and communication between NOAA Fisheries and the U.S. Navy have been crucial in achieving these shared objectives. The data generated from this study will continue to inform the development of adaptive strategies and protective measures for the marine ecosystem within the NWTT Study Area, ensuring the effectiveness of Navy activities while safeguarding vulnerable marine species.

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Supplementary Material

The following pages are the detection histories for each acoustically tagged Chinook salmon. The top of each plot gives the release location, the genetic stock ID, and the fork length of the fish. The release locations are indicated with the date of release, and the last detection also is labeled with the date of detection and days since release. There are two pages of plots for each individual. The first is zoomed out to show the full extent of detection history, and the second page is zoomed in to show the detailed movements of each Chinook salmon. In the more detailed view intermediate detections are labeled with days since release. The color of the circles indicates the month and year of detection. Some individuals were recaptured, those plots show the recapture locations in blue and are labeled as "recovered" with the date of recovery displayed.

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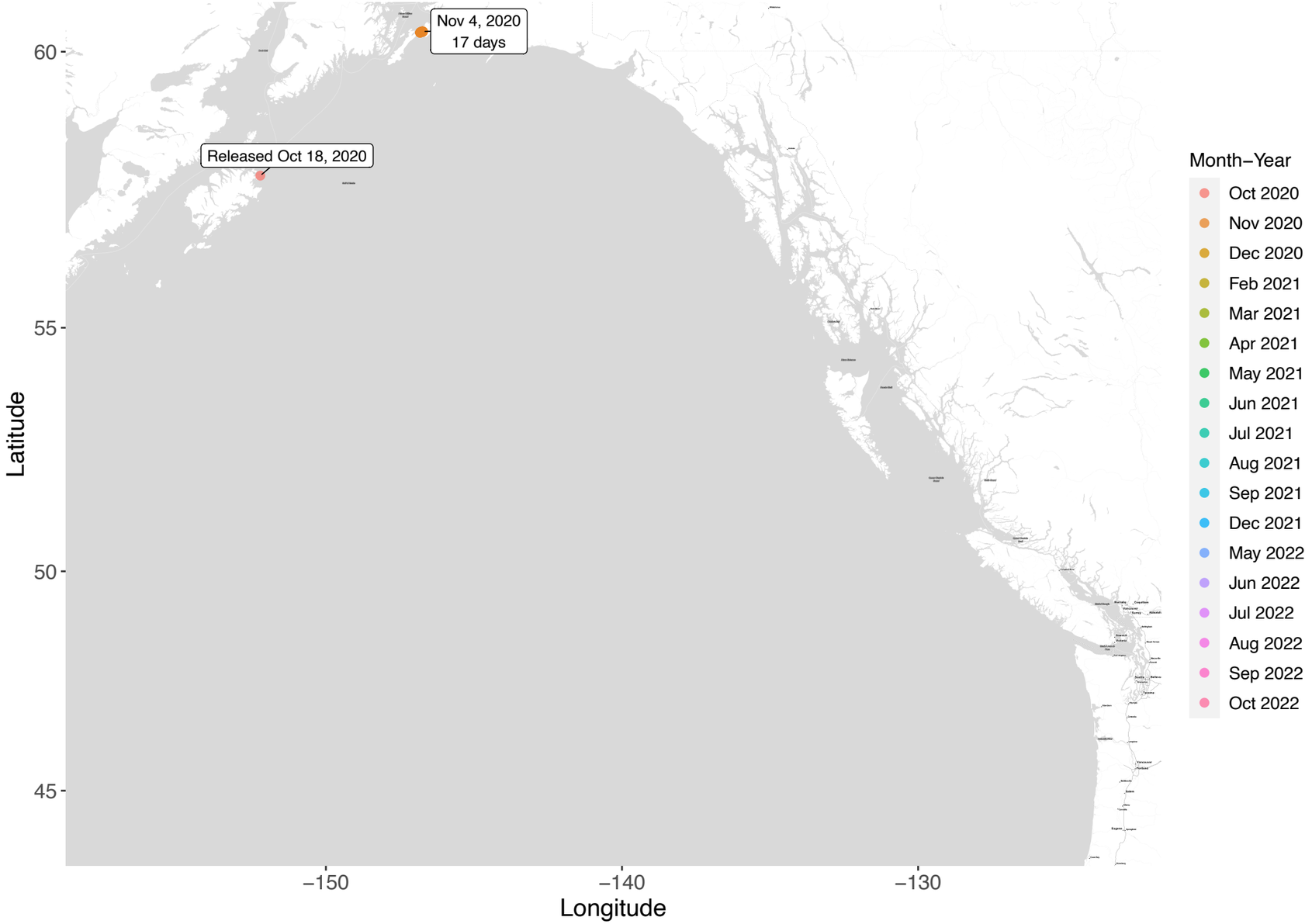
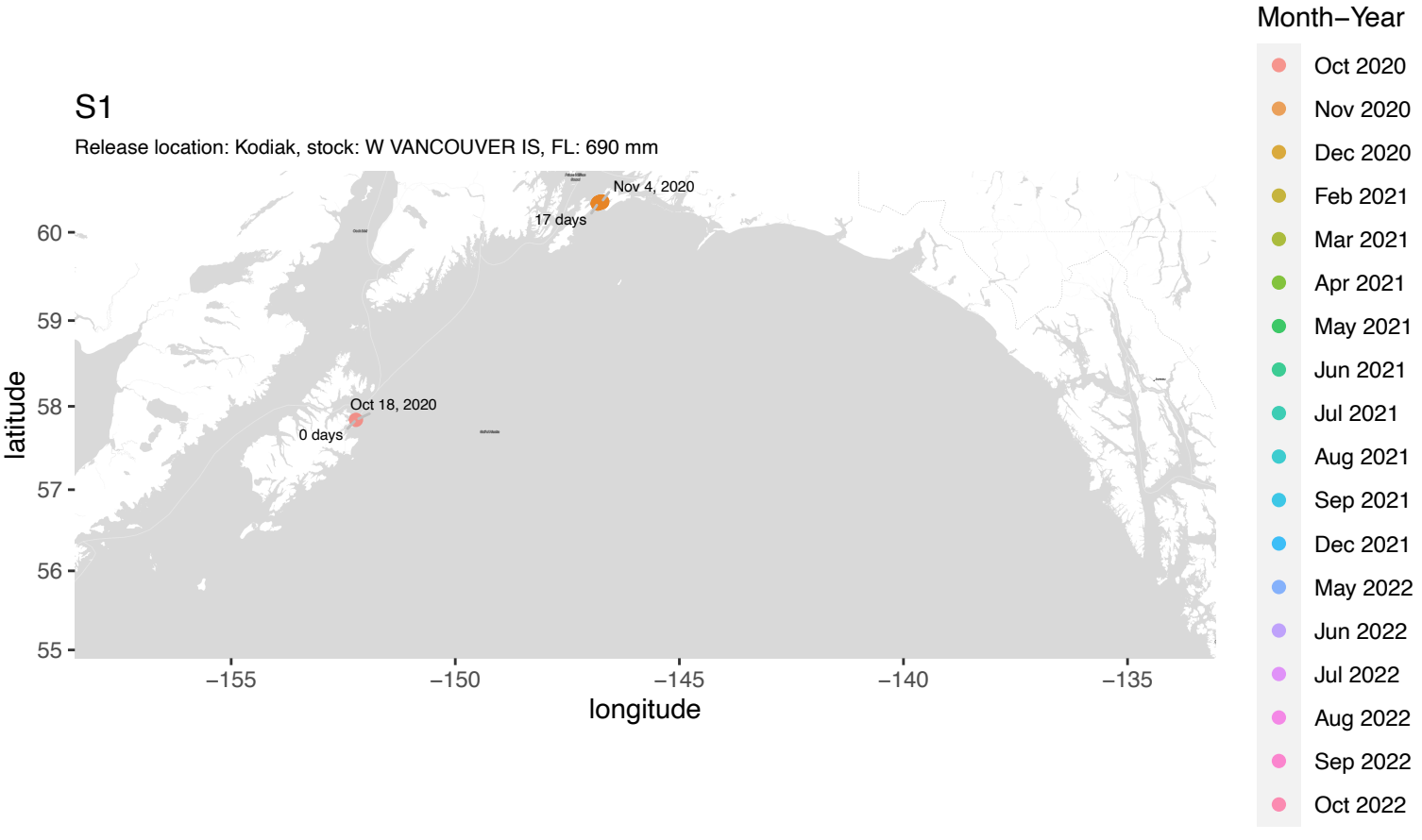
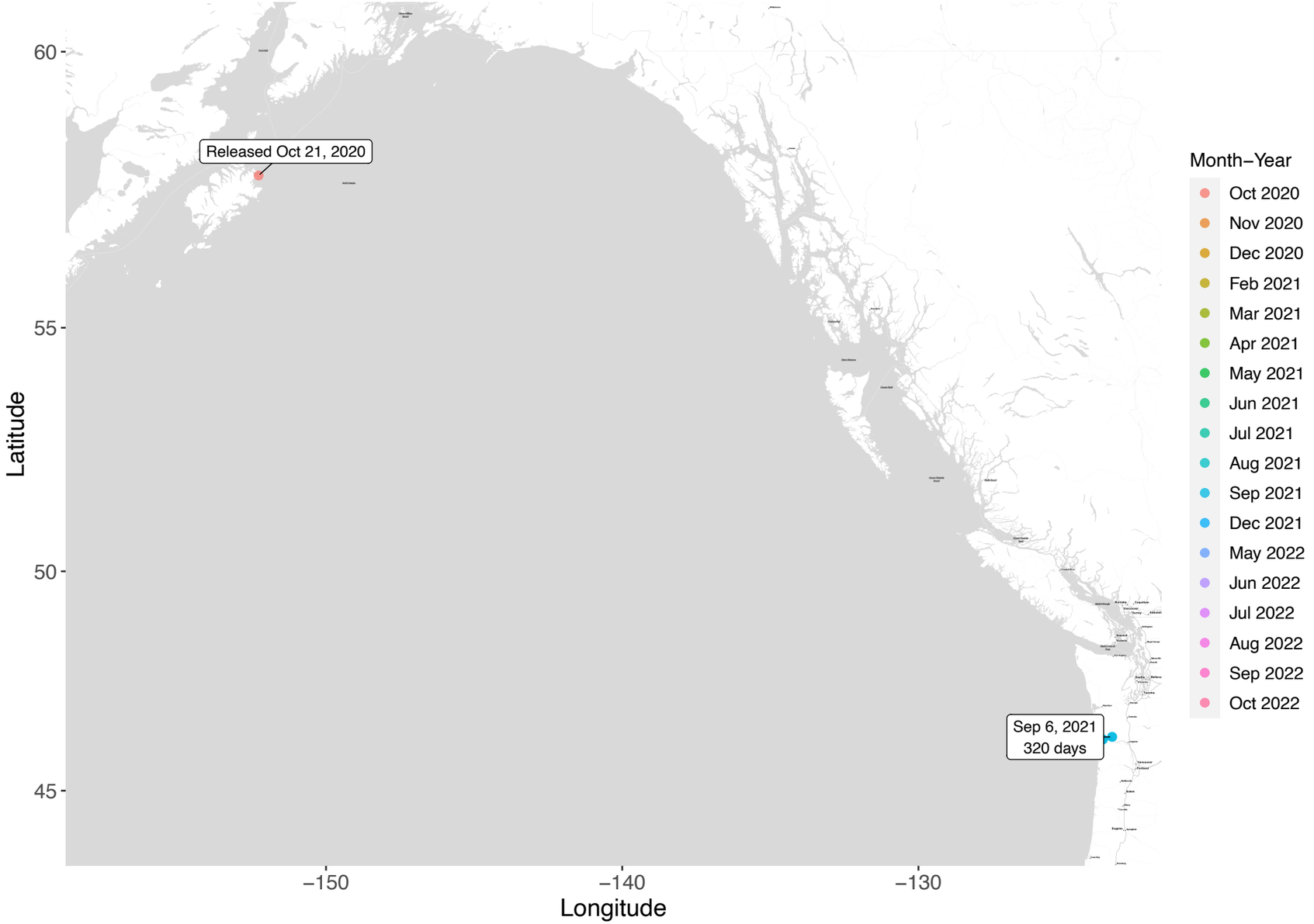
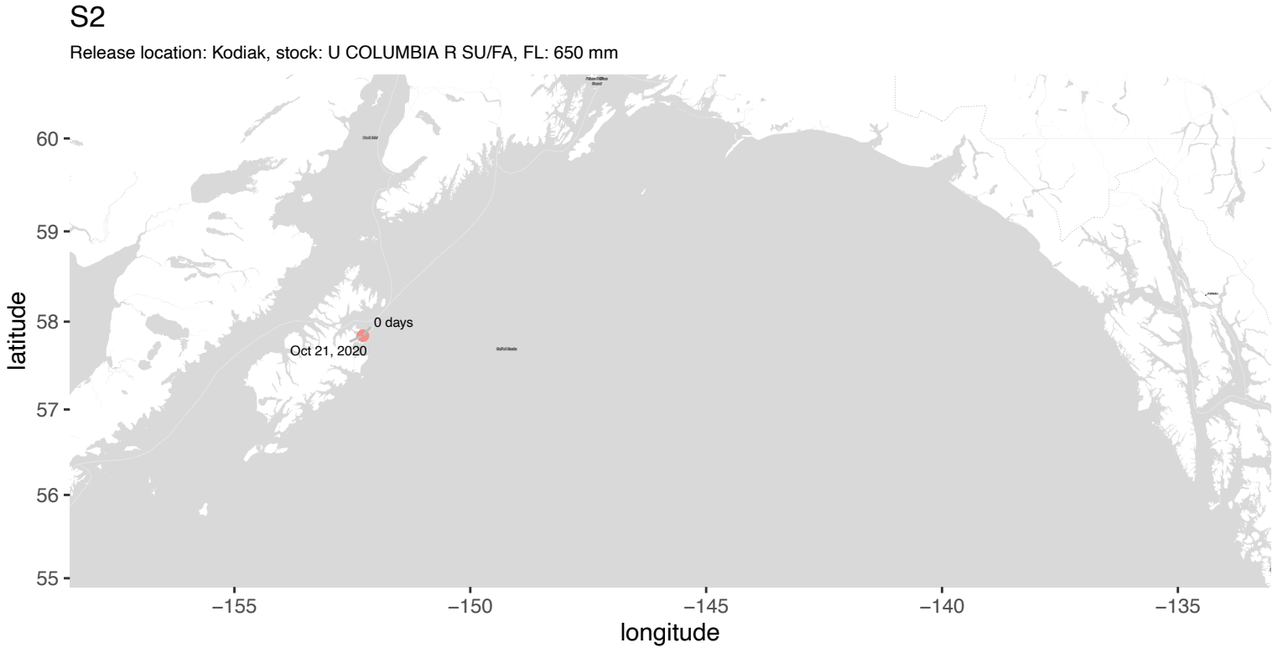
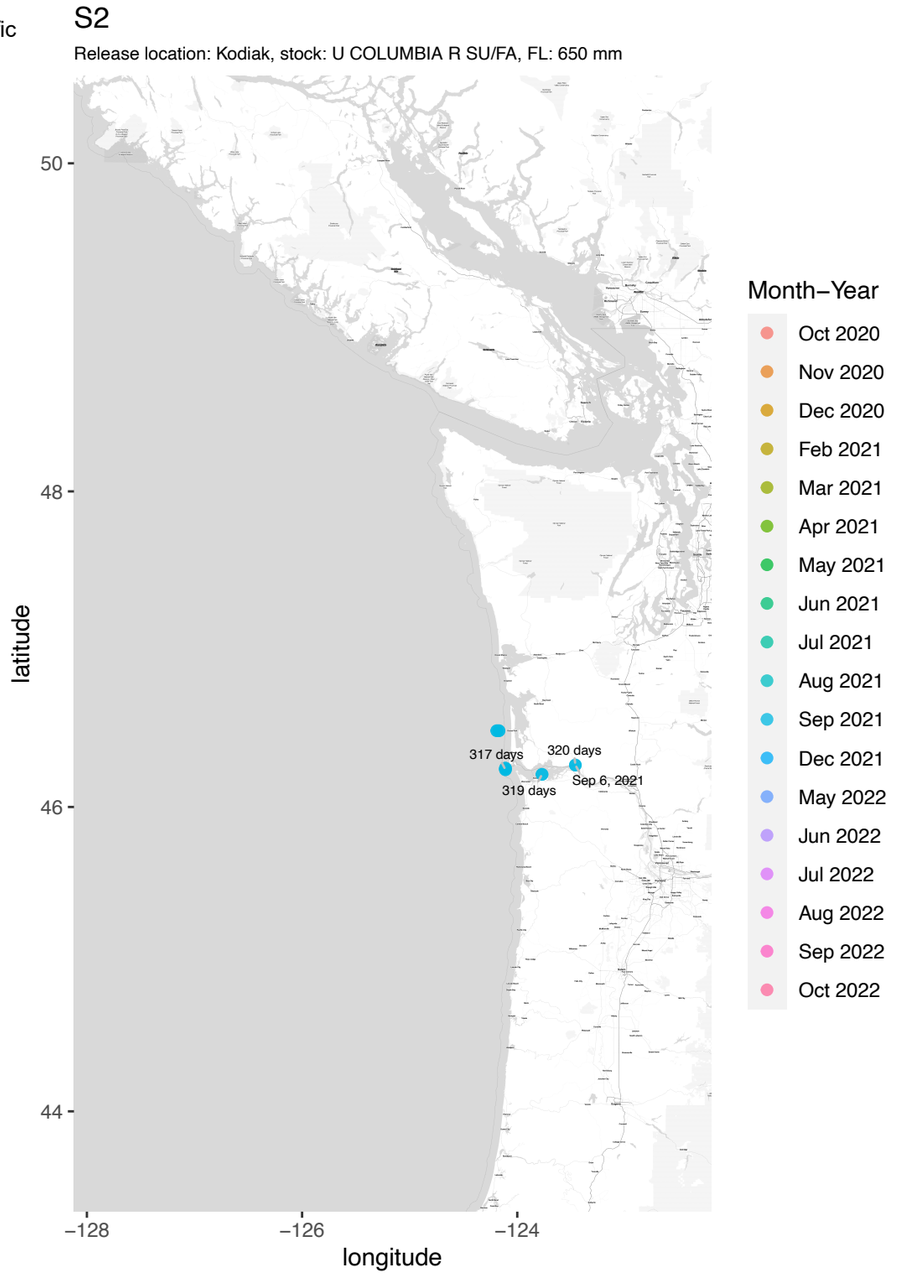



S1
Release location: Kodiak, stock: W VANCOUVER IS, FL: 690 mm
Nov 4, 2020
17 days
Oct 18, 2020
0 days
60
59
58
57
56
55
latitude
−155
−150
−145
−140
−135
longitude
Month−Year
Oct 2020
Nov 2020
Dec 2020
Feb 2021
Mar 2021
Apr 2021
May 2021
Jun 2021
Jul 2021
Aug 2021
Sep 2021
Dec 2021
May 2022
Jun 2022
Jul 2022
Aug 2022
Sep 2022
Oct 2022

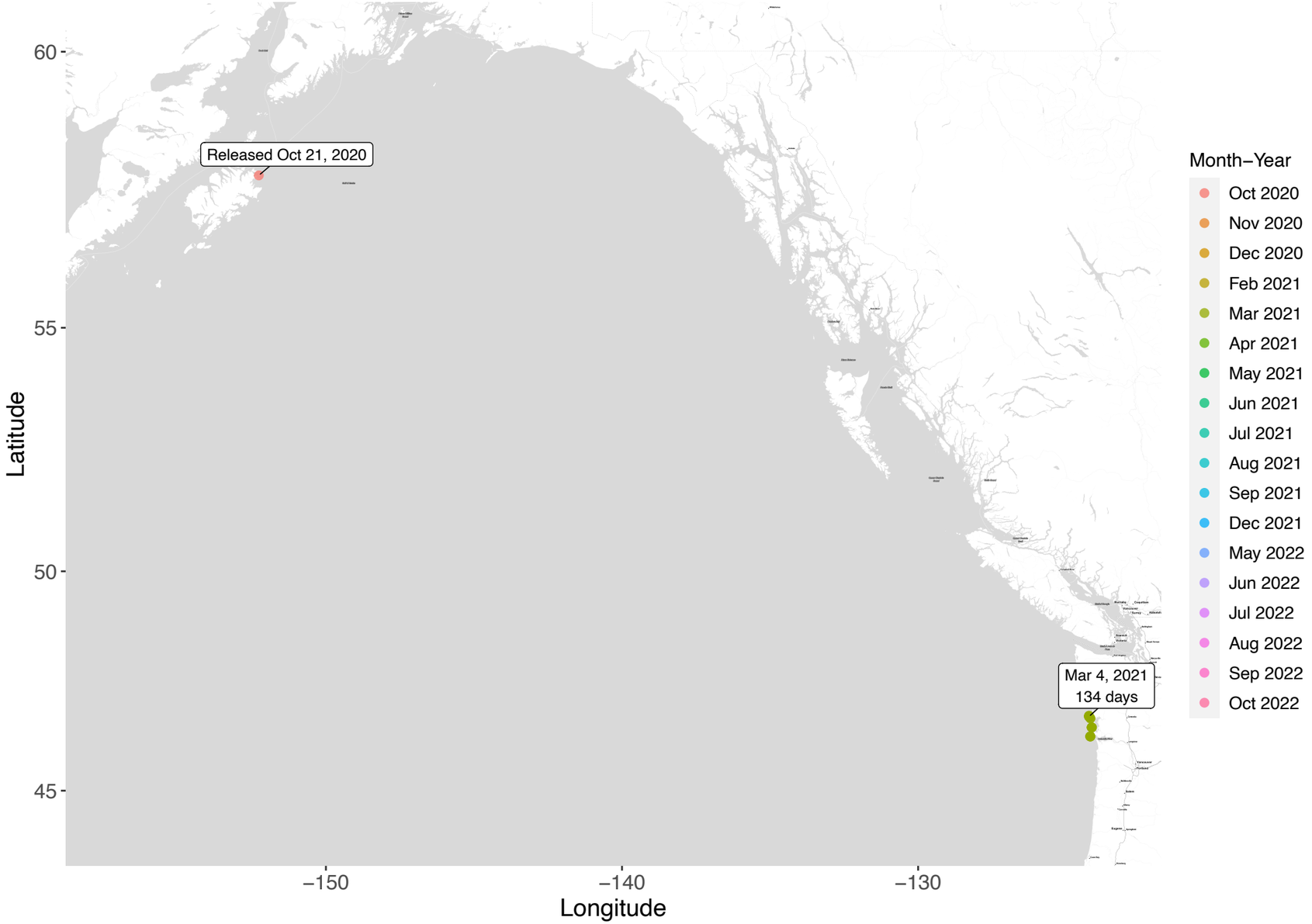
Release location: Kodiak, stock: U COLUMBIA R SU/FA, FL: 650 mm

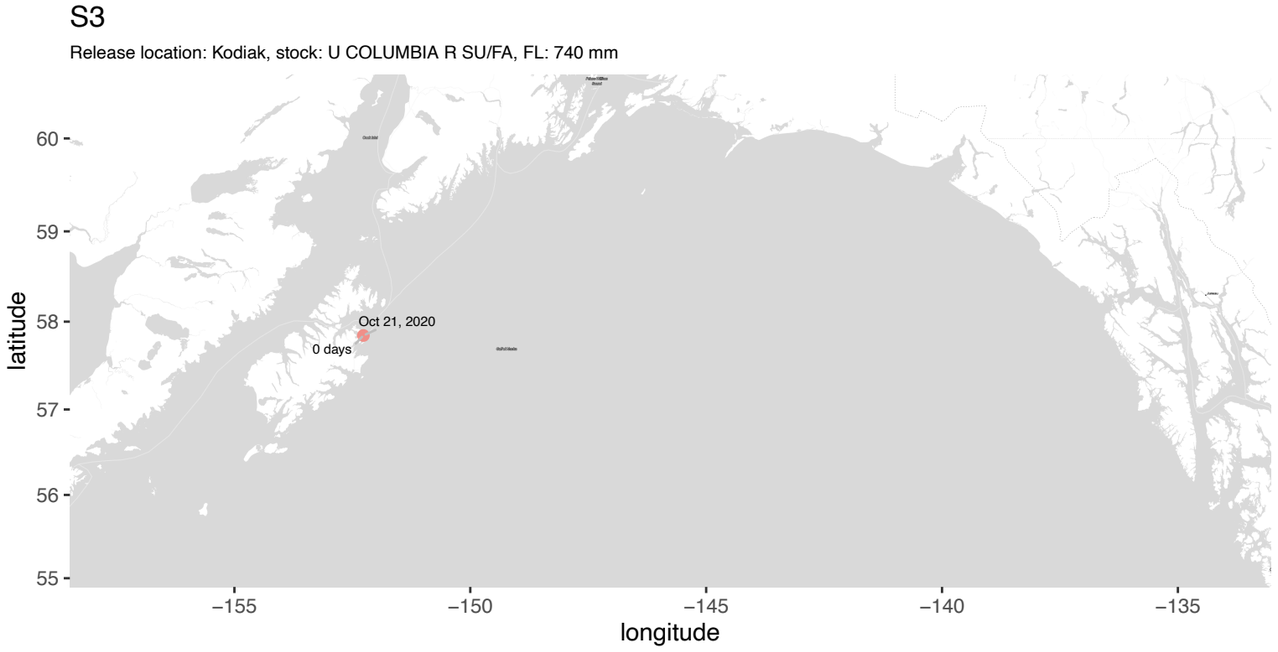


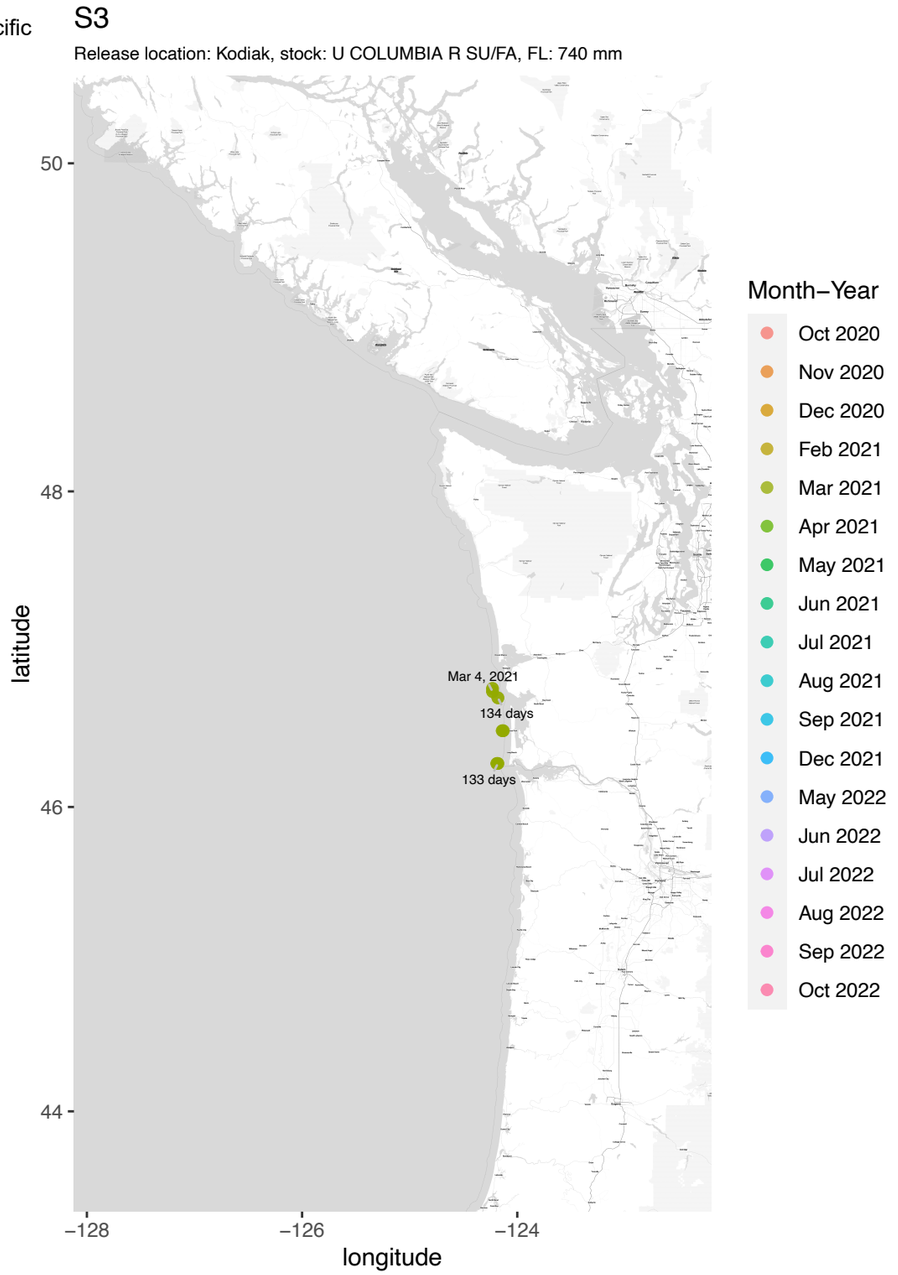

S2
Release location: Kodiak, stock: U COLUMBIA R SU/FA, FL: 650 mm
60
59
58
57
56
55
latitude
0 days
Oct 21, 2020
−155
−150
−145
−140
−135
longitude


S2
Release location: Kodiak, stock: U COLUMBIA R SU/FA, FL: 650 mm
50
48
46
44
latitude
317 days
320 days
Sep 6, 2021
319 days
−128
−126
−124
longitude
Month−Year
Oct 2020
Nov 2020
Dec 2020
Feb 2021
Mar 2021
Apr 2021
May 2021
Jun 2021
Jul 2021
Aug 2021
Sep 2021
Dec 2021
May 2022
Jun 2022
Jul 2022
Aug 2022
Sep 2022
Oct 2022

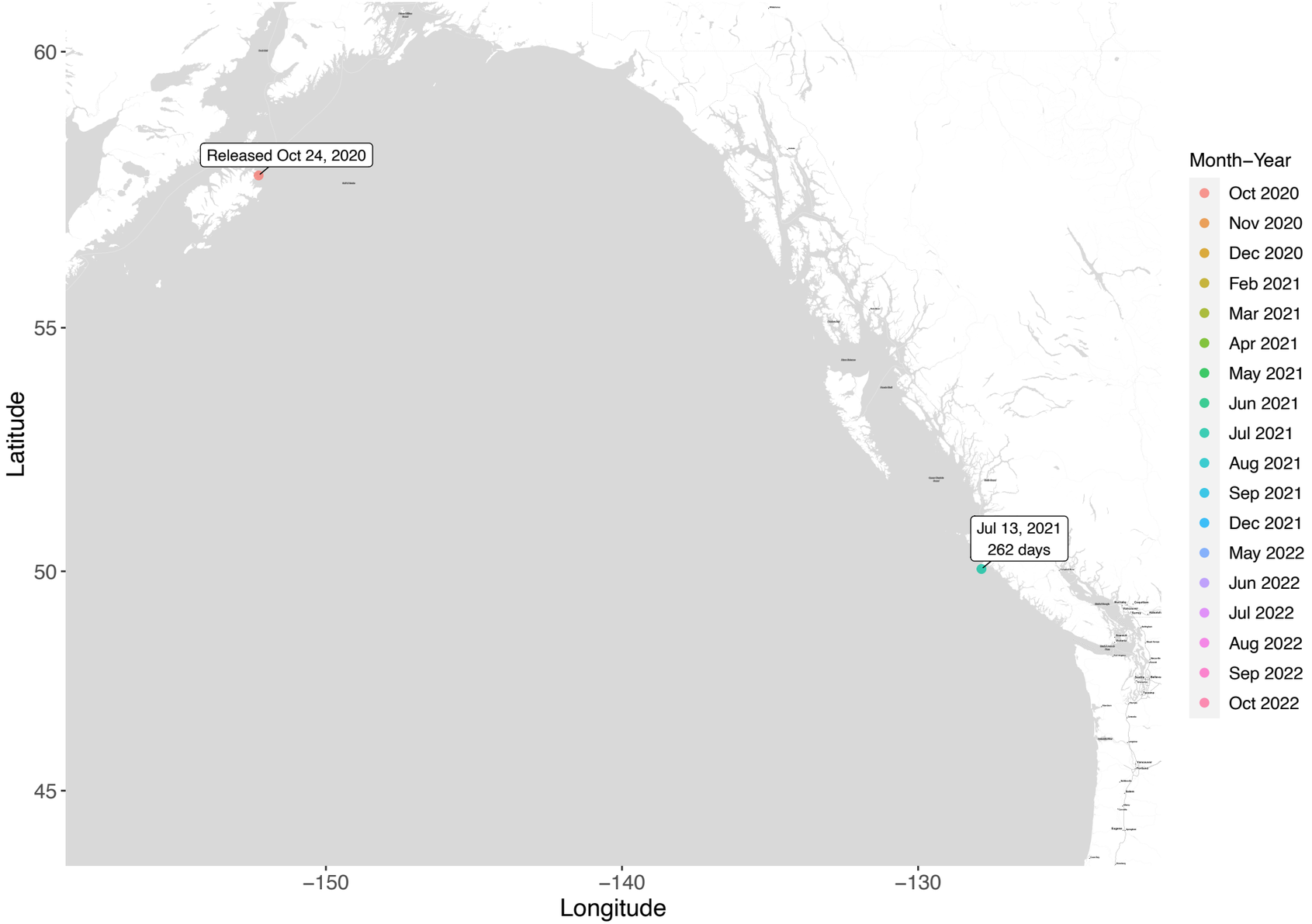
Release location: Kodiak, stock: U COLUMBIA R SU/FA, FL: 740 mm




S3
Release location: Kodiak, stock: U COLUMBIA R SU/FA, FL: 740 mm
60
59
58
57
56
55
latitude
Oct 21, 2020
0 days
−155
−150
−145
−140
−135
longitude


S3
Release location: Kodiak, stock: U COLUMBIA R SU/FA, FL: 740 mm
50
48
46
44
latitude
Mar 4, 2021
134 days
133 days
−128
−126
−124
longitude
Month−Year
Oct 2020
Nov 2020
Dec 2020
Feb 2021
Mar 2021
Apr 2021
May 2021
Jun 2021
Jul 2021
Aug 2021
Sep 2021
Dec 2021
May 2022
Jun 2022
Jul 2022
Aug 2022
Sep 2022
Oct 2022

Release location: Kodiak, stock: NA, FL: 650 mm



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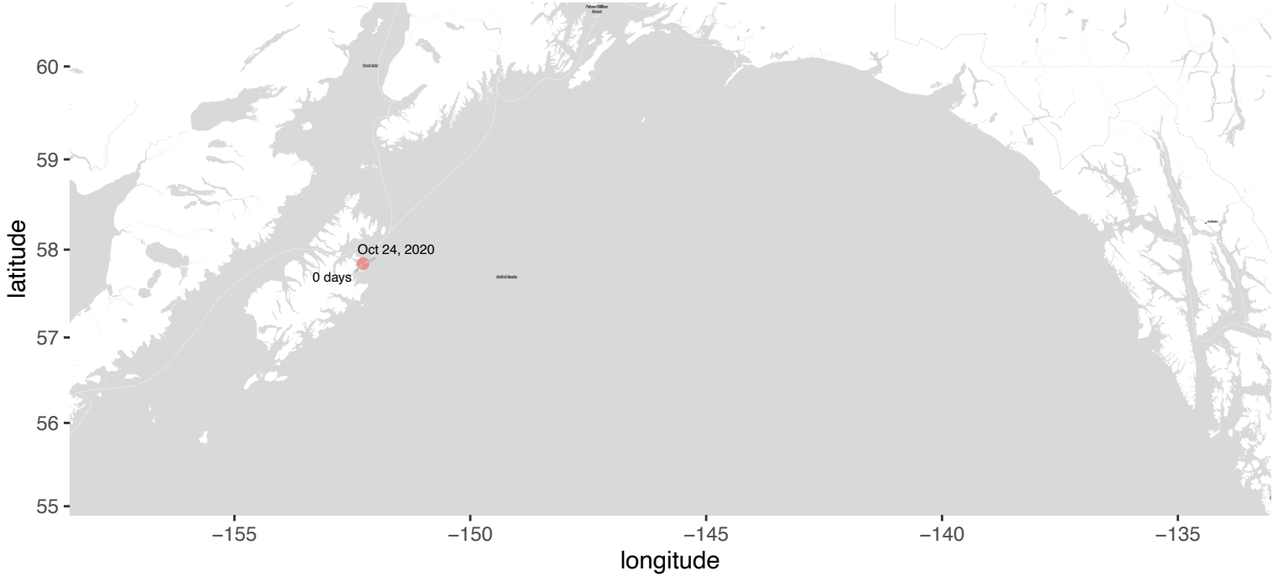

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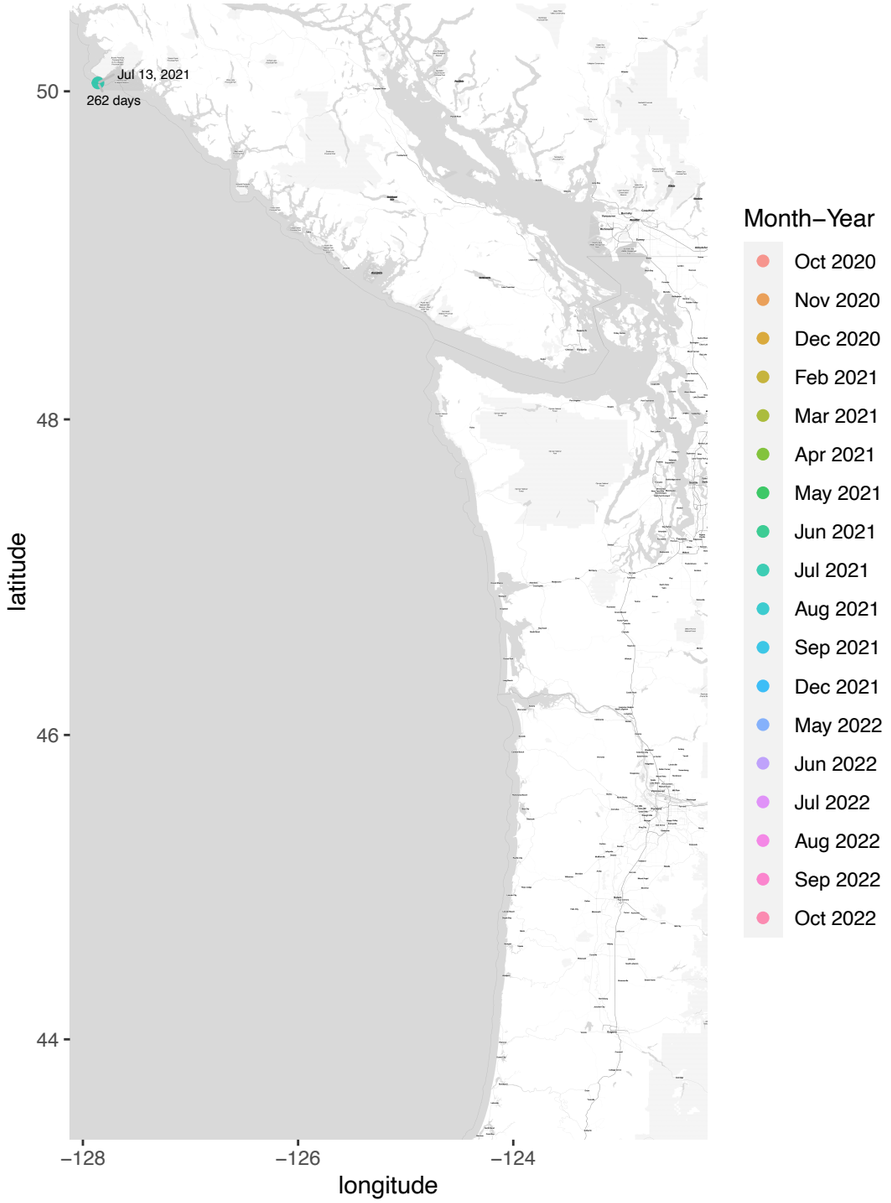
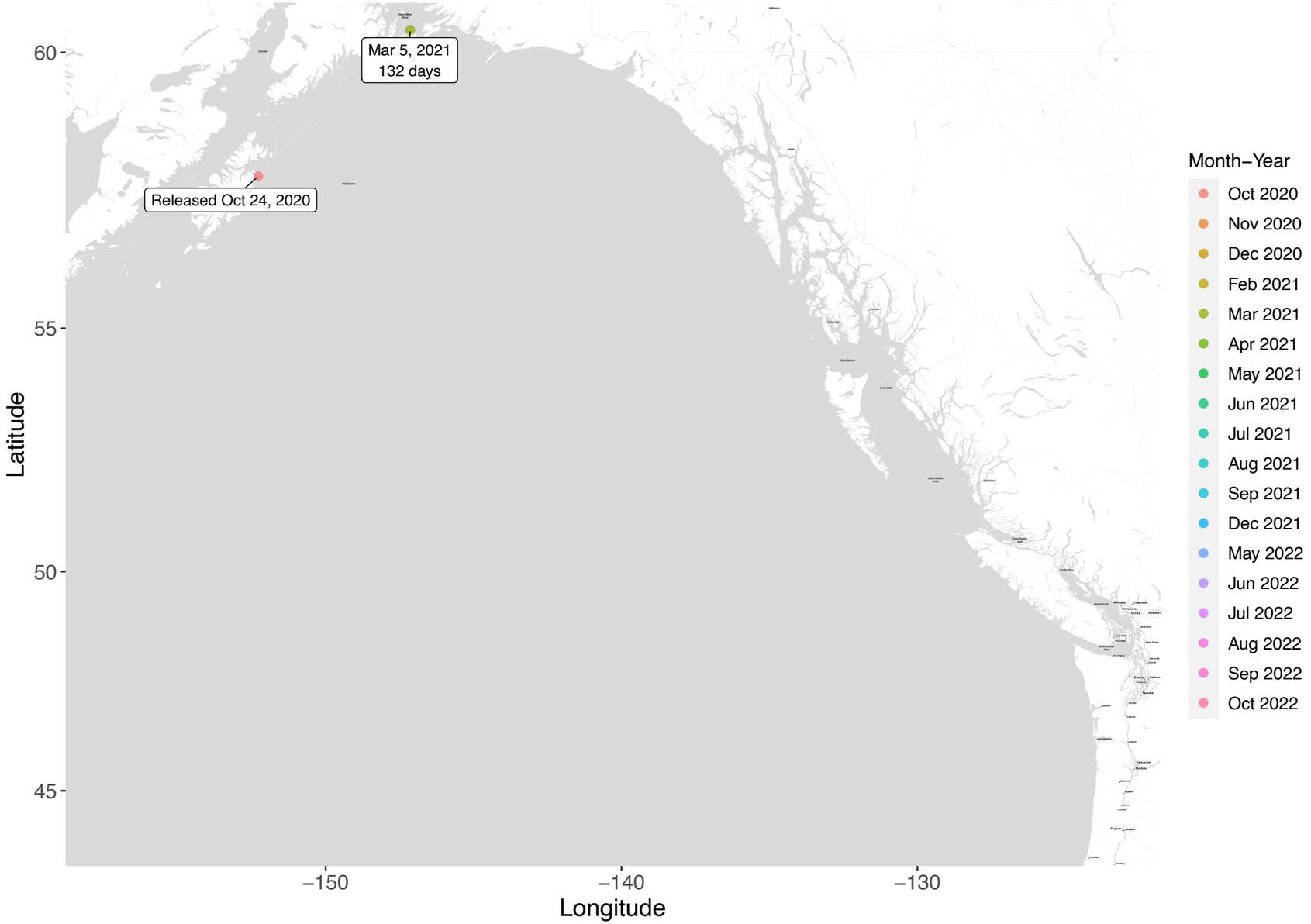
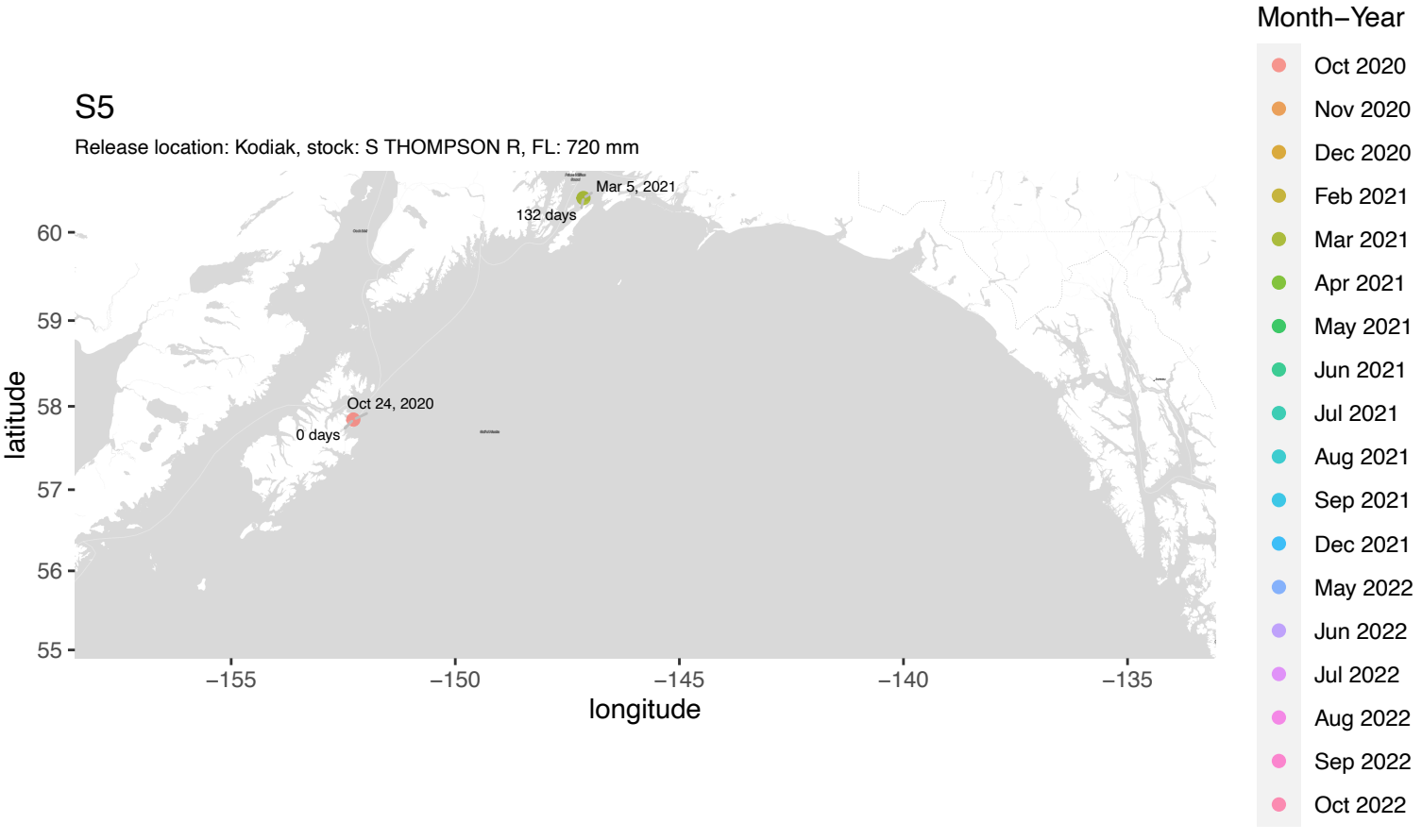


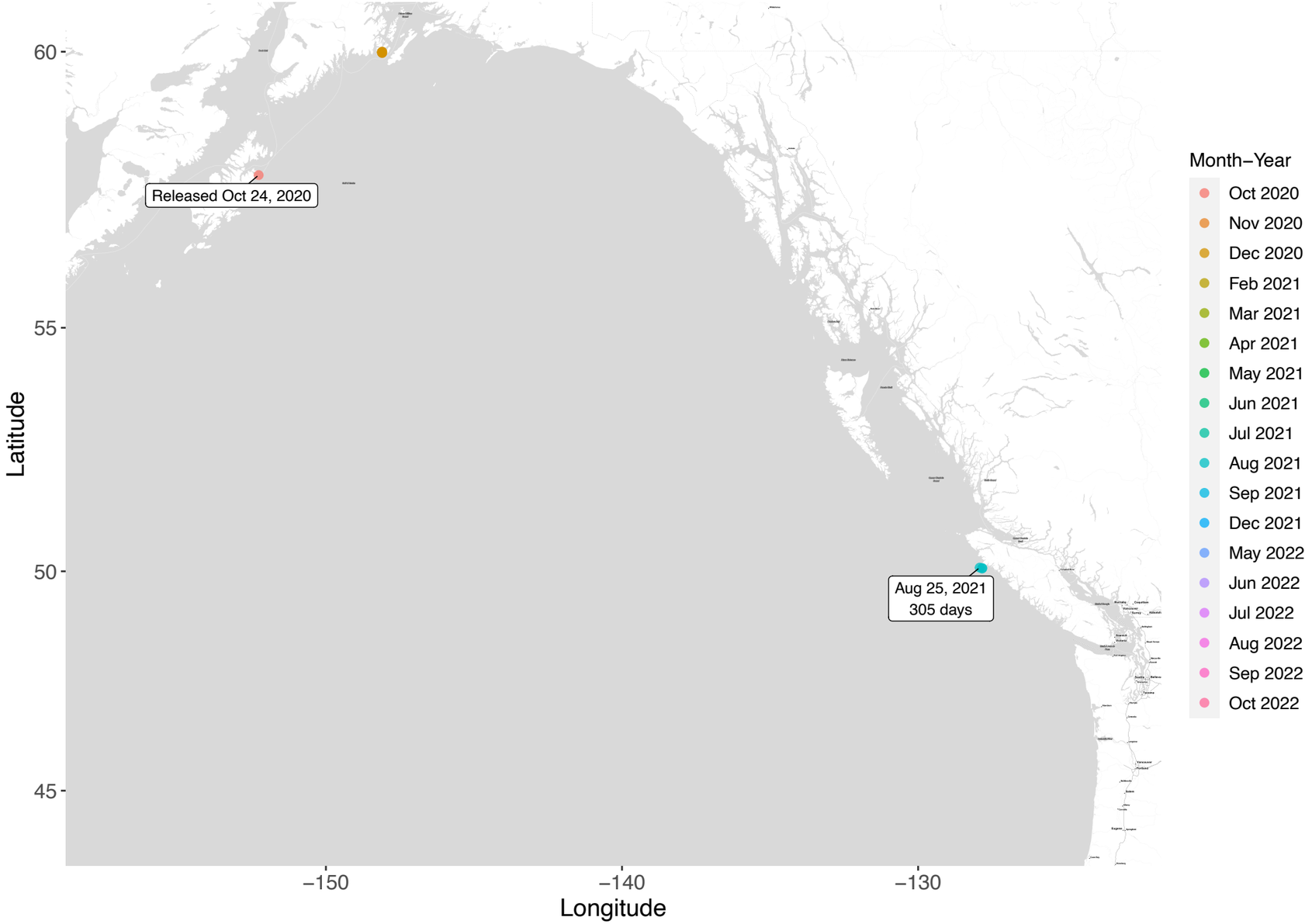
Release location: Kodiak, stock: S THOMPSON R, FL: 720 mm

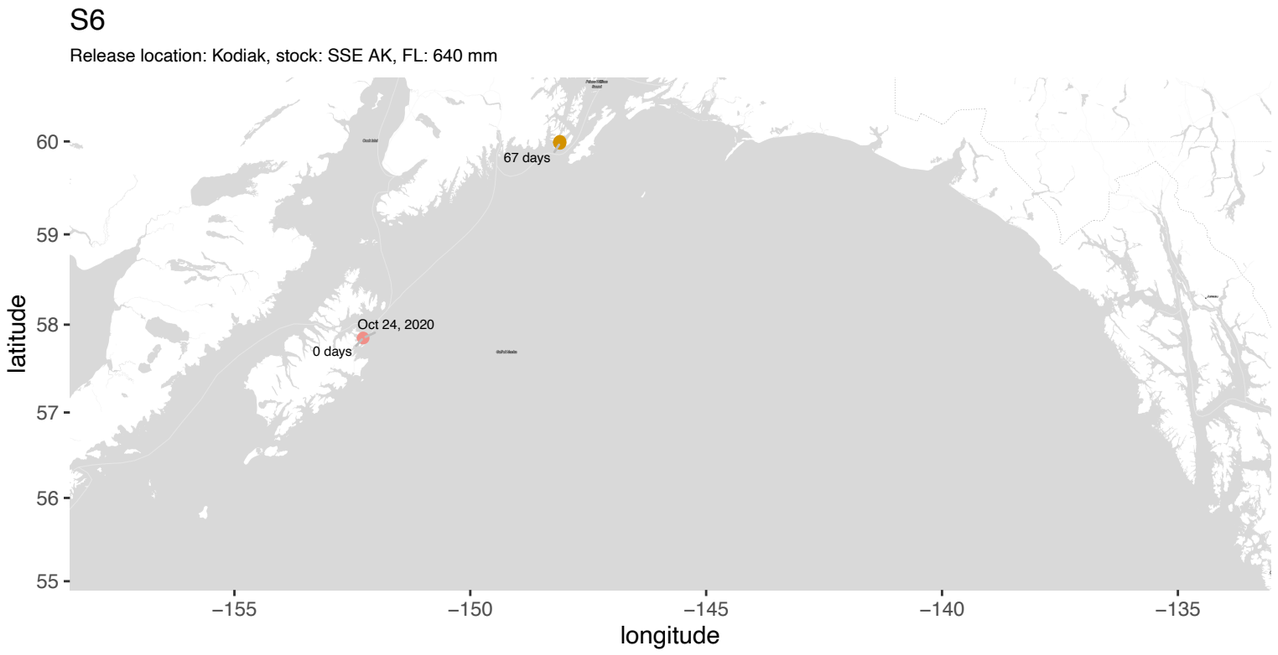



S5
Release location: Kodiak, stock: S THOMPSON R, FL: 720 mm
Mar 5, 2021
132 days
Oct 24, 2020
0 days
60
59
58
57
56
55
latitude
−155
−150
−145
−140
−135
longitude
Month−Year
Oct 2020
Nov 2020
Dec 2020
Feb 2021
Mar 2021
Apr 2021
May 2021
Jun 2021
Jul 2021
Aug 2021
Sep 2021
Dec 2021
May 2022
Jun 2022
Jul 2022
Aug 2022
Sep 2022
Oct 2022

S6

Release location: Kodiak, stock: SSE AK, FL: 640 mm

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Release location: Kodiak, stock: SSE AK, FL: 640 mm
67 days
Oct 24, 2020
0 days
60
59
58
57
56
55
latitude
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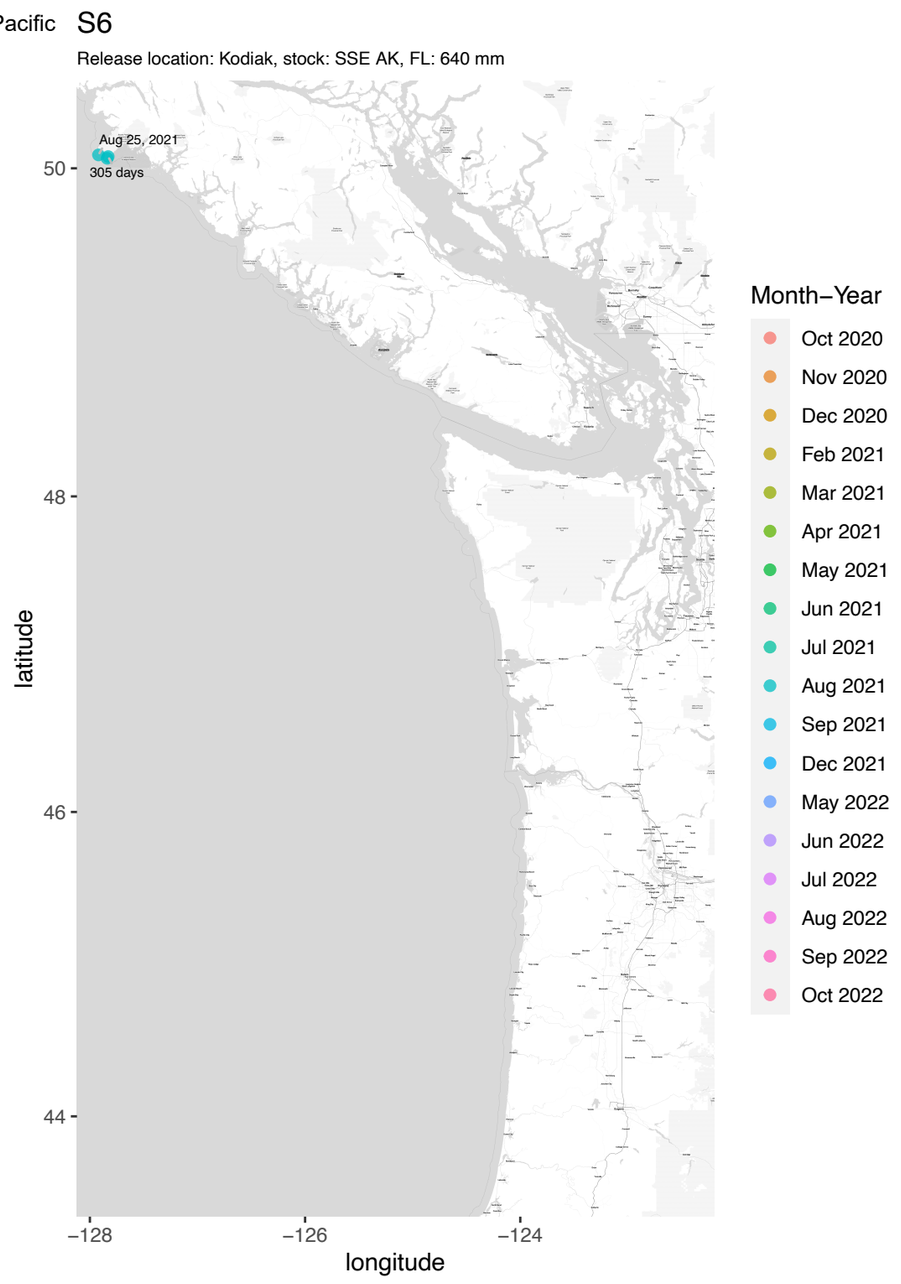
−145
−140
−135
longitude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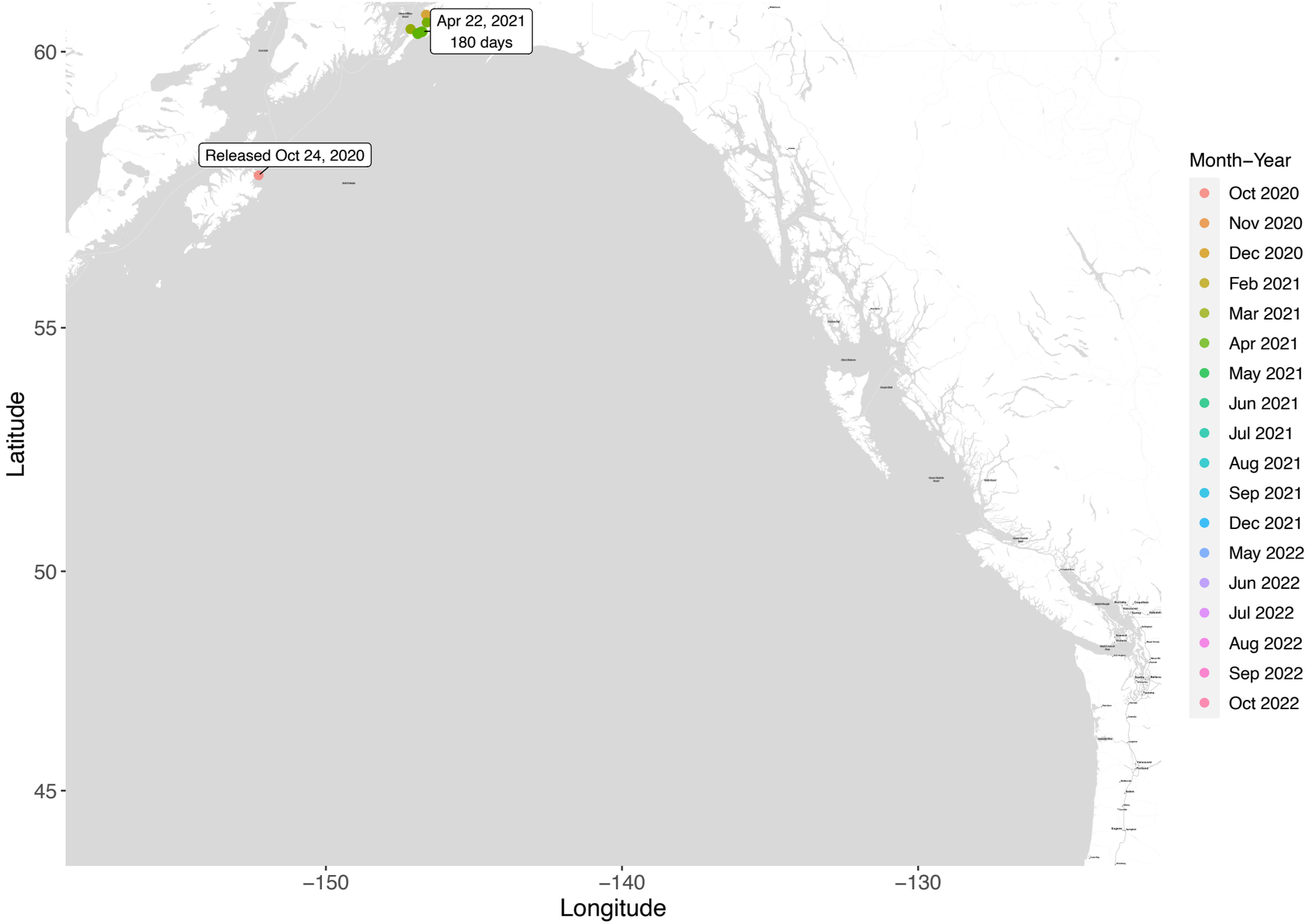
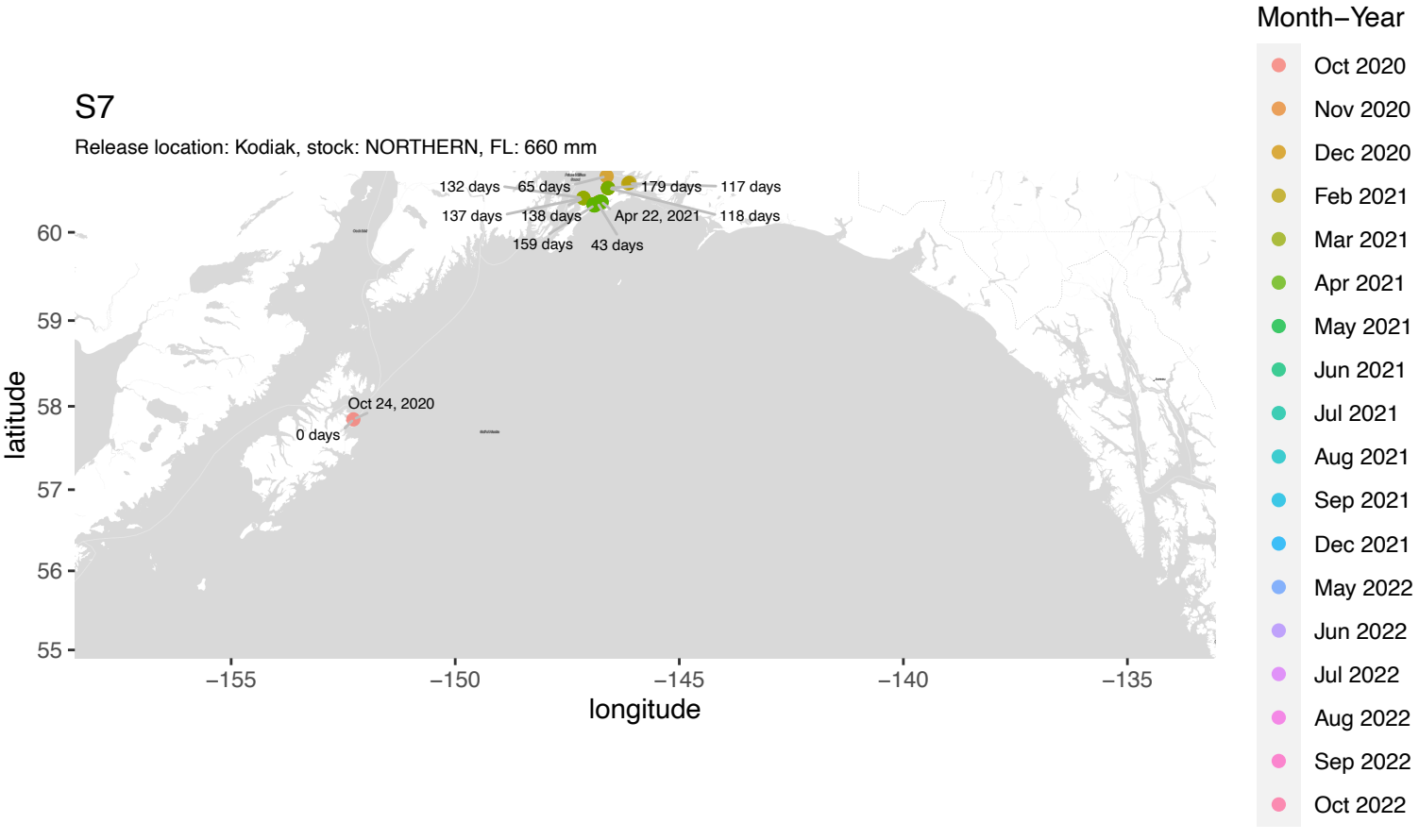
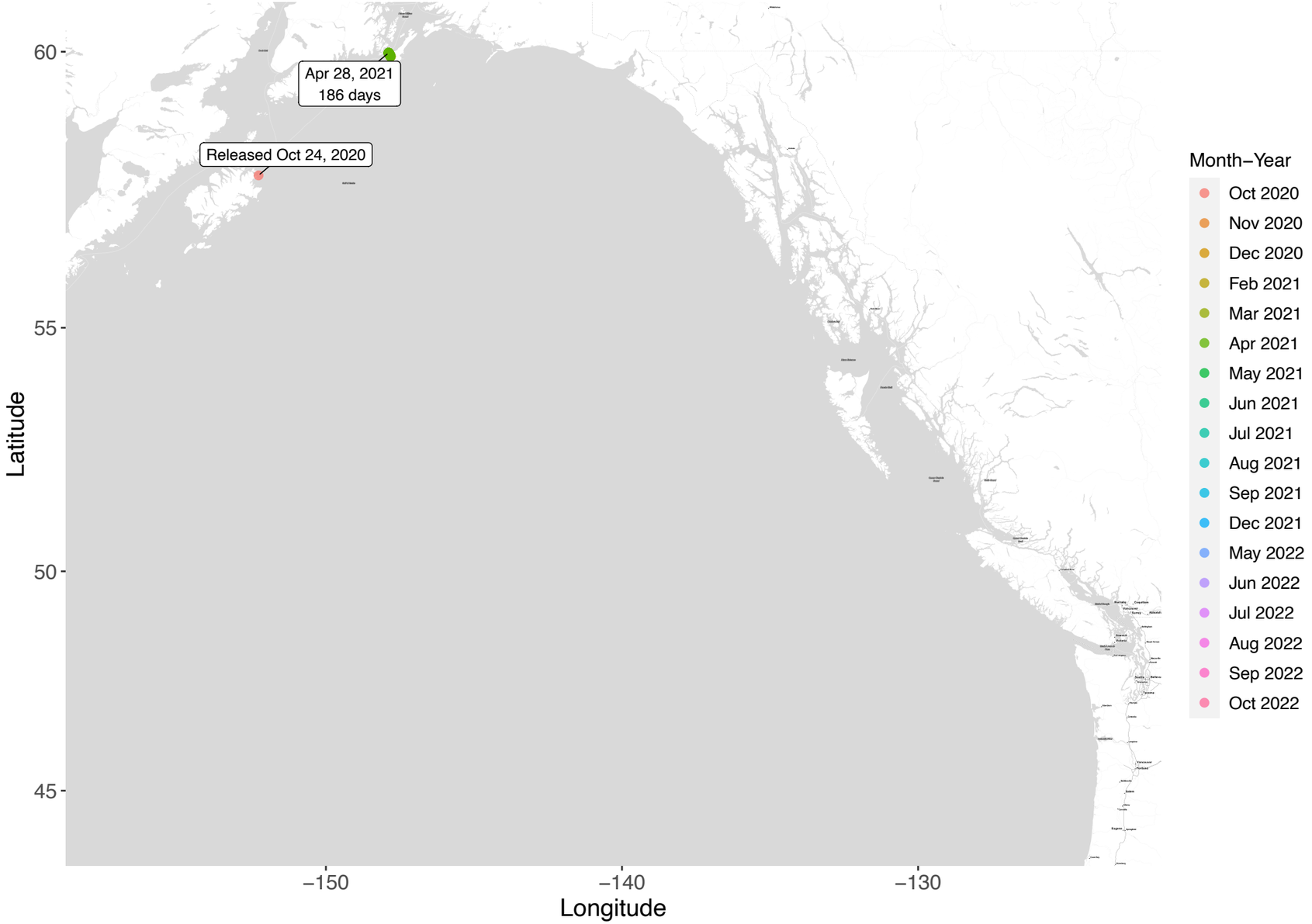
Release location: Kodiak, stock: SSE AK, FL: 640 mm
Aug 25, 2021
305 days
50
48
46
44
latitude
−128
−126
−124
longitude
Month−Year
Oct 2020
Nov 2020
Dec 2020
Feb 2021
Mar 2021
Apr 2021
May 2021
Jun 2021
Jul 2021
Aug 2021
Sep 2021
Dec 2021
May 2022
Jun 2022
Jul 2022
Aug 2022
Sep 2022
Oct 2022

Release location: Kodiak, stock: NORTHERN, FL: 660 mm



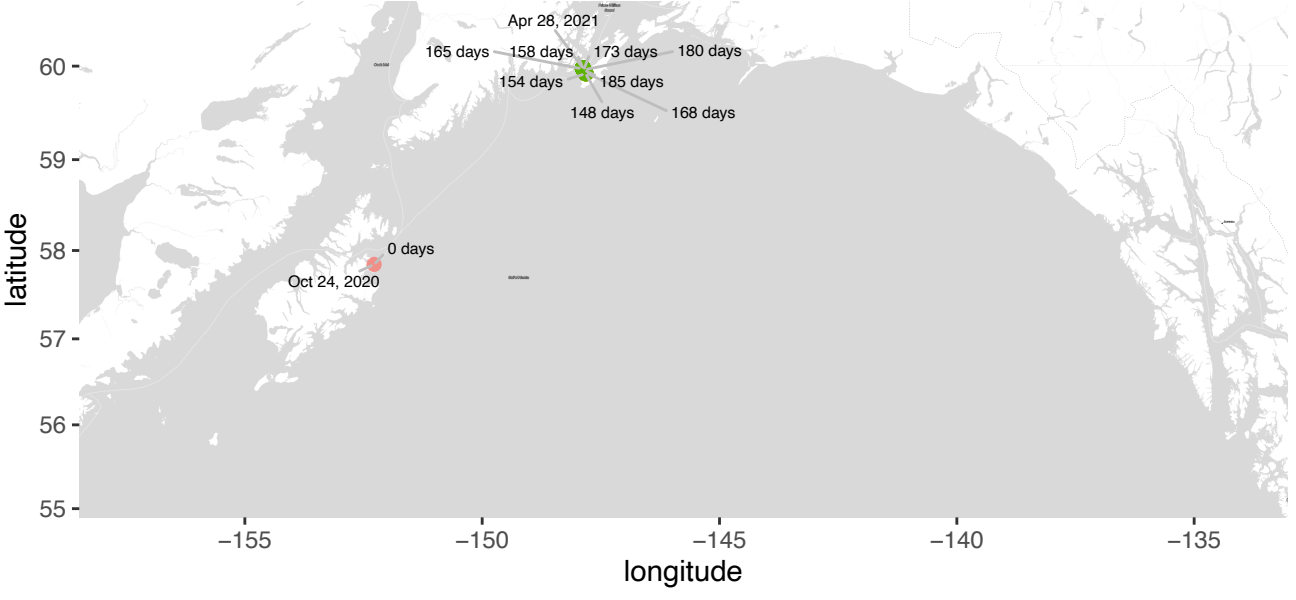

S7
Release location: Kodiak, stock: NORTHERN, FL: 660 mm
132 days
65 days
179 days
117 days
137 days
138 days
Apr 22, 2021
118 days
159 days
43 days
Oct 24, 2020
0 days
60
59
58
57
56
55
latitude
−155
−150
−145
−140
−135
longitude
Month−Year
Oct 2020
Nov 2020
Dec 2020
Feb 2021
Mar 2021
Apr 2021
May 2021
Jun 2021
Jul 2021
Aug 2021
Sep 2021
Dec 2021
May 2022
Jun 2022
Jul 2022
Aug 2022
Sep 2022
Oct 2022

Release location: Kodiak, stock: SSE AK, FL: 630 mm



S8

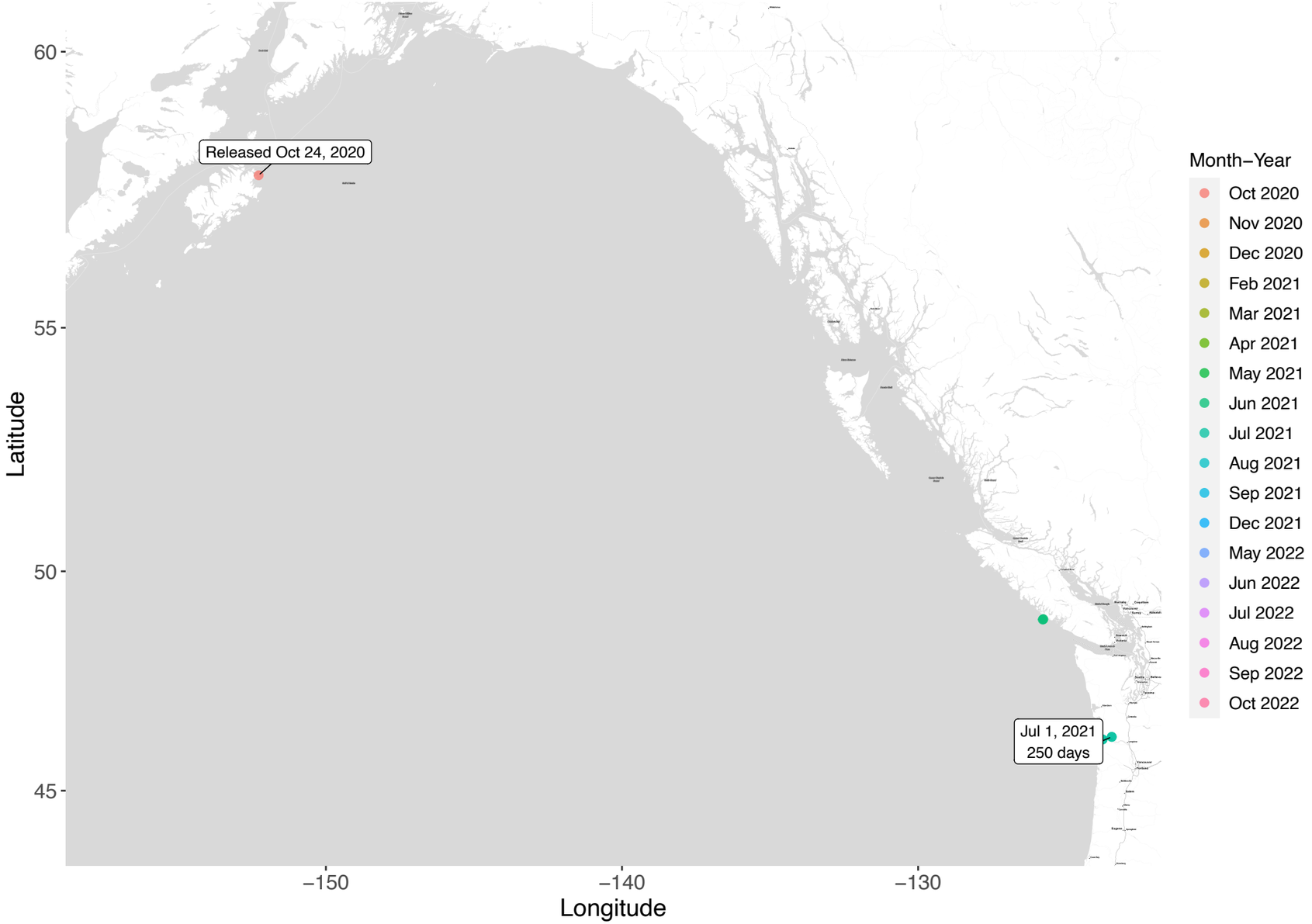
Release location: Kodiak, stock: SSE AK, FL: 630 mm

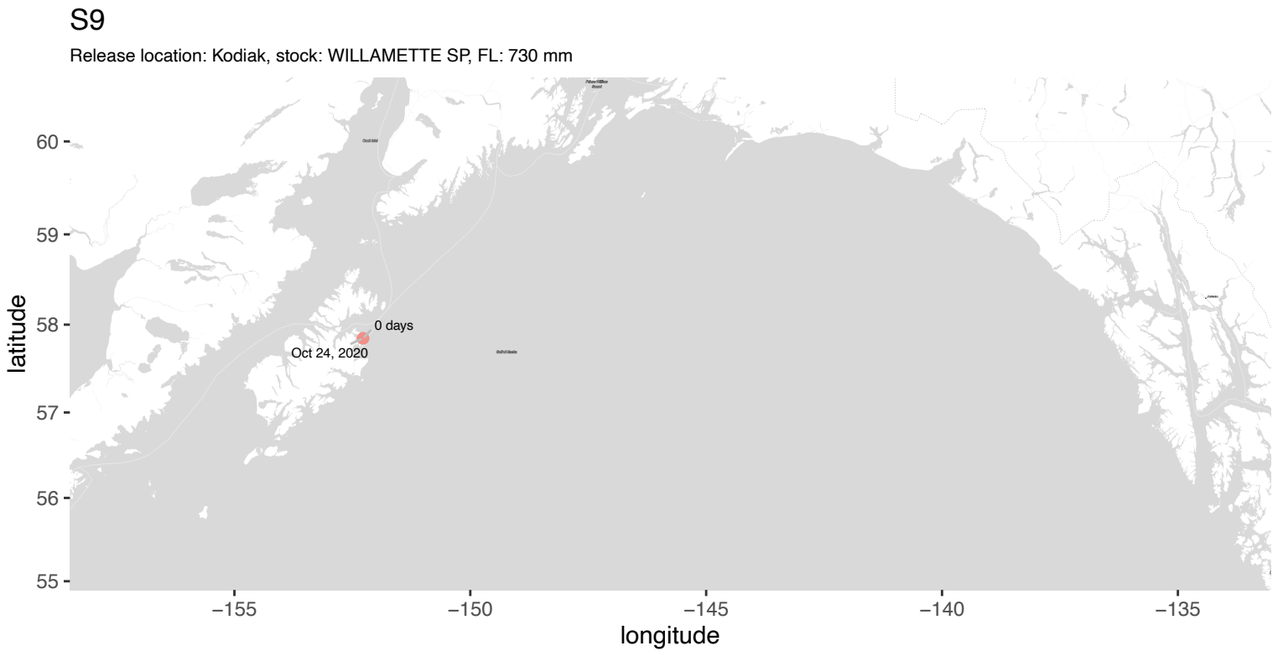


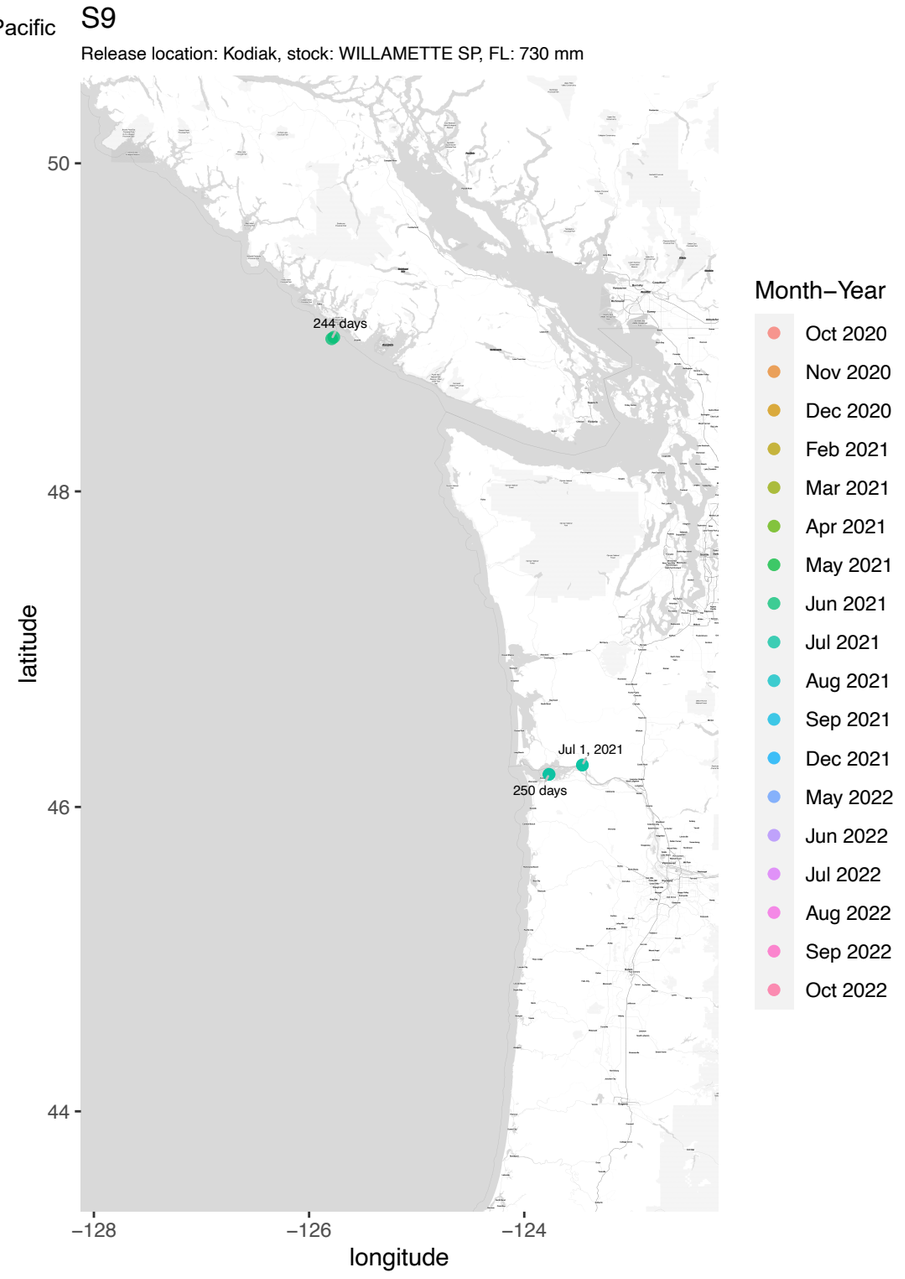
Month−Year

- Oct 2020
- Nov 2020
- Dec 2020
- Feb 2021
- Mar 2021
- Apr 2021
- May 2021
- Jun 2021
- Jul 2021
- Aug 2021
- Sep 2021
- Dec 2021
- May 2022
- Jun 2022
- Jul 2022
- Aug 2022
- Sep 2022
- Oct 2022

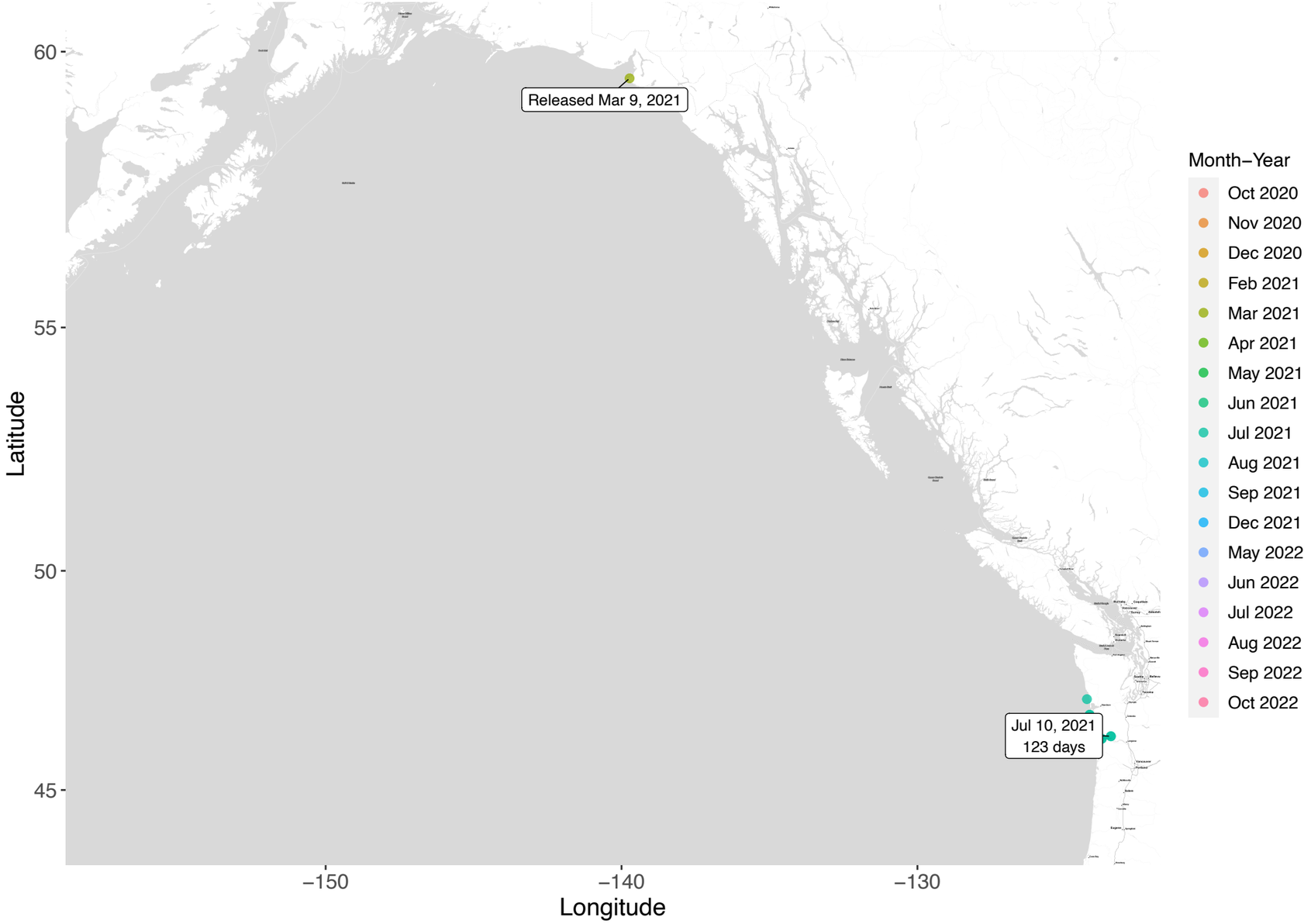
Release location: Kodiak, stock: WILLAMETTE SP, FL: 730 mm




S9
Release location: Kodiak, stock: WILLAMETTE SP, FL: 730 mm
0 days
Oct 24, 2020
latitude
longitude
60
59
58
57
56
55
−155
−150
−145
−140
−135

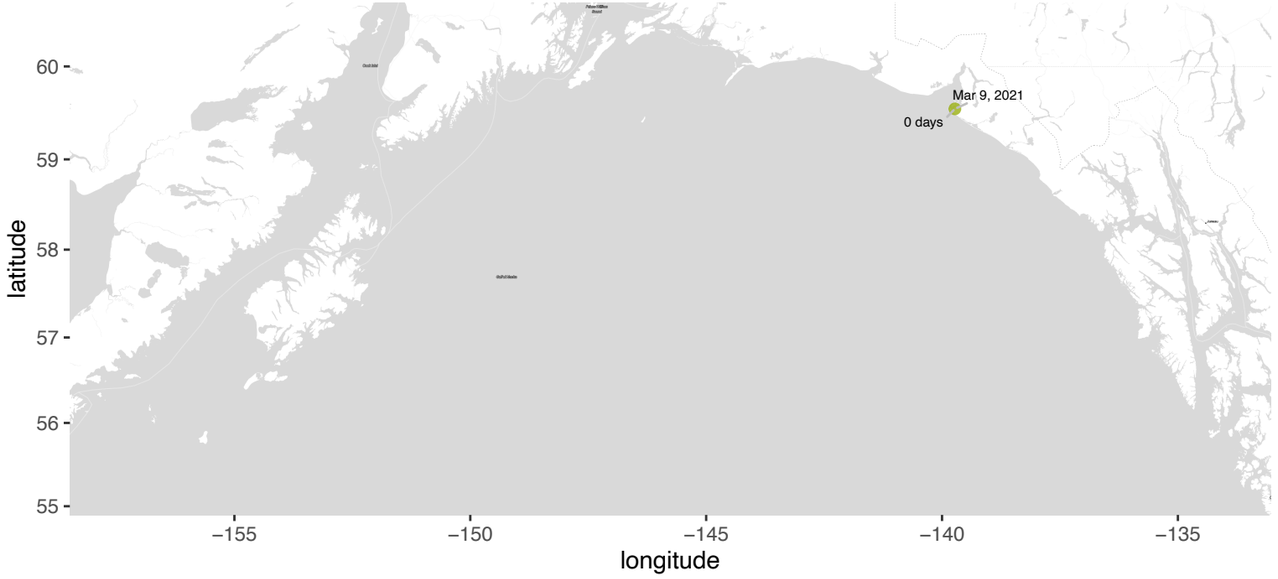

S9
Release location: Kodiak, stock: WILLAMETTE SP, FL: 730 mm
244 days
Jul 1, 2021
250 days
latitude
longitude
50
48
46
44
−128
−126
−124
Month−Year
Oct 2020
Nov 2020
Dec 2020
Feb 2021
Mar 2021
Apr 2021
May 2021
Jun 2021
Jul 2021
Aug 2021
Sep 2021
Dec 2021
May 2022
Jun 2022
Jul 2022
Aug 2022
Sep 2022
Oct 2022

Release location: Yakutat, stock: WILLAMETTE SP, FL: 840 mm



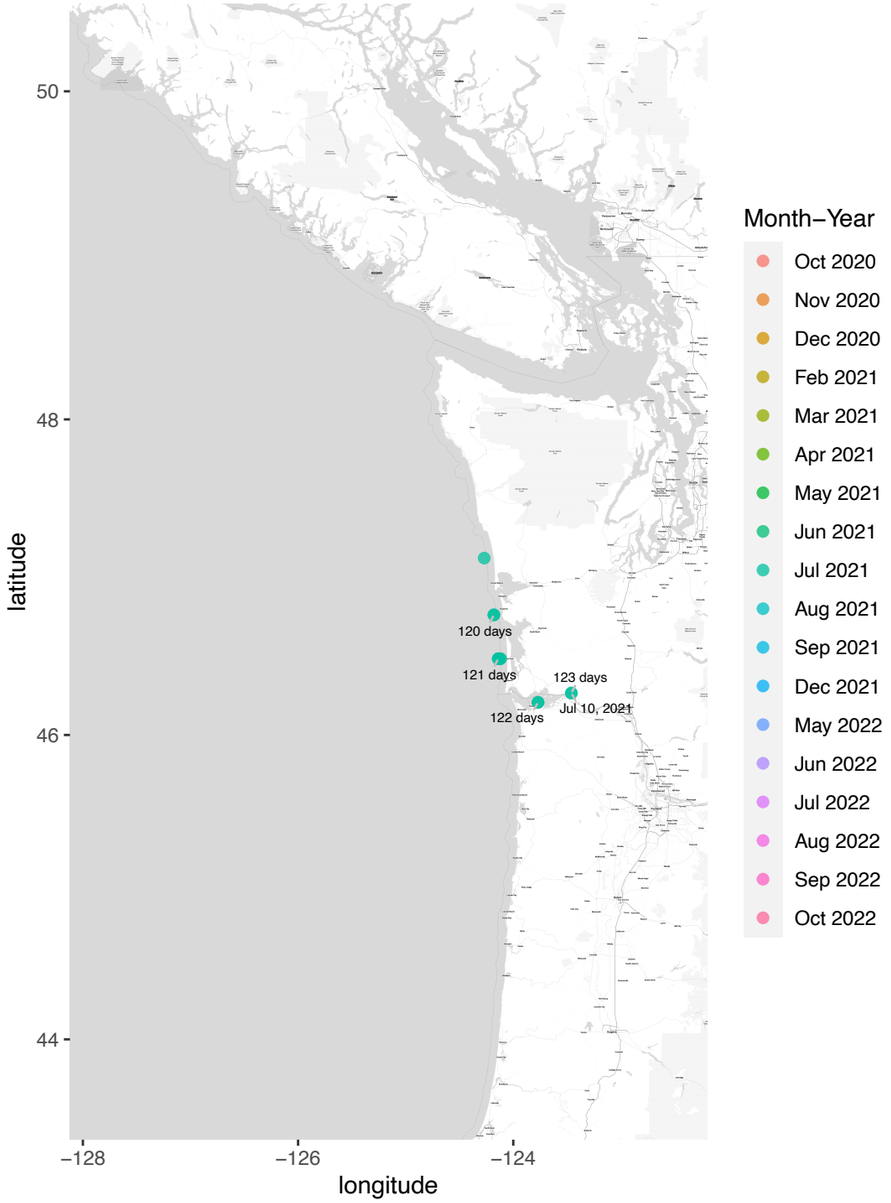
S10

Release location: Yakutat, stock: WILLAMETTE SP, FL: 840 mm

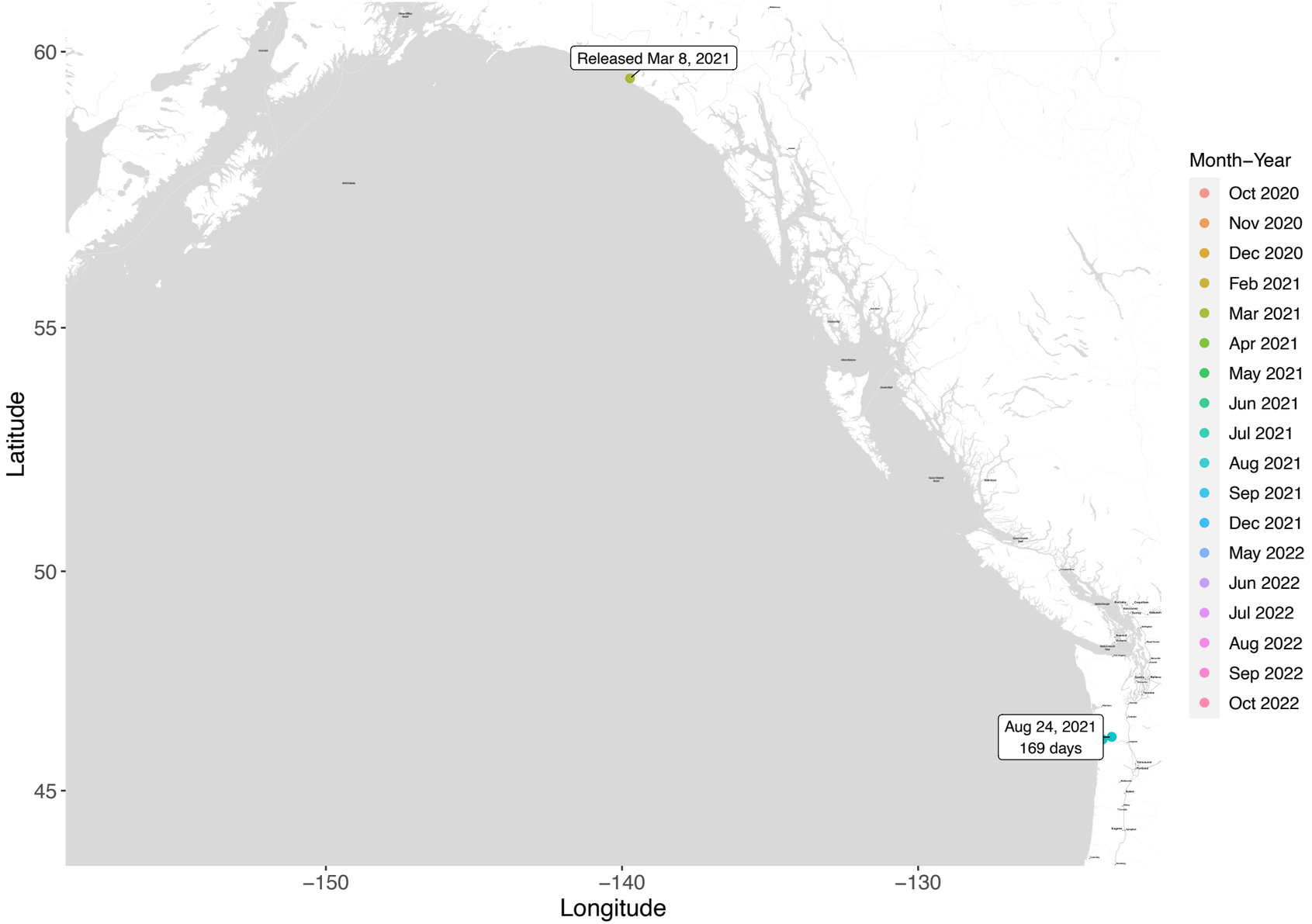


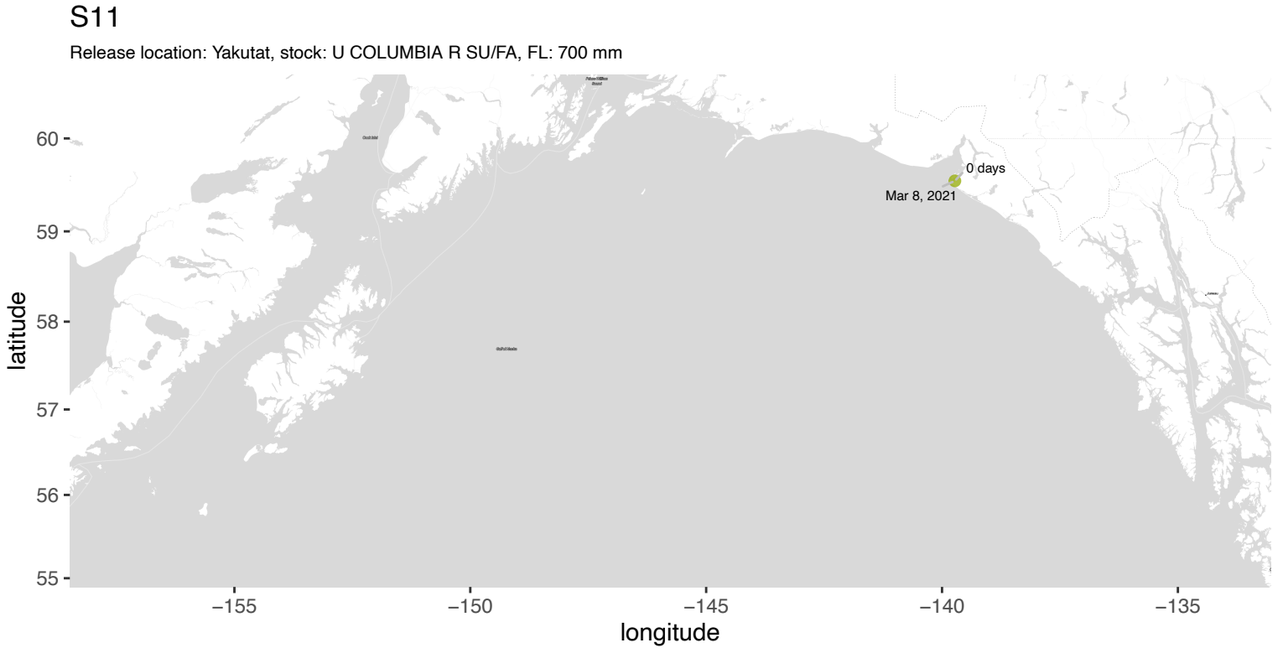
S10

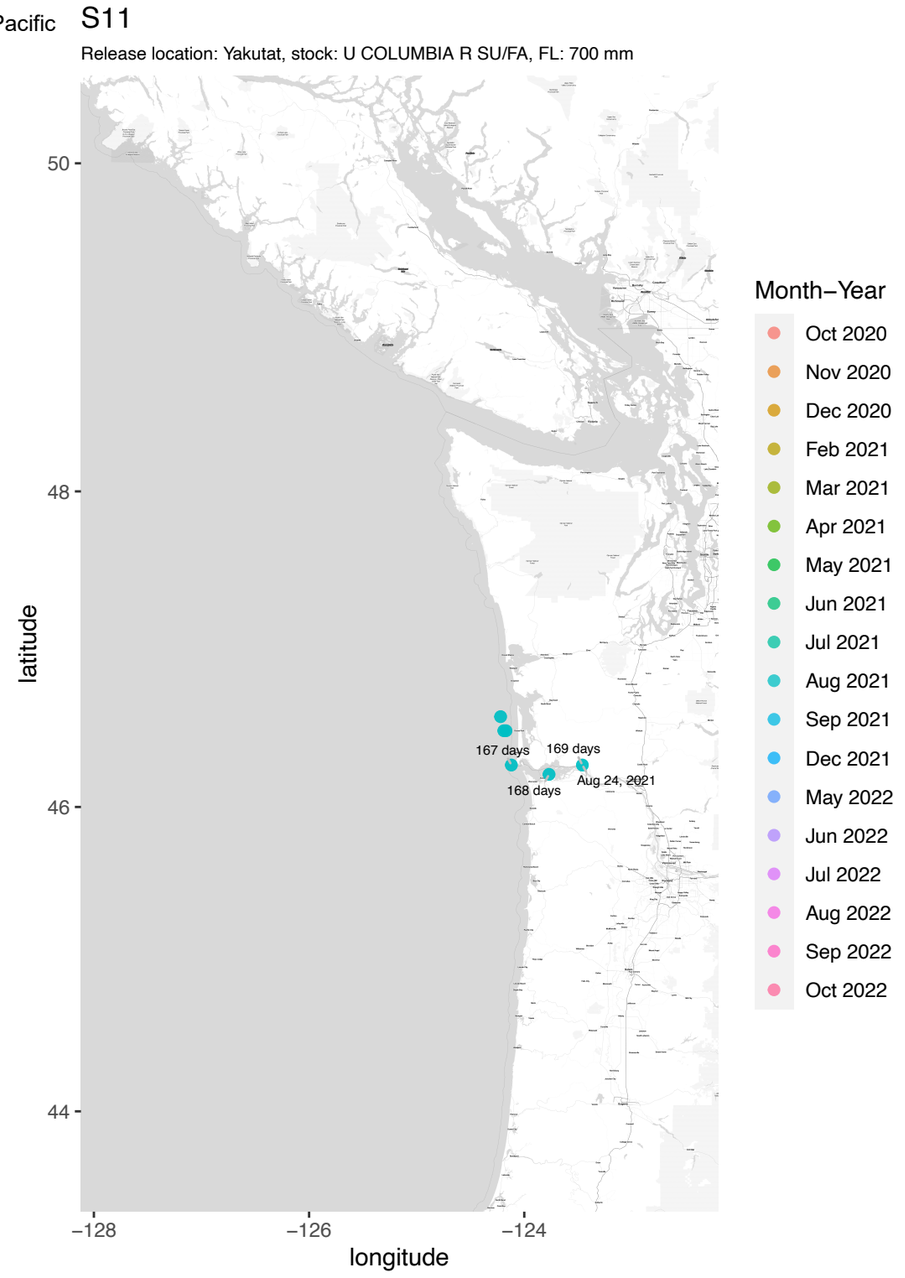
Release location: Yakutat, stock: WILLAMETTE SP, FL: 840 mm



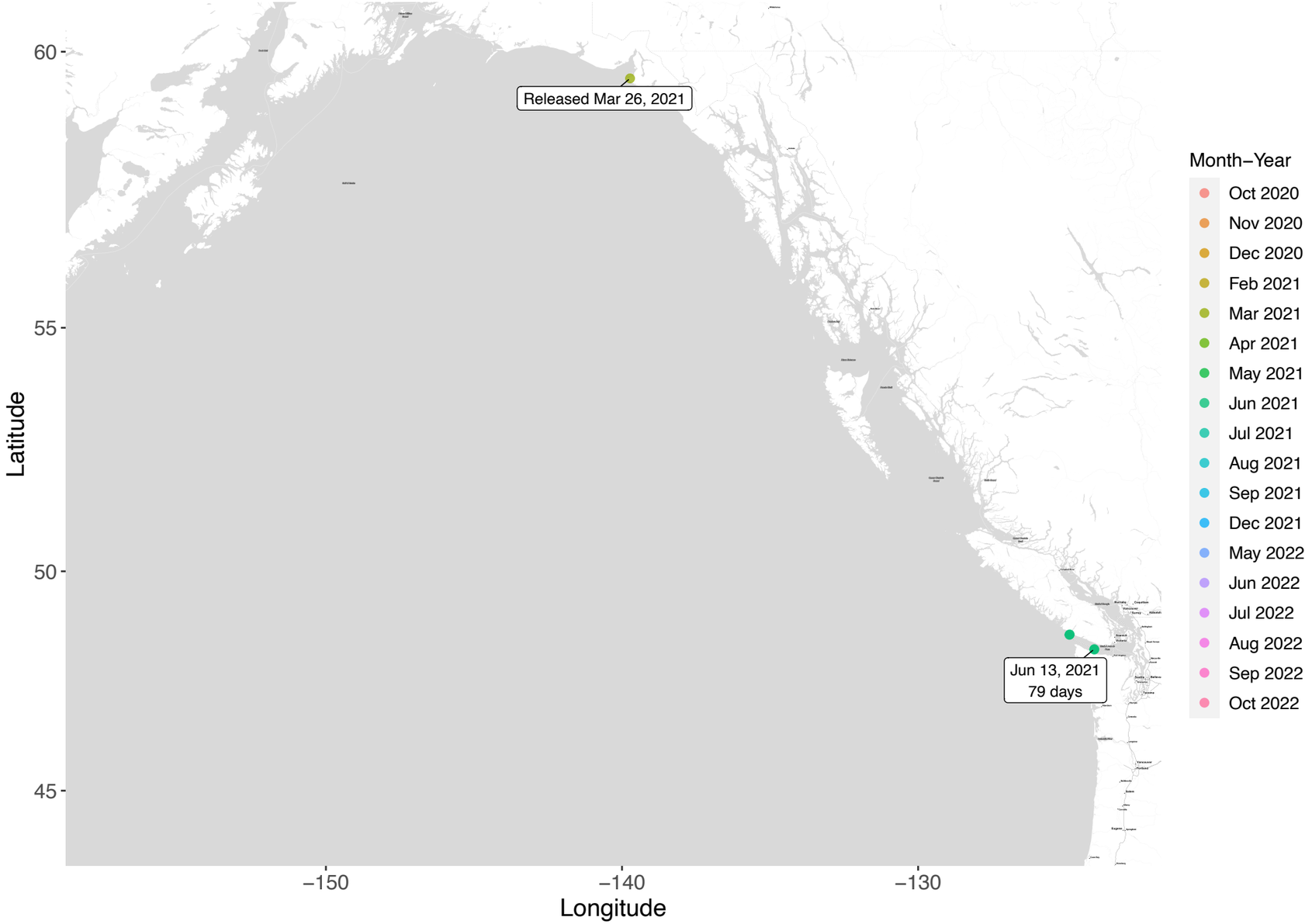
Release location: Yakutat, stock: U COLUMBIA R SU/FA, FL: 700 mm

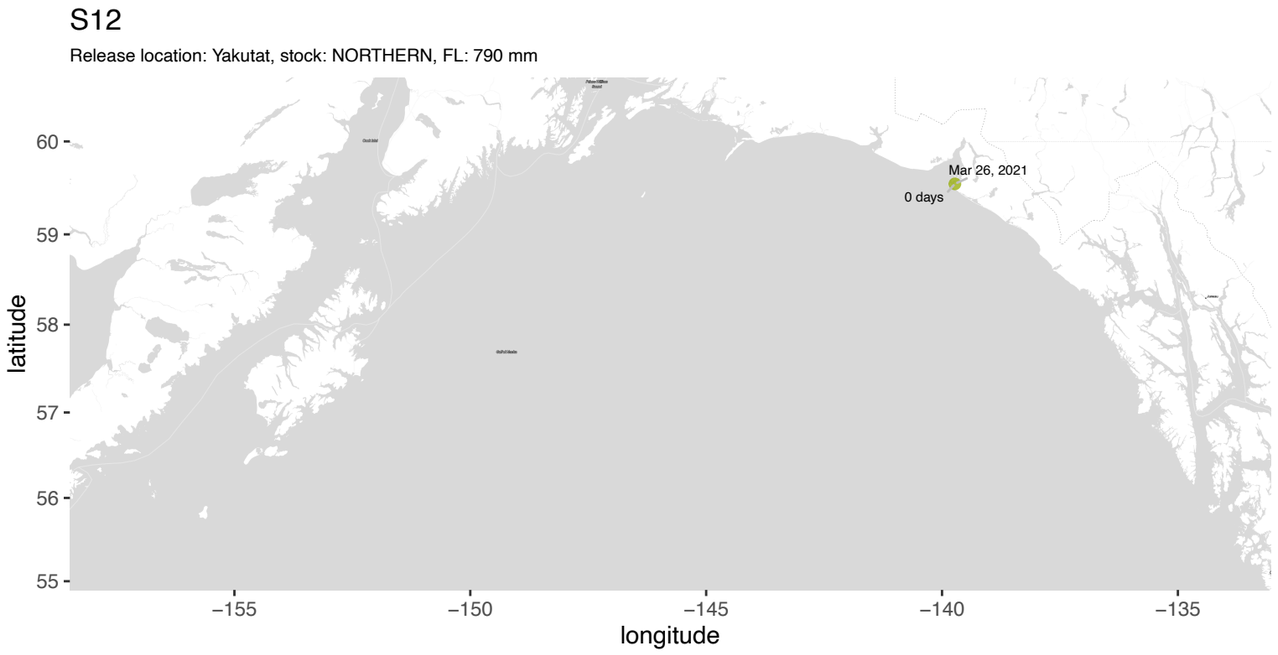


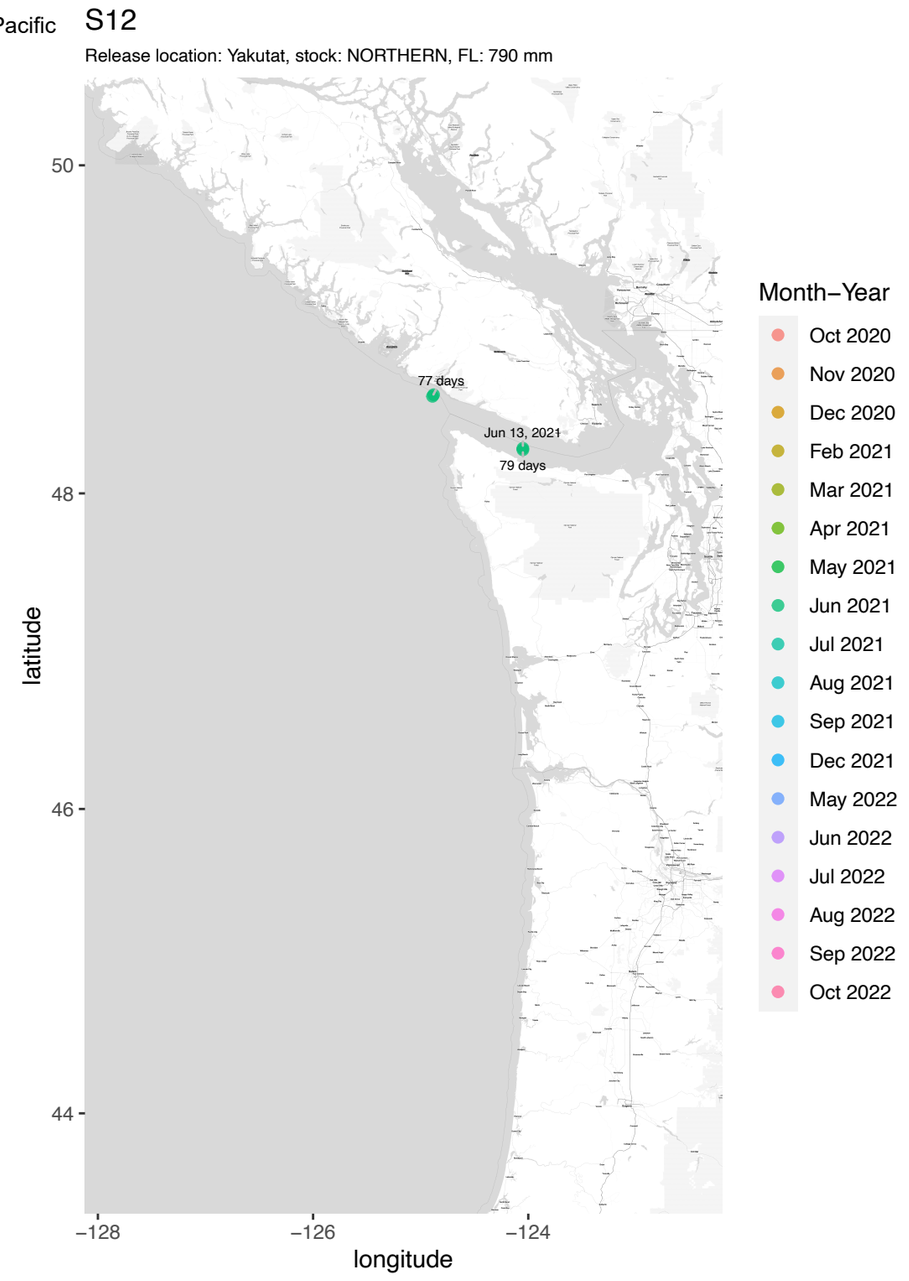

S11
Release location: Yakutat, stock: U COLUMBIA R SU/FA, FL: 700 mm
0 days
Mar 8, 2021
60
59
58
57
56
55
latitude
−155
−150
−145
−140
−135
longitude


S11
Release location: Yakutat, stock: U COLUMBIA R SU/FA, FL: 700 mm
50
48
46
44
latitude
167 days
169 days
168 days
Aug 24, 2021
−128
−126
−124
longitude
Month−Year
Oct 2020
Nov 2020
Dec 2020
Feb 2021
Mar 2021
Apr 2021
May 2021
Jun 2021
Jul 2021
Aug 2021
Sep 2021
Dec 2021
May 2022
Jun 2022
Jul 2022
Aug 2022
Sep 2022
Oct 2022

Release location: Yakutat, stock: NORTHERN, FL: 790 mm

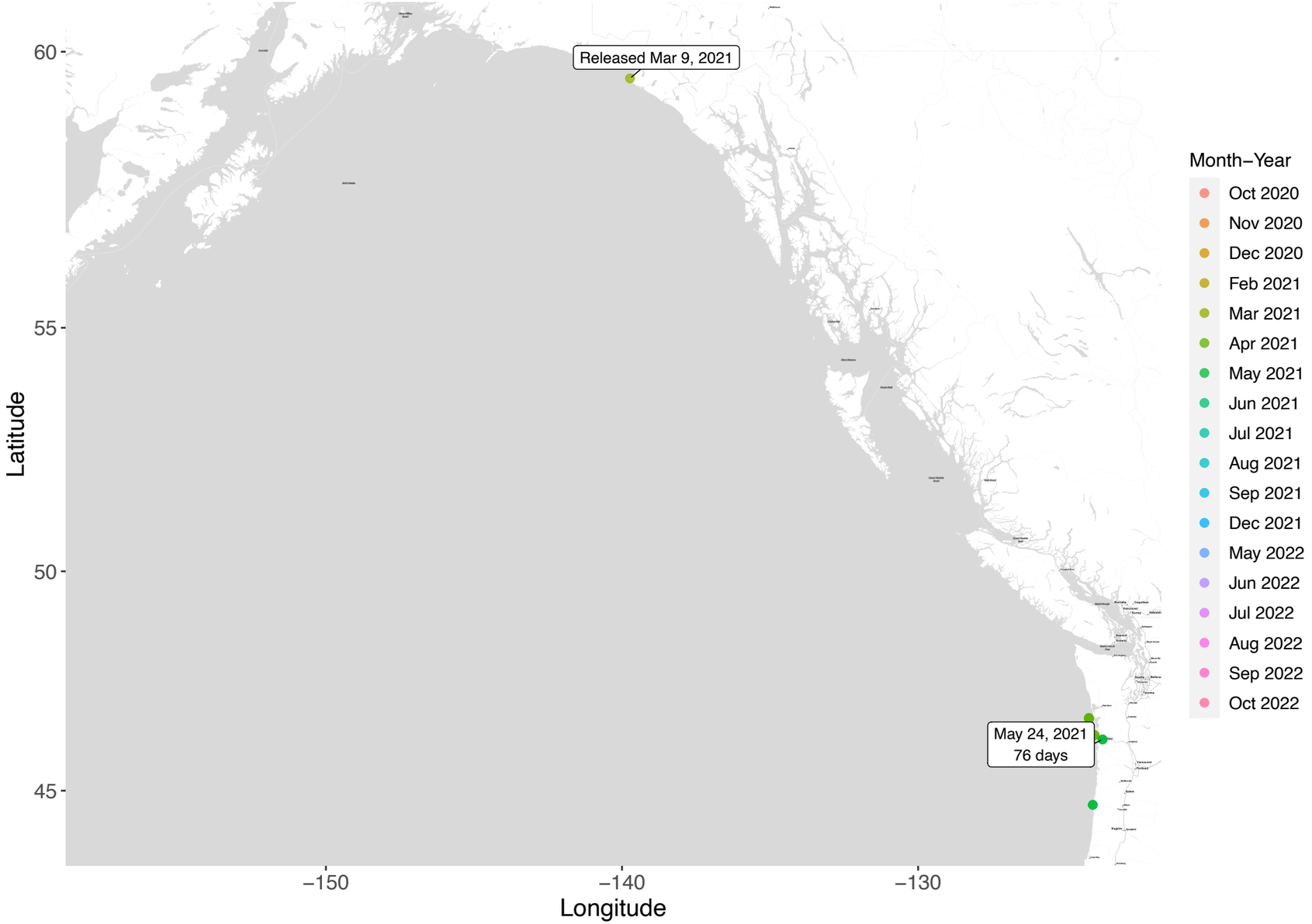


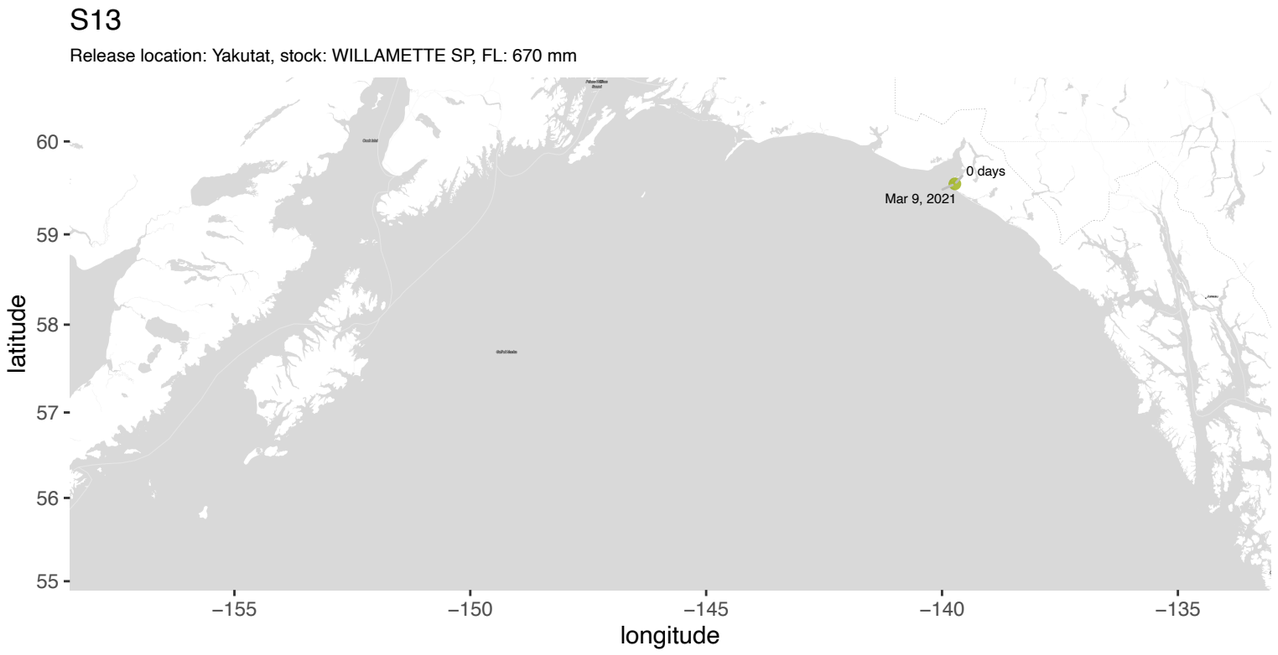

S12
Release location: Yakutat, stock: NORTHERN, FL: 790 mm
Mar 26, 2021
0 days
60
59
58
57
56
55
latitude
−155
−150
−145
−140
−135
longitude

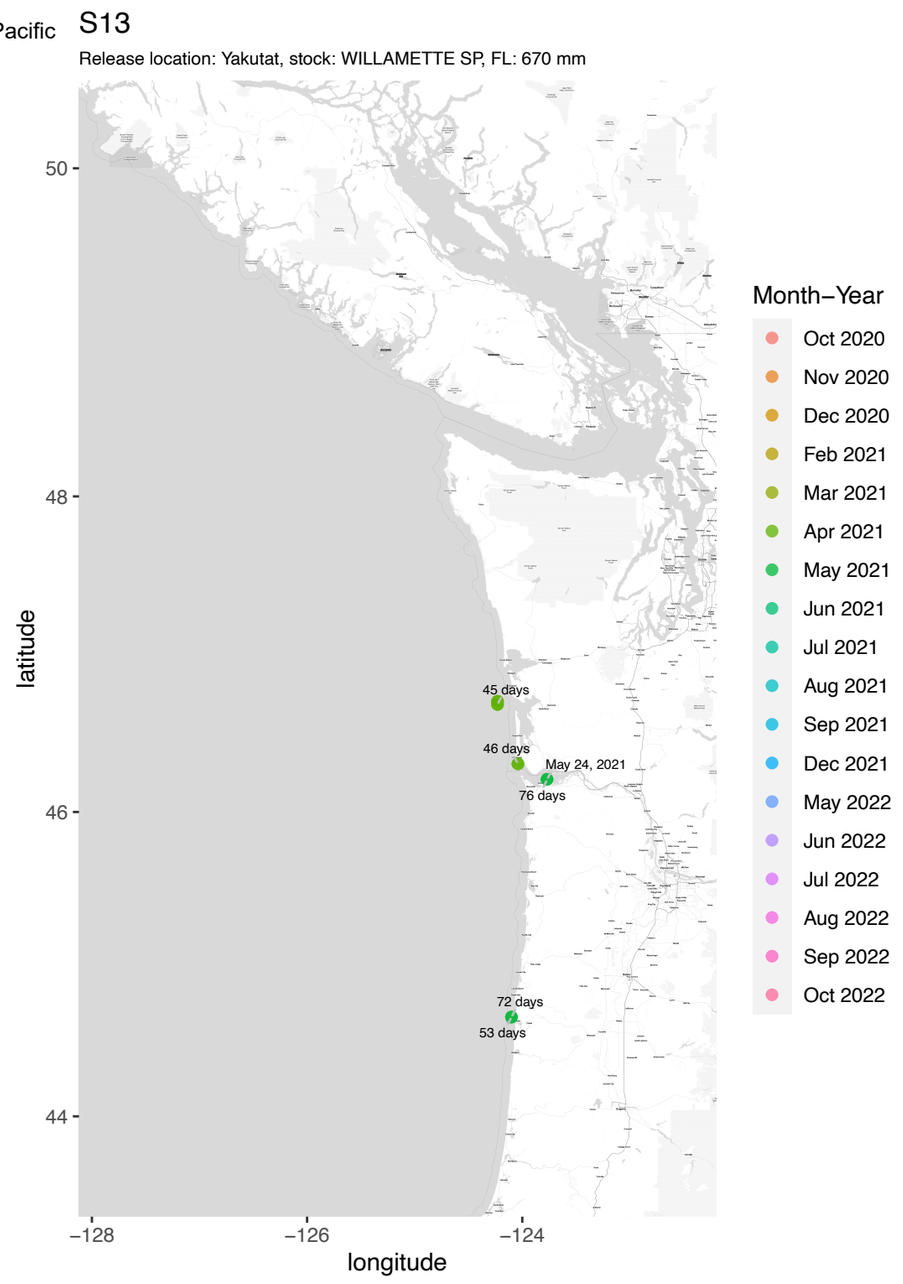

S12
Release location: Yakutat, stock: NORTHERN, FL: 790 mm
77 days
Jun 13, 2021
79 days
50
48
46
44
latitude
−128
−126
−124
longitude
Month−Year
Oct 2020
Nov 2020
Dec 2020
Feb 2021
Mar 2021
Apr 2021
May 2021
Jun 2021
Jul 2021
Aug 2021
Sep 2021
Dec 2021
May 2022
Jun 2022
Jul 2022
Aug 2022
Sep 2022
Oct 2022

S13

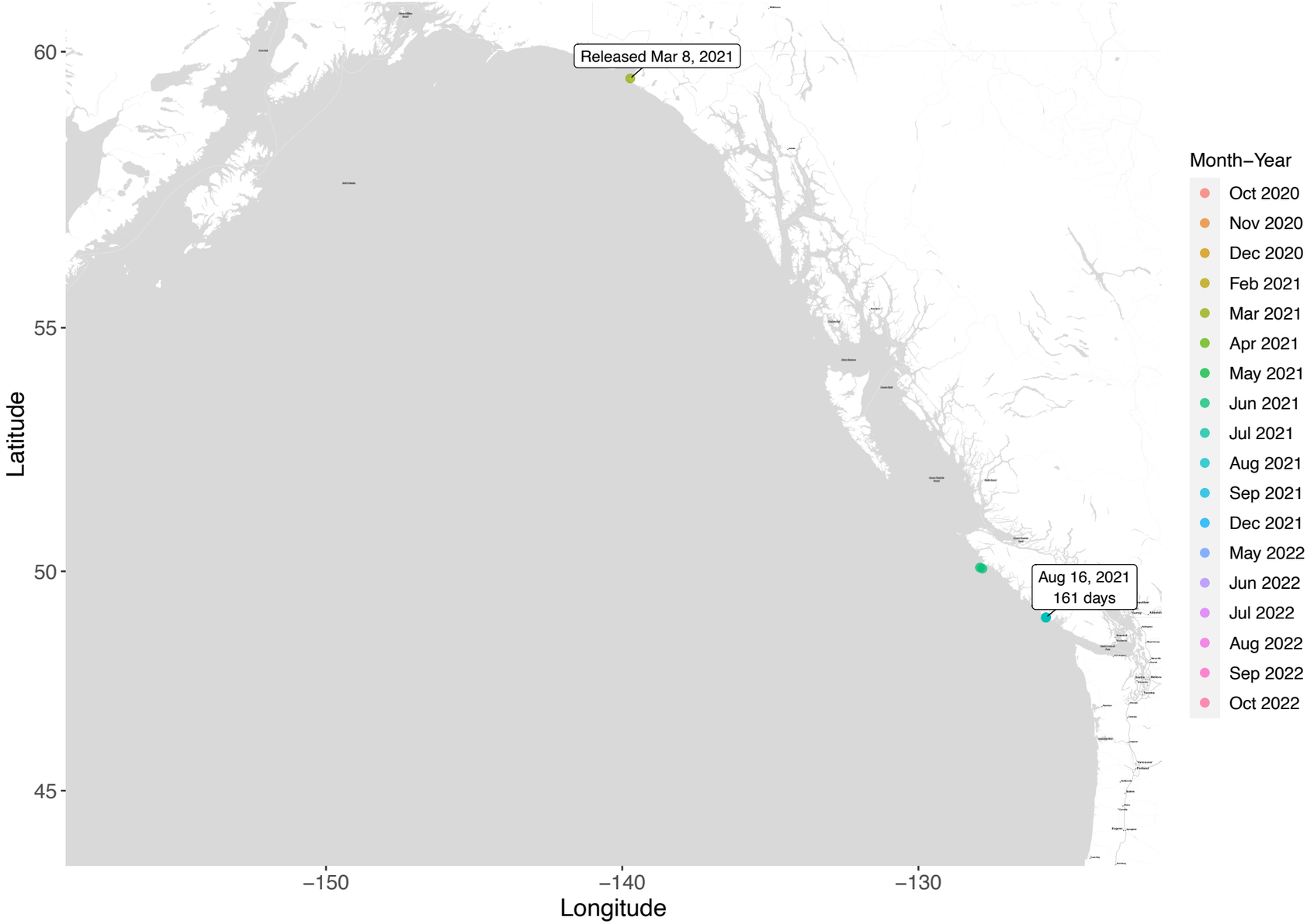
Release location: Yakutat, stock: WILLAMETTE SP, FL: 670 mm

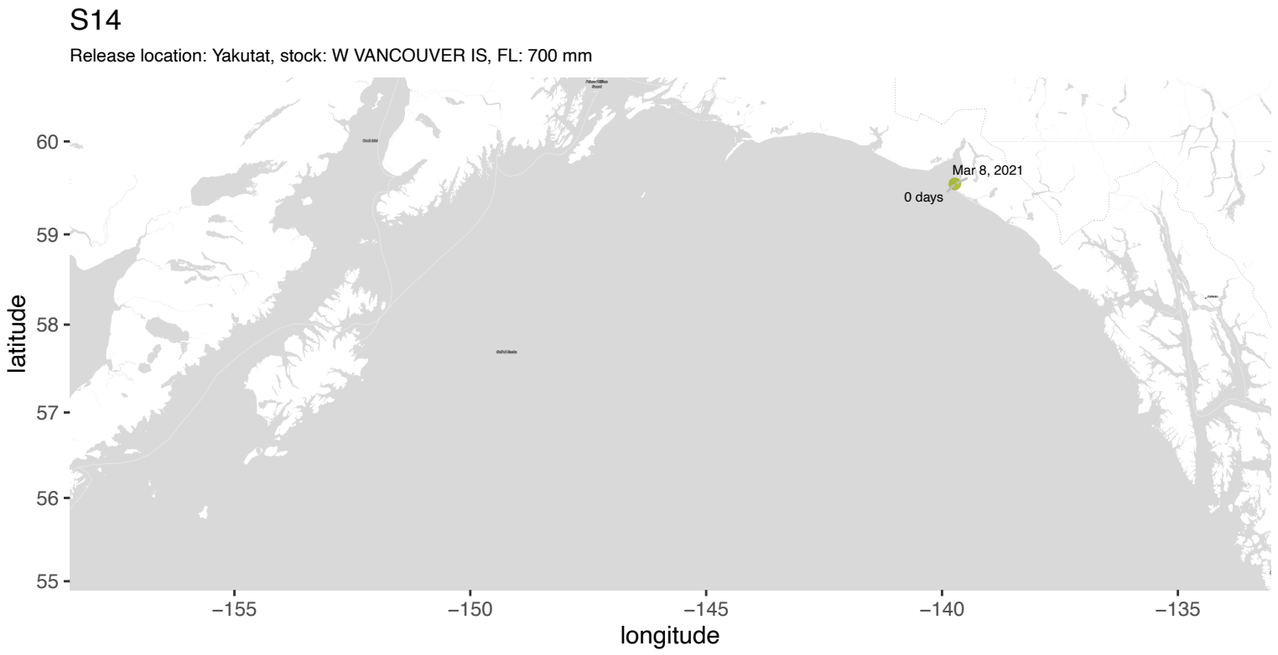


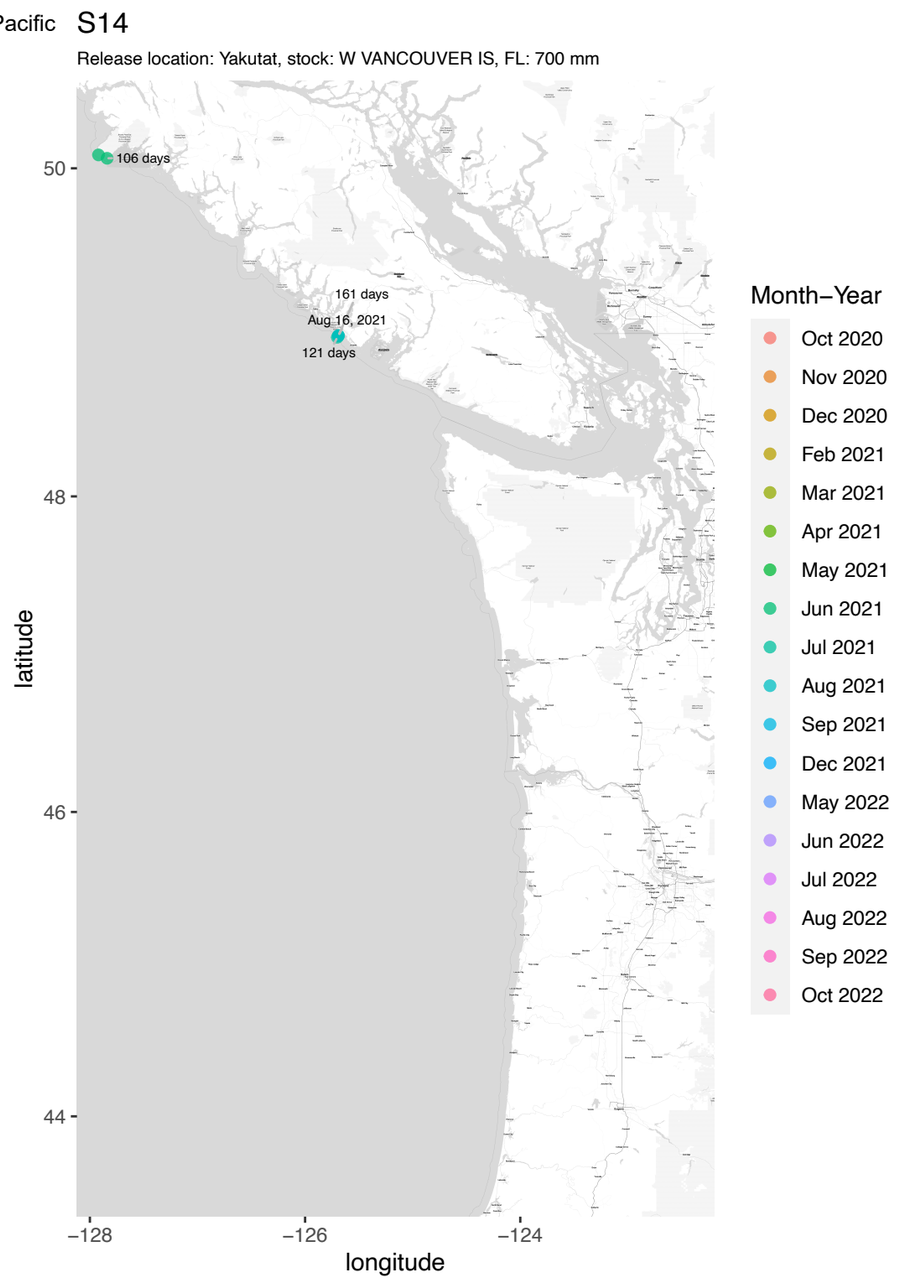

S13
Release location: Yakutat, stock: WILLAMETTE SP, FL: 670 mm
0 days
Mar 9, 2021
60
59
58
57
56
55
latitude
−155
−150
−145
−140
−135
longitude


S13
Release location: Yakutat, stock: WILLAMETTE SP, FL: 670 mm
50
48
46
44
latitude
45 days
46 days
May 24, 2021
76 days
72 days
53 days
−128
−126
−124
longitude
Month−Year
Oct 2020
Nov 2020
Dec 2020
Feb 2021
Mar 2021
Apr 2021
May 2021
Jun 2021
Jul 2021
Aug 2021
Sep 2021
Dec 2021
May 2022
Jun 2022
Jul 2022
Aug 2022
Sep 2022
Oct 2022

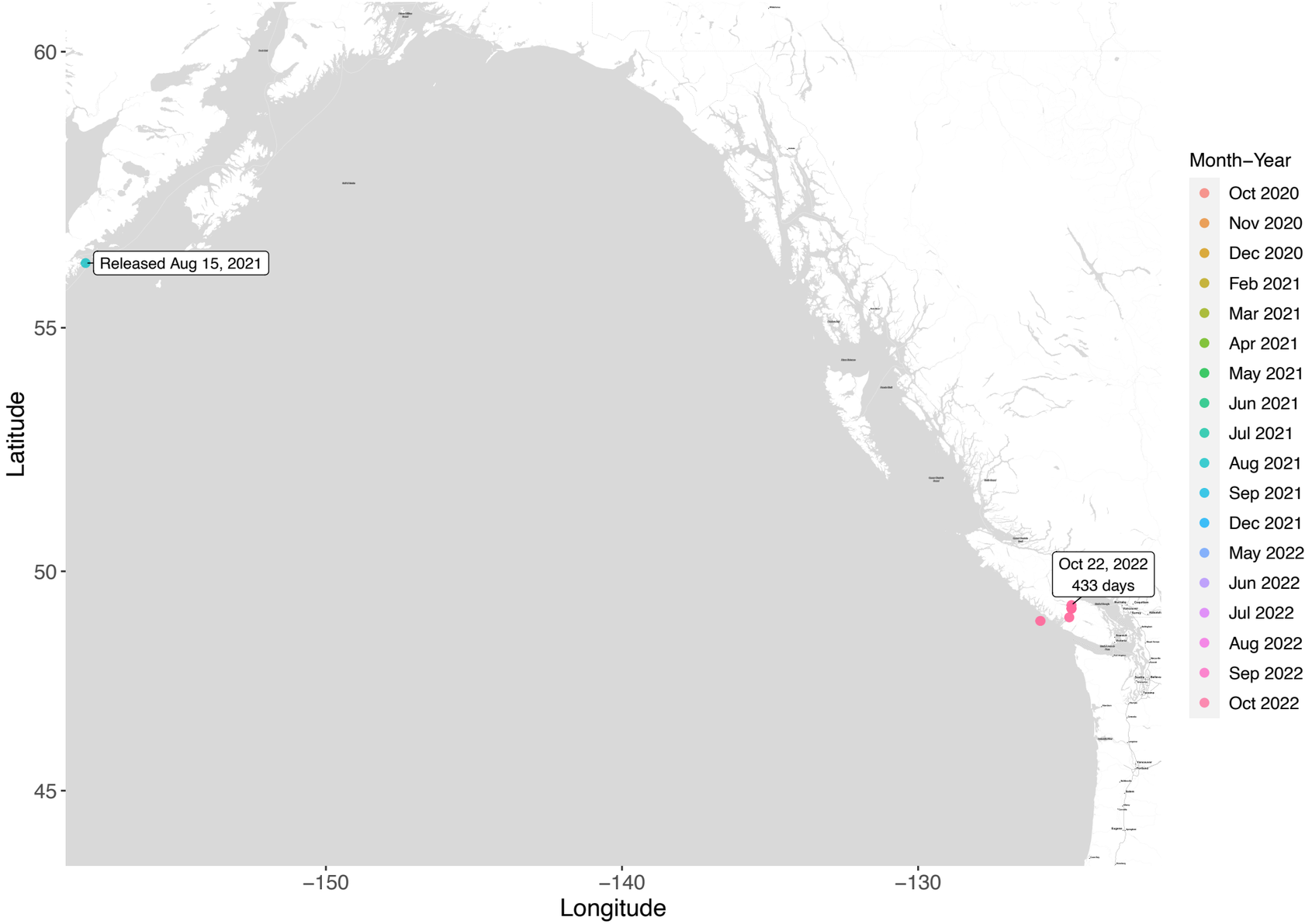
Release location: Yakutat, stock: W VANCOUVER IS, FL: 700 mm

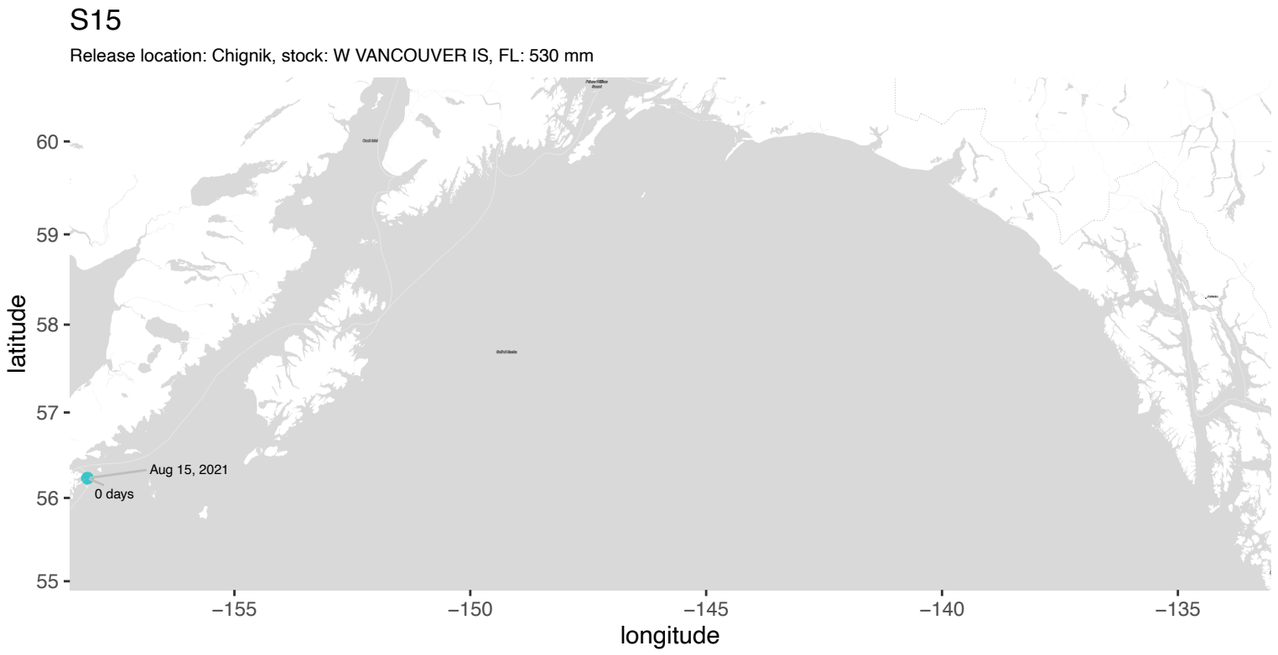


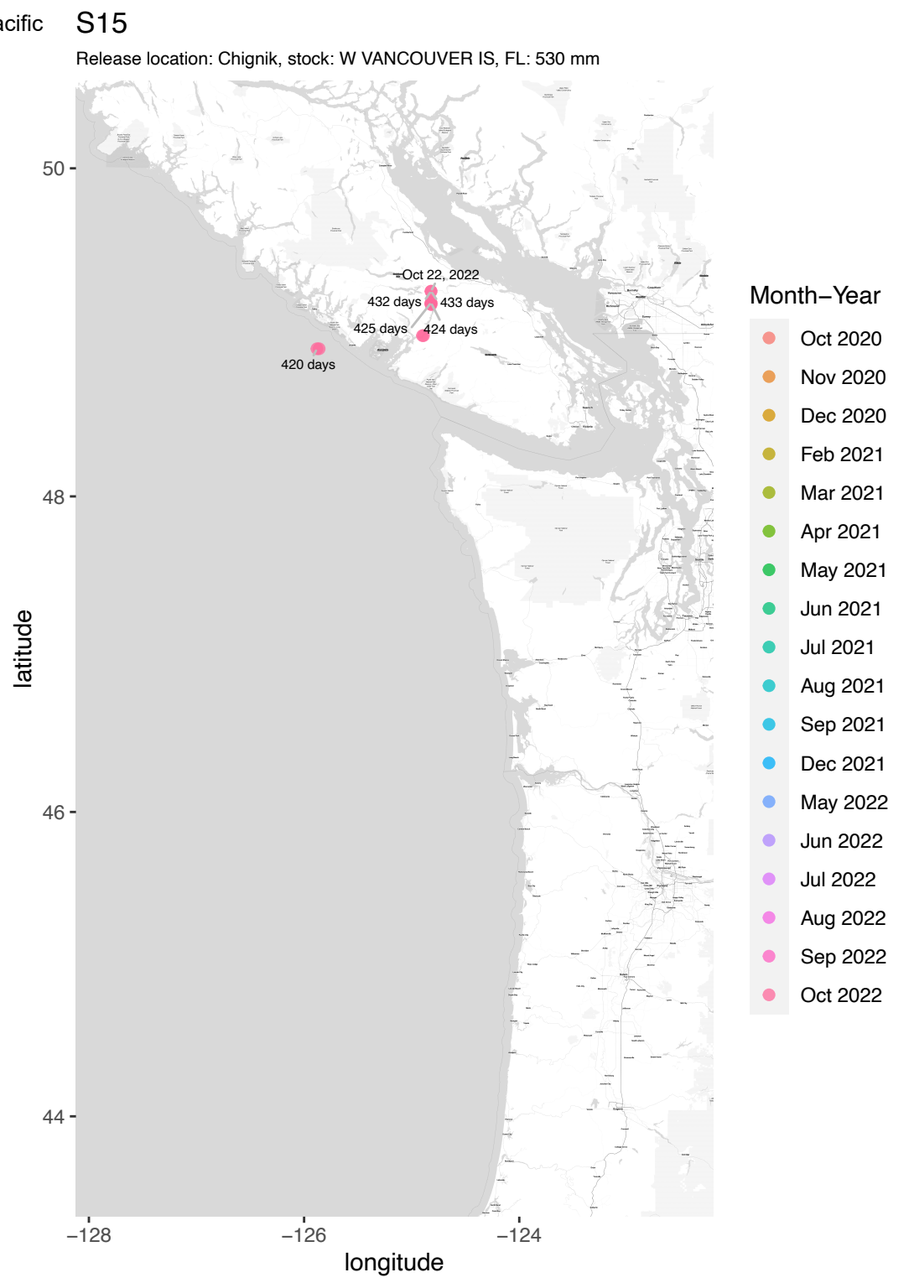

S14
Release location: Yakutat, stock: W VANCOUVER IS, FL: 700 mm
Mar 8, 2021
0 days
60
59
58
57
56
55
latitude
−155
−150
−145
−140
−135
longitude


S14
Release location: Yakutat, stock: W VANCOUVER IS, FL: 700 mm
106 days
161 days
Aug 16, 2021
121 days
50
48
46
44
latitude
−128
−126
−124
longitude
Month−Year
Oct 2020
Nov 2020
Dec 2020
Feb 2021
Mar 2021
Apr 2021
May 2021
Jun 2021
Jul 2021
Aug 2021
Sep 2021
Dec 2021
May 2022
Jun 2022
Jul 2022
Aug 2022
Sep 2022
Oct 2022

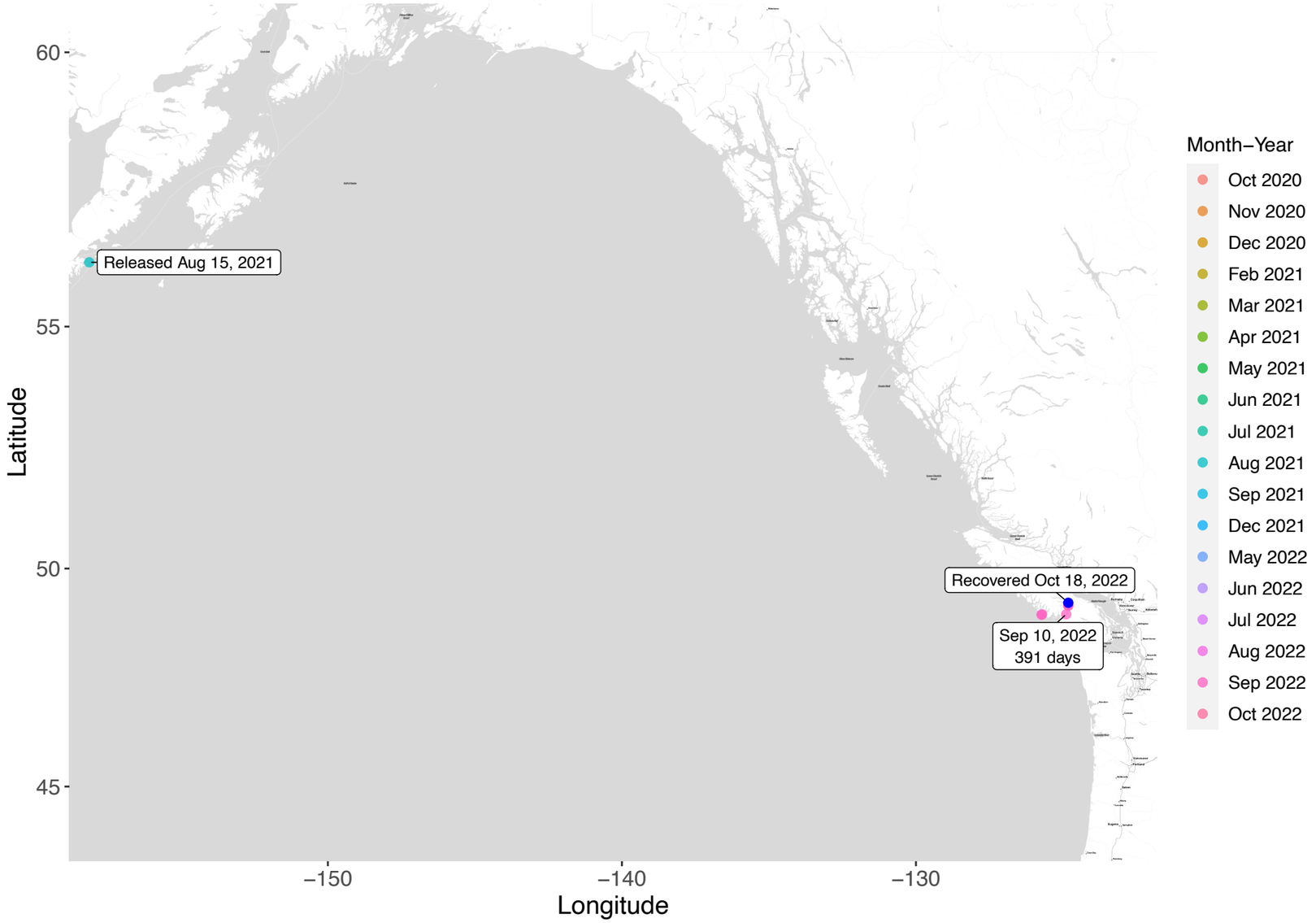
Release location: Chignik, stock: W VANCOUVER IS, FL: 530 mm




S15
Release location: Chignik, stock: W VANCOUVER IS, FL: 530 mm
60
59
58
57
56
55
latitude
Aug 15, 2021
0 days
−155
−150
−145
−140
−135
longitude

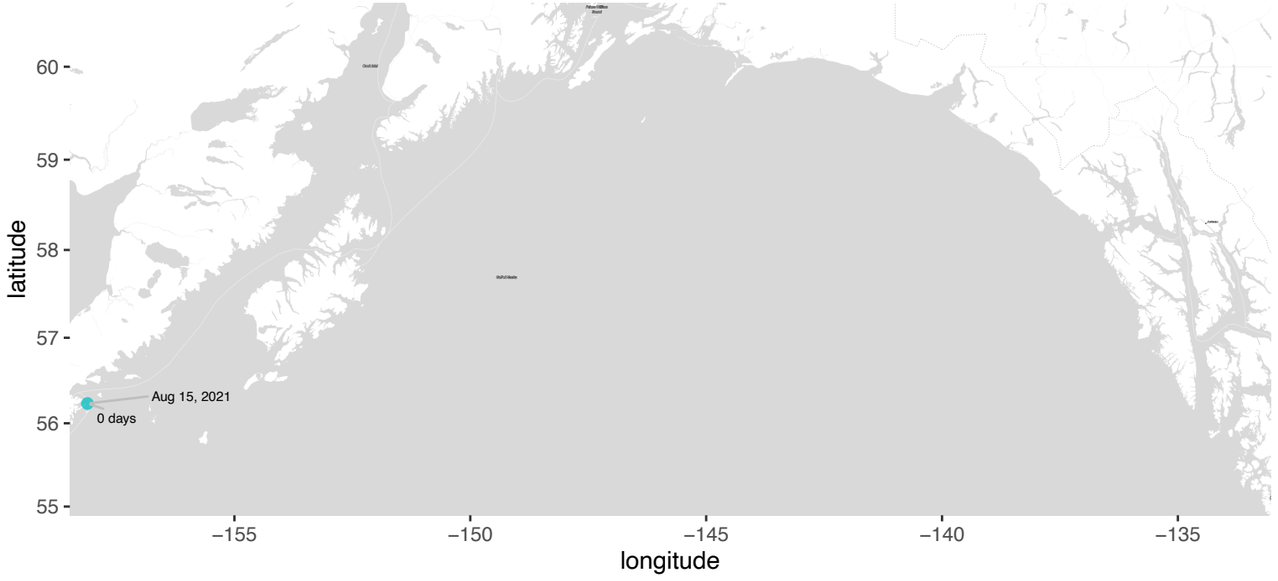

S15
Release location: Chignik, stock: W VANCOUVER IS, FL: 530 mm
50
48
46
44
latitude
Oct 22, 2022
432 days
433 days
425 days
424 days
420 days
−128
−126
−124
longitude
Month−Year
Oct 2020
Nov 2020
Dec 2020
Feb 2021
Mar 2021
Apr 2021
May 2021
Jun 2021
Jul 2021
Aug 2021
Sep 2021
Dec 2021
May 2022
Jun 2022
Jul 2022
Aug 2022
Sep 2022
Oct 2022

Release location: Chignik, stock: W VANCOUVER IS, FL: 620 mm
Recovered 2022–10–18 at (49.25, –124.82)



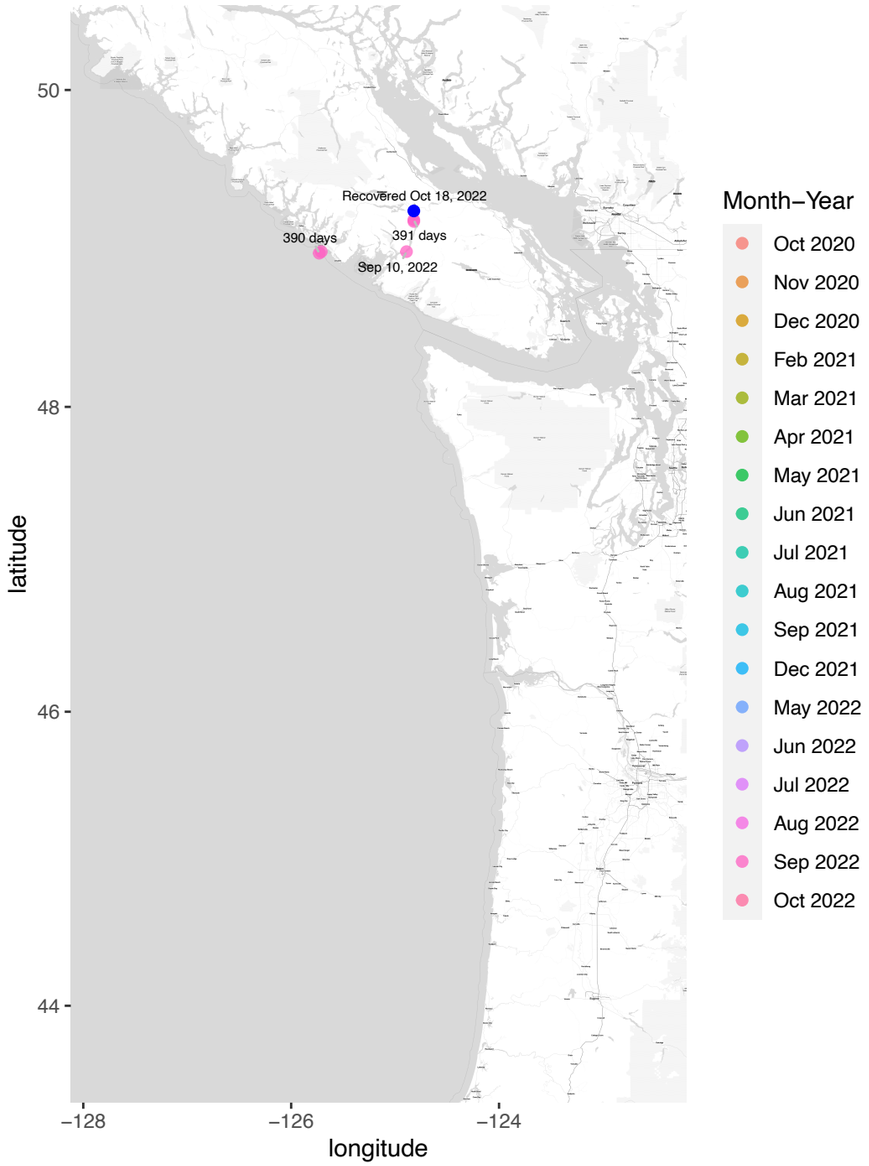
S16

Release location: Chignik, stock: W VANCOUVER IS, FL: 620 mm
Recovered 2022–10–18 at (49.25, –124.82)

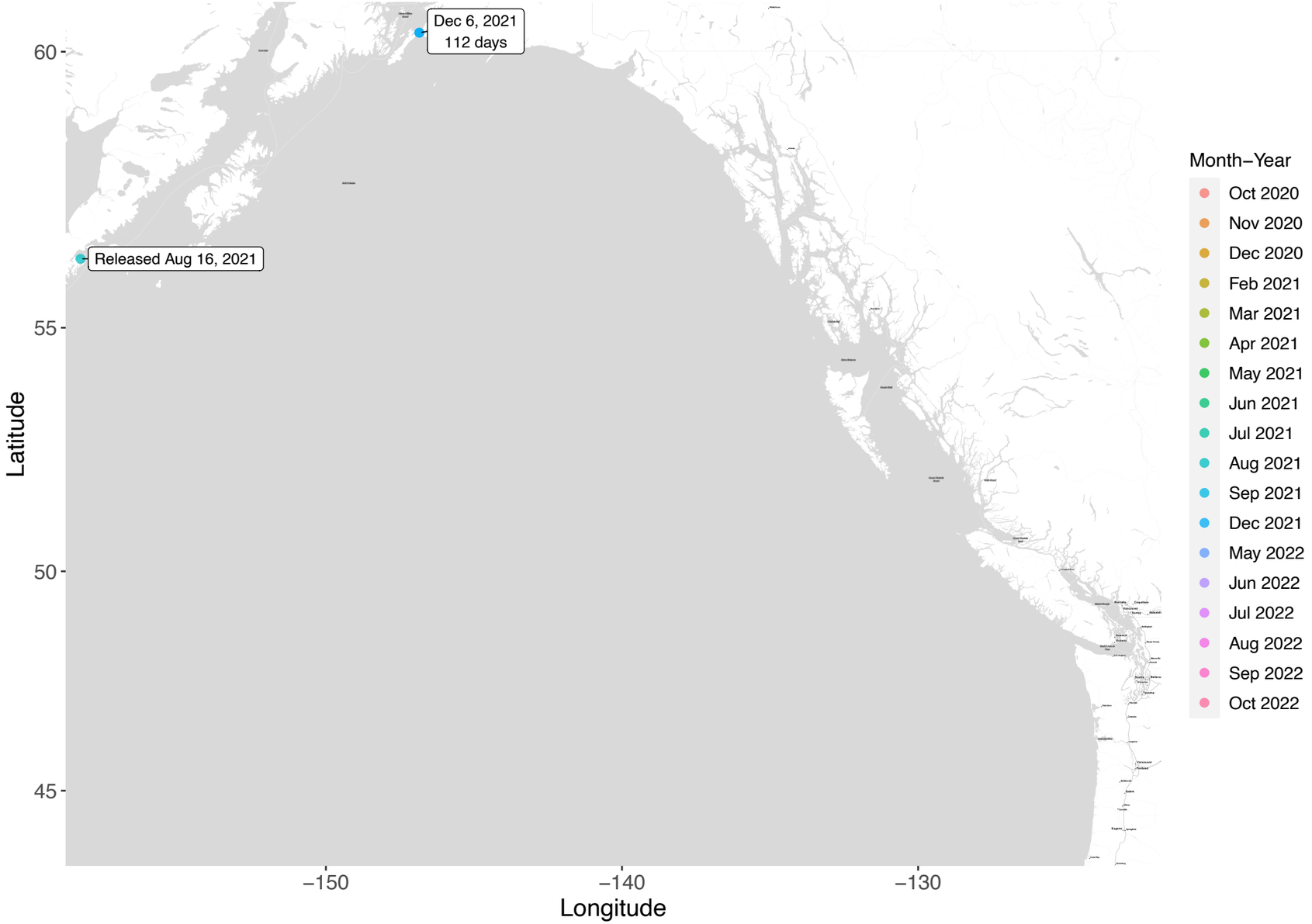


S16

Release location: Chignik, stock: W VANCOUVER IS, FL: 620 mm
Recovered 2022–10–18 at (49.25, –124.82)

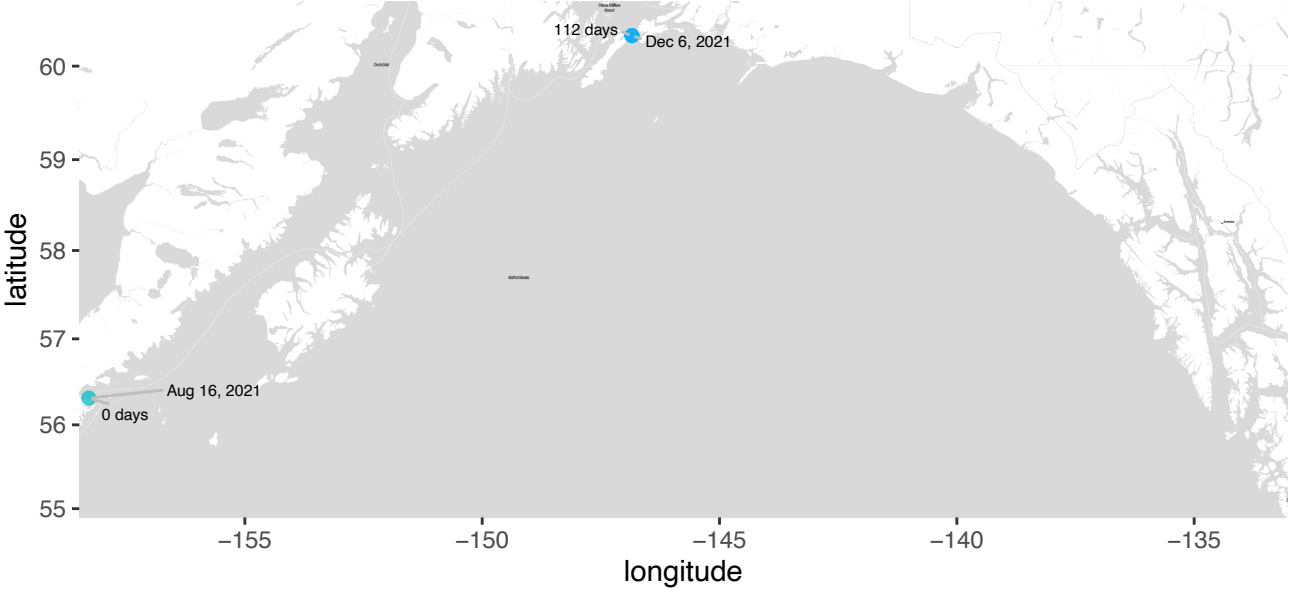


Release location: Chignik, stock: W VANCOUVER IS, FL: 700 mm



S17

Release location: Chignik, stock: W VANCOUVER IS, FL: 700 mm

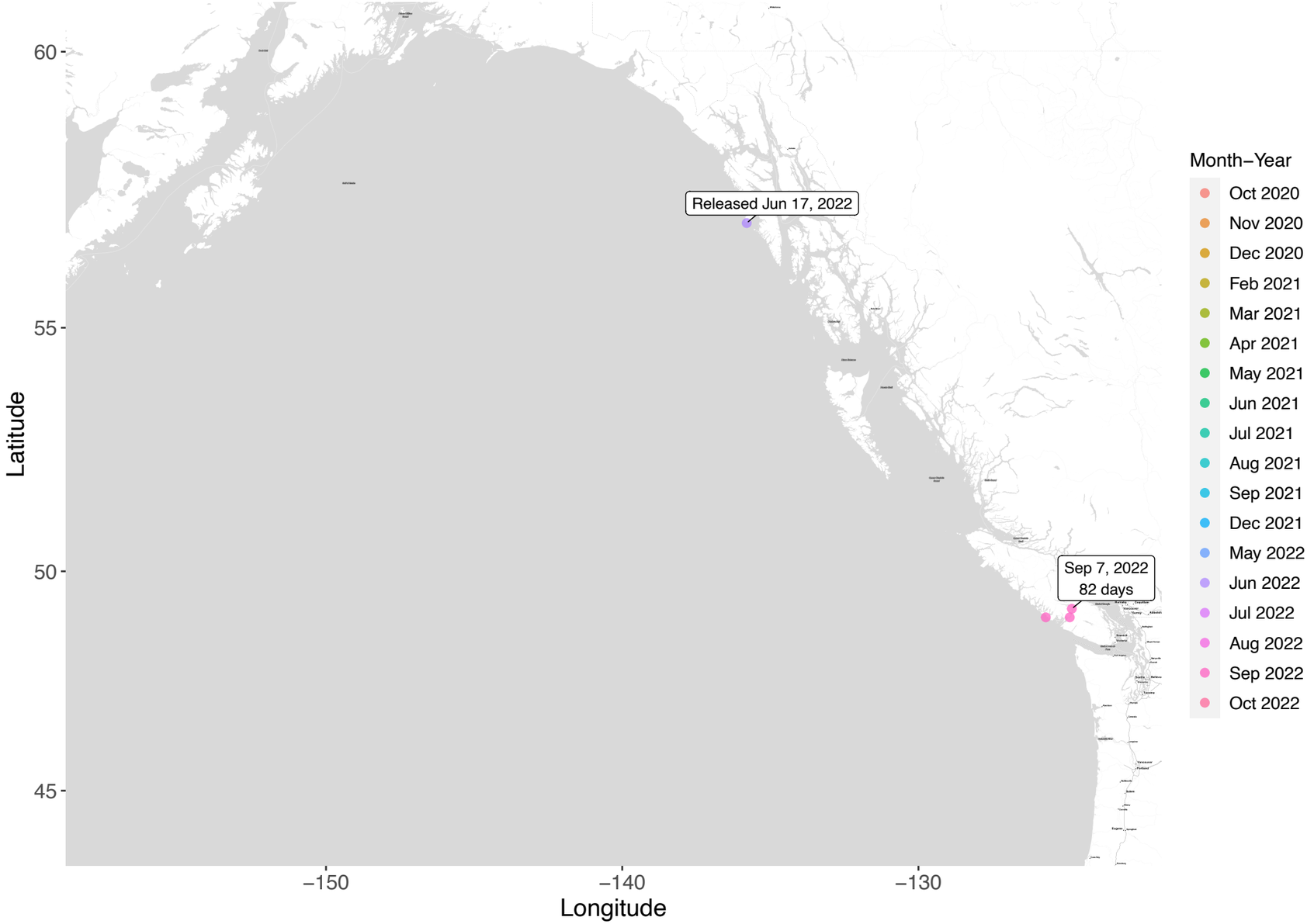


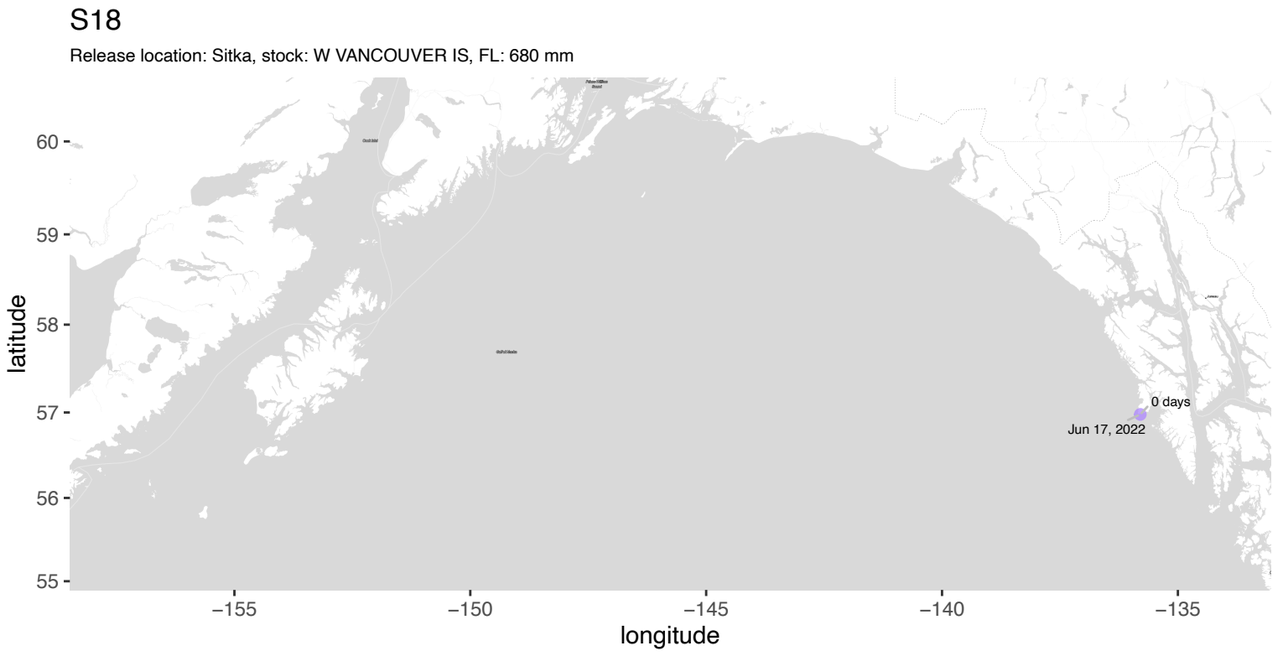
Month−Year

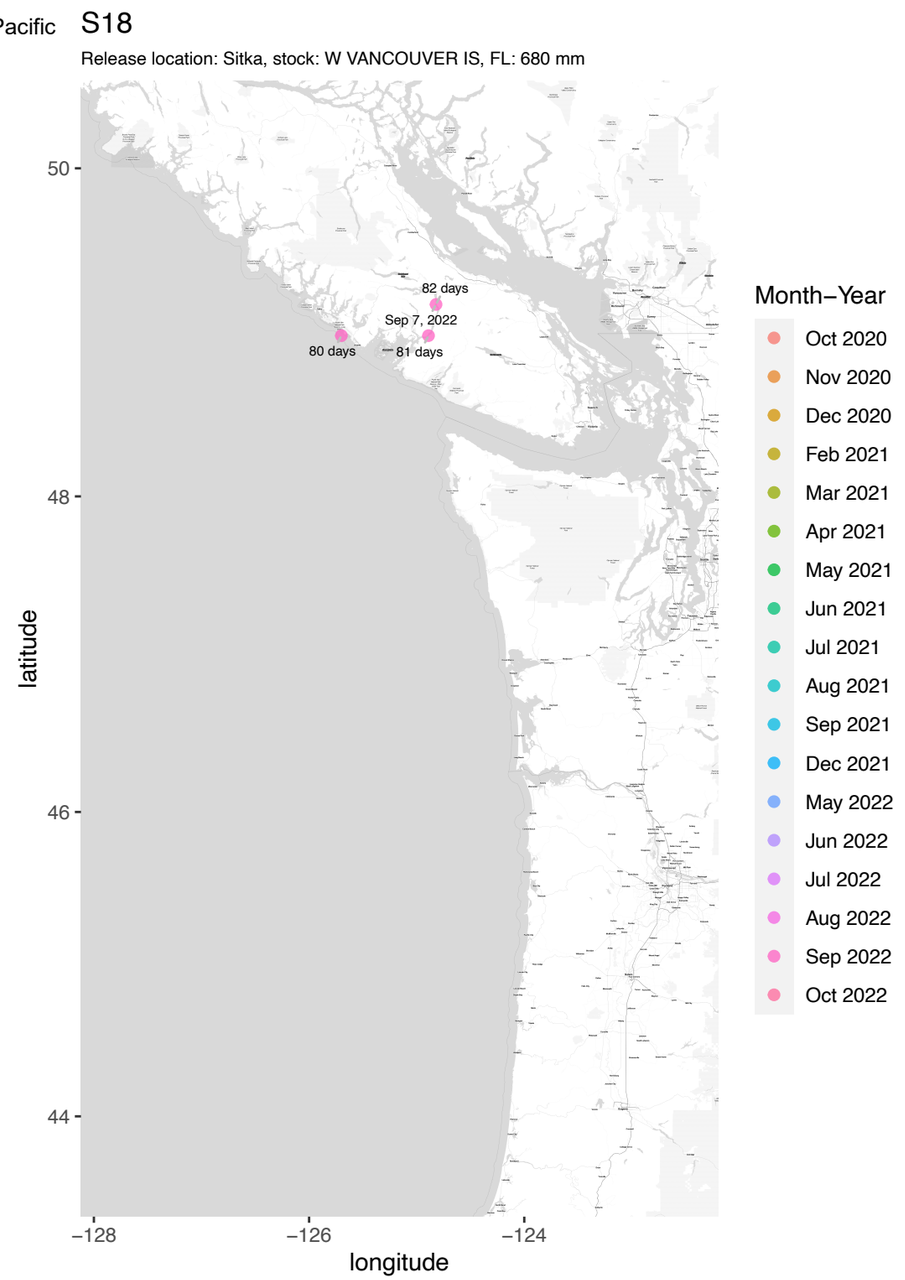
- Oct 2020
- Nov 2020
- Dec 2020
- Feb 2021
- Mar 2021
- Apr 2021
- May 2021
- Jun 2021
- Jul 2021
- Aug 2021
- Sep 2021
- Dec 2021
- May 2022
- Jun 2022
- Jul 2022
- Aug 2022
- Sep 2022
- Oct 2022

S18

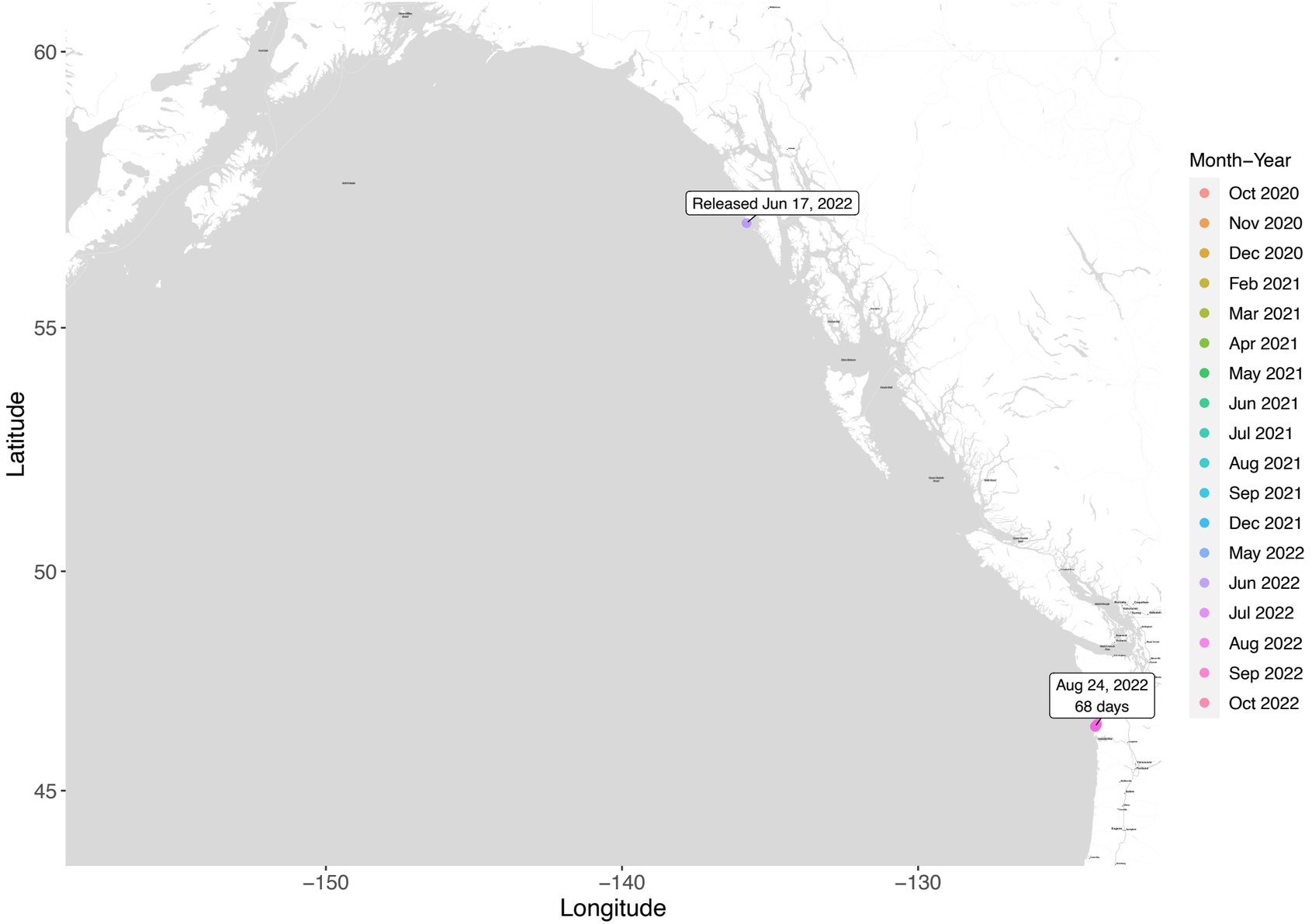
Release location: Sitka, stock: W VANCOUVER IS, FL: 680 mm




S18
Release location: Sitka, stock: W VANCOUVER IS, FL: 680 mm
60
59
58
57
56
55
latitude
0 days
Jun 17, 2022
−155
−150
−145
−140
−135
longitude

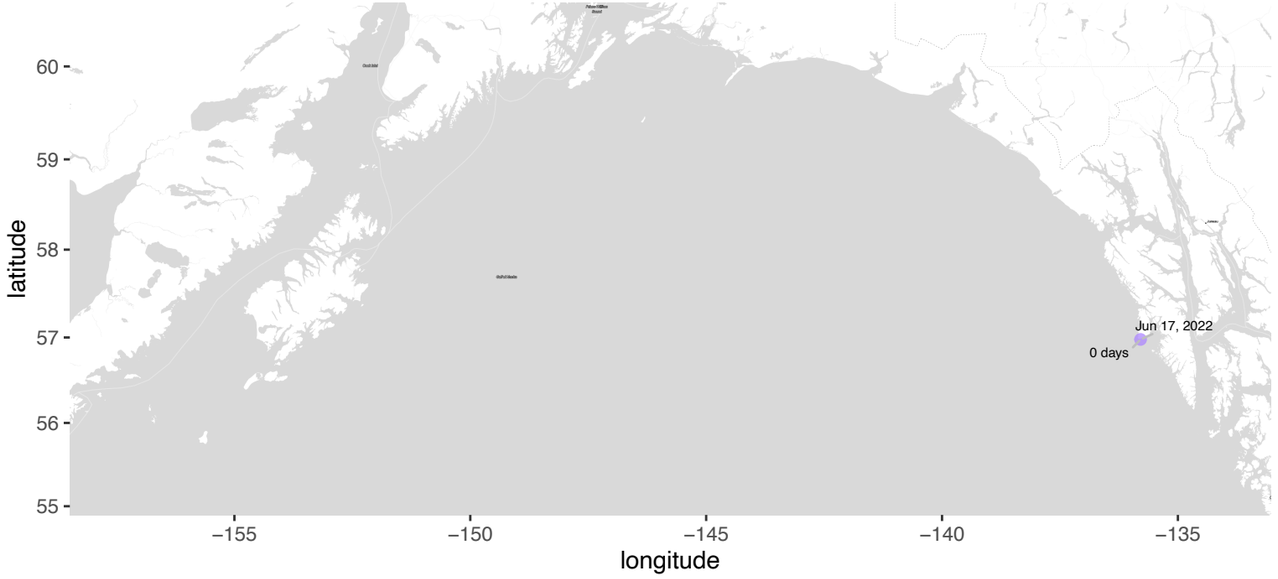

S18
Release location: Sitka, stock: W VANCOUVER IS, FL: 680 mm
50
48
46
44
latitude
82 days
Sep 7, 2022
80 days
81 days
−128
−126
−124
longitude
Month−Year
Oct 2020
Nov 2020
Dec 2020
Feb 2021
Mar 2021
Apr 2021
May 2021
Jun 2021
Jul 2021
Aug 2021
Sep 2021
Dec 2021
May 2022
Jun 2022
Jul 2022
Aug 2022
Sep 2022
Oct 2022

Release location: Sitka, stock: W VANCOUVER IS, FL: 670 mm



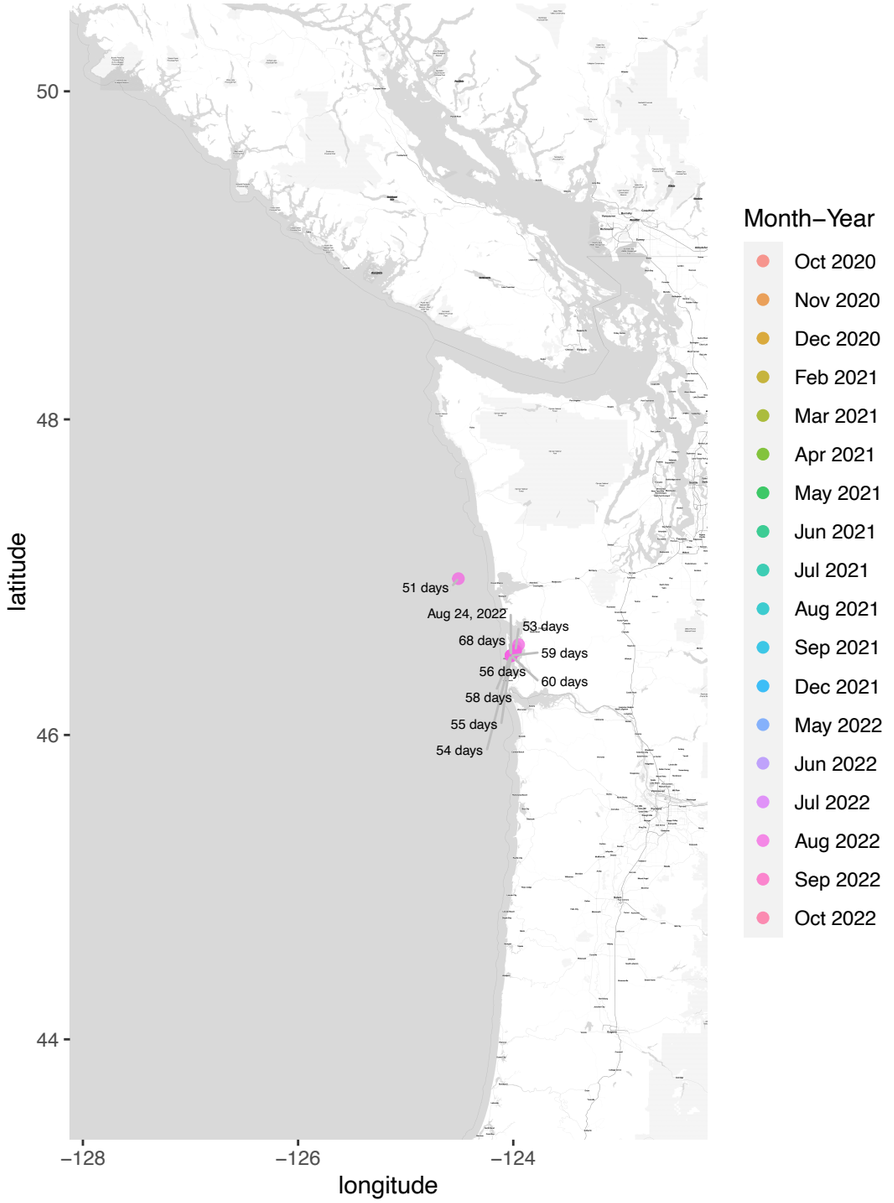
S19

Release location: Sitka, stock: W VANCOUVER IS, FL: 670 mm

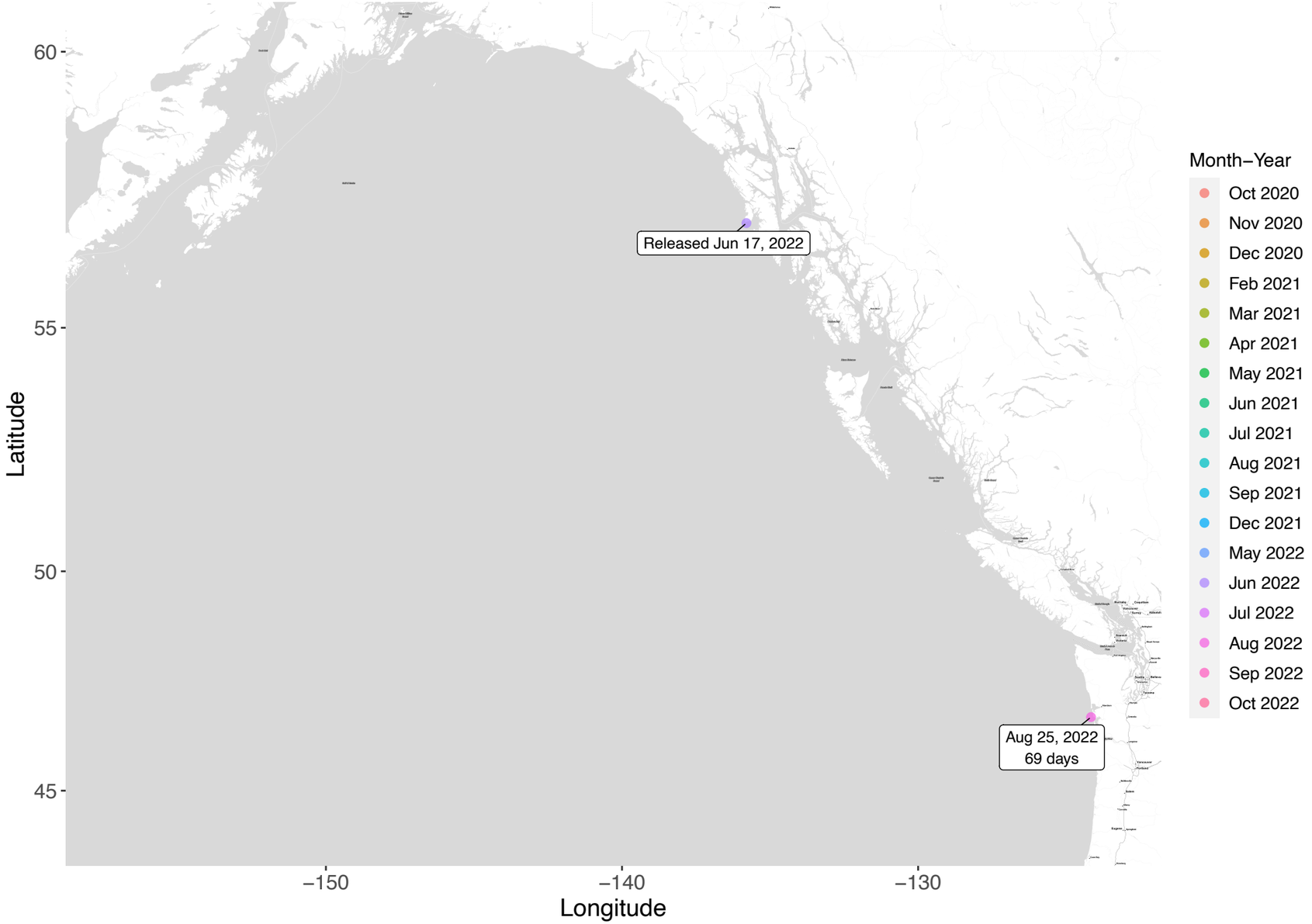


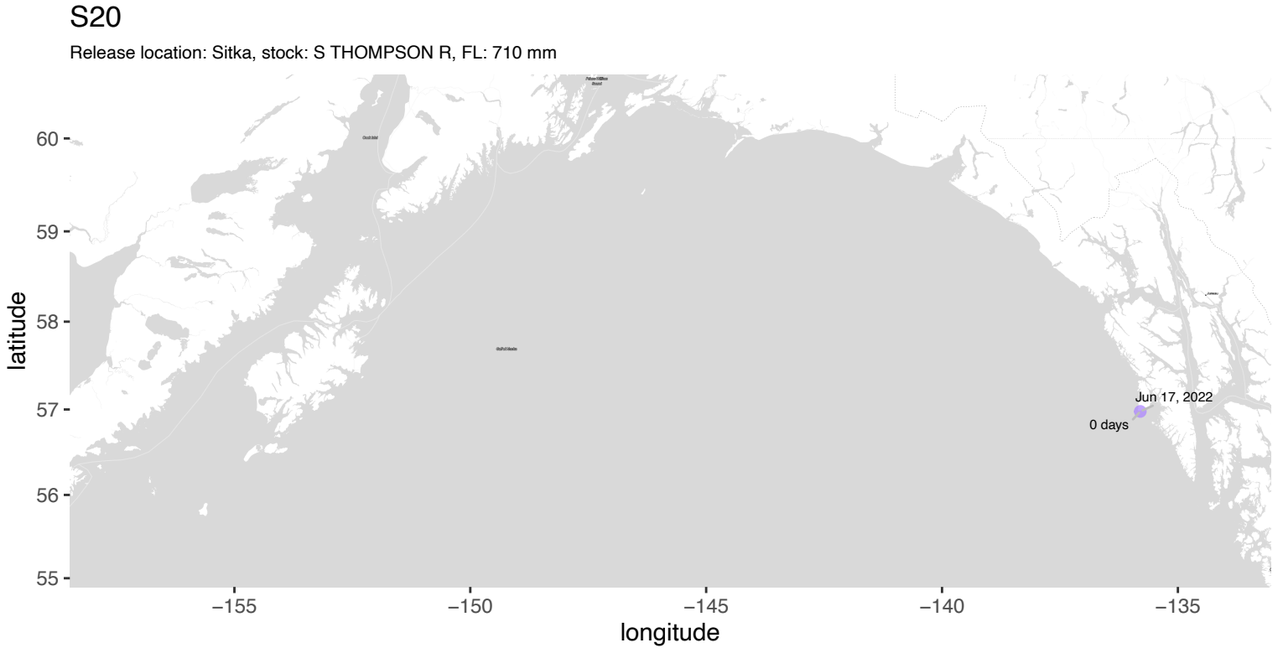
S19

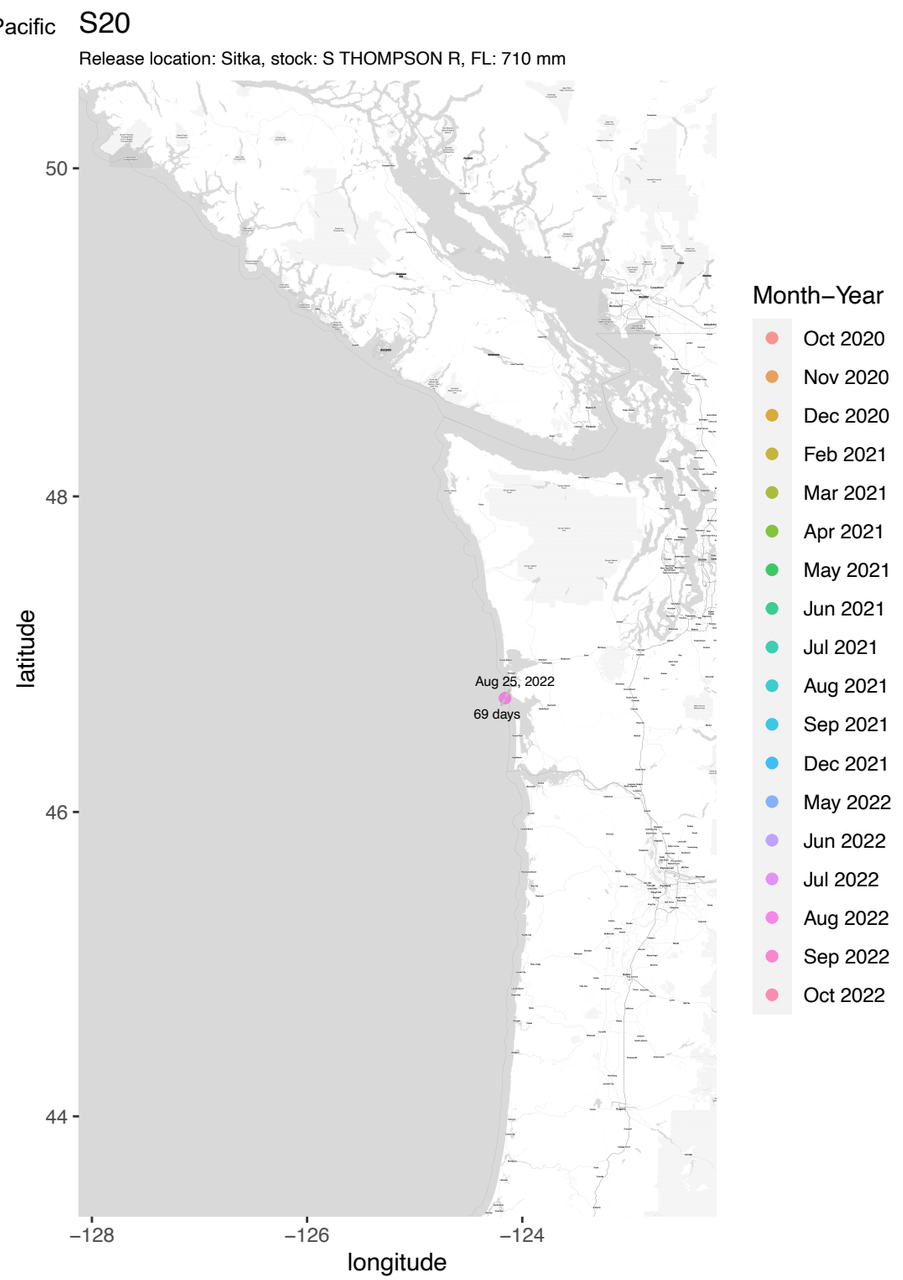
Release location: Sitka, stock: W VANCOUVER IS, FL: 670 mm



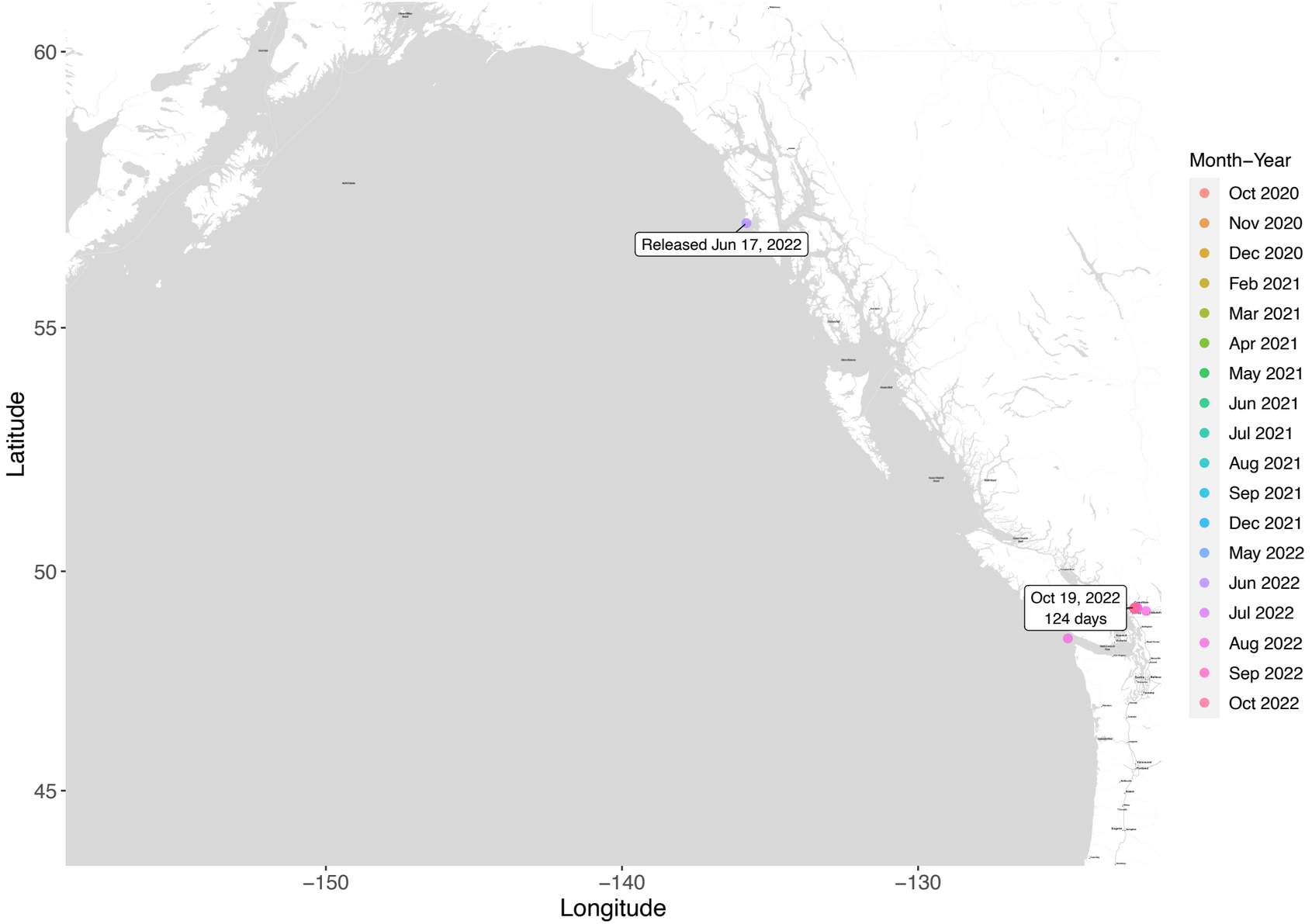
Release location: Sitka, stock: S THOMPSON R, FL: 710 mm




S20
Release location: Sitka, stock: S THOMPSON R, FL: 710 mm
60
59
58
57
56
55
latitude
−155
−150
−145
−140
−135
longitude
Jun 17, 2022
0 days

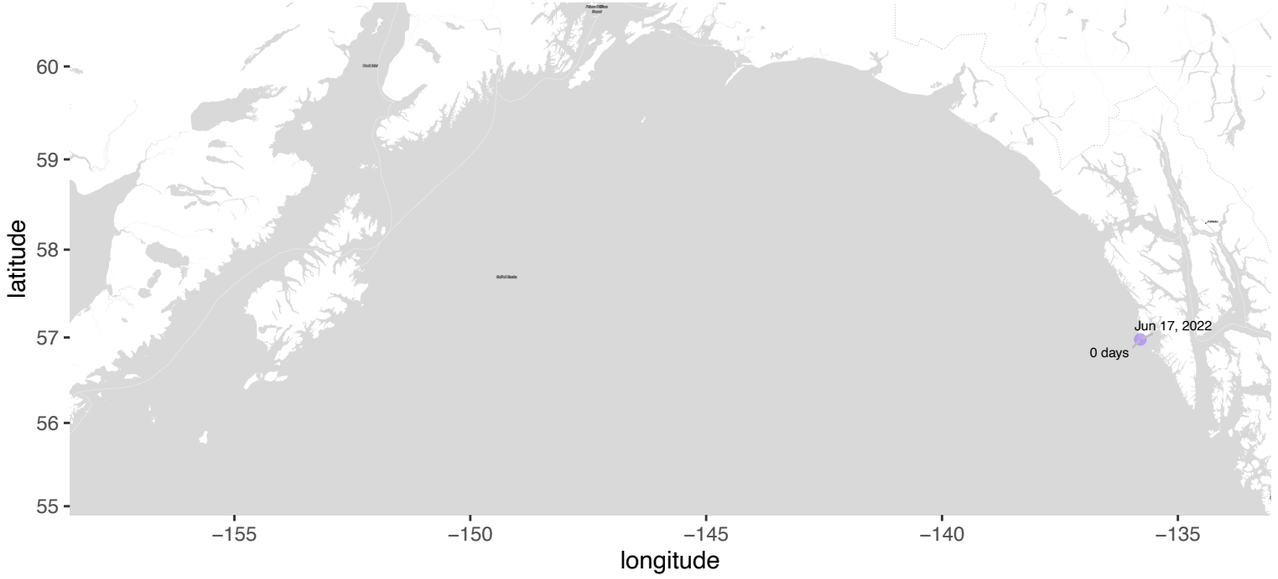

S20
Release location: Sitka, stock: S THOMPSON R, FL: 710 mm
50
48
46
44
latitude
−128
−126
−124
longitude
Aug 25, 2022
69 days
Month−Year
Oct 2020
Nov 2020
Dec 2020
Feb 2021
Mar 2021
Apr 2021
May 2021
Jun 2021
Jul 2021
Aug 2021
Sep 2021
Dec 2021
May 2022
Jun 2022
Jul 2022
Aug 2022
Sep 2022
Oct 2022

Release location: Sitka, stock: S THOMPSON R, FL: 740 mm



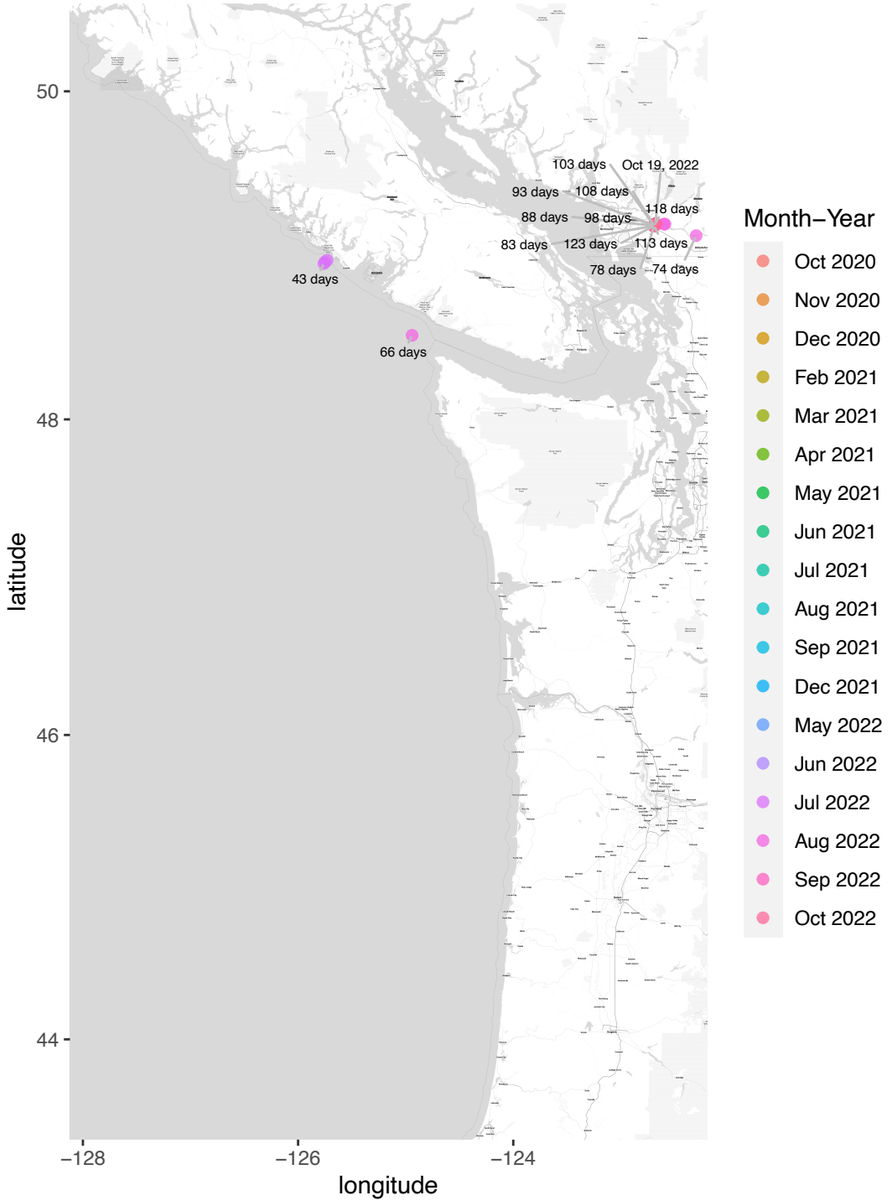
S21

Release location: Sitka, stock: S THOMPSON R, FL: 740 mm

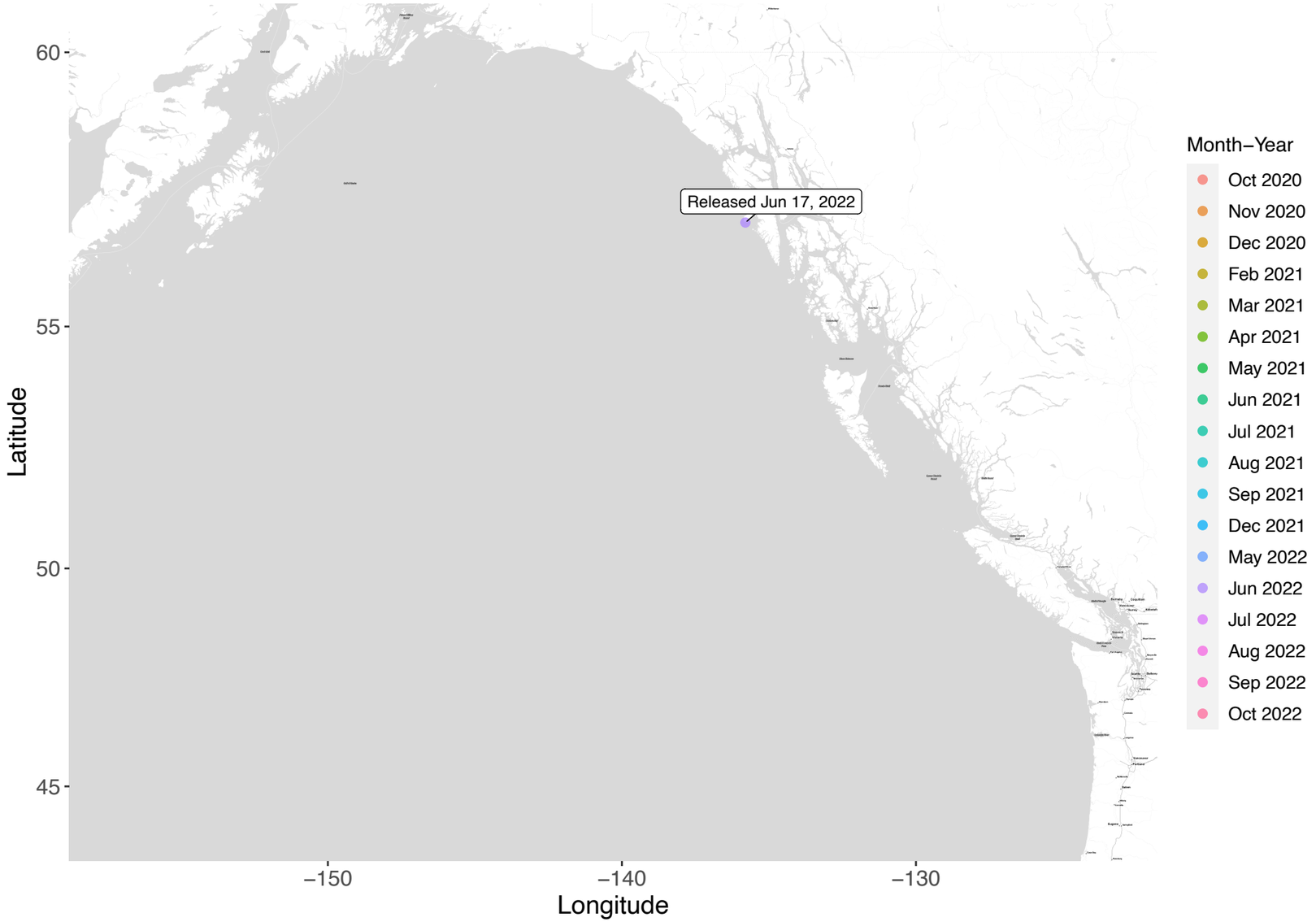


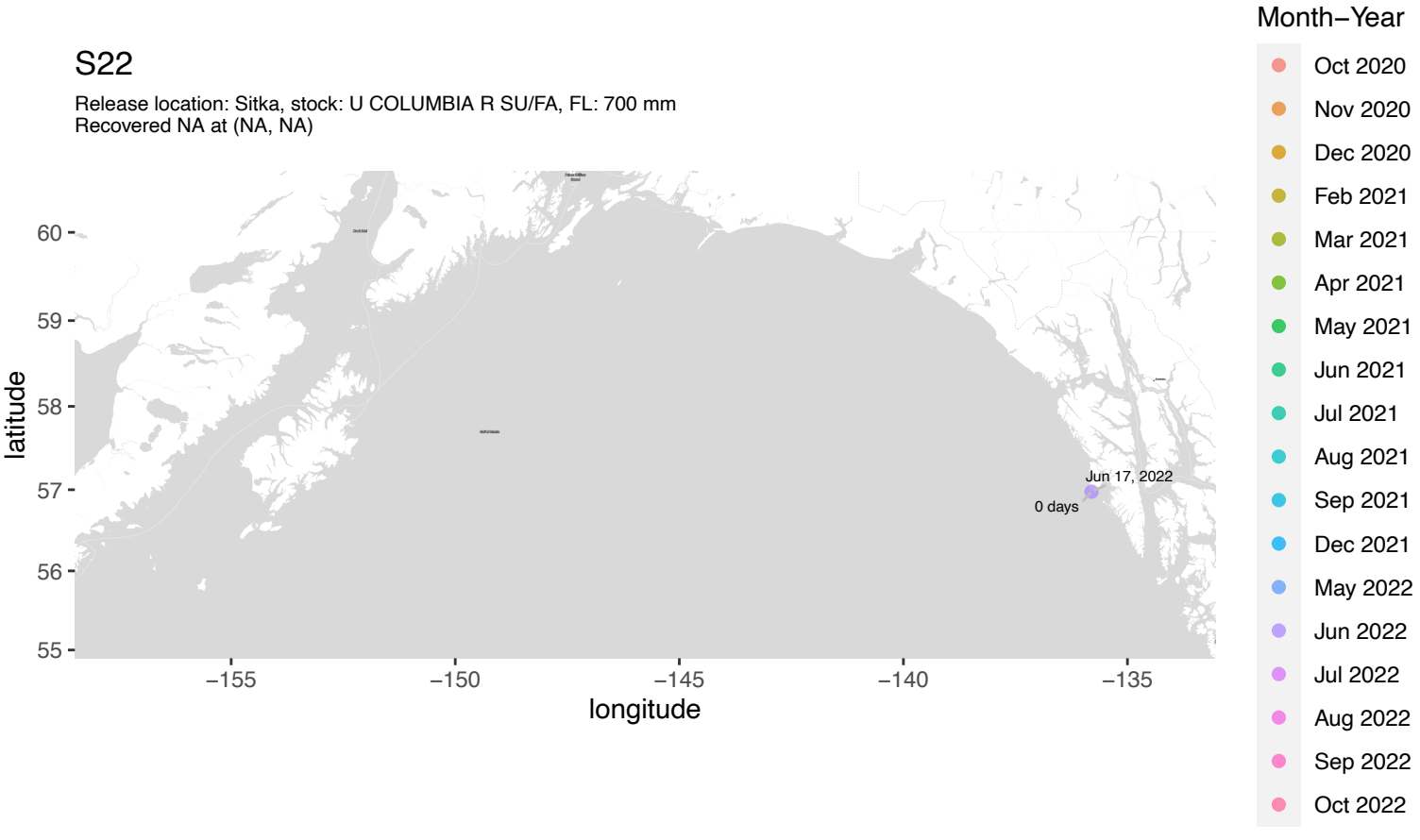
S21

Release location: Sitka, stock: S THOMPSON R, FL: 740 mm

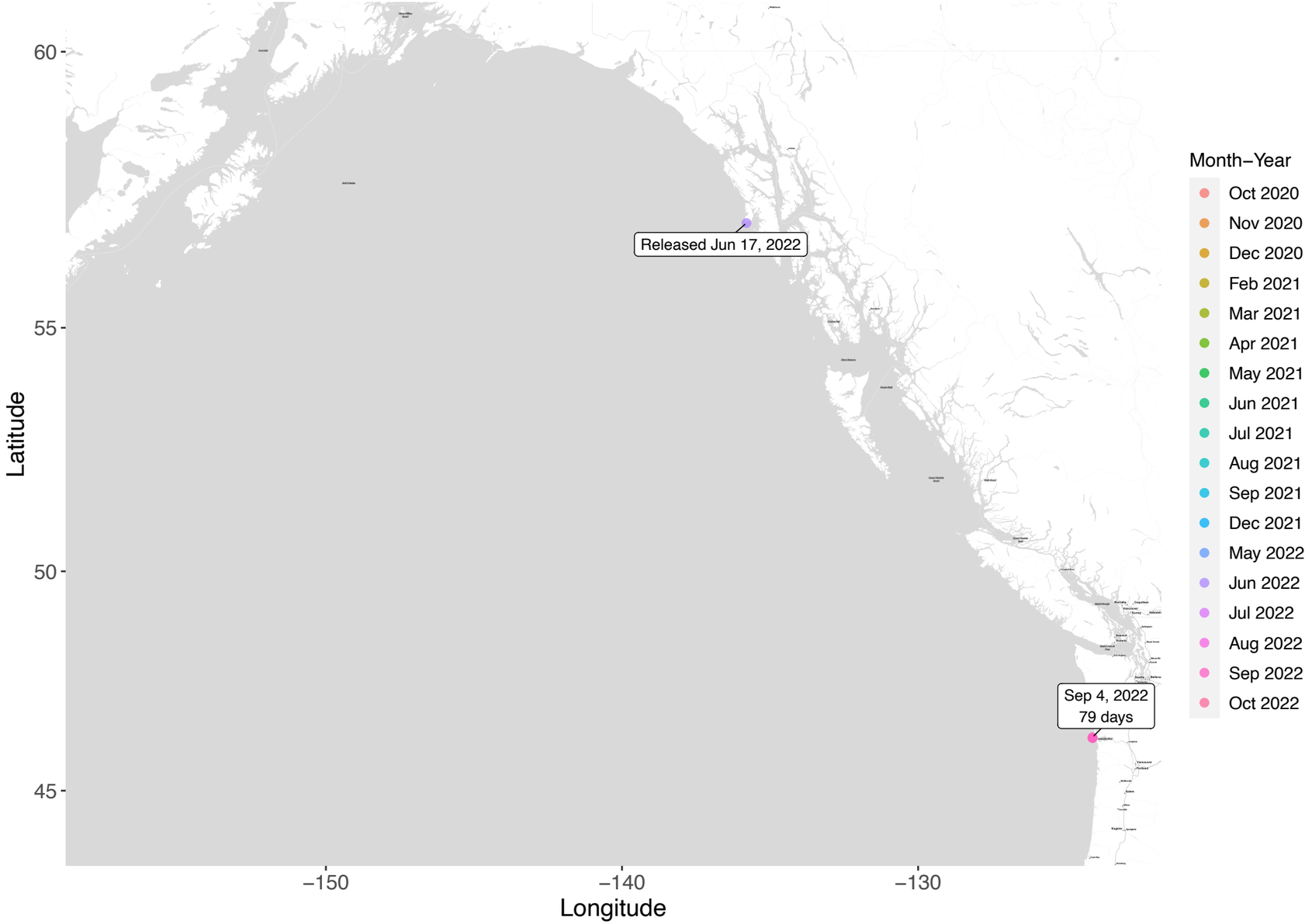


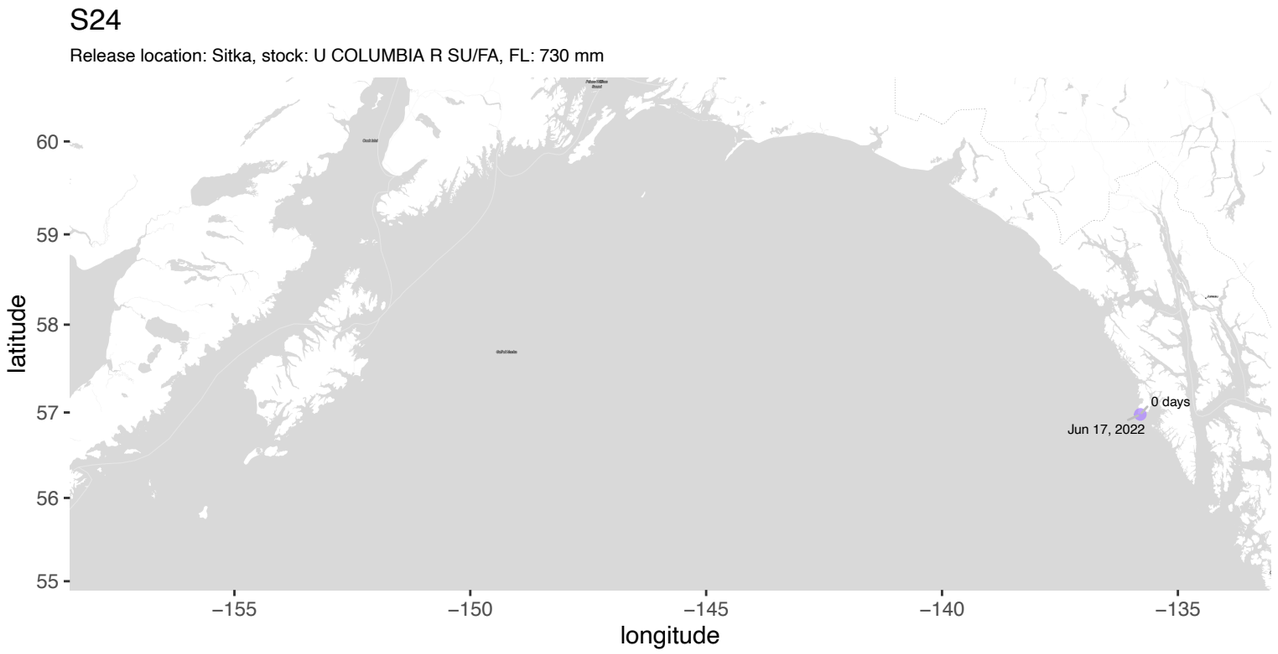
Release location: Sitka, stock: U COLUMBIA R SU/FA, FL: 700 mm
Recovered NA at (NA, NA)

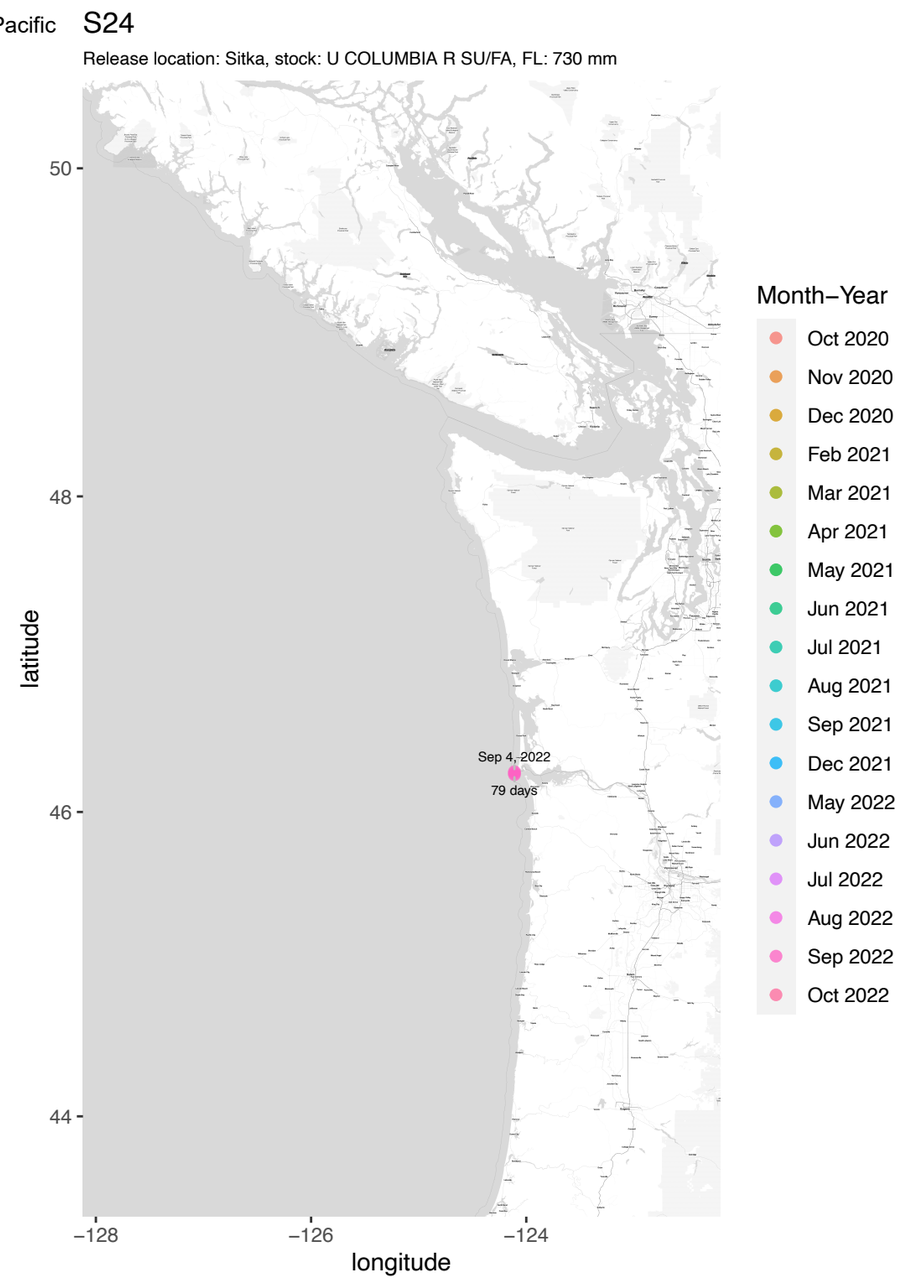



S22
Release location: Sitka, stock: U COLUMBIA R SU/FA, FL: 700 mm
Recovered NA at (NA, NA)
latitude
60
59
58
57
56
55
−155
−150
−145
−140
−135
longitude
Jun 17, 2022
0 days
Month−Year
Oct 2020
Nov 2020
Dec 2020
Feb 2021
Mar 2021
Apr 2021
May 2021
Jun 2021
Jul 2021
Aug 2021
Sep 2021
Dec 2021
May 2022
Jun 2022
Jul 2022
Aug 2022
Sep 2022
Oct 2022

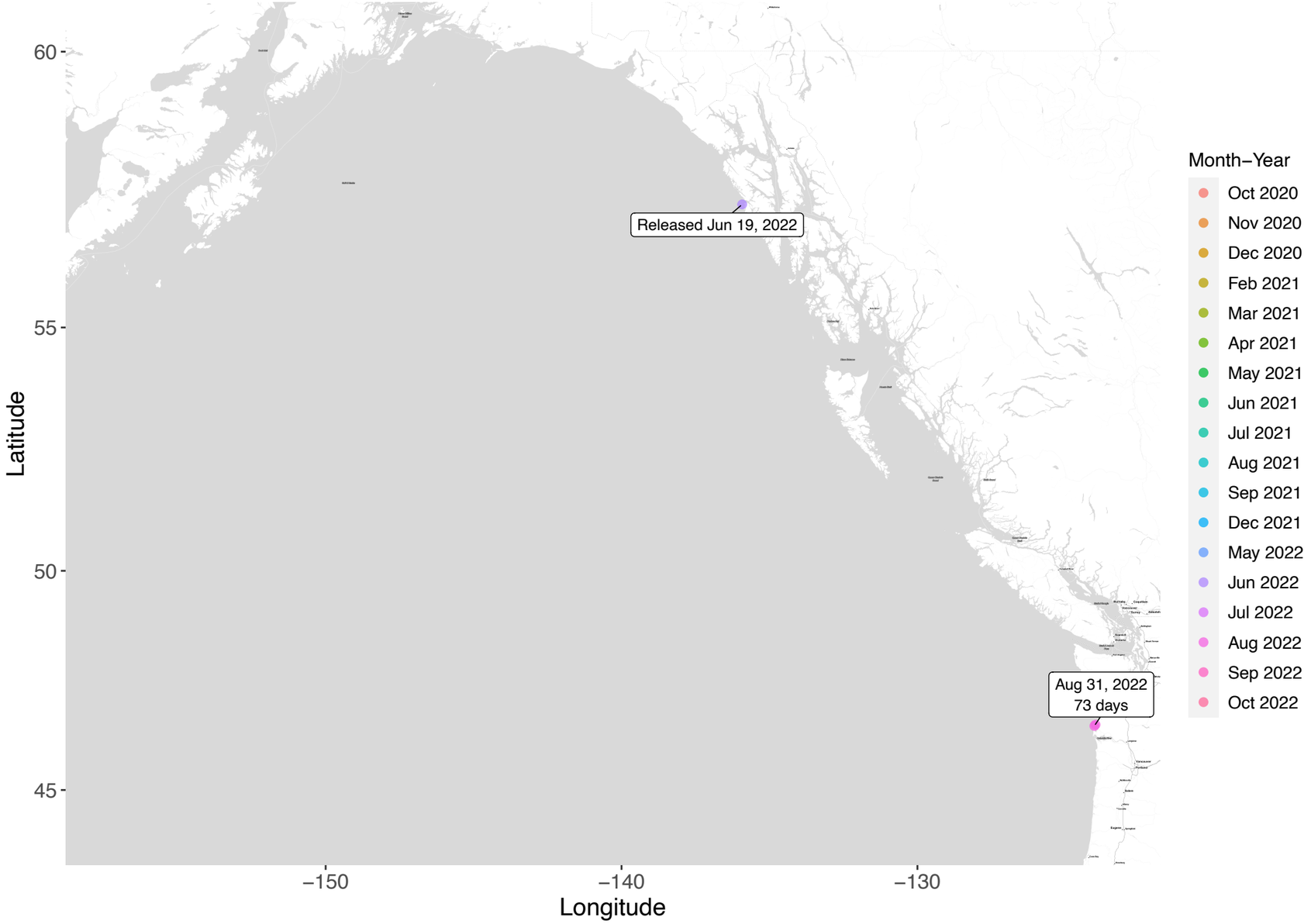
Release location: Sitka, stock: U COLUMBIA R SU/FA, FL: 730 mm

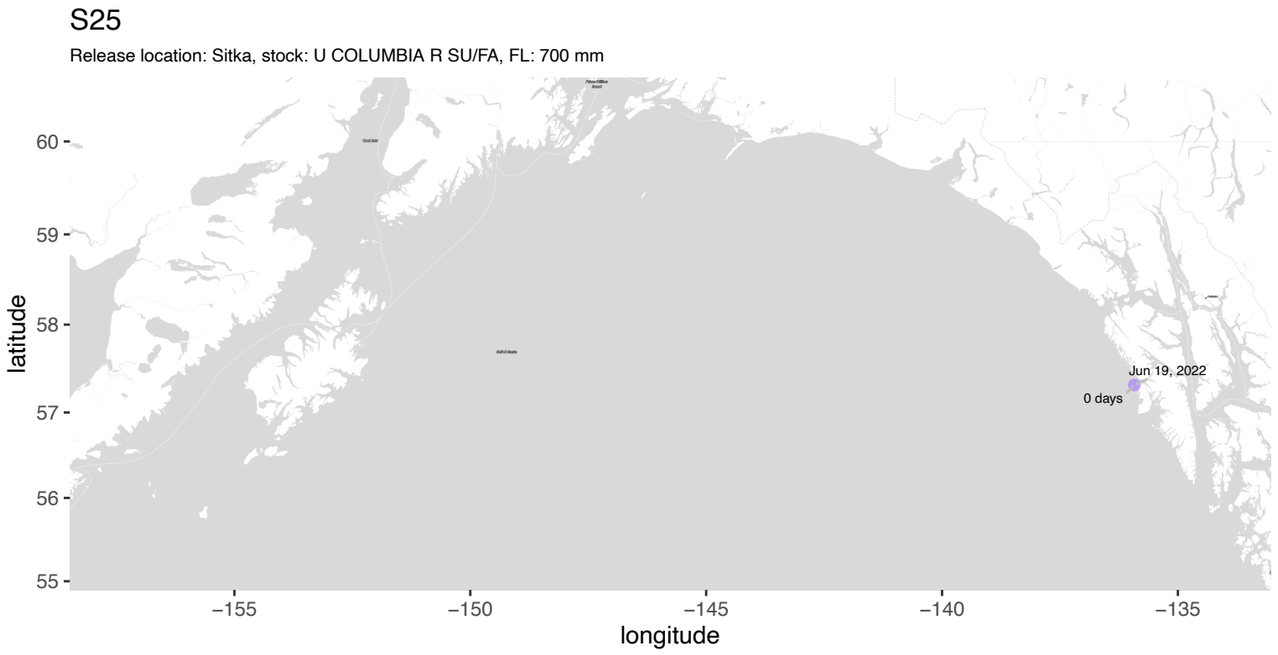


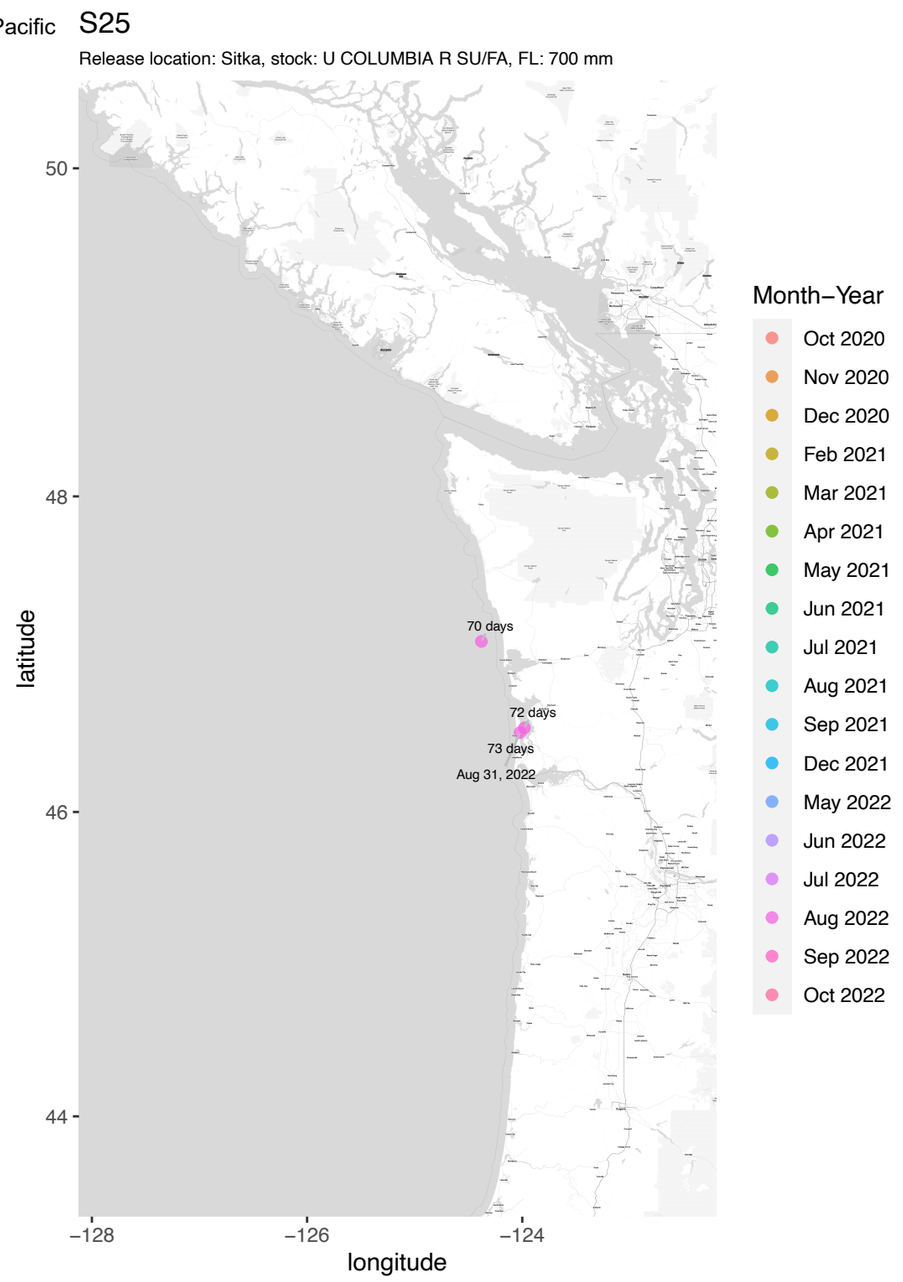

S24
Release location: Sitka, stock: U COLUMBIA R SU/FA, FL: 730 mm
60
59
58
57
56
55
latitude
−155
−150
−145
−140
−135
longitude
0 days
Jun 17, 2022


S24
Release location: Sitka, stock: U COLUMBIA R SU/FA, FL: 730 mm
50
48
46
44
latitude
−128
−126
−124
longitude
Sep 4, 2022
79 days
Month−Year
Oct 2020
Nov 2020
Dec 2020
Feb 2021
Mar 2021
Apr 2021
May 2021
Jun 2021
Jul 2021
Aug 2021
Sep 2021
Dec 2021
May 2022
Jun 2022
Jul 2022
Aug 2022
Sep 2022
Oct 2022

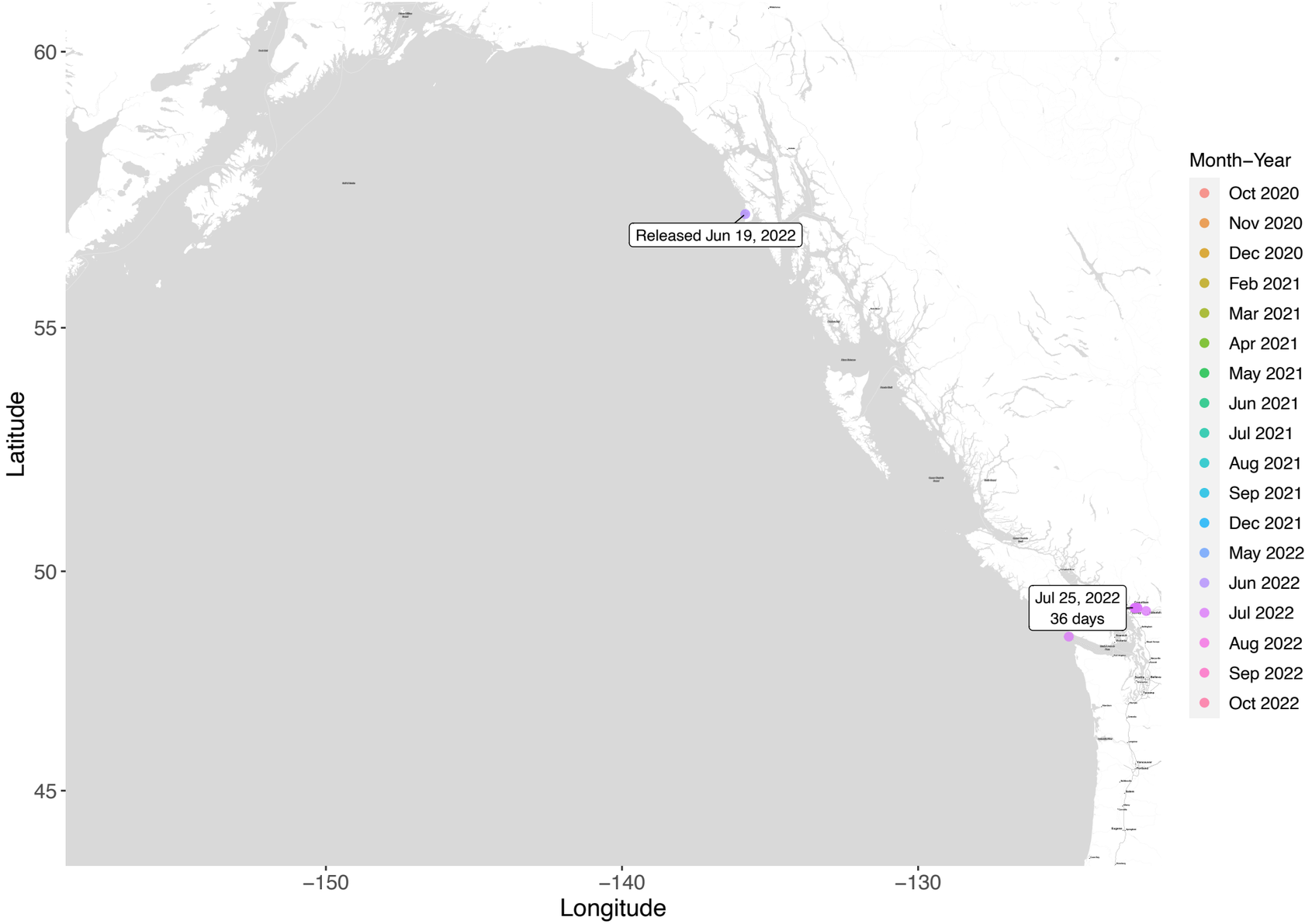
Release location: Sitka, stock: U COLUMBIA R SU/FA, FL: 700 mm




S25
Release location: Sitka, stock: U COLUMBIA R SU/FA, FL: 700 mm
60
59
58
57
56
55
latitude
−155
−150
−145
−140
−135
longitude
Jun 19, 2022
0 days

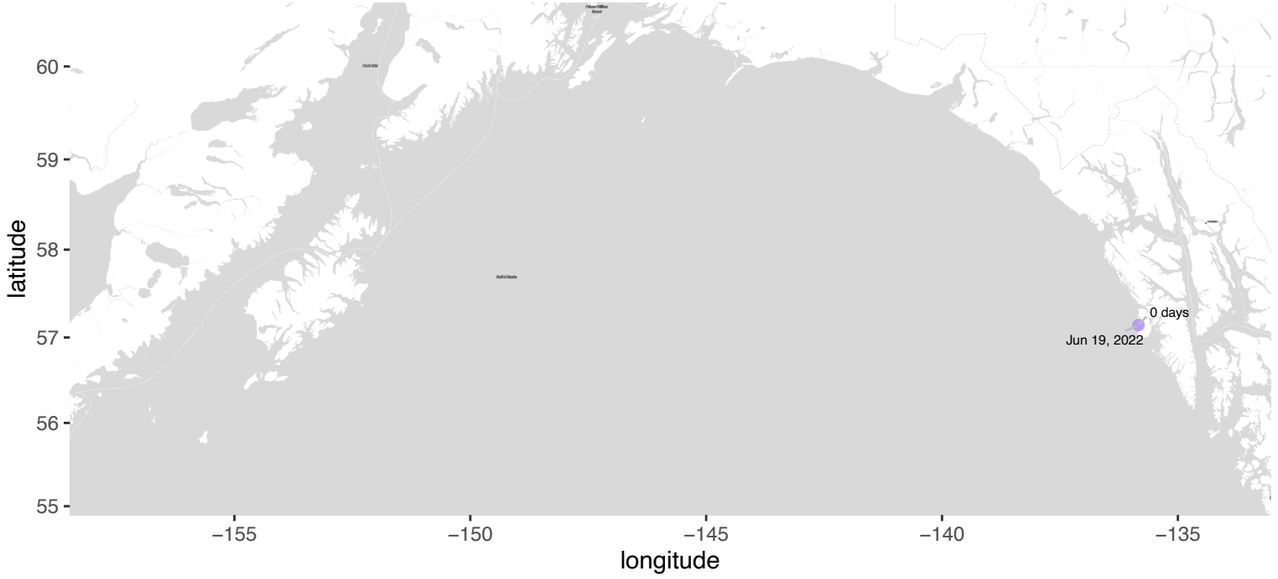

S25
Release location: Sitka, stock: U COLUMBIA R SU/FA, FL: 700 mm
50
48
46
44
latitude
−128
−126
−124
longitude
70 days
72 days
73 days
Aug 31, 2022
Month−Year
Oct 2020
Nov 2020
Dec 2020
Feb 2021
Mar 2021
Apr 2021
May 2021
Jun 2021
Jul 2021
Aug 2021
Sep 2021
Dec 2021
May 2022
Jun 2022
Jul 2022
Aug 2022
Sep 2022
Oct 2022

Release location: Sitka, stock: S THOMPSON R, FL: 730 mm



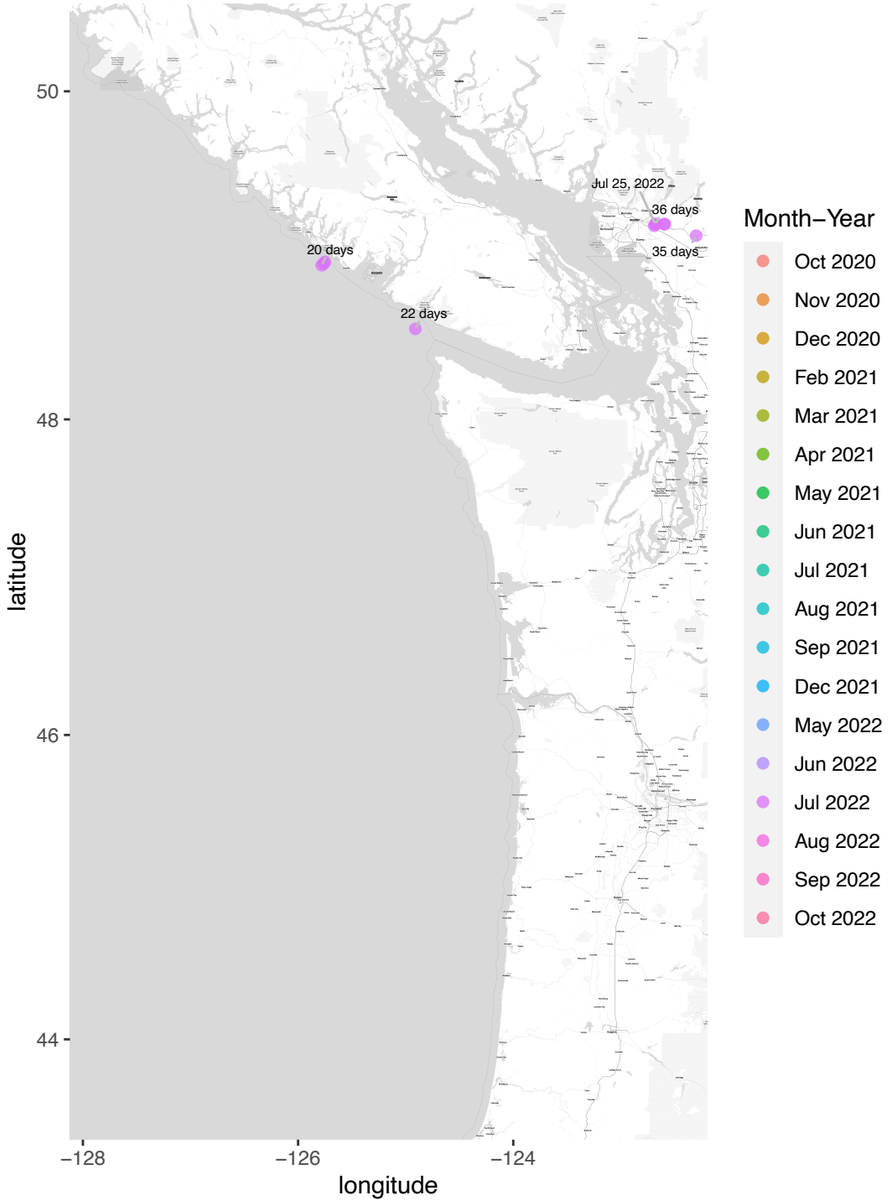
S26

Release location: Sitka, stock: S THOMPSON R, FL: 730 mm

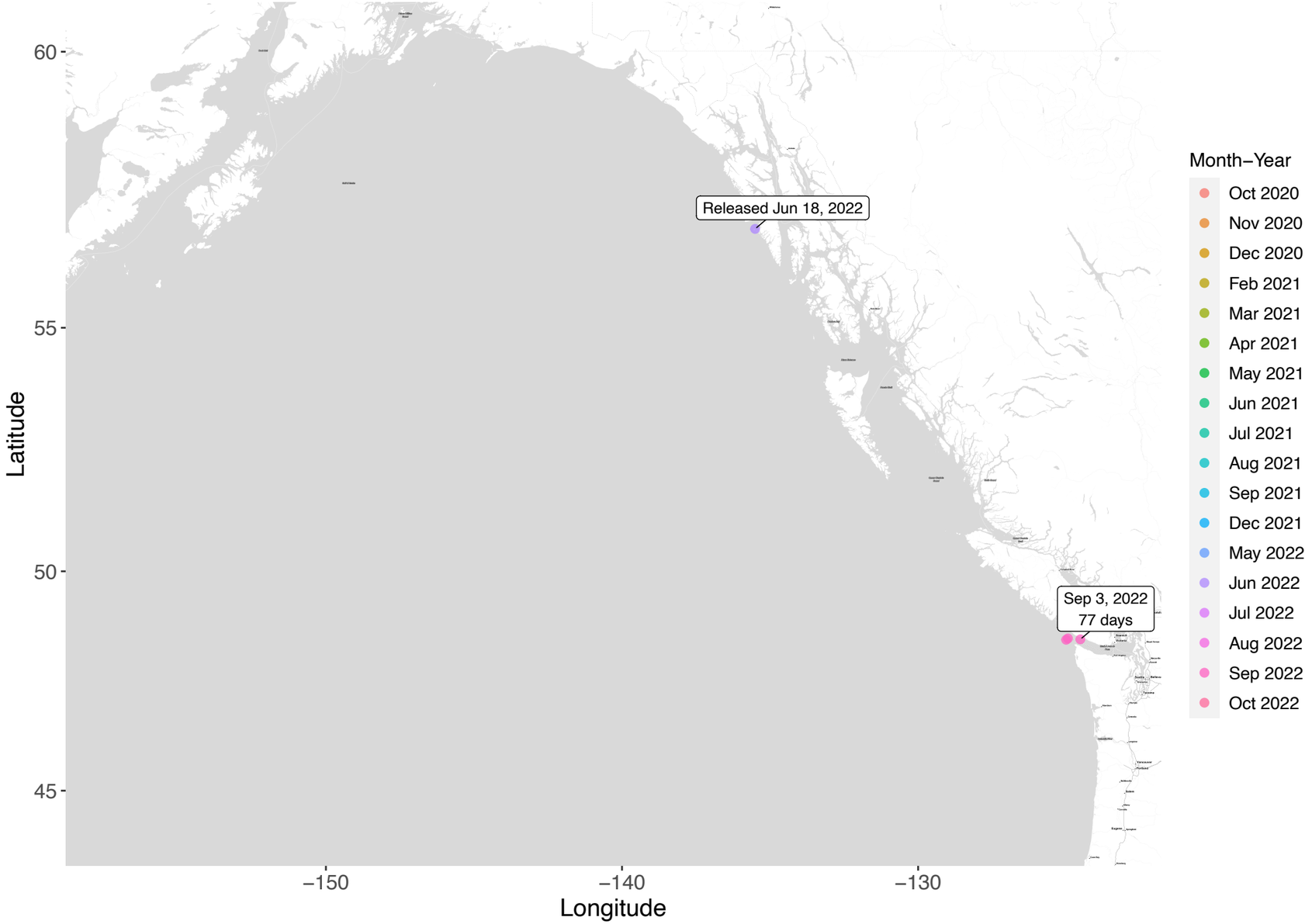


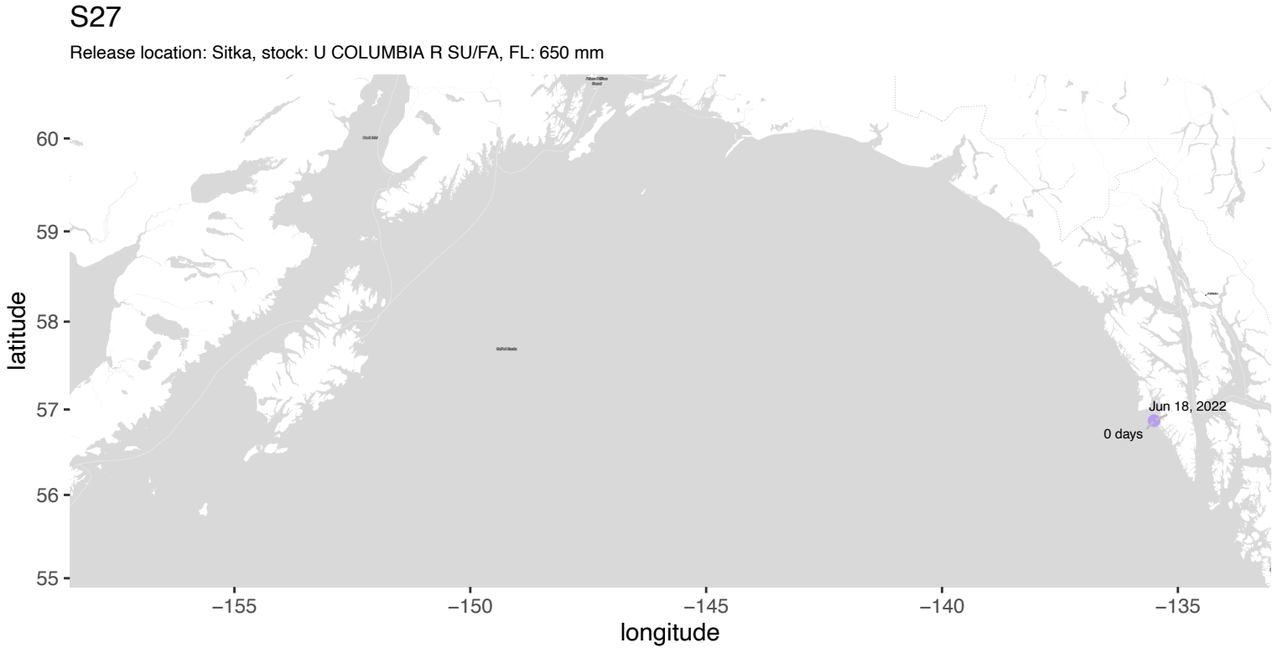
S26

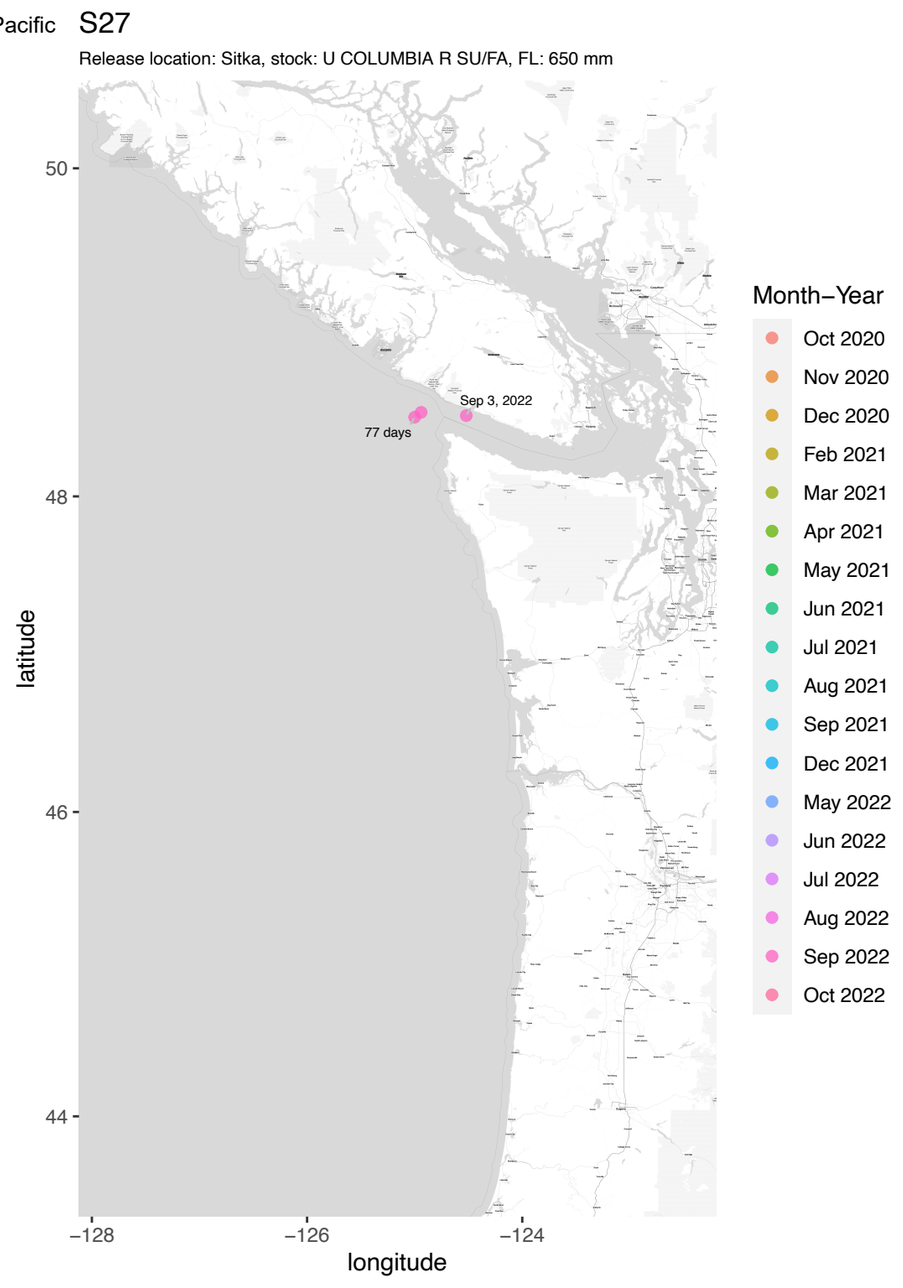
Release location: Sitka, stock: S THOMPSON R, FL: 730 mm



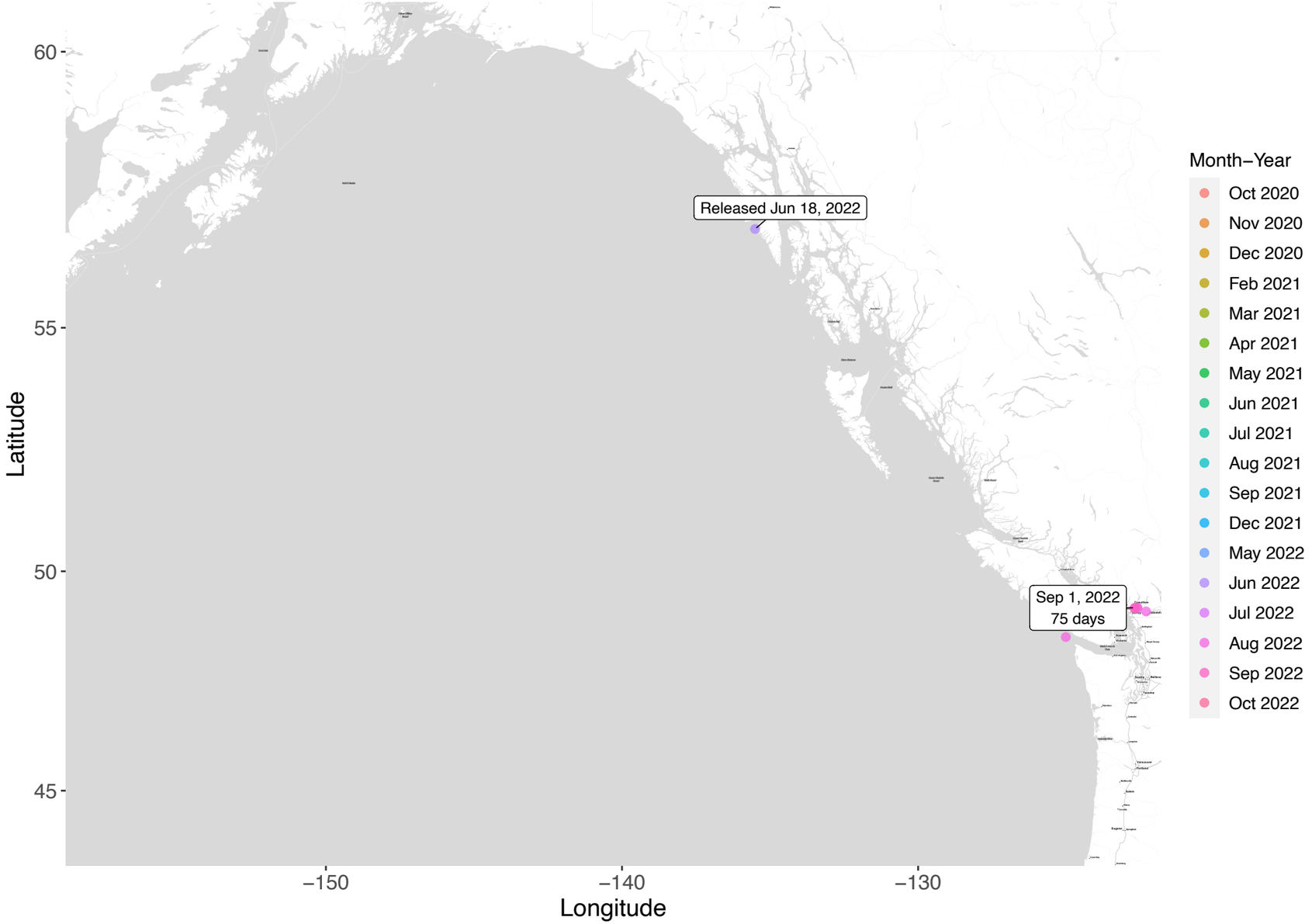
Release location: Sitka, stock: U COLUMBIA R SU/FA, FL: 650 mm

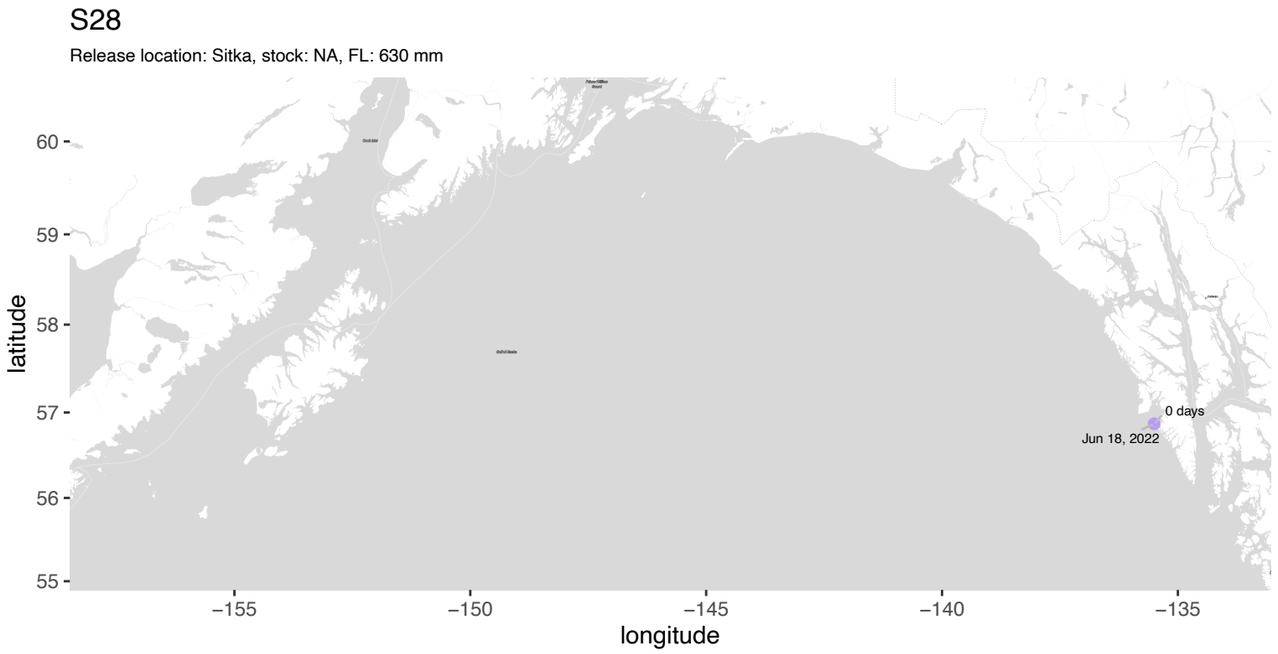


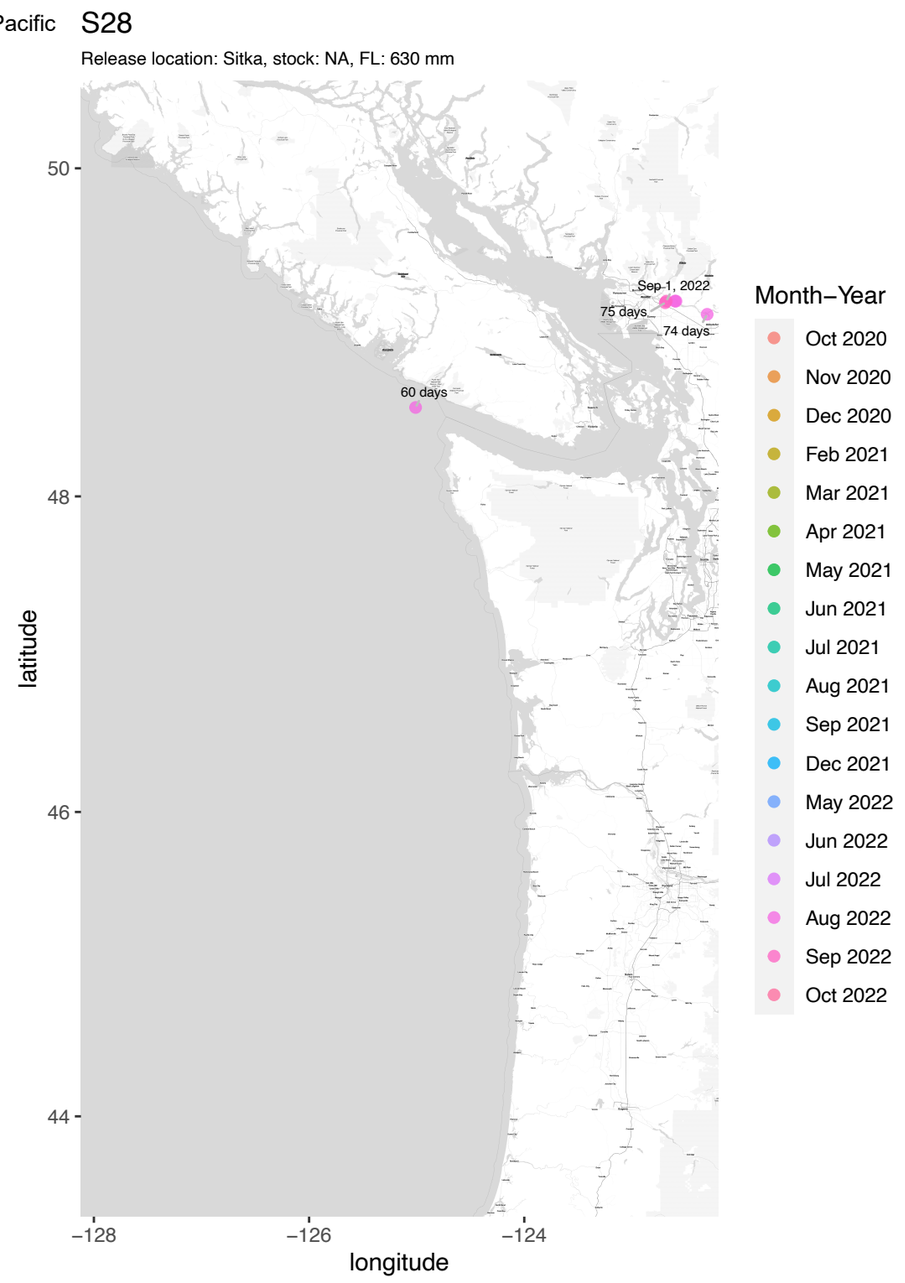

S27
Release location: Sitka, stock: U COLUMBIA R SU/FA, FL: 650 mm
60
59
58
57
56
55
latitude
−155
−150
−145
−140
−135
longitude
Jun 18, 2022
0 days


S27
Release location: Sitka, stock: U COLUMBIA R SU/FA, FL: 650 mm
50
48
46
44
latitude
−128
−126
−124
longitude
Sep 3, 2022
77 days
Month−Year
Oct 2020
Nov 2020
Dec 2020
Feb 2021
Mar 2021
Apr 2021
May 2021
Jun 2021
Jul 2021
Aug 2021
Sep 2021
Dec 2021
May 2022
Jun 2022
Jul 2022
Aug 2022
Sep 2022
Oct 2022

Release location: Sitka, stock: NA, FL: 630 mm

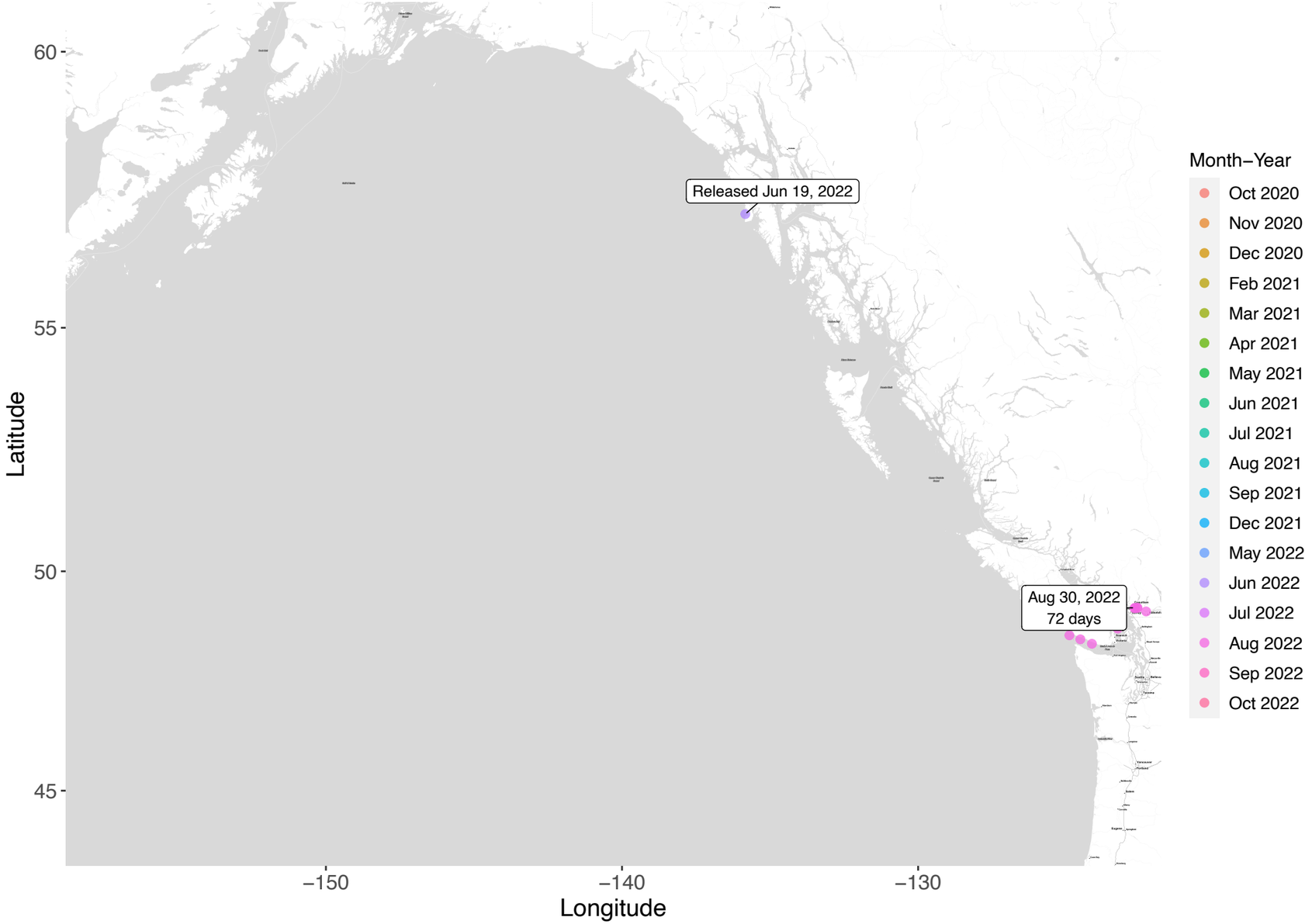



S28
Release location: Sitka, stock: NA, FL: 630 mm
0 days
Jun 18, 2022
60
59
58
57
56
55
−155
−150
−145
−140
−135
latitude
longitude


S28
Release location: Sitka, stock: NA, FL: 630 mm
Sep 1, 2022
75 days
74 days
60 days
50
48
46
44
−128
−126
−124
latitude
longitude
Month−Year
Oct 2020
Nov 2020
Dec 2020
Feb 2021
Mar 2021
Apr 2021
May 2021
Jun 2021
Jul 2021
Aug 2021
Sep 2021
Dec 2021
May 2022
Jun 2022
Jul 2022
Aug 2022
Sep 2022
Oct 2022

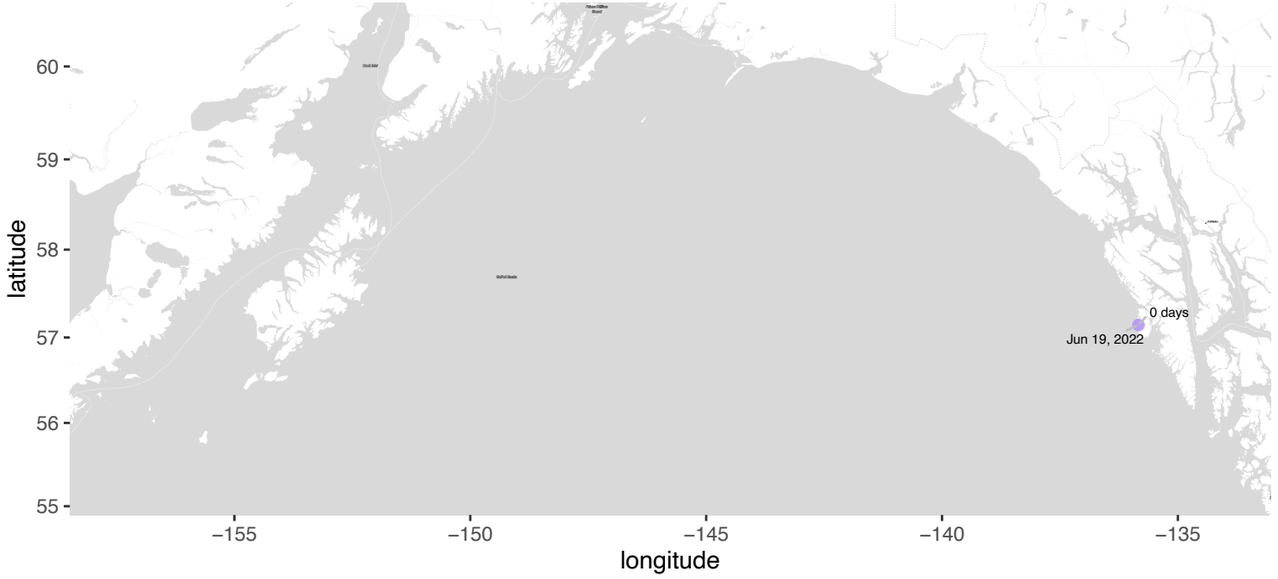
S29

Release location: Sitka, stock: S THOMPSON R, FL: 700 mm



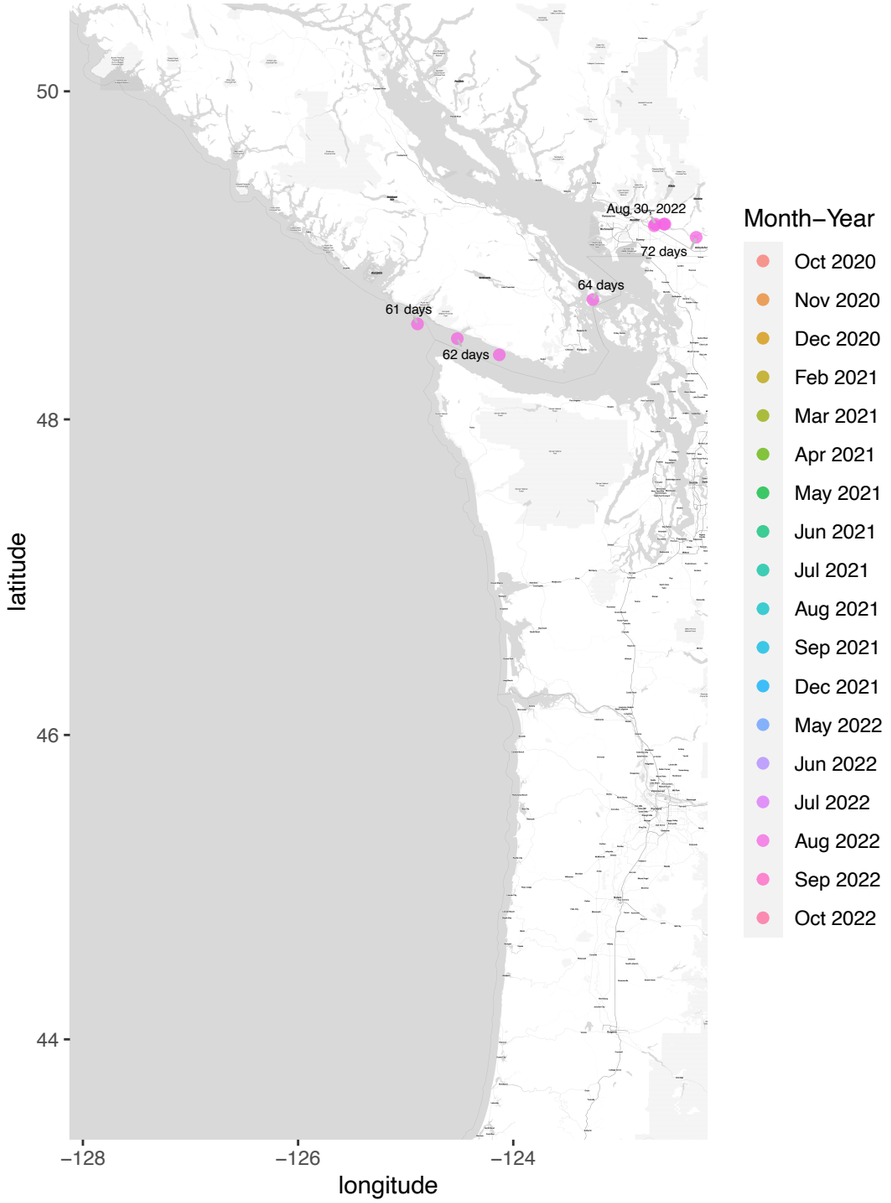
S29

Release location: Sitka, stock: S THOMPSON R, FL: 700 mm

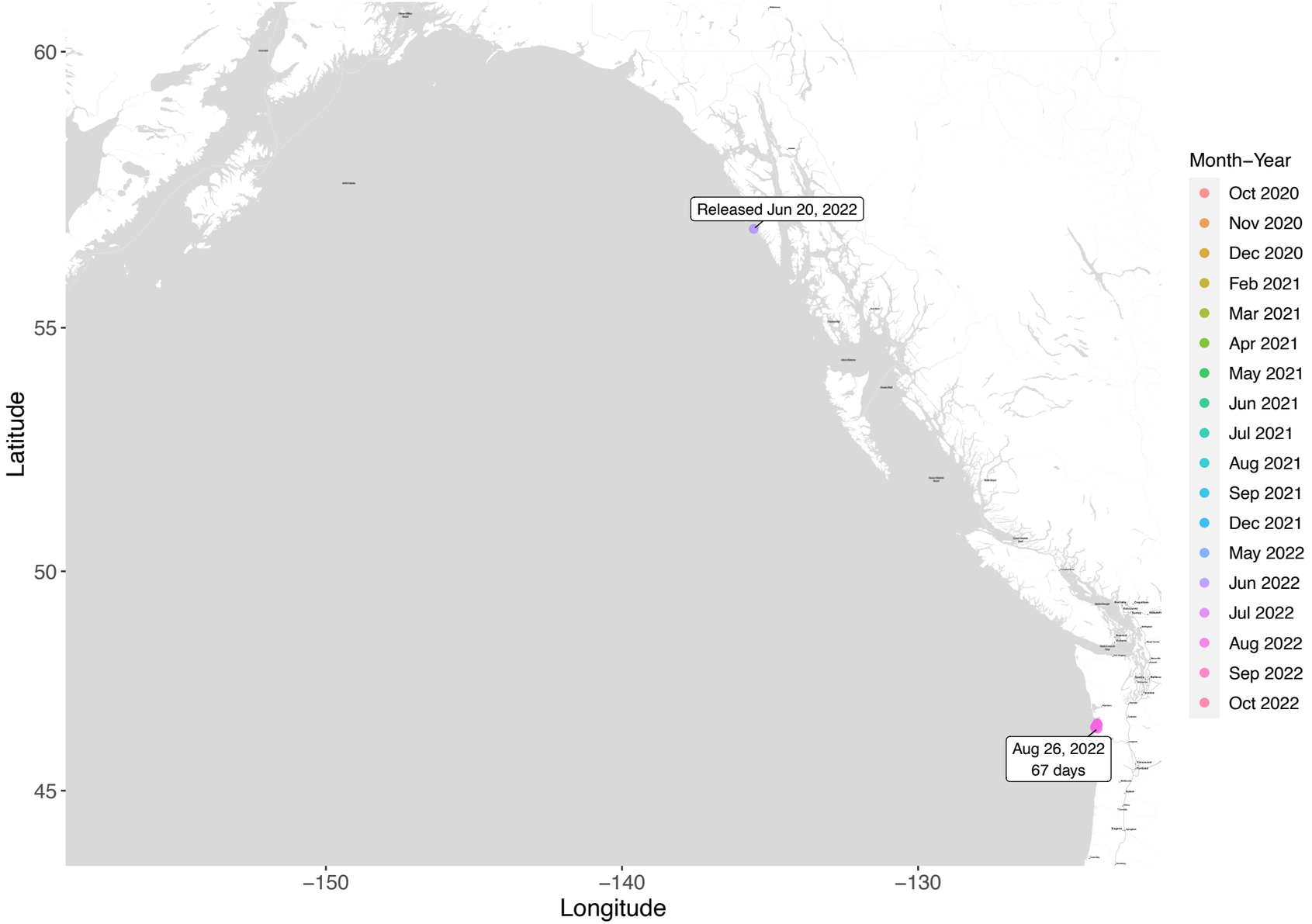


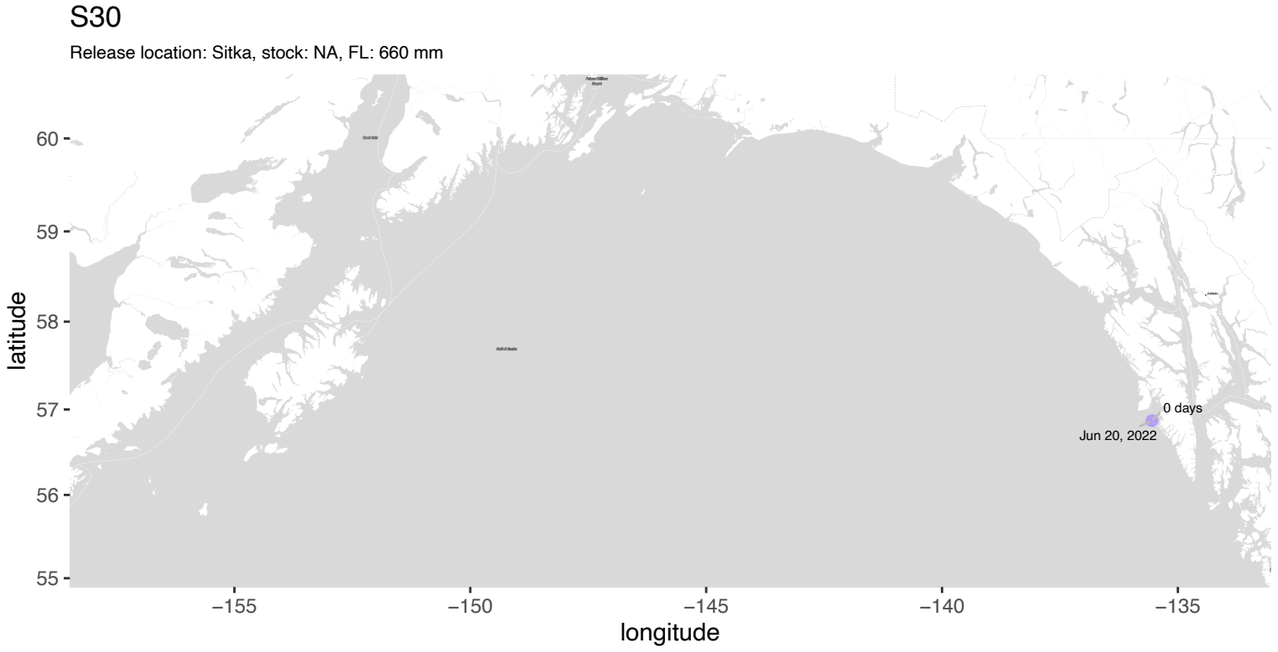
S29

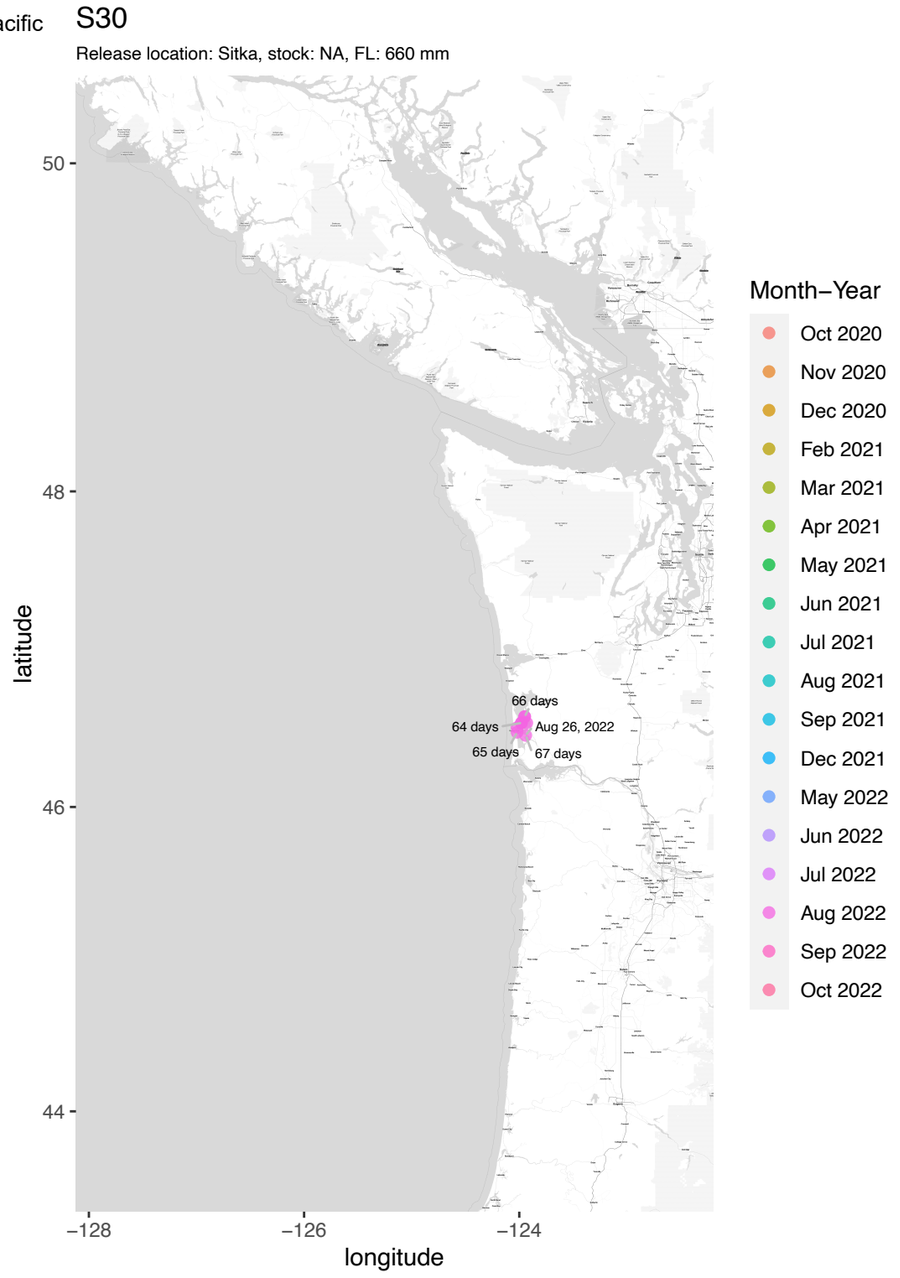
Release location: Sitka, stock: S THOMPSON R, FL: 700 mm



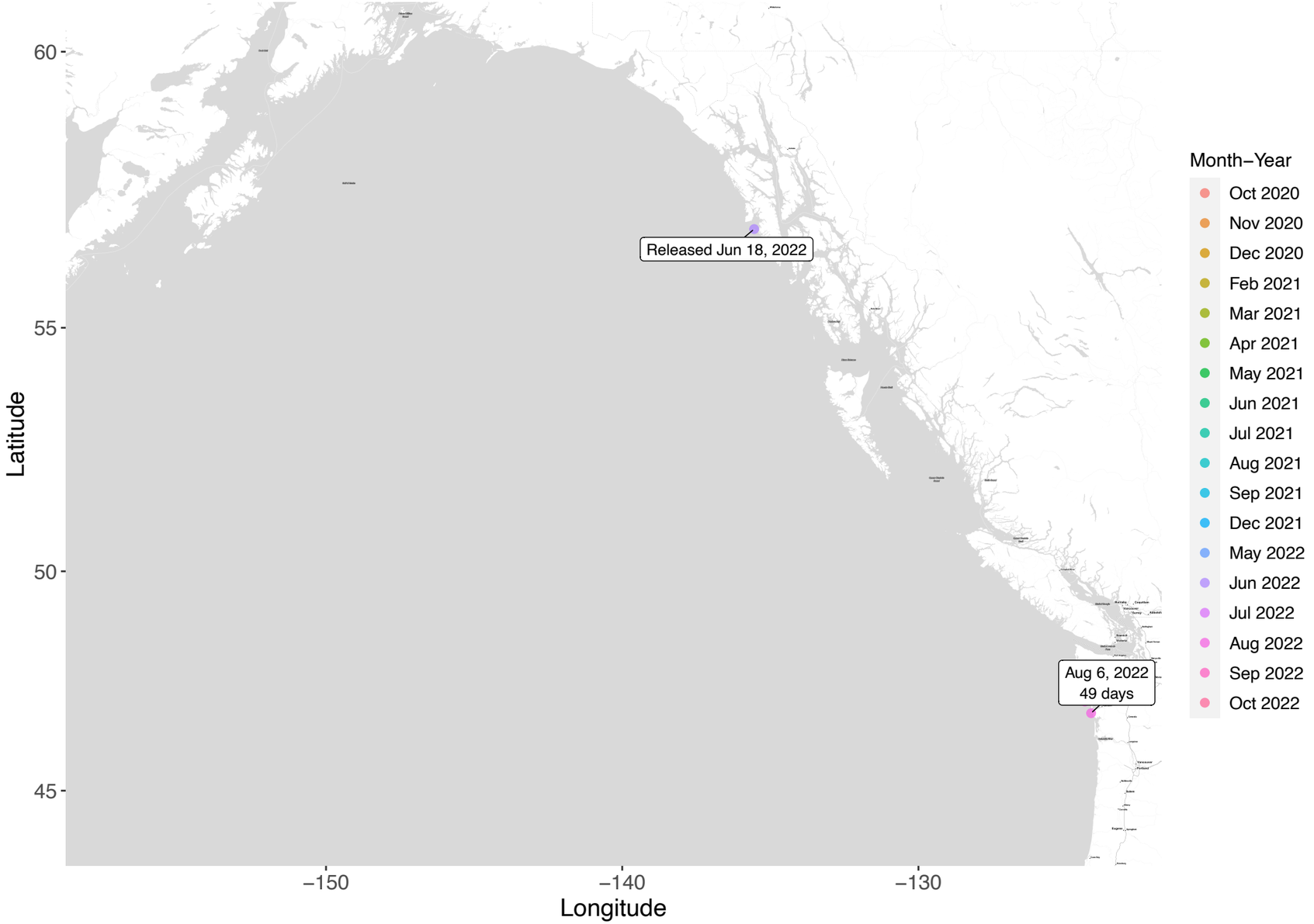
Release location: Sitka, stock: NA, FL: 660 mm

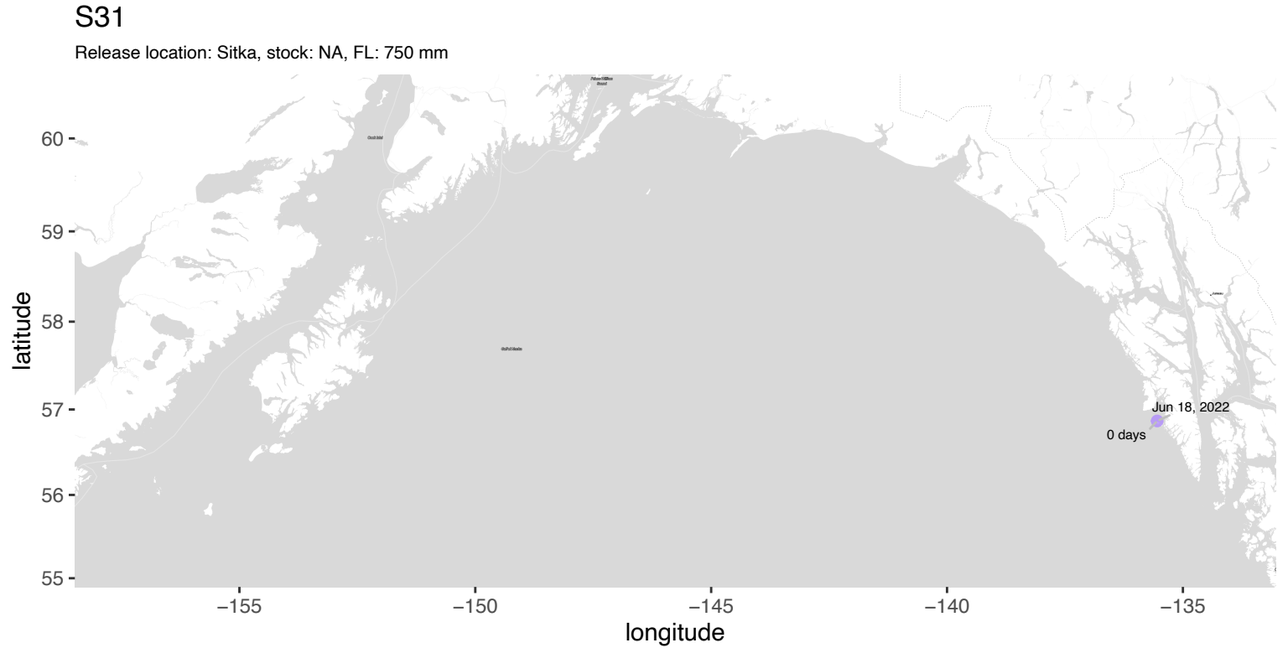


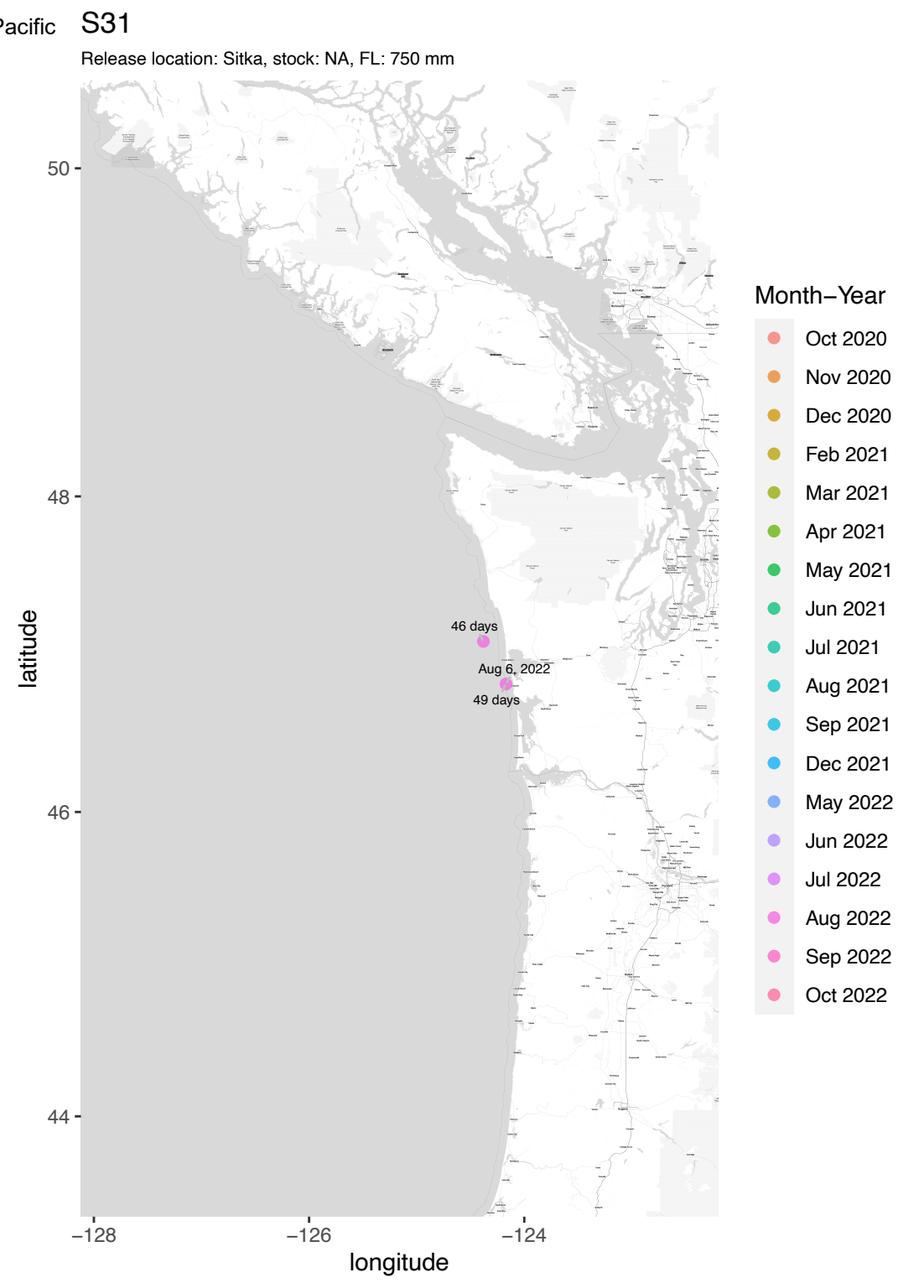

S30
Release location: Sitka, stock: NA, FL: 660 mm
60
59
58
57
56
55
latitude
−155
−150
−145
−140
−135
longitude
0 days
Jun 20, 2022


S30
Release location: Sitka, stock: NA, FL: 660 mm
50
48
46
44
latitude
−128
−126
−124
longitude
66 days
64 days
Aug 26, 2022
65 days
67 days
Month−Year
Oct 2020
Nov 2020
Dec 2020
Feb 2021
Mar 2021
Apr 2021
May 2021
Jun 2021
Jul 2021
Aug 2021
Sep 2021
Dec 2021
May 2022
Jun 2022
Jul 2022
Aug 2022
Sep 2022
Oct 2022

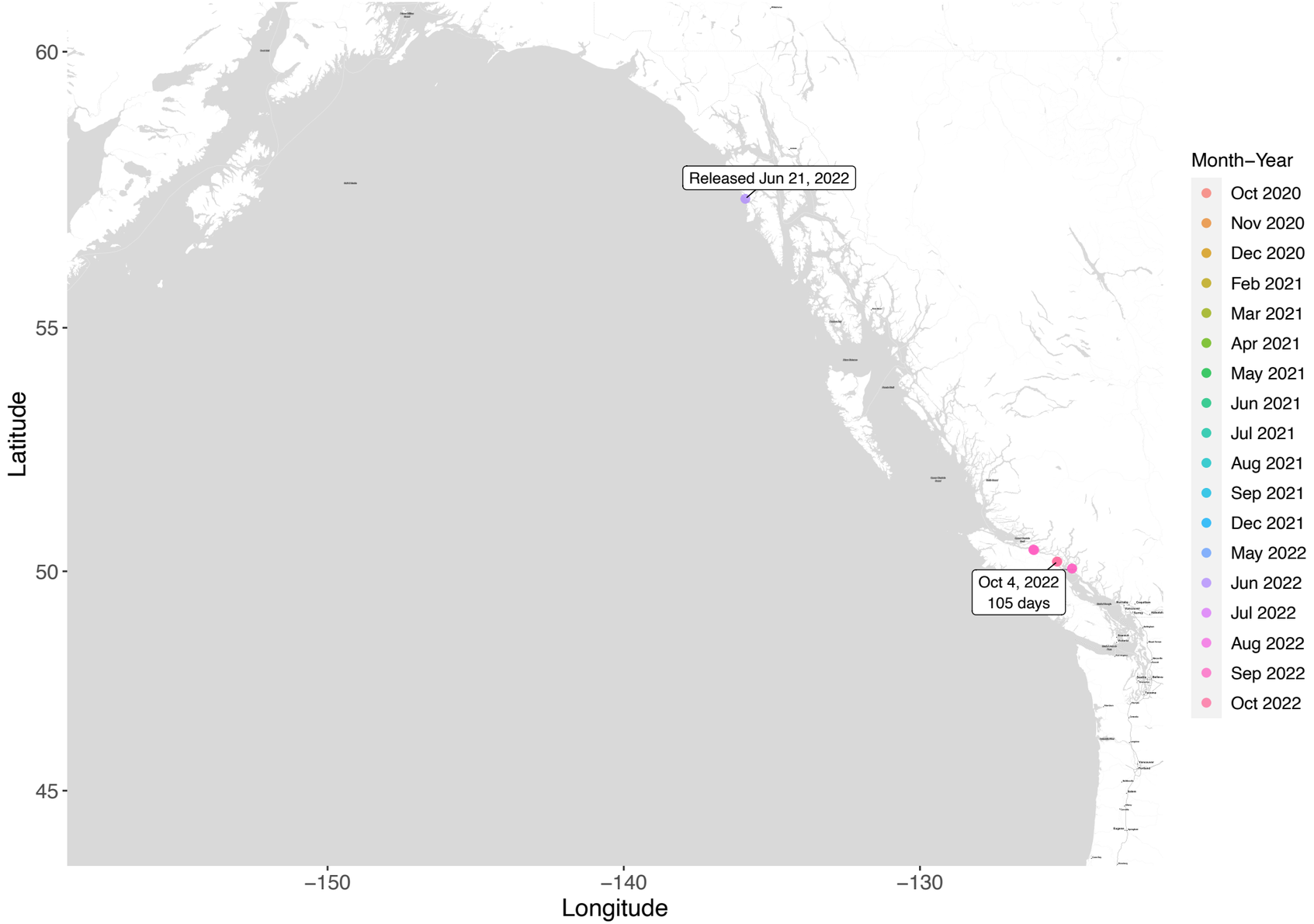
Release location: Sitka, stock: NA, FL: 750 mm

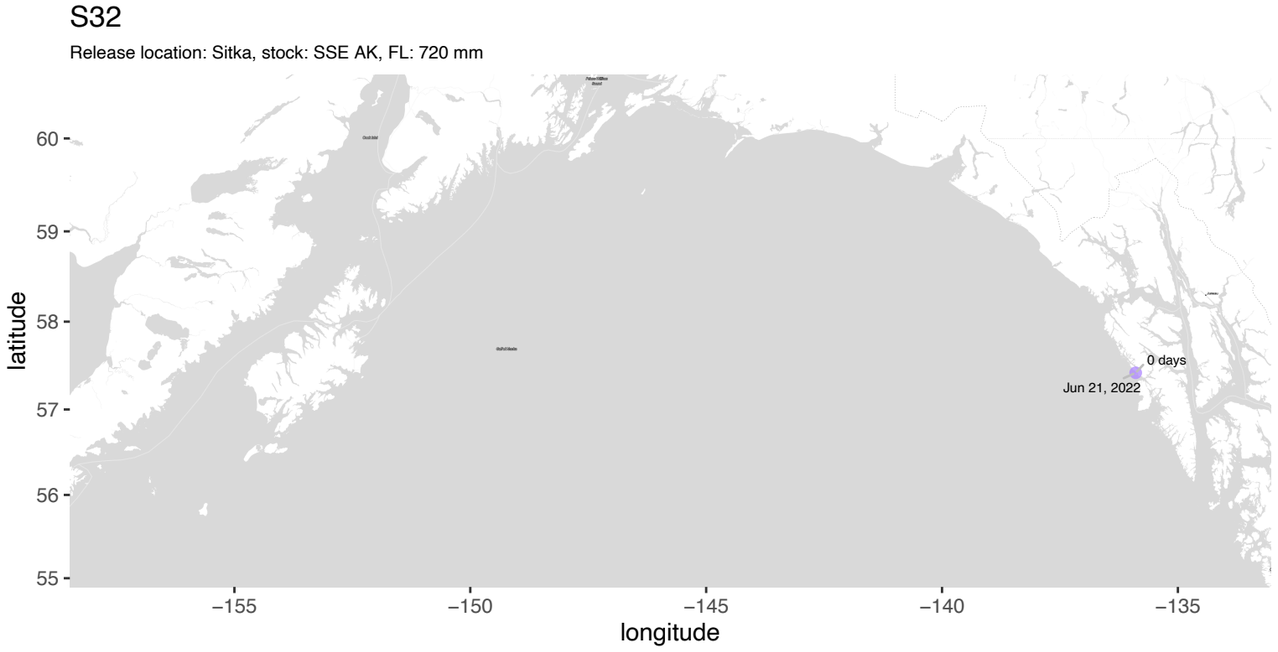


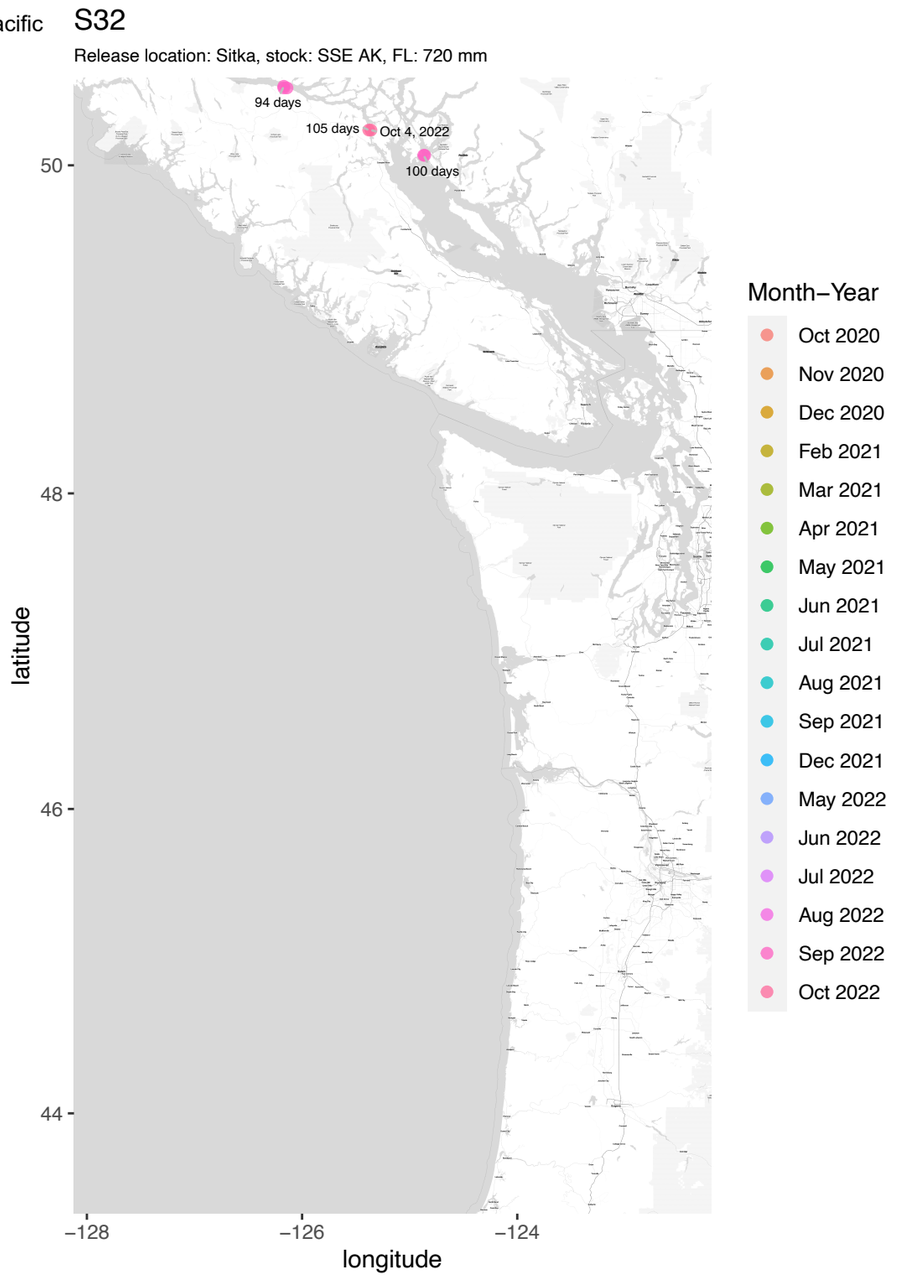

S31
Release location: Sitka, stock: NA, FL: 750 mm
60
59
58
57
56
55
latitude
−155
−150
−145
−140
−135
longitude
Jun 18, 2022
0 days


S31
Release location: Sitka, stock: NA, FL: 750 mm
50
48
46
44
latitude
−128
−126
−124
longitude
46 days
Aug 6, 2022
49 days
Month−Year
Oct 2020
Nov 2020
Dec 2020
Feb 2021
Mar 2021
Apr 2021
May 2021
Jun 2021
Jul 2021
Aug 2021
Sep 2021
Dec 2021
May 2022
Jun 2022
Jul 2022
Aug 2022
Sep 2022
Oct 2022

Release location: Sitka, stock: SSE AK, FL: 720 mm

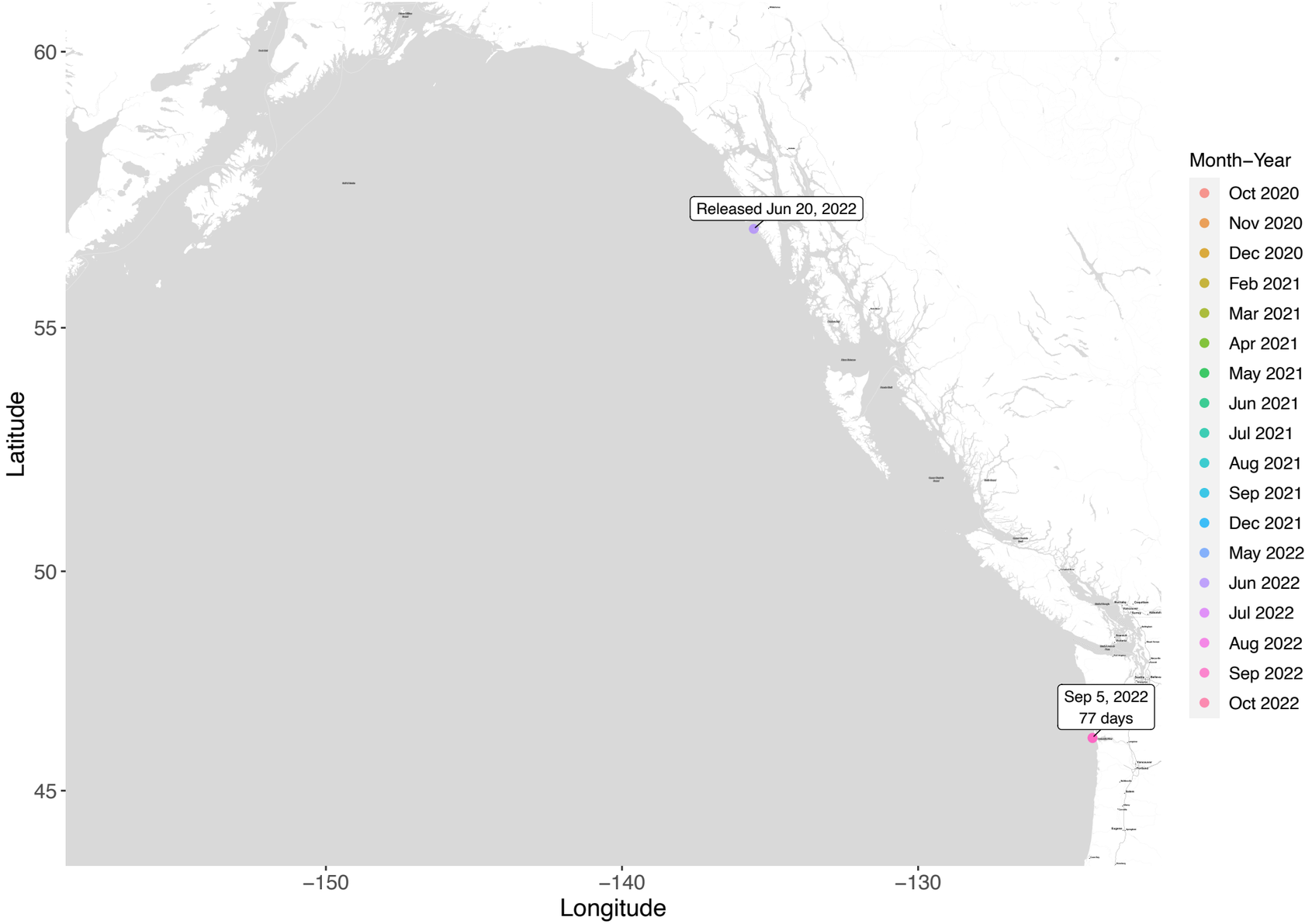



S32
Release location: Sitka, stock: SSE AK, FL: 720 mm
0 days
Jun 21, 2022
60
59
58
57
56
55
latitude
−155
−150
−145
−140
−135
longitude


S32
Release location: Sitka, stock: SSE AK, FL: 720 mm
94 days
105 days
Oct 4, 2022
100 days
50
48
46
44
latitude
−128
−126
−124
longitude
Month−Year
Oct 2020
Nov 2020
Dec 2020
Feb 2021
Mar 2021
Apr 2021
May 2021
Jun 2021
Jul 2021
Aug 2021
Sep 2021
Dec 2021
May 2022
Jun 2022
Jul 2022
Aug 2022
Sep 2022
Oct 2022

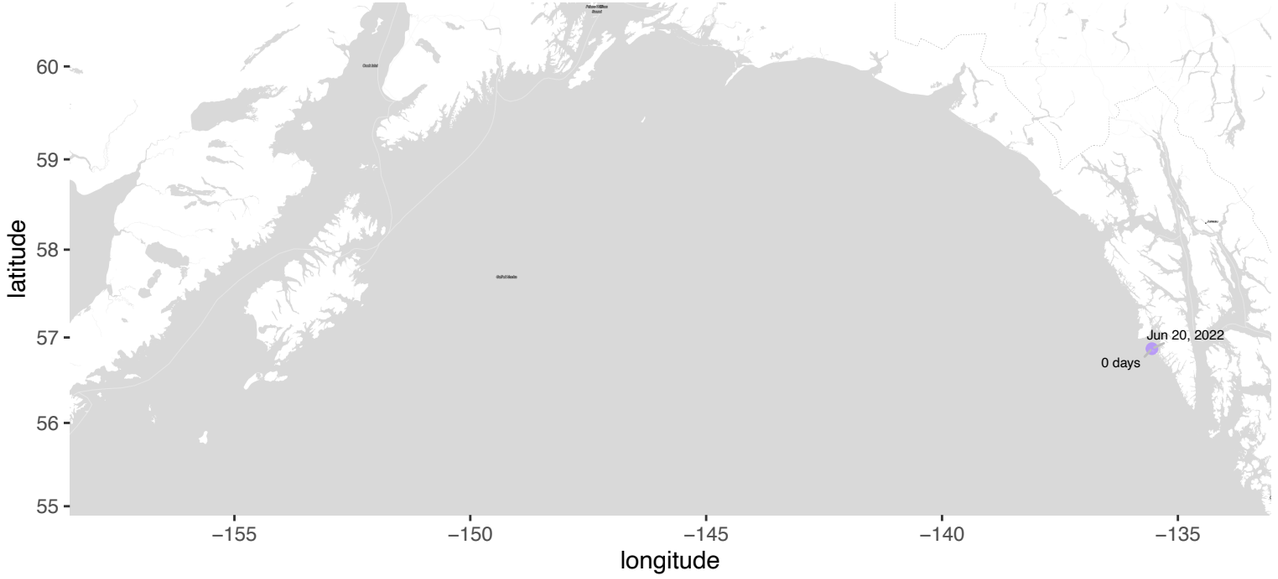
S33 Submitted in Support of the U.S. Navy's 2022 Annual Marine Species Monitoring Report for the Pacific

Release location: Sitka, stock: U COLUMBIA R SU/FA, FL: 690 mm



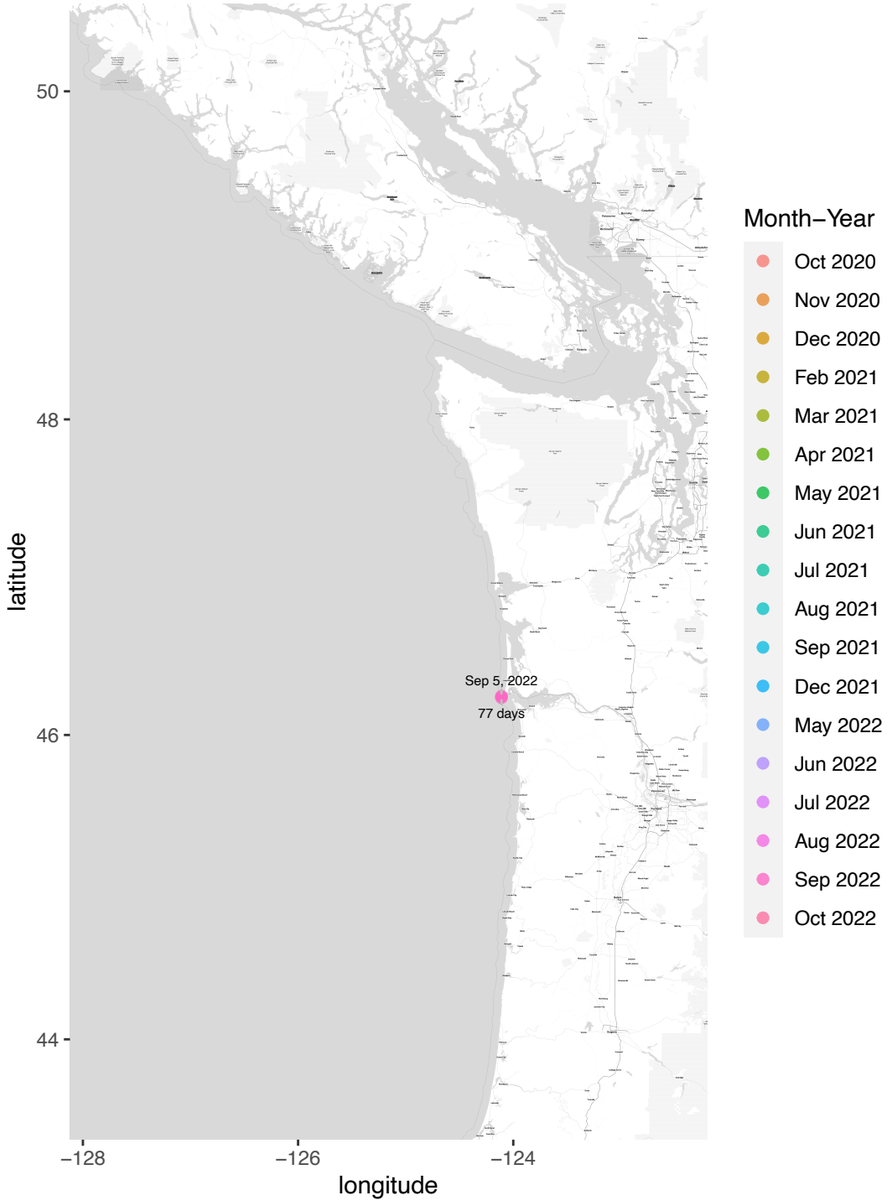
S33

Release location: Sitka, stock: U COLUMBIA R SU/FA, FL: 690 mm

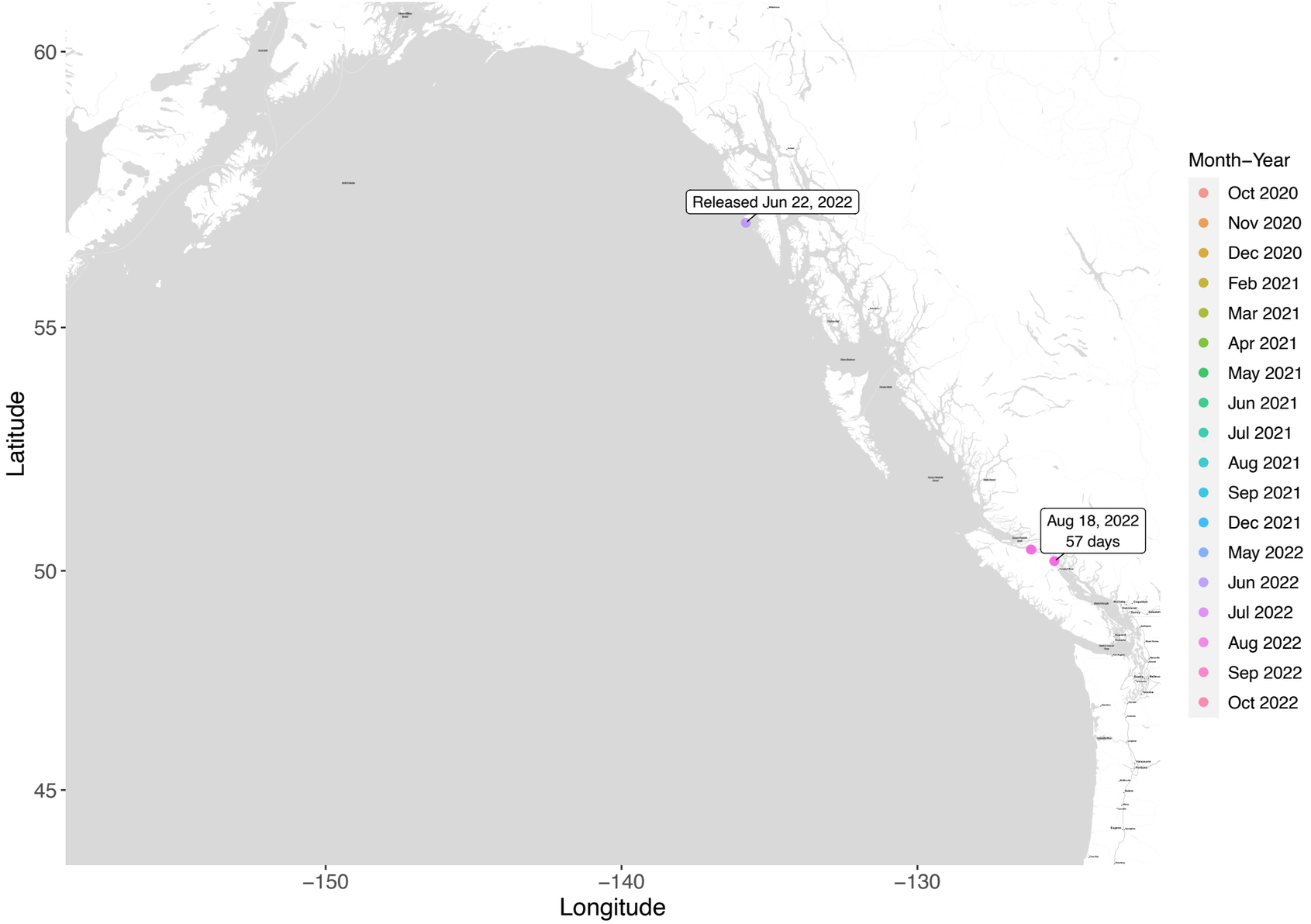


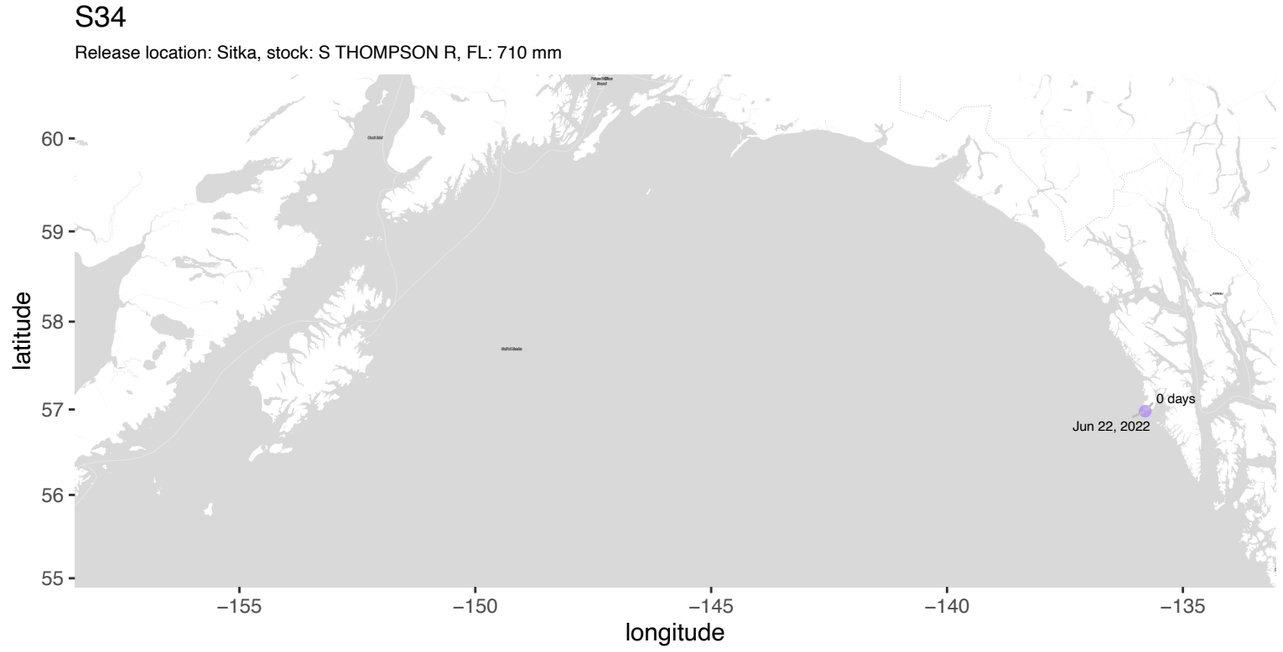
S33

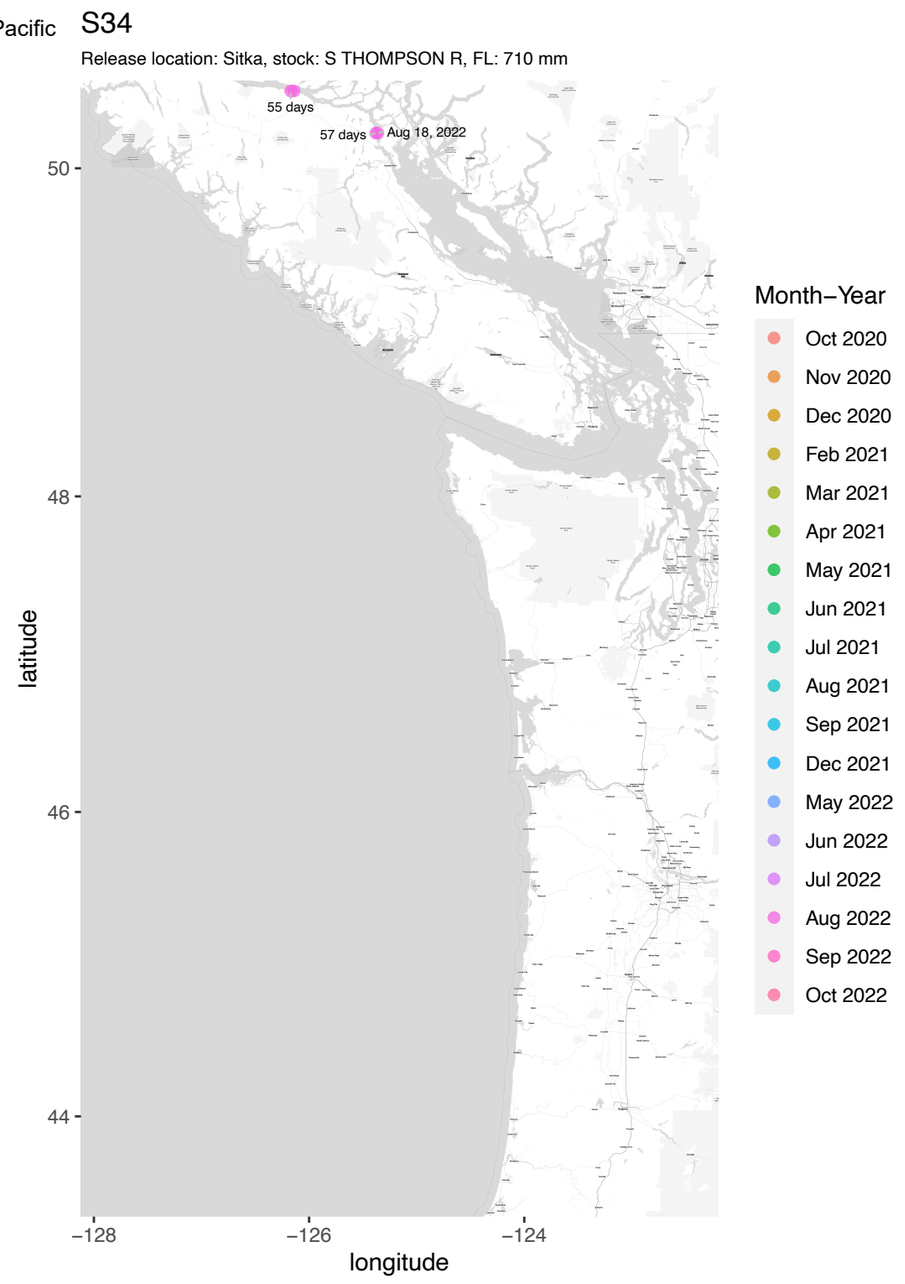
Release location: Sitka, stock: U COLUMBIA R SU/FA, FL: 690 mm



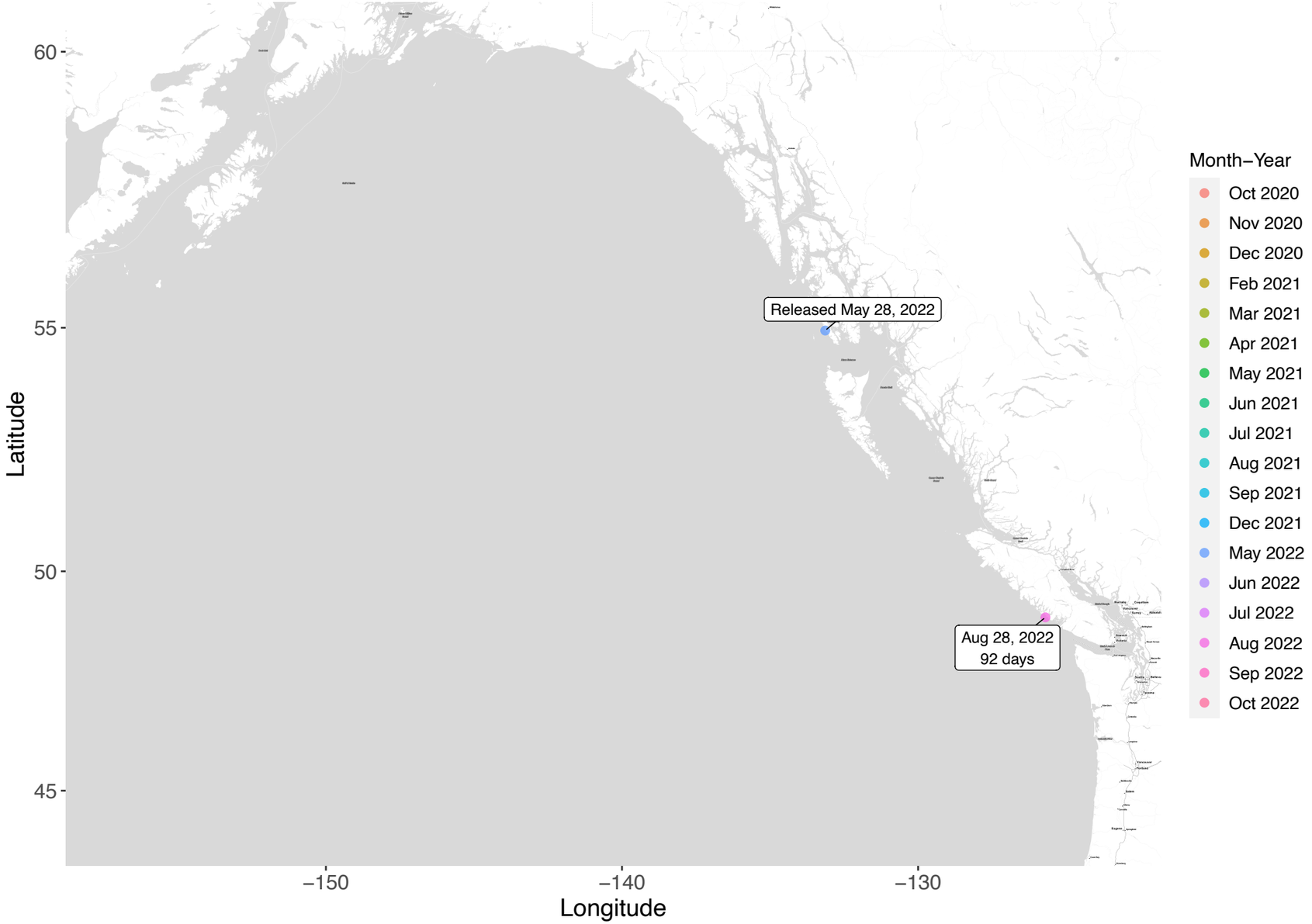
Release location: Sitka, stock: S THOMPSON R, FL: 710 mm

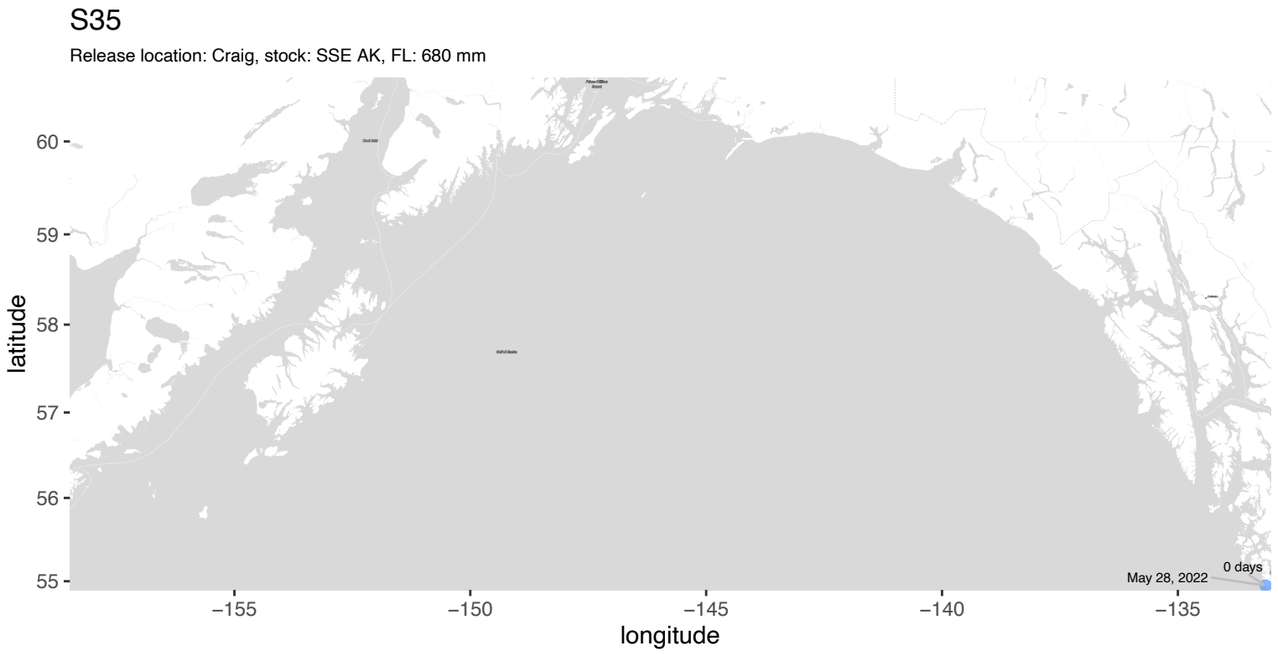


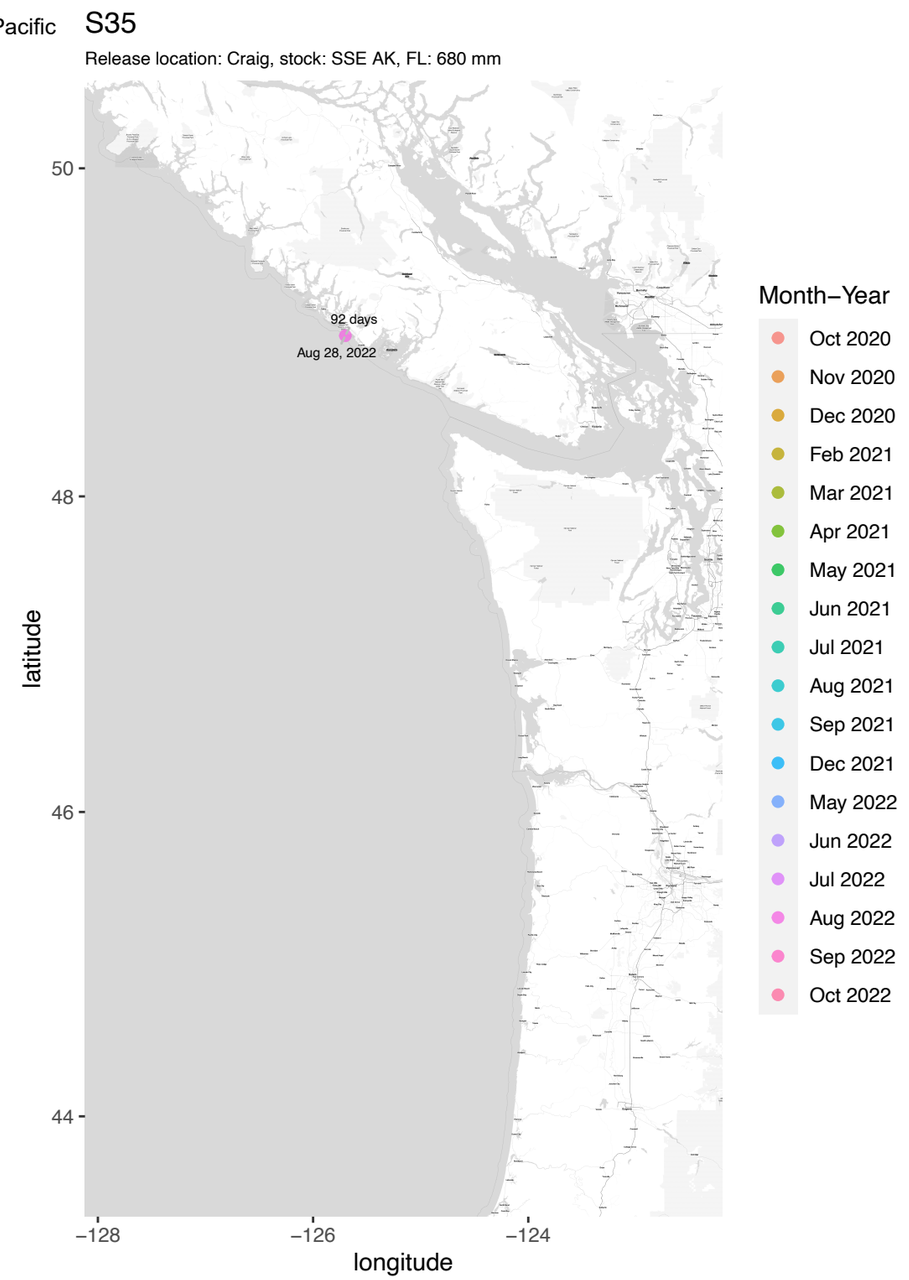

S34
Release location: Sitka, stock: S THOMPSON R, FL: 710 mm
0 days
Jun 22, 2022
latitude
longitude
60
59
58
57
56
55
−155
−150
−145
−140
−135


S34
Release location: Sitka, stock: S THOMPSON R, FL: 710 mm
55 days
57 days
Aug 18, 2022
latitude
longitude
50
48
46
44
−128
−126
−124
Month−Year
Oct 2020
Nov 2020
Dec 2020
Feb 2021
Mar 2021
Apr 2021
May 2021
Jun 2021
Jul 2021
Aug 2021
Sep 2021
Dec 2021
May 2022
Jun 2022
Jul 2022
Aug 2022
Sep 2022
Oct 2022

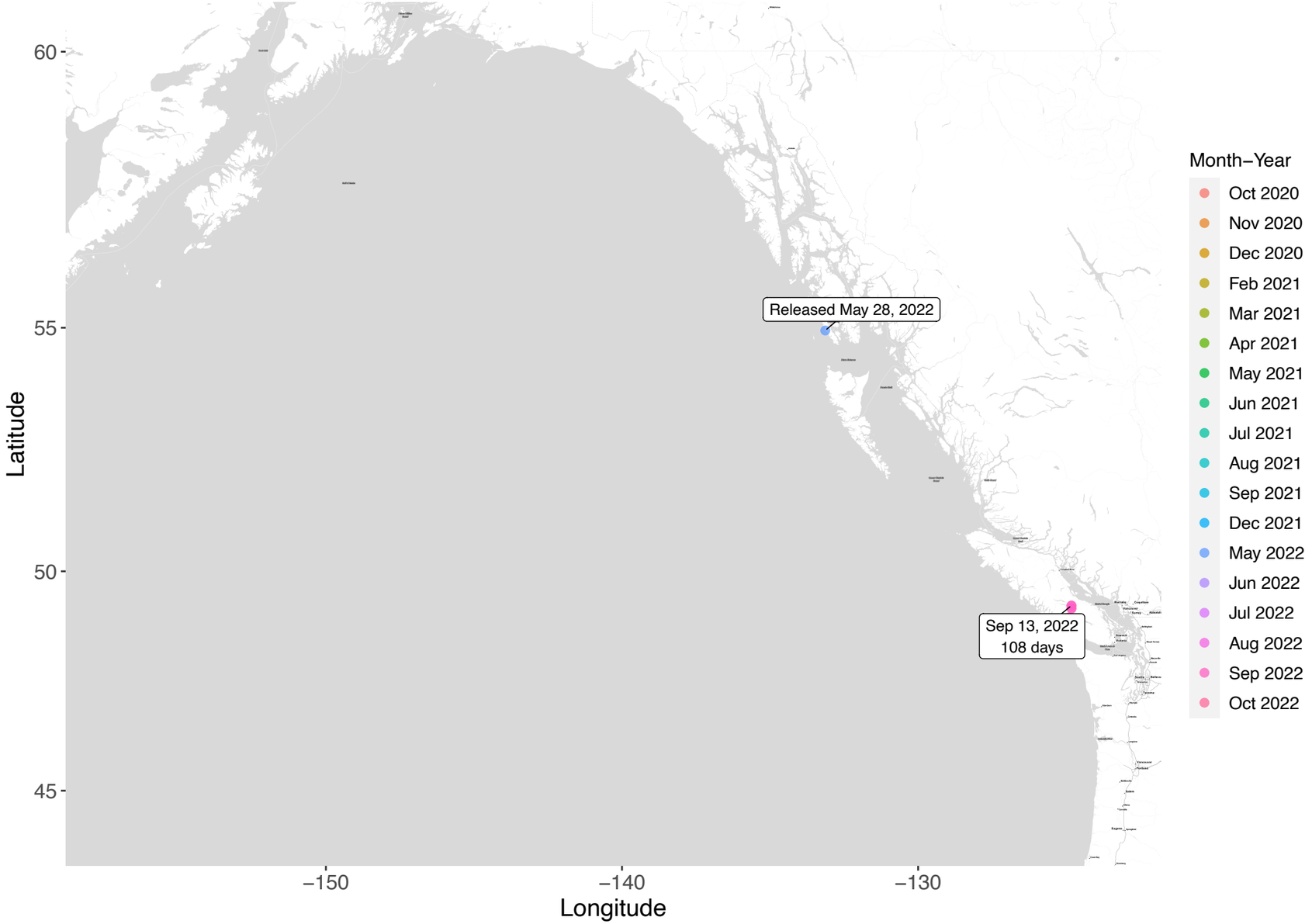
Release location: Craig, stock: SSE AK, FL: 680 mm




S35
Release location: Craig, stock: SSE AK, FL: 680 mm
60
59
58
57
56
55
latitude
−155
−150
−145
−140
−135
longitude
May 28, 2022
0 days

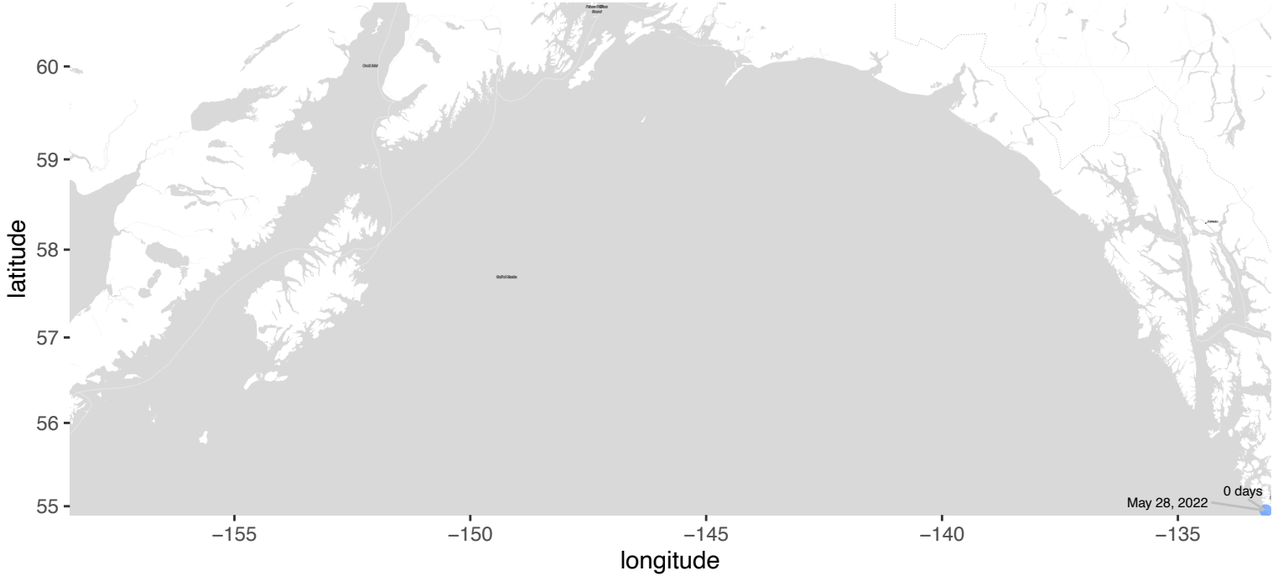

S35
Release location: Craig, stock: SSE AK, FL: 680 mm
50
48
46
44
latitude
−128
−126
−124
longitude
92 days
Aug 28, 2022
Month−Year
Oct 2020
Nov 2020
Dec 2020
Feb 2021
Mar 2021
Apr 2021
May 2021
Jun 2021
Jul 2021
Aug 2021
Sep 2021
Dec 2021
May 2022
Jun 2022
Jul 2022
Aug 2022
Sep 2022
Oct 2022

Release location: Craig, stock: W VANCOUVER IS, FL: 720 mm



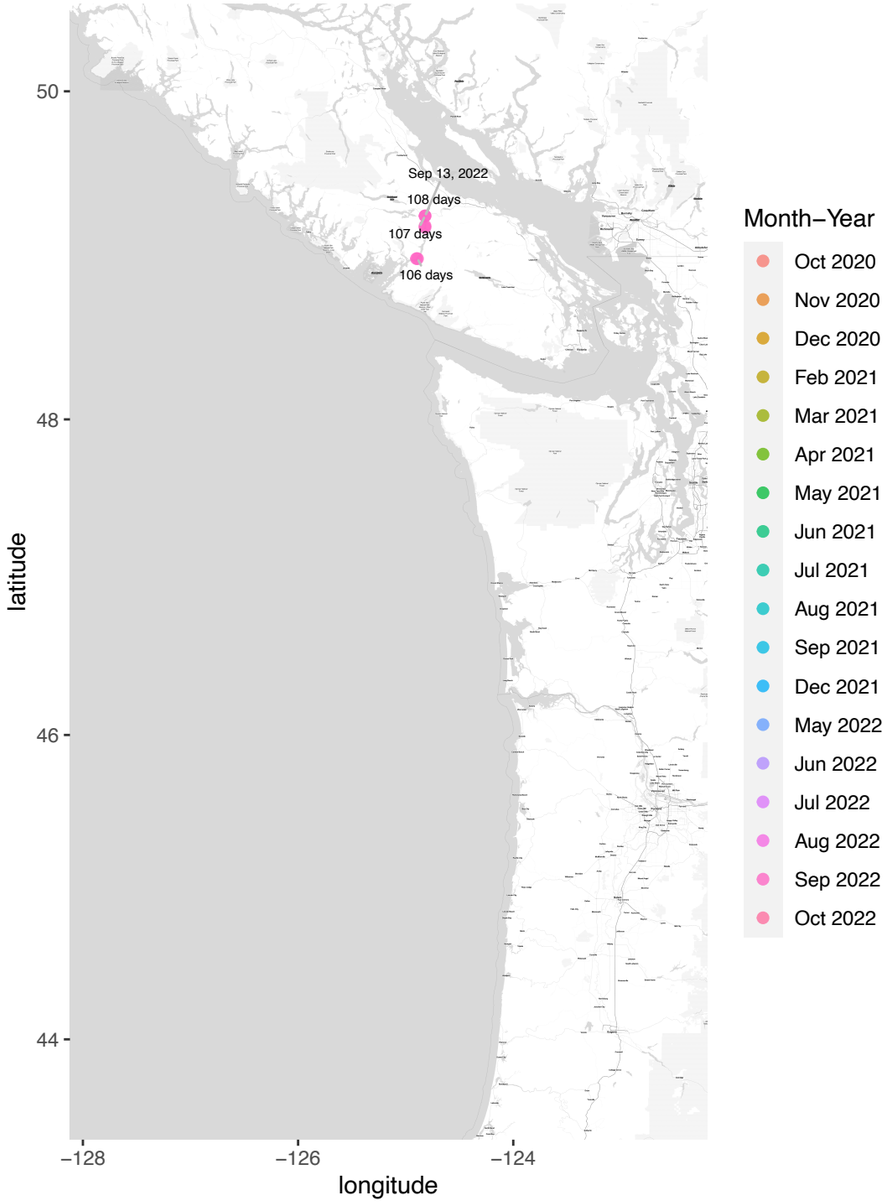
S36

Release location: Craig, stock: W VANCOUVER IS, FL: 720 mm

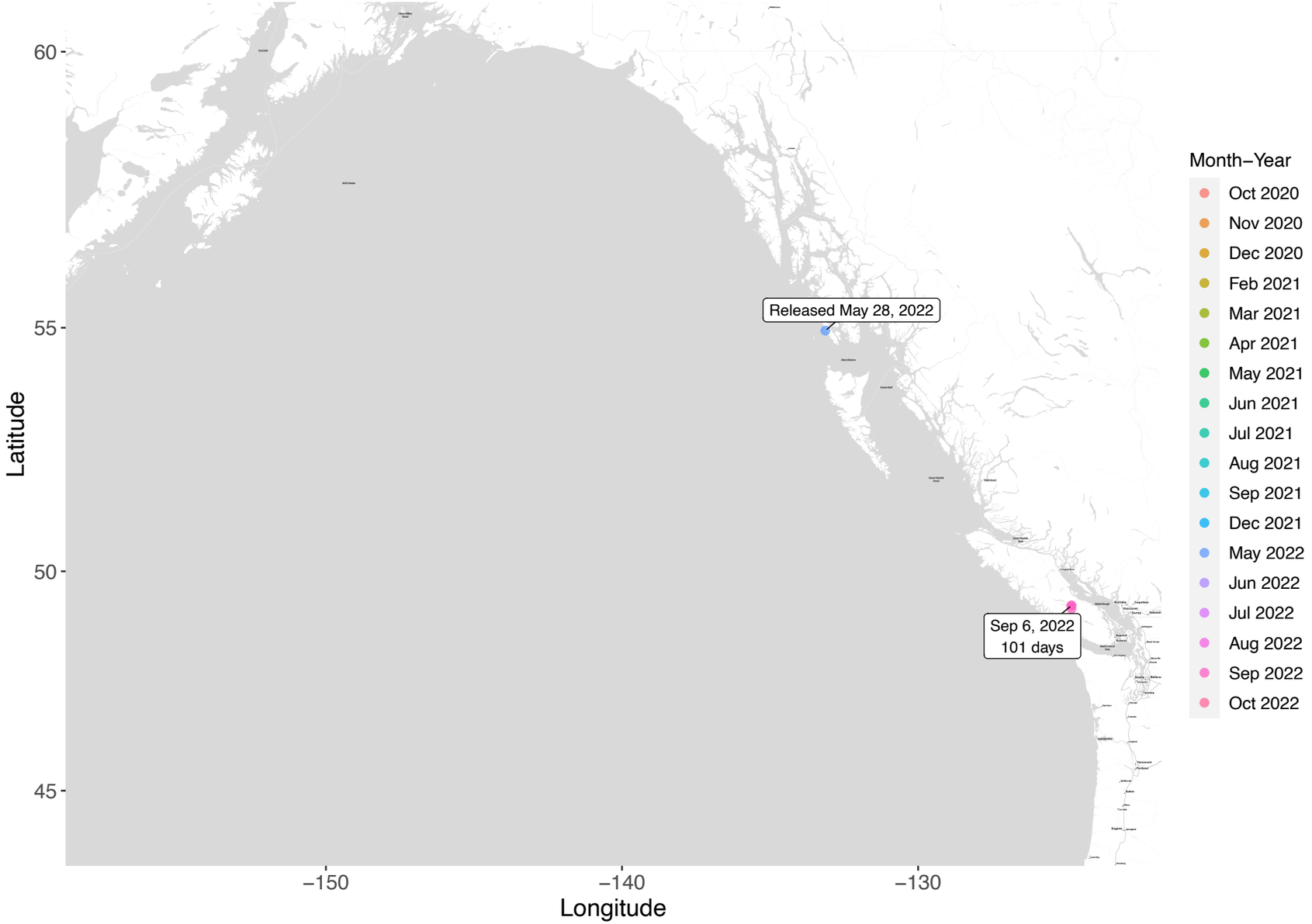


S36

Release location: Craig, stock: W VANCOUVER IS, FL: 720 mm

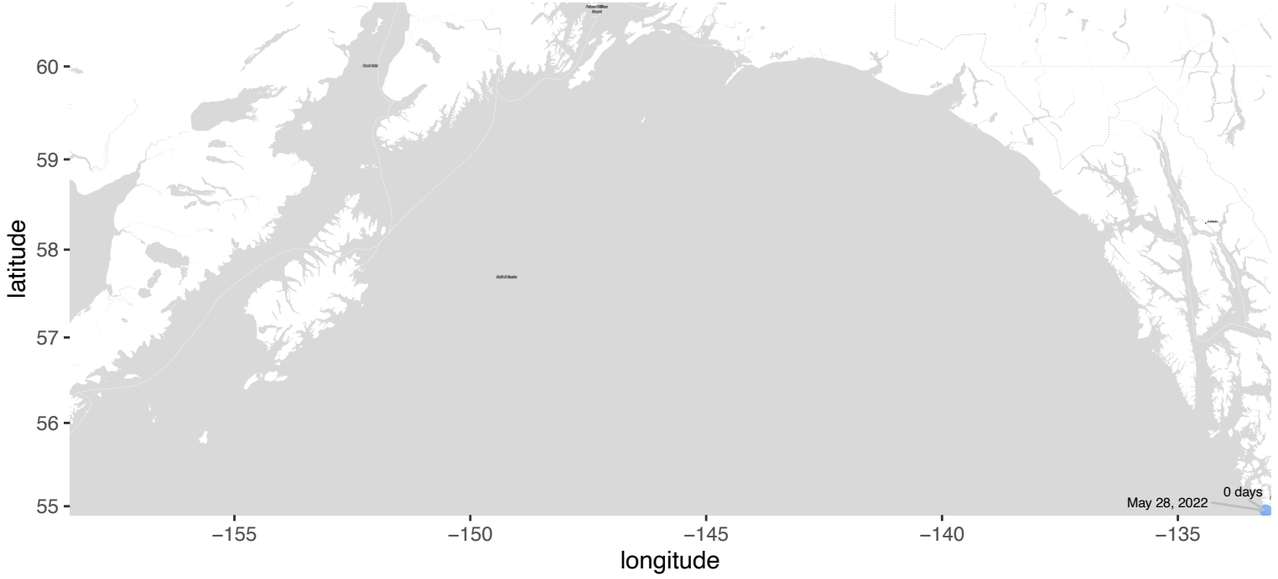


Release location: Craig, stock: SSE AK, FL: 640 mm



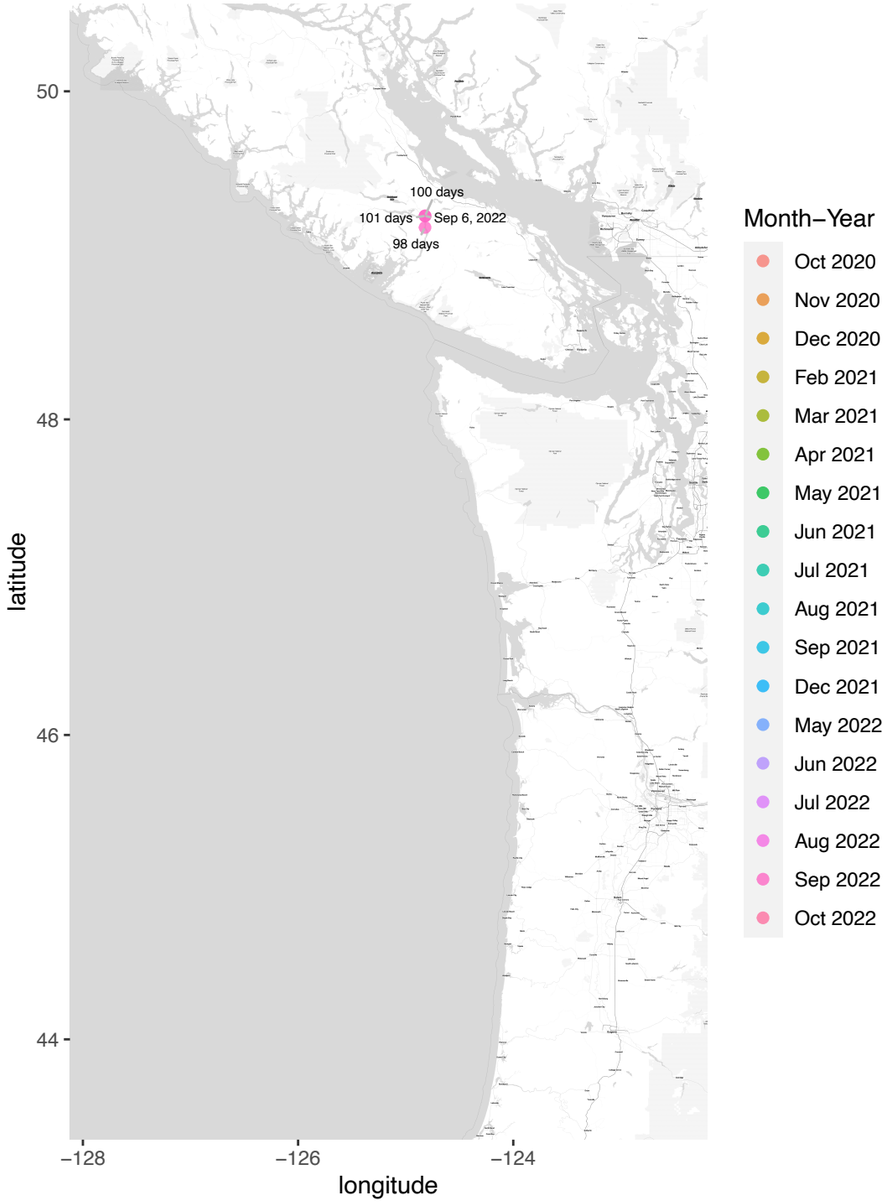
S37

Release location: Craig, stock: SSE AK, FL: 640 mm

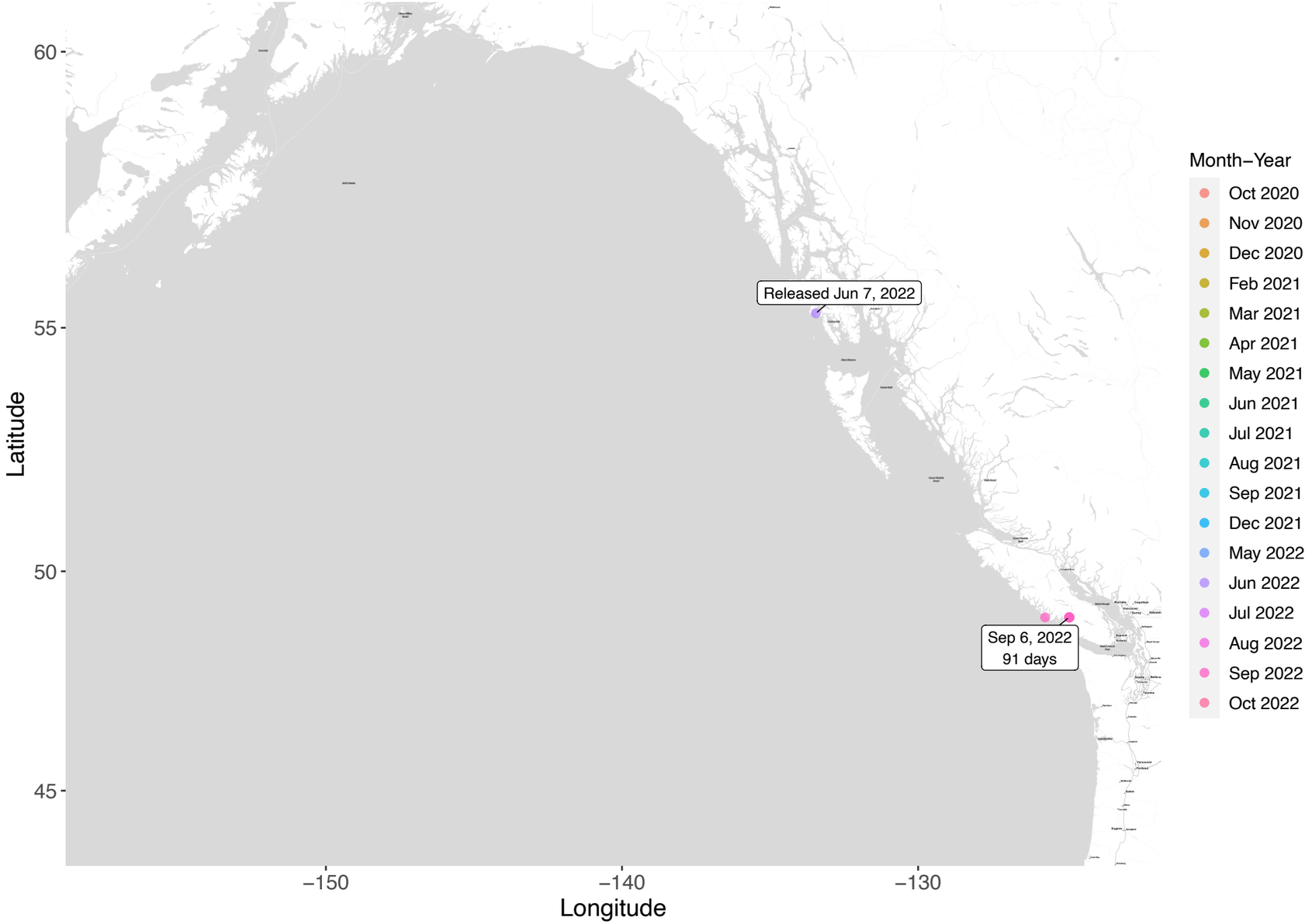


S37

Release location: Craig, stock: SSE AK, FL: 640 mm

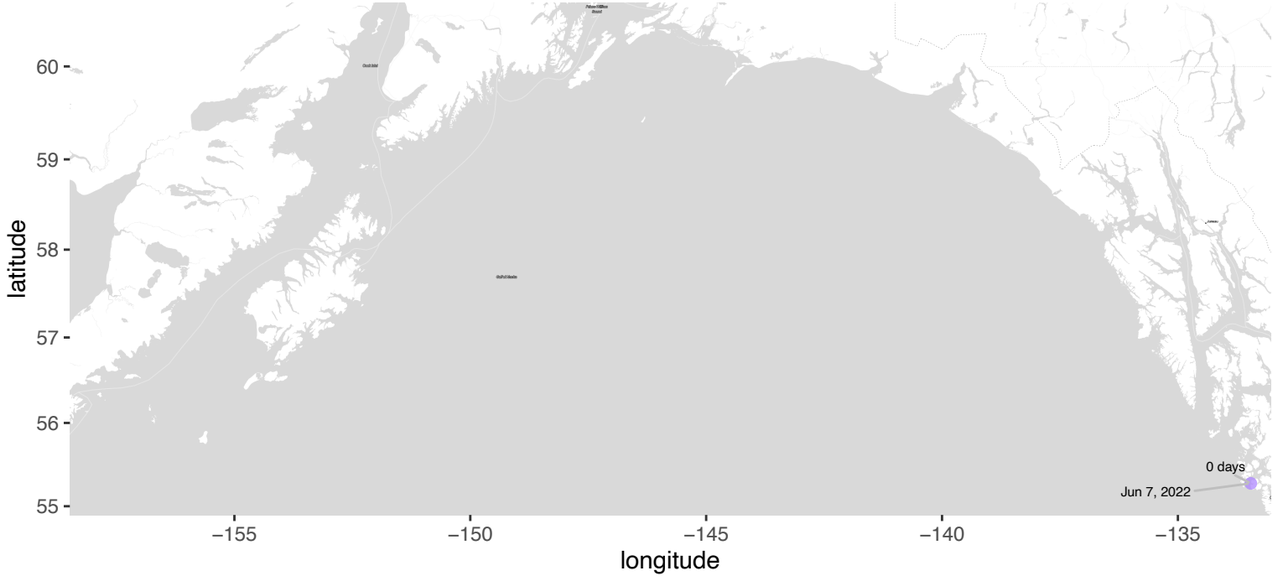


Release location: Craig, stock: NA, FL: 710 mm



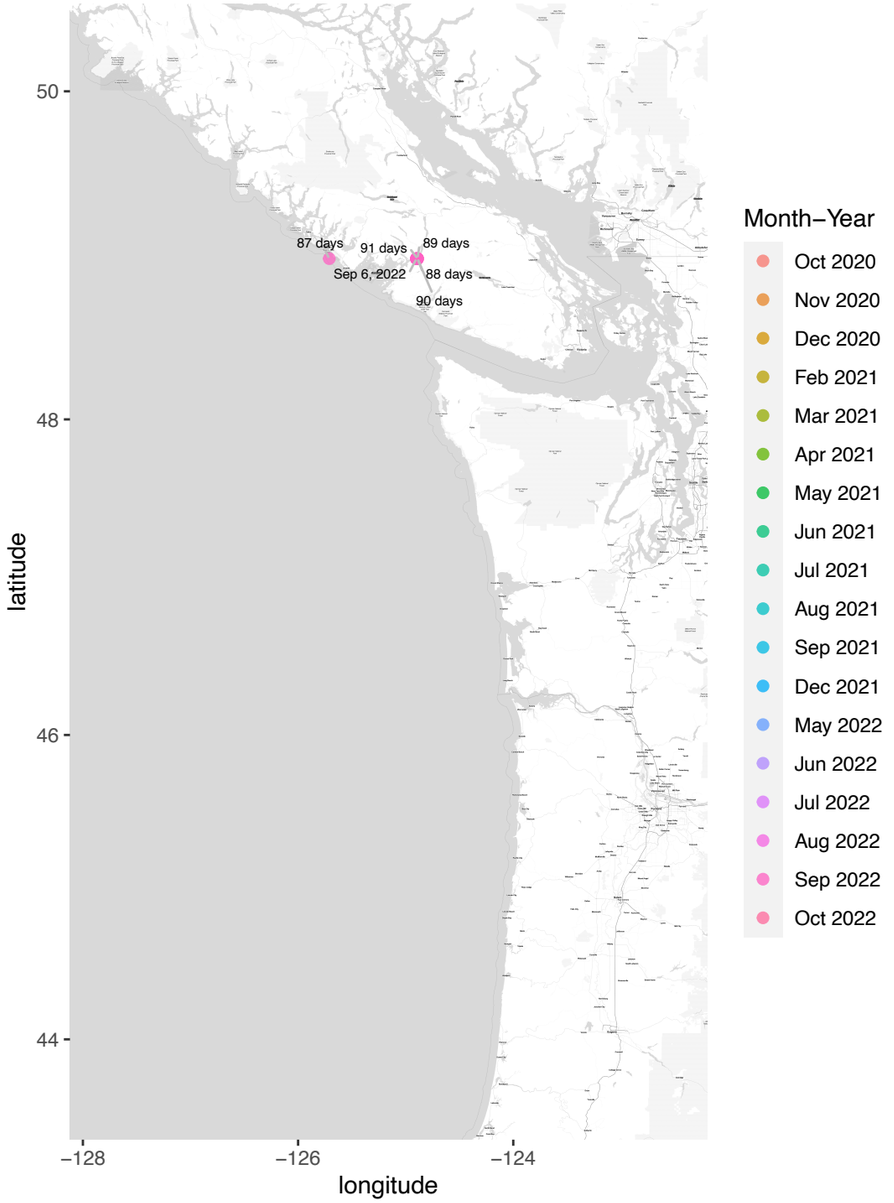
S38

Release location: Craig, stock: NA, FL: 710 mm

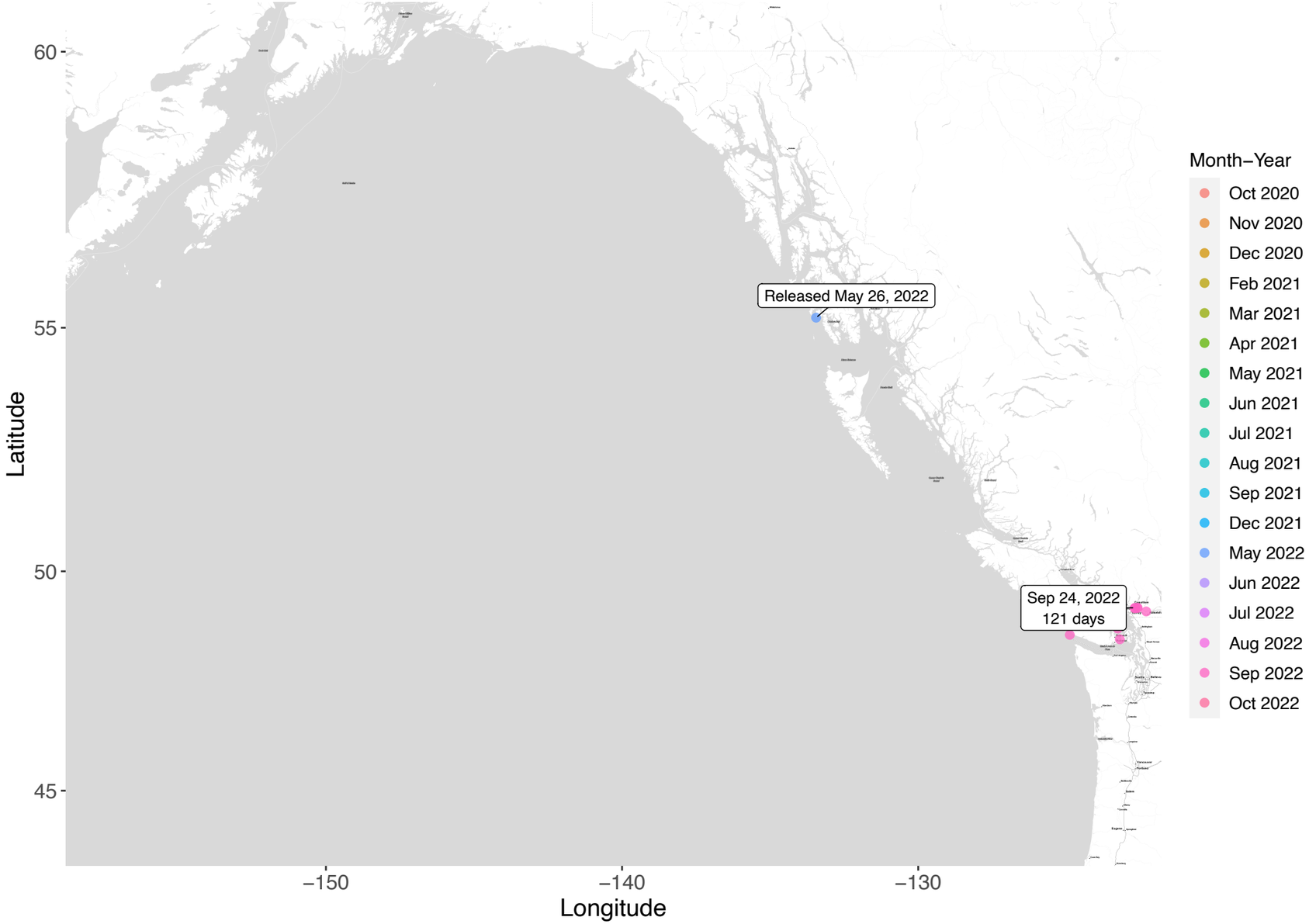


S38

Release location: Craig, stock: NA, FL: 710 mm

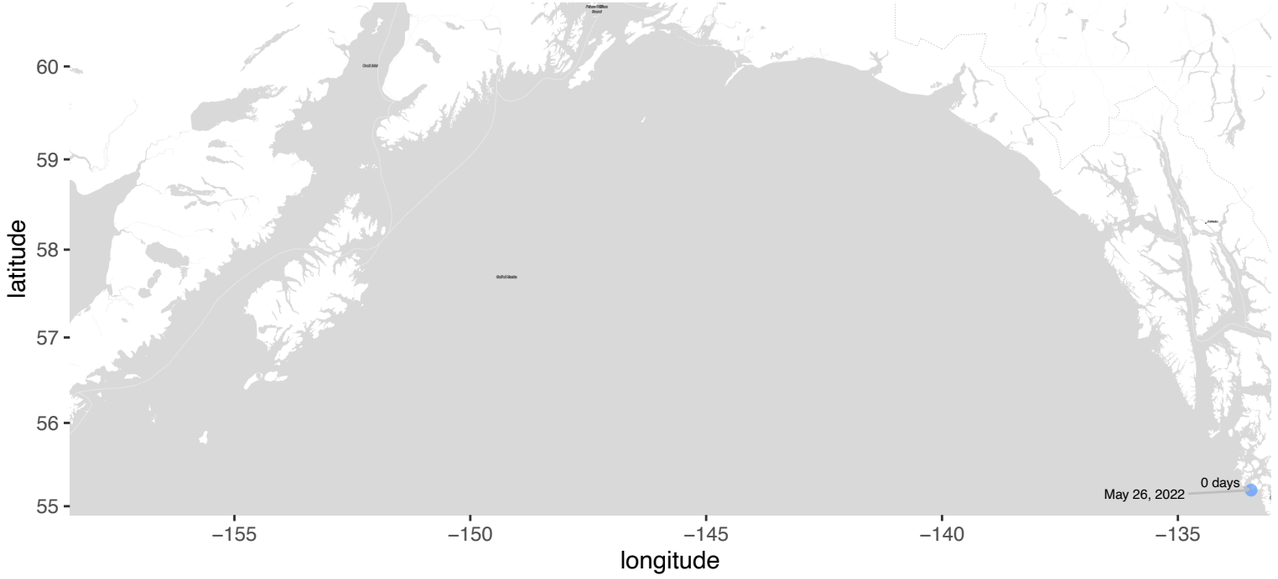


Release location: Craig, stock: NA, FL: 700 mm



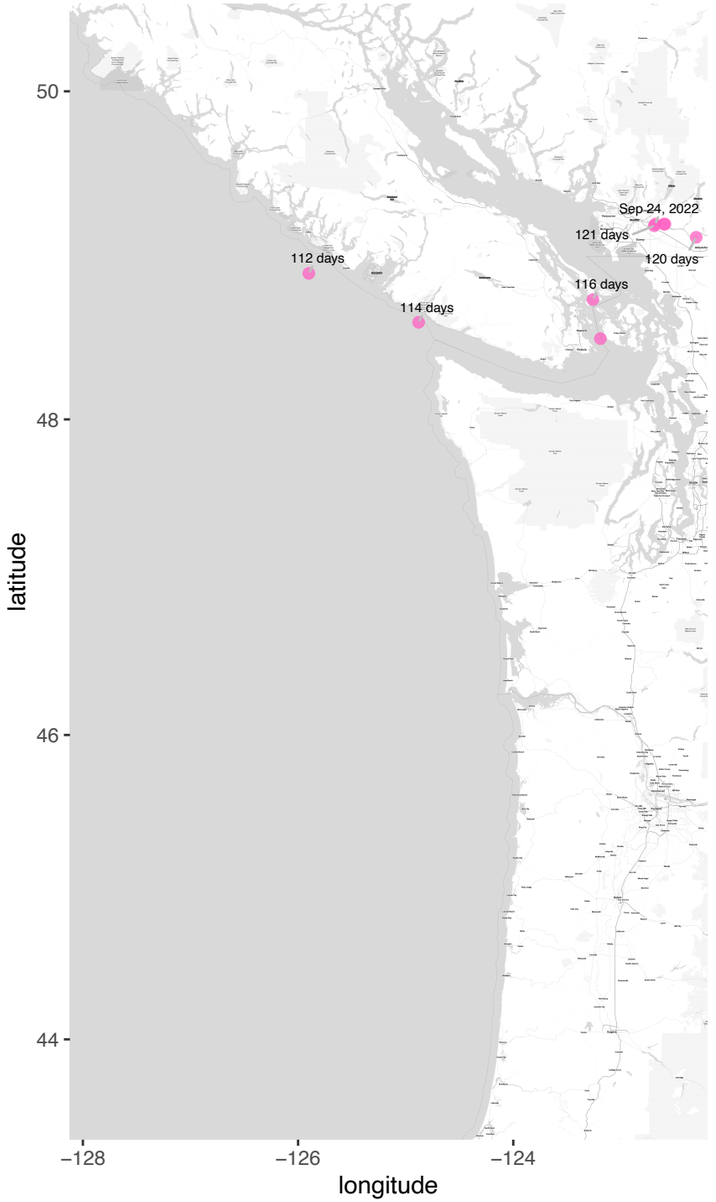
S39

Release location: Craig, stock: NA, FL: 700 mm

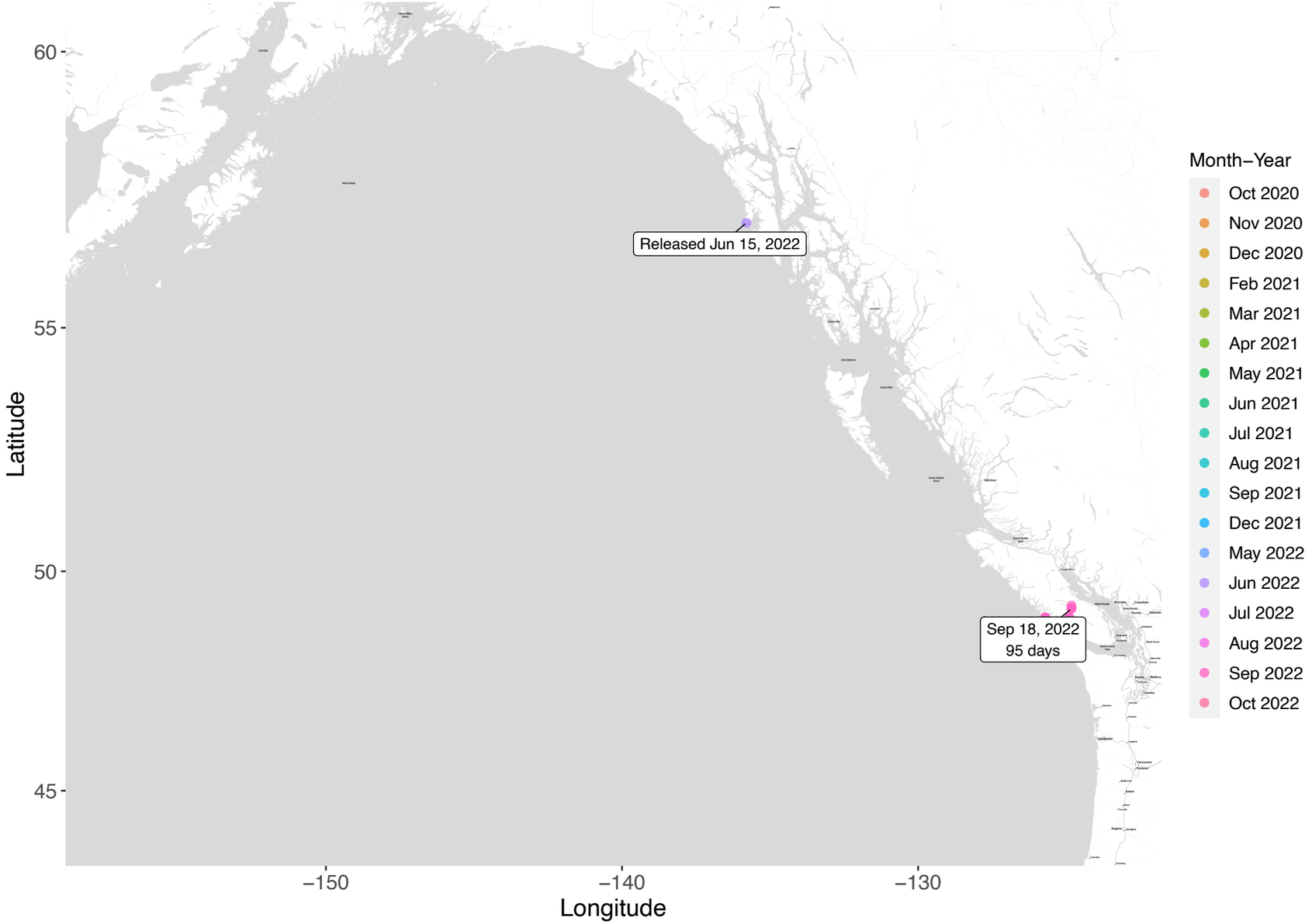


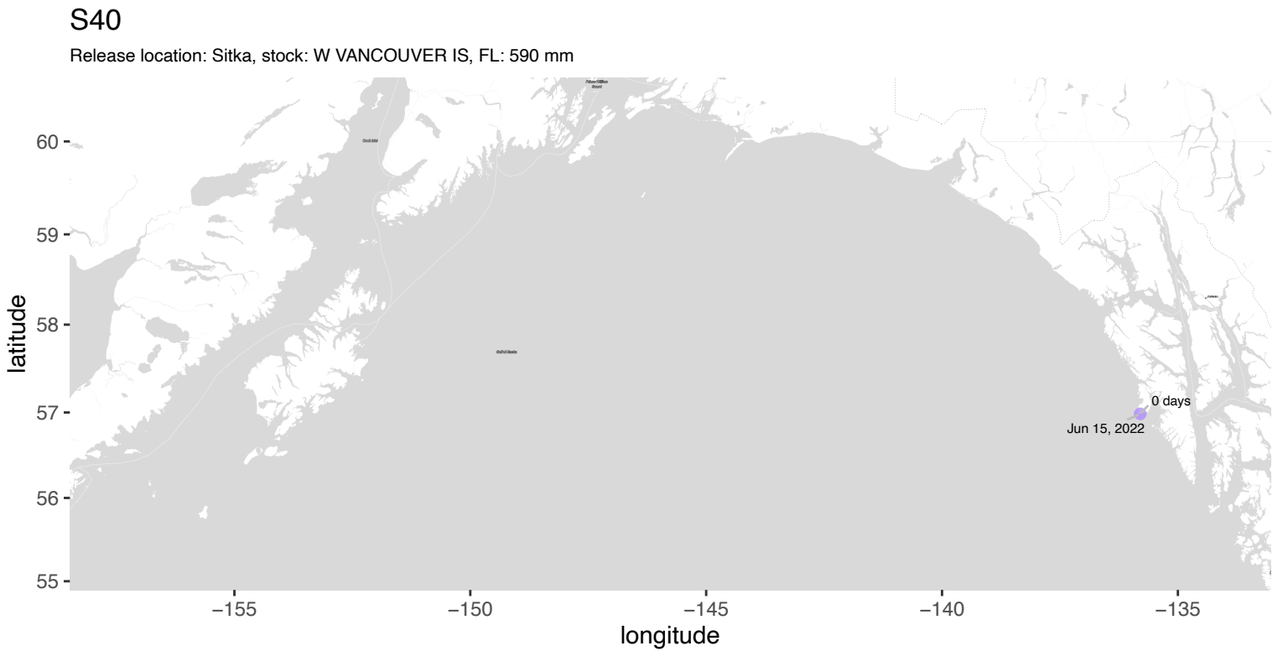
S39

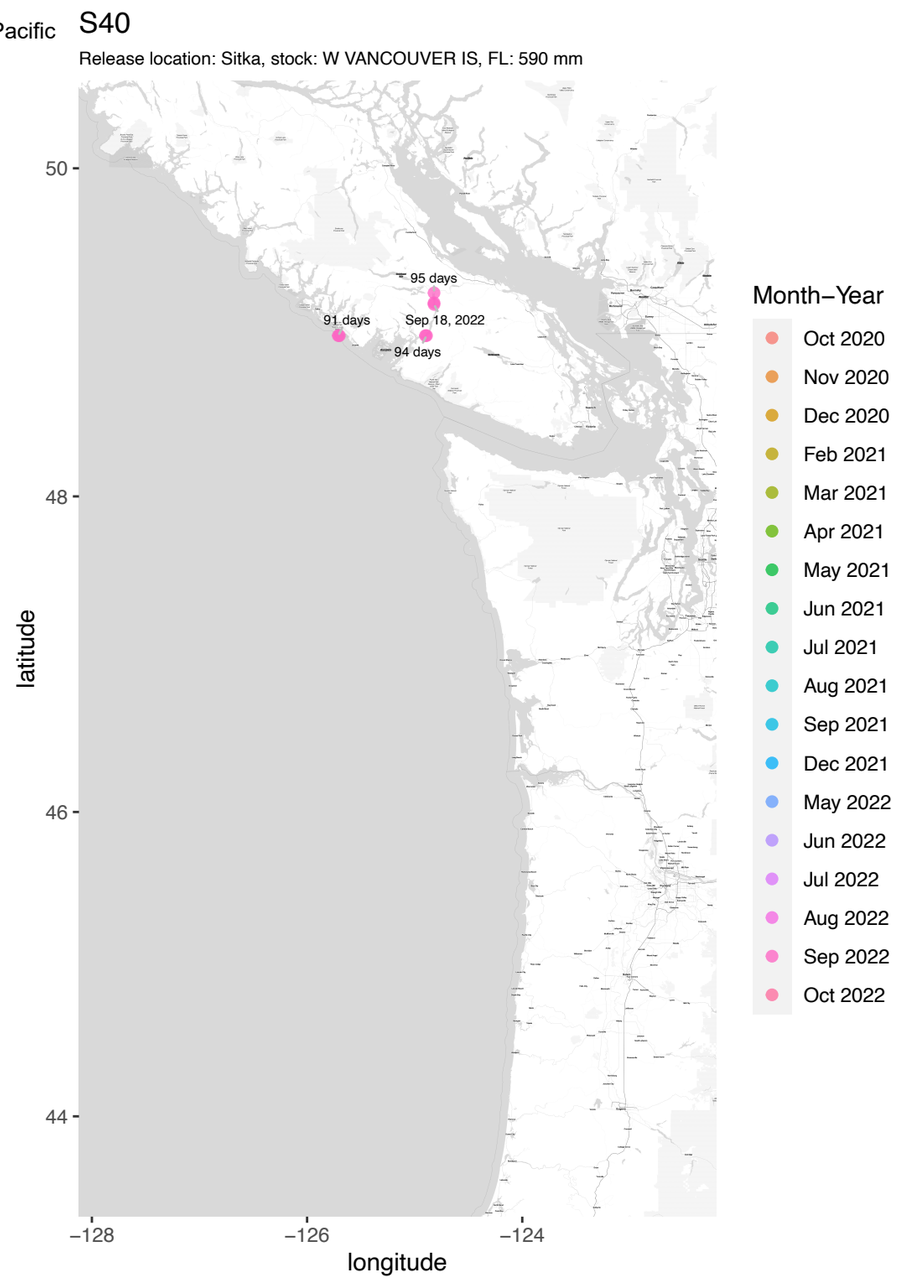
Release location: Craig, stock: NA, FL: 700 mm



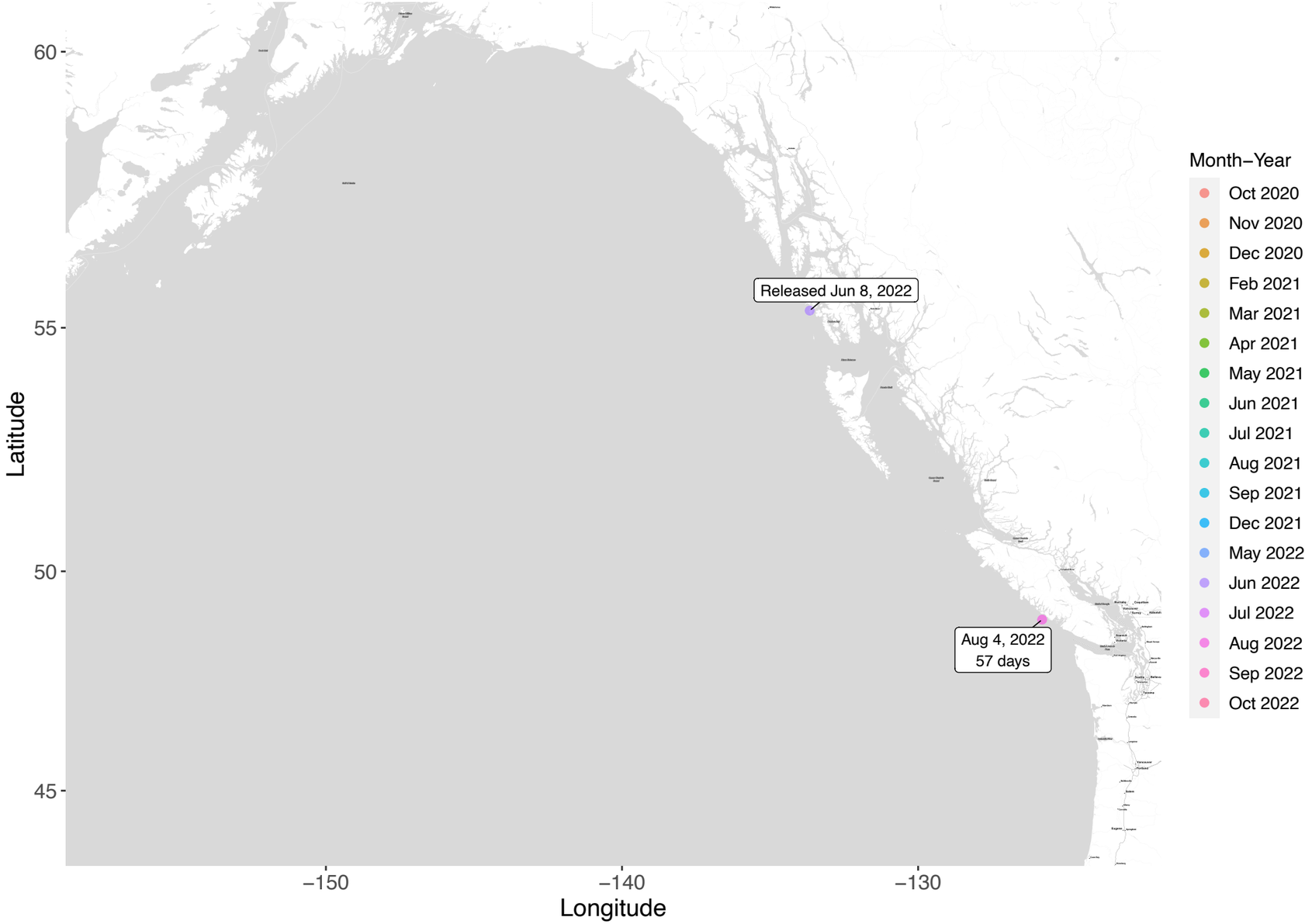
Release location: Sitka, stock: W VANCOUVER IS, FL: 590 mm

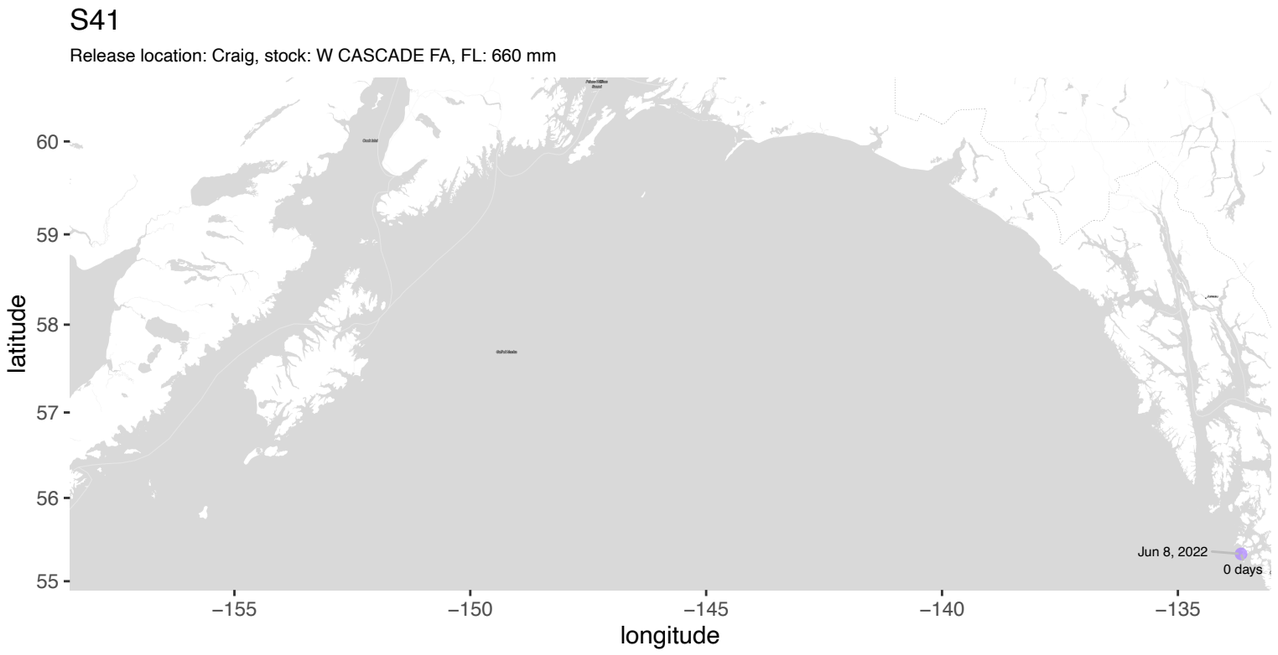


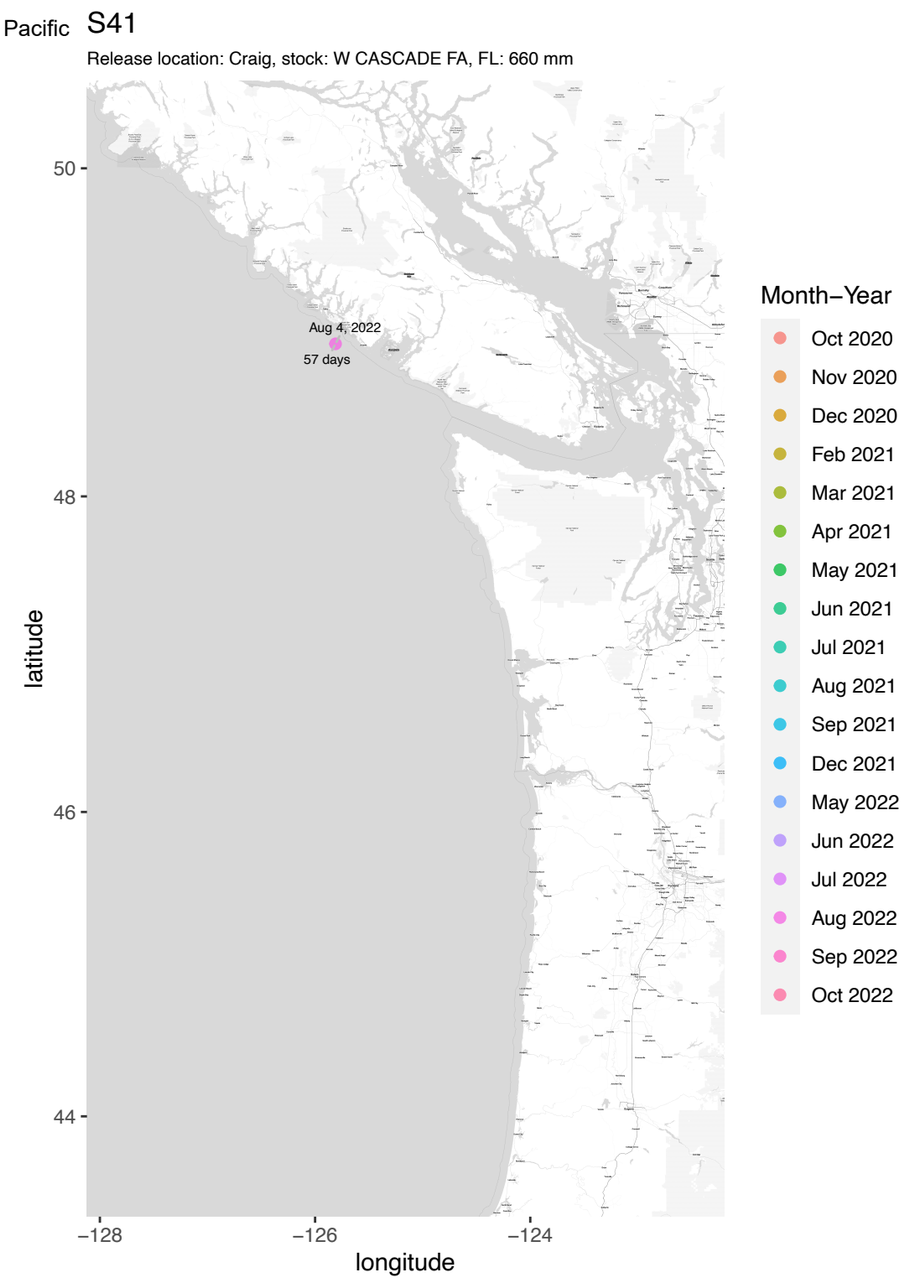

S40
Release location: Sitka, stock: W VANCOUVER IS, FL: 590 mm
60
59
58
57
56
55
latitude
−155
−150
−145
−140
−135
longitude
0 days
Jun 15, 2022


S40
Release location: Sitka, stock: W VANCOUVER IS, FL: 590 mm
50
48
46
44
latitude
−128
−126
−124
longitude
95 days
91 days
Sep 18, 2022
94 days
Month−Year
Oct 2020
Nov 2020
Dec 2020
Feb 2021
Mar 2021
Apr 2021
May 2021
Jun 2021
Jul 2021
Aug 2021
Sep 2021
Dec 2021
May 2022
Jun 2022
Jul 2022
Aug 2022
Sep 2022
Oct 2022

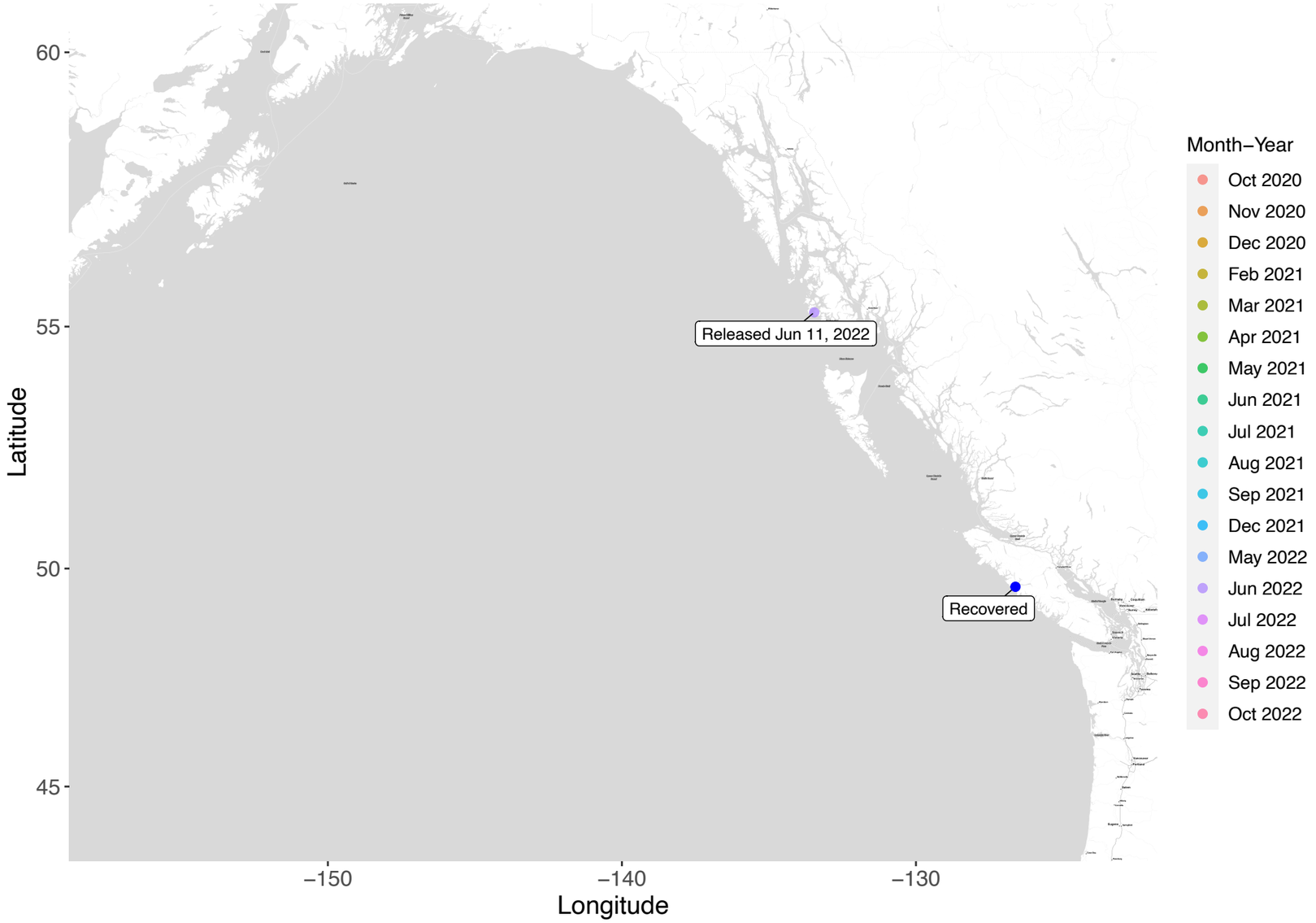
Release location: Craig, stock: W CASCADE FA, FL: 660 mm




S41
Release location: Craig, stock: W CASCADE FA, FL: 660 mm
60
59
58
57
56
55
latitude
−155
−150
−145
−140
−135
longitude
Jun 8, 2022
0 days

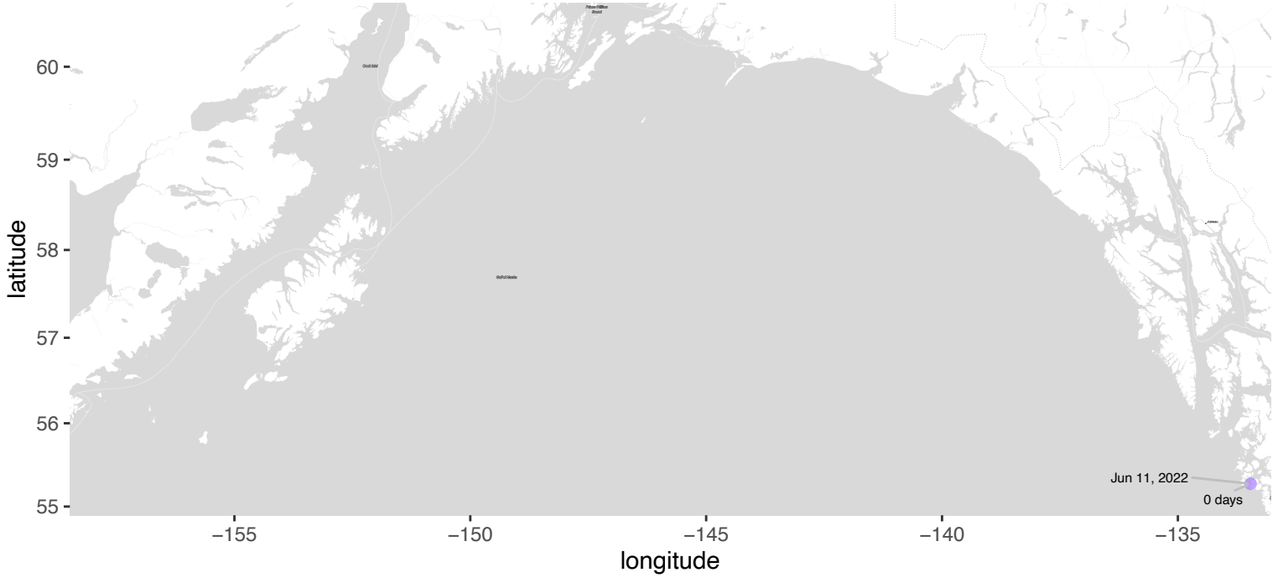

S41
Release location: Craig, stock: W CASCADE FA, FL: 660 mm
50
48
46
44
latitude
−128
−126
−124
longitude
Aug 4, 2022
57 days
Month−Year
Oct 2020
Nov 2020
Dec 2020
Feb 2021
Mar 2021
Apr 2021
May 2021
Jun 2021
Jul 2021
Aug 2021
Sep 2021
Dec 2021
May 2022
Jun 2022
Jul 2022
Aug 2022
Sep 2022
Oct 2022

Release location: Craig, stock: W VANCOUVER IS, FL: 740 mm

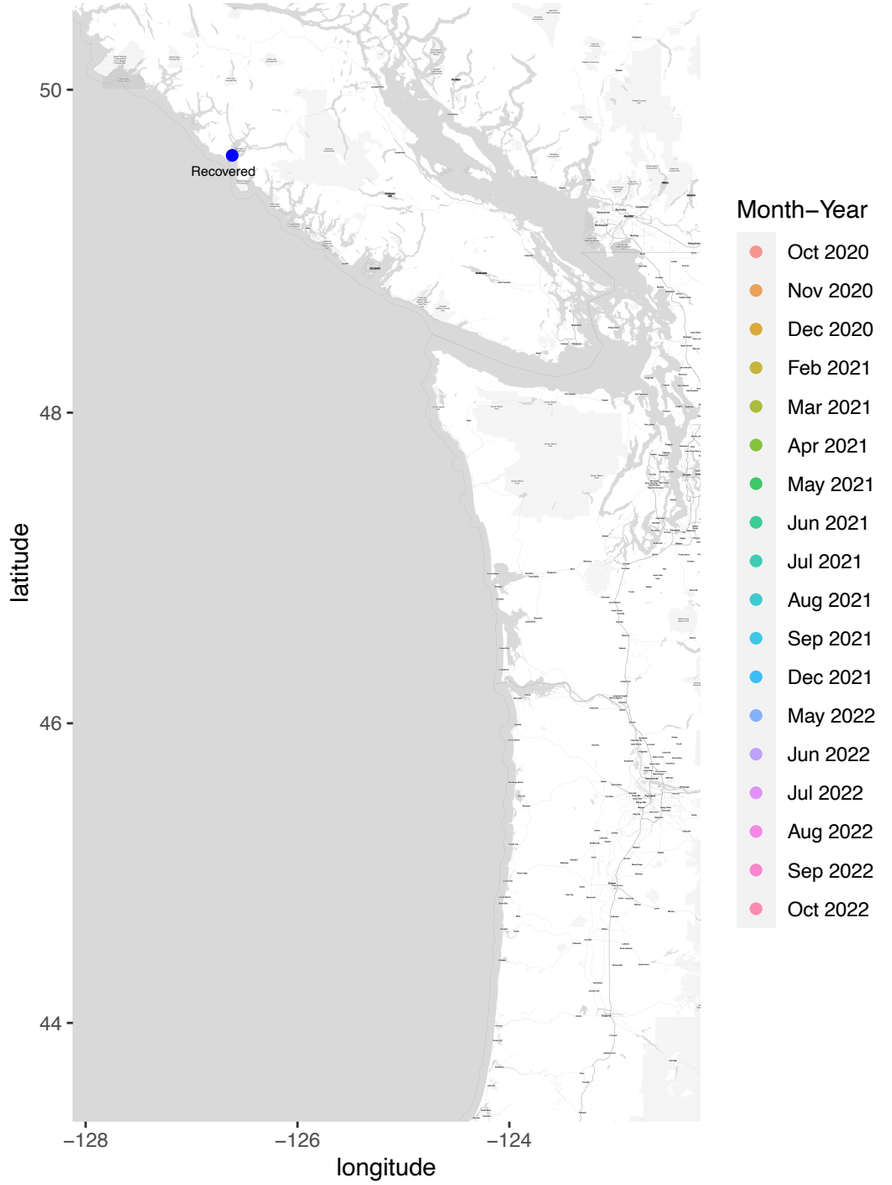


S42

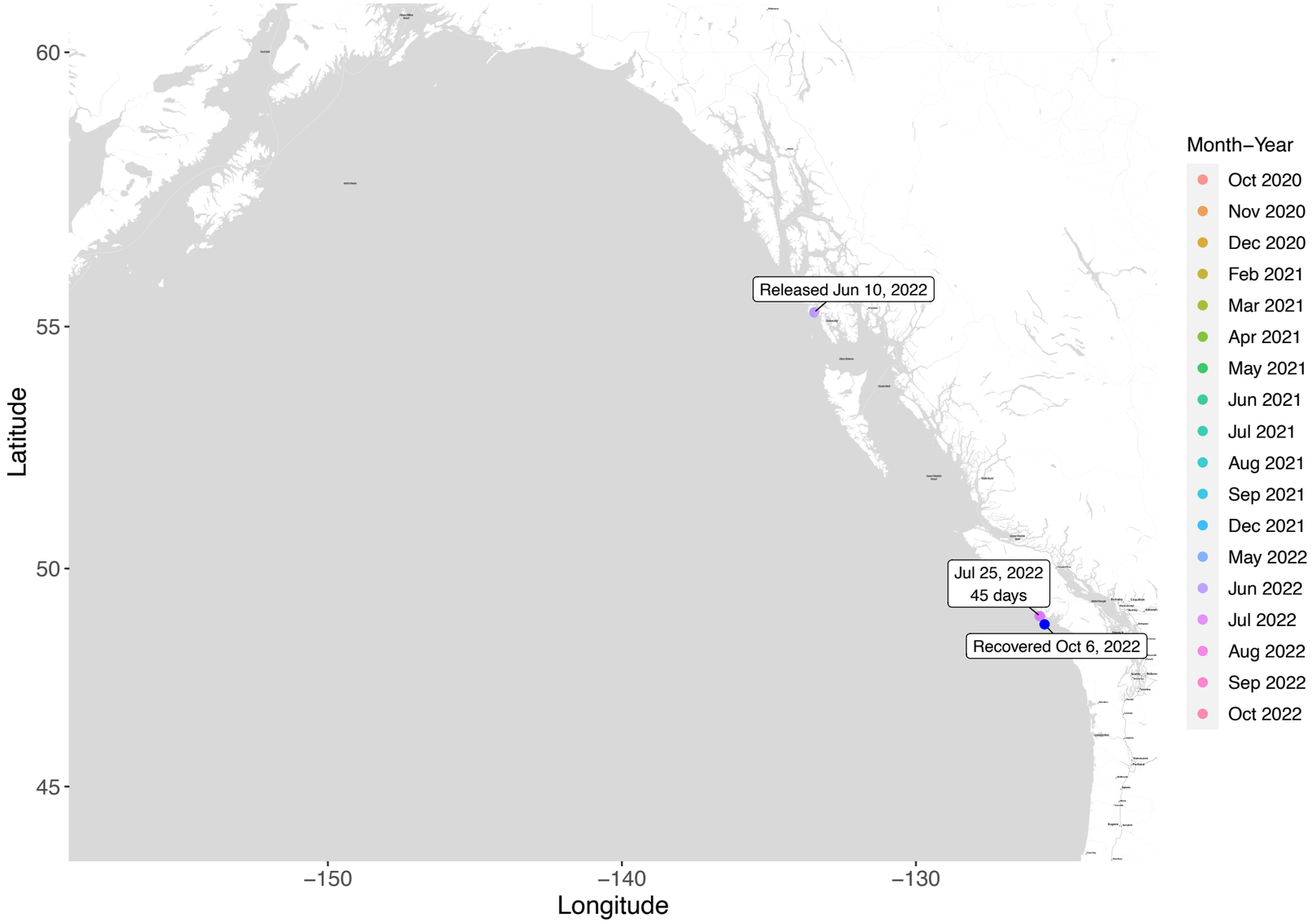
Release location: Craig, stock: W VANCOUVER IS, FL: 740 mm
Recovered NA at (49.6, −126.62)

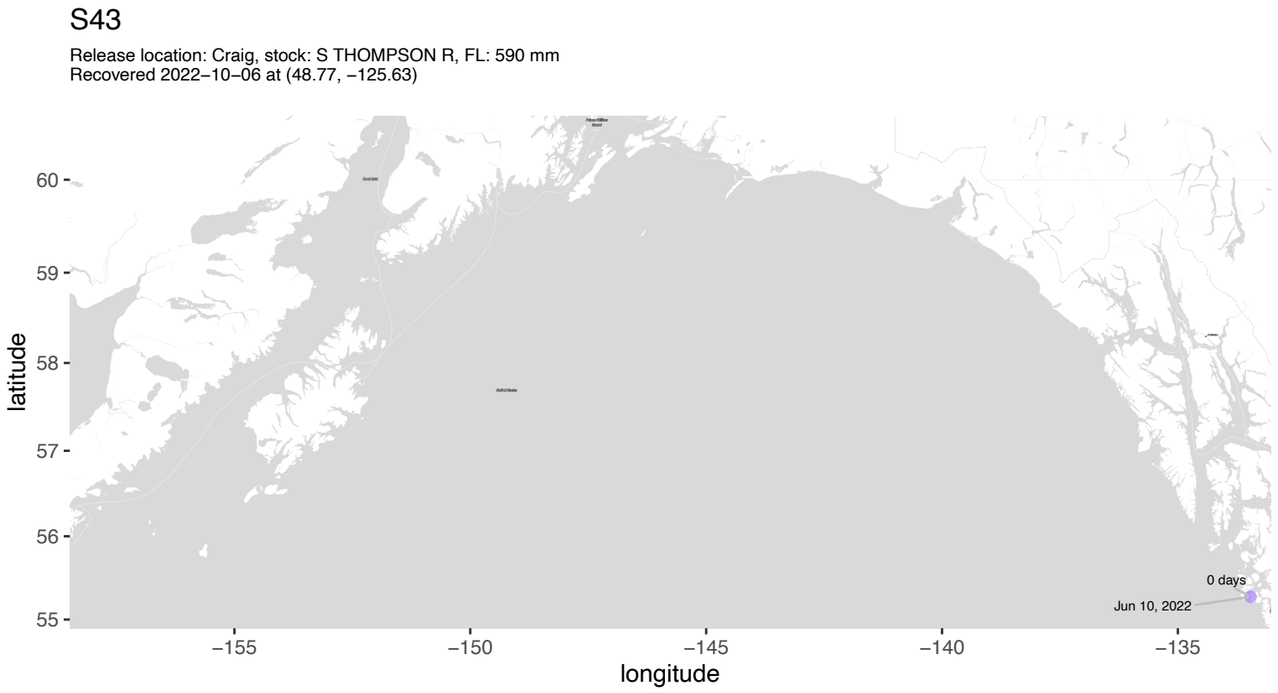


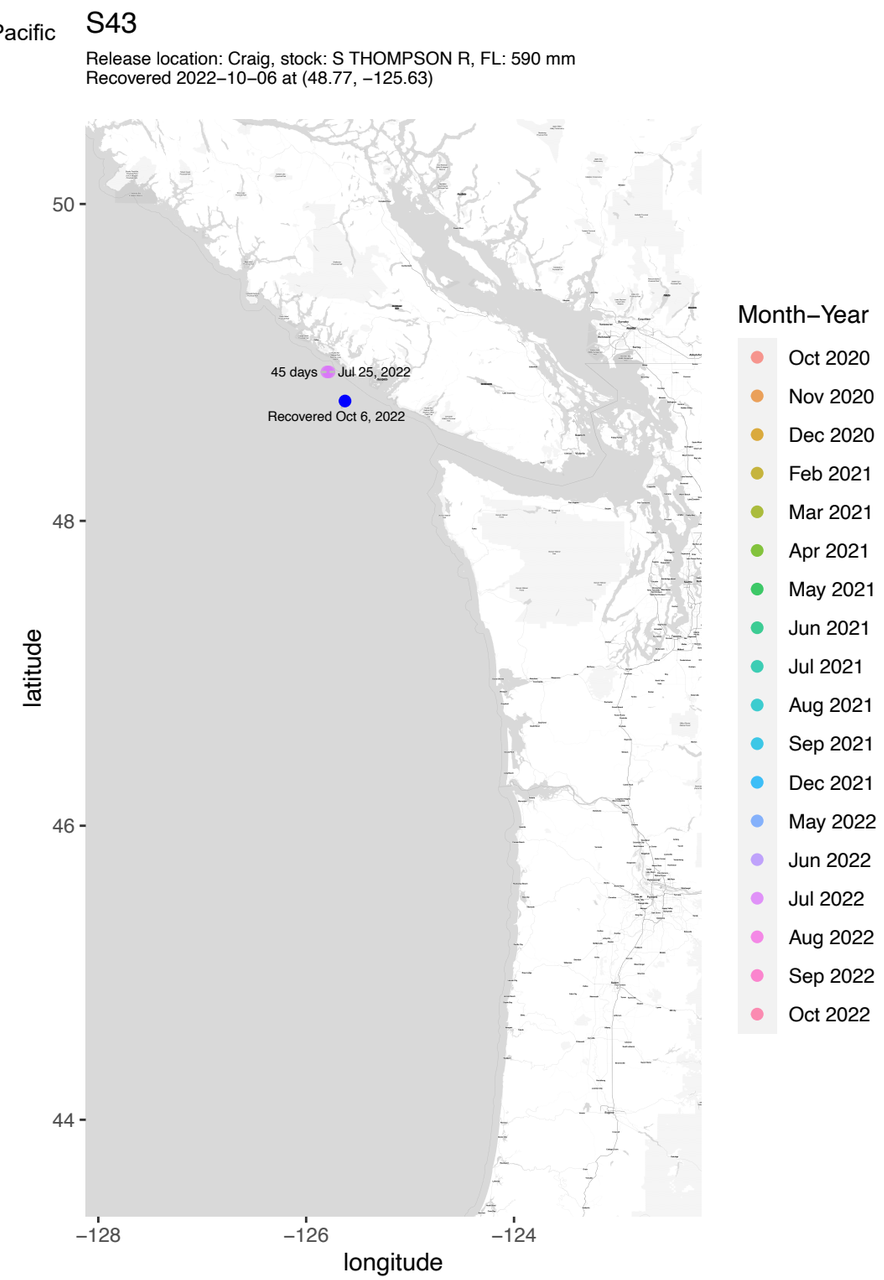
Recovered NA at (49.6, −126.62)



Release location: Craig, stock: S THOMPSON R, FL: 590 mm
Recovered 2022–10–06 at (48.77, −125.63)



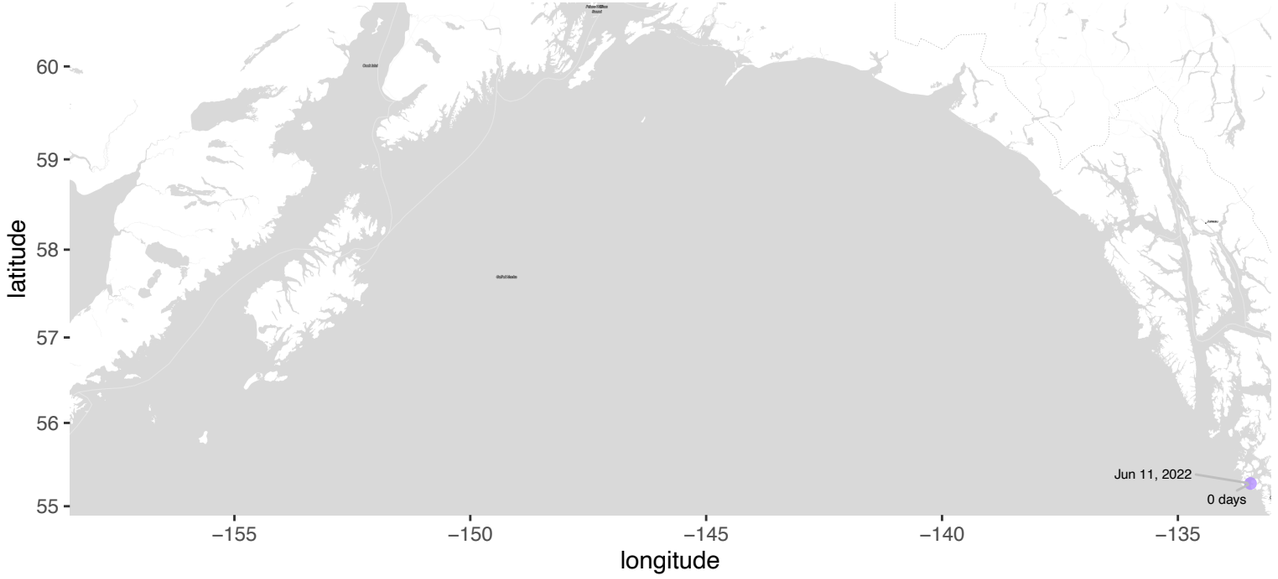

S43
Release location: Craig, stock: S THOMPSON R, FL: 590 mm
Recovered 2022–10–06 at (48.77, –125.63)
60
59
58
57
56
55
latitude
–155
–150
–145
–140
–135
longitude
0 days
Jun 10, 2022


S43
Release location: Craig, stock: S THOMPSON R, FL: 590 mm
Recovered 2022–10–06 at (48.77, –125.63)
50
48
46
44
latitude
–128
–126
–124
longitude
45 days
Jul 25, 2022
Recovered Oct 6, 2022
Month–Year
Oct 2020
Nov 2020
Dec 2020
Feb 2021
Mar 2021
Apr 2021
May 2021
Jun 2021
Jul 2021
Aug 2021
Sep 2021
Dec 2021
May 2022
Jun 2022
Jul 2022
Aug 2022
Sep 2022
Oct 2022

Release location: Craig, stock: NA, FL: 540 mm

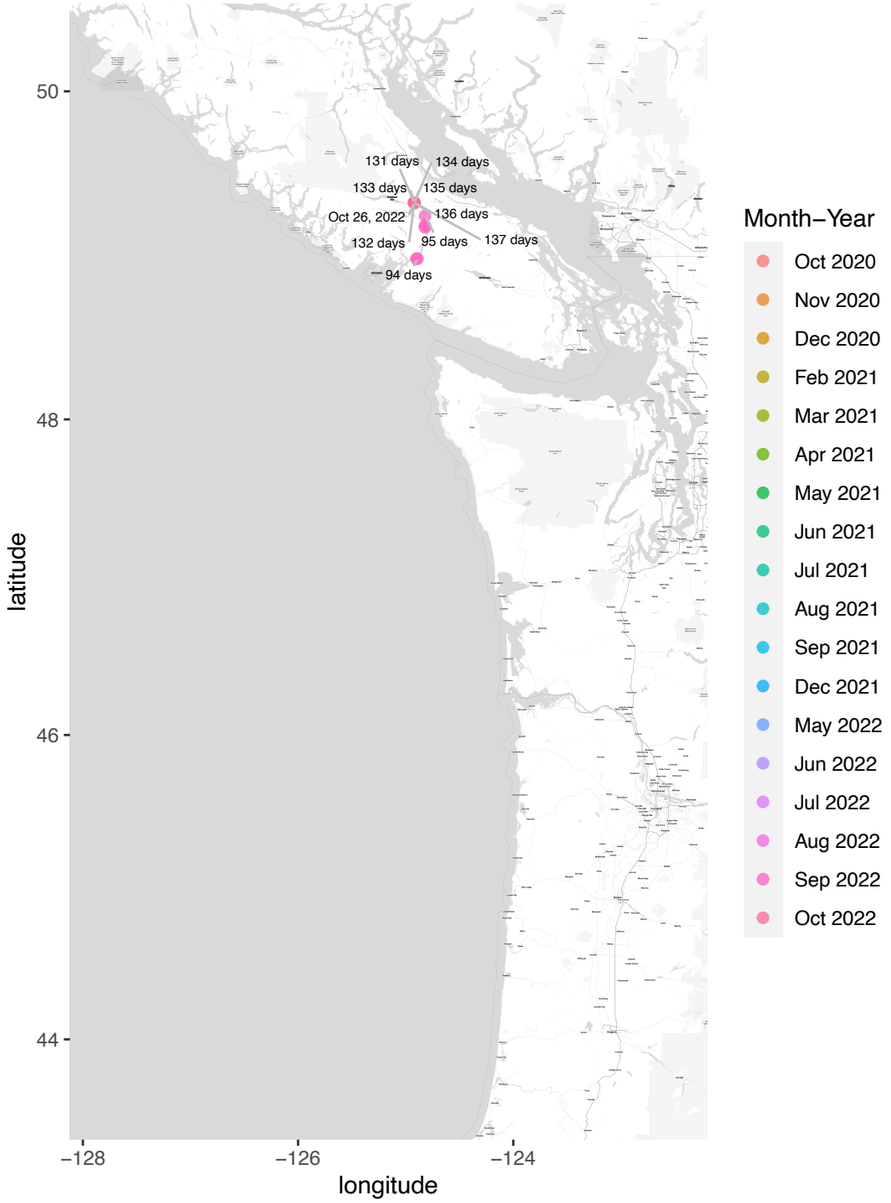
S44

Release location: Craig, stock: NA, FL: 540 mm

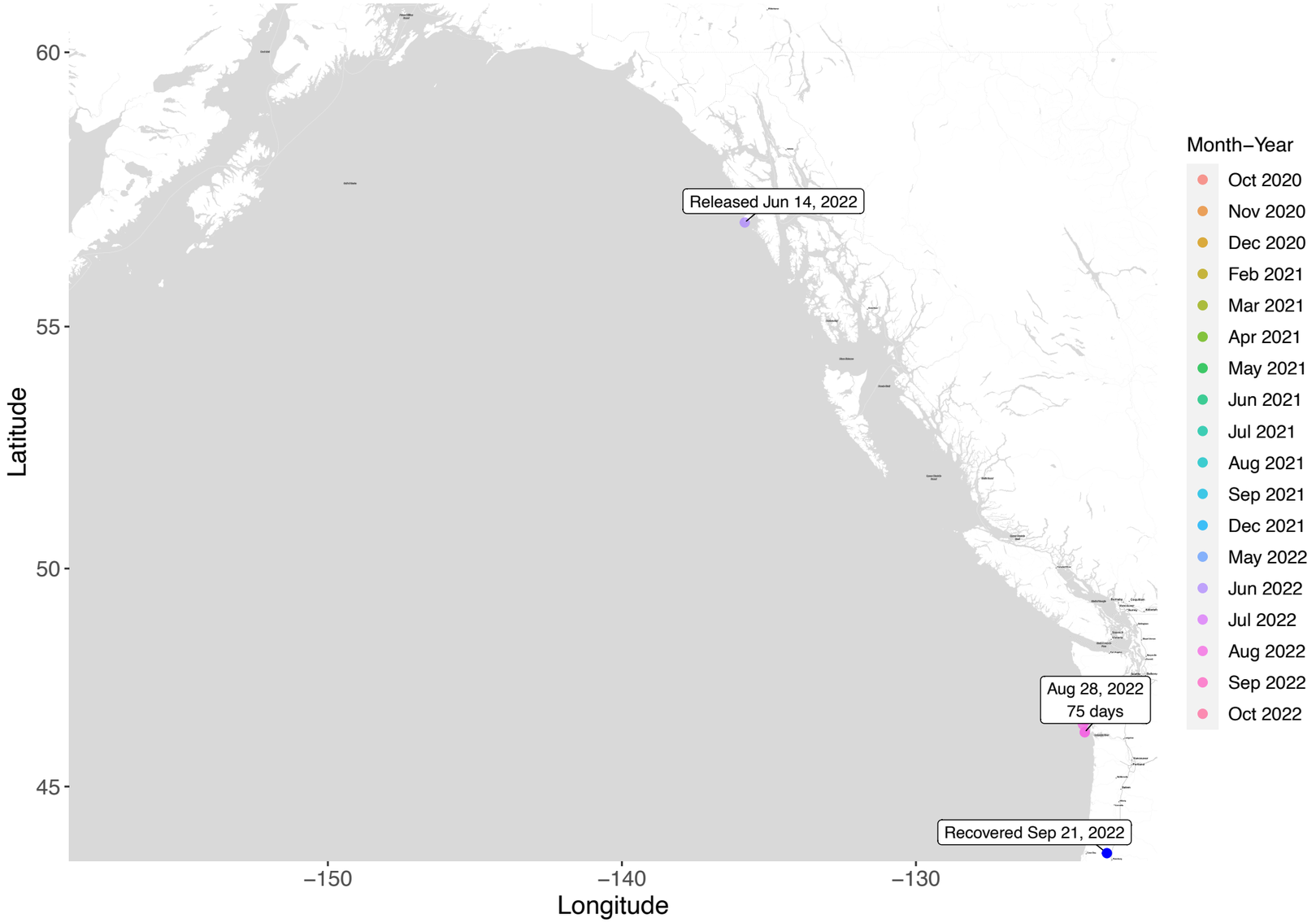


S44

Release location: Craig, stock: NA, FL: 540 mm

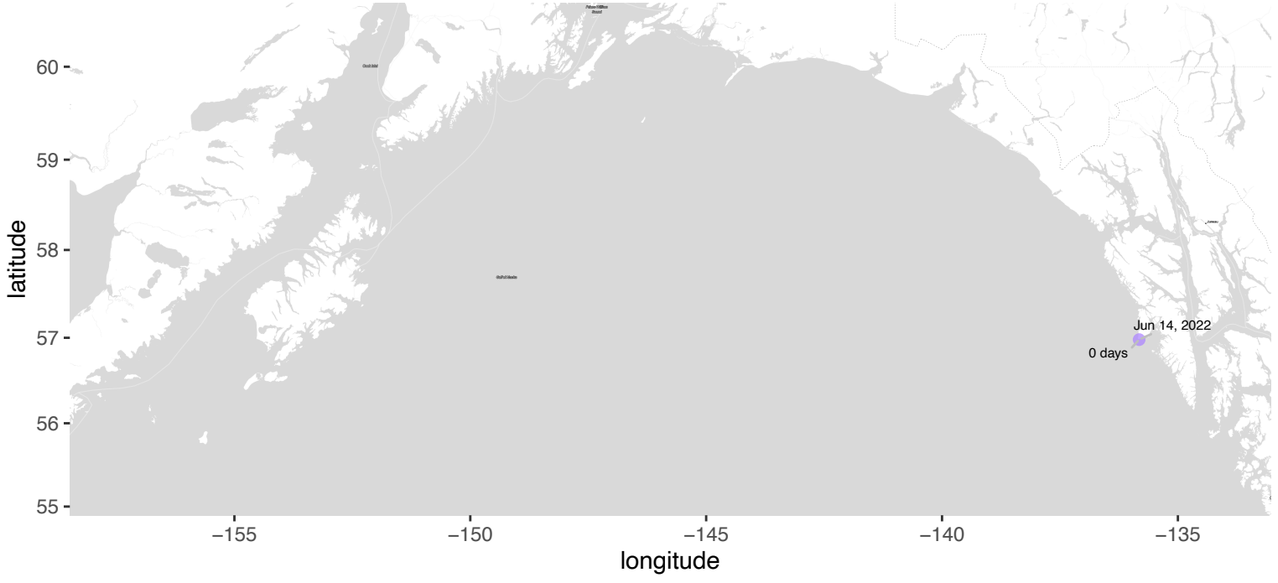


Release location: Sitka, stock: NA, FL: 700 mm
Recovered 2022–09–21 at (43.38, −123.51)

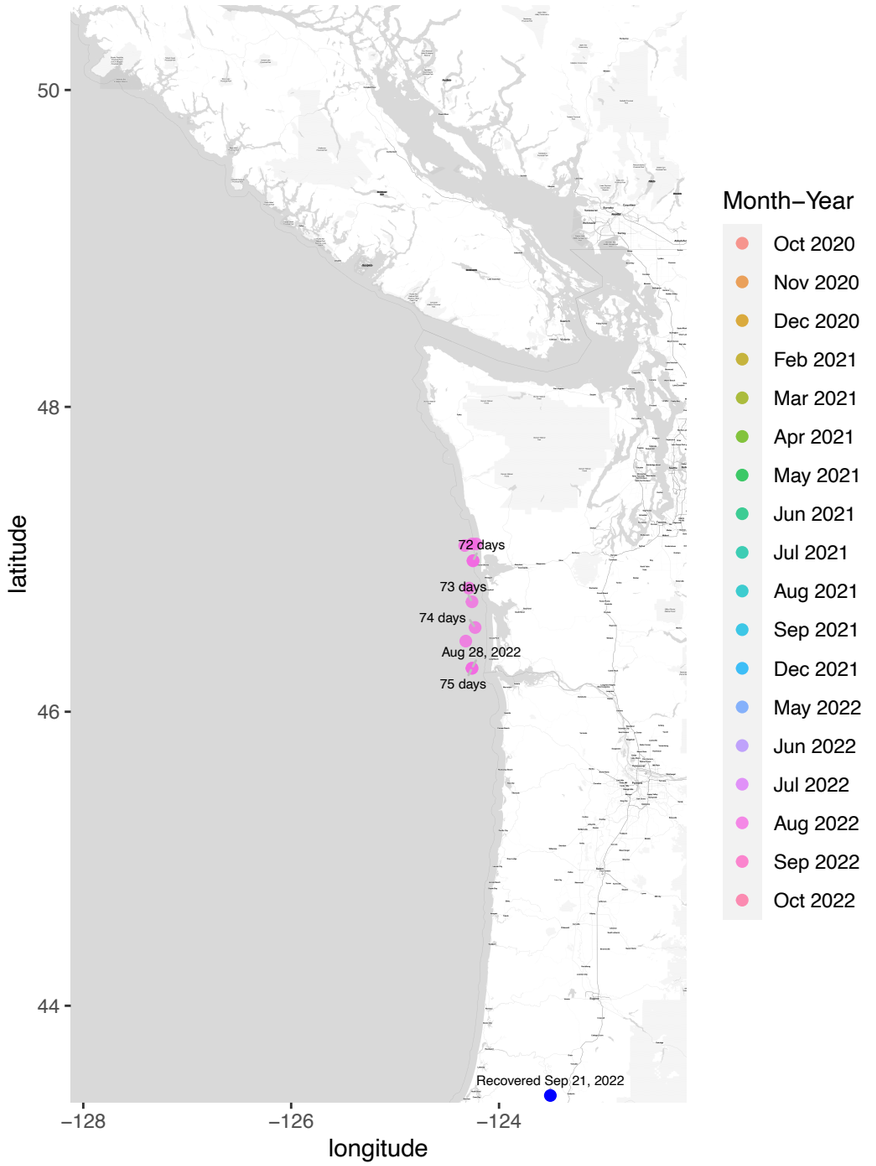


S45

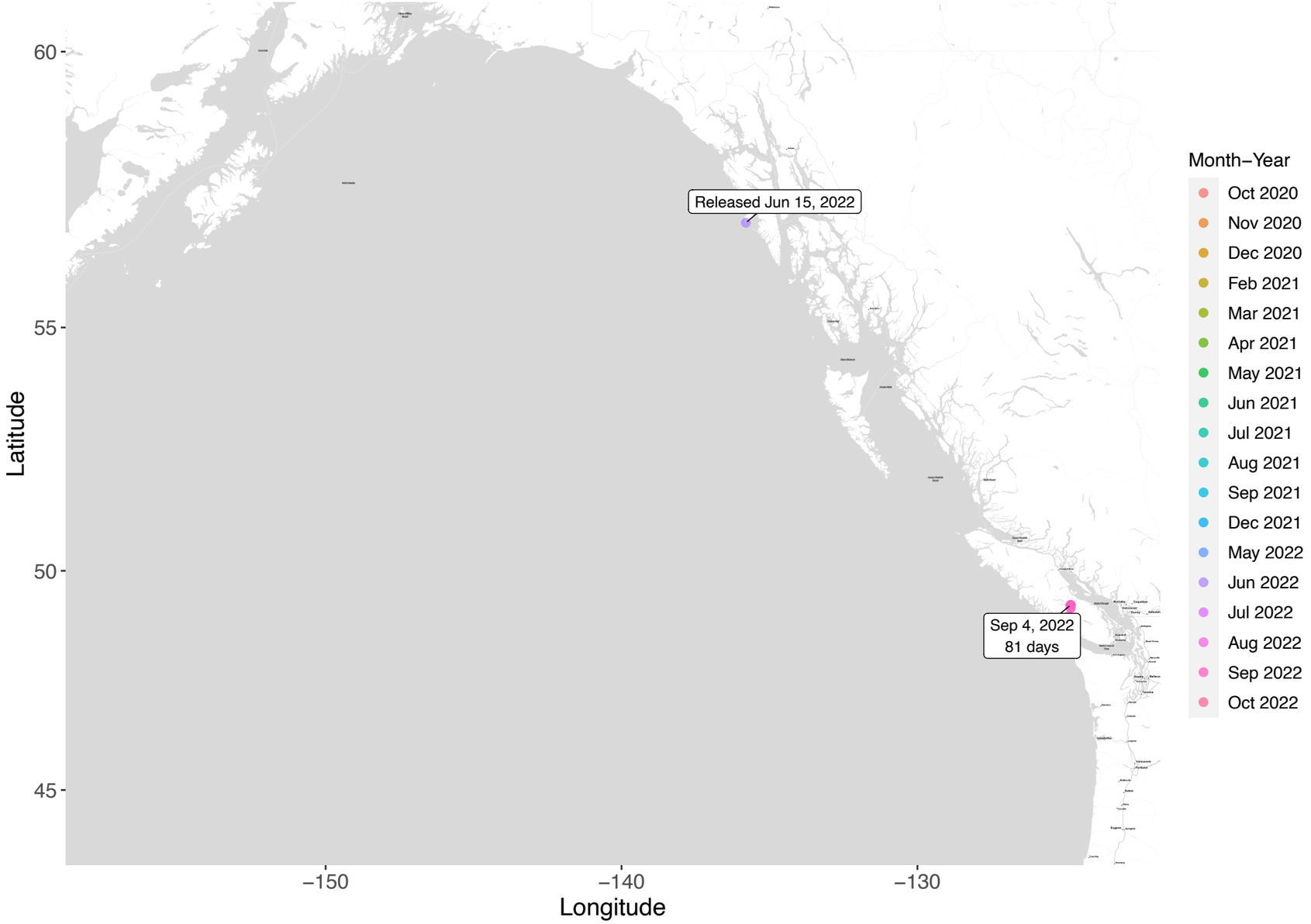
Release location: Sitka, stock: NA, FL: 700 mm
Recovered 2022–09–21 at (43.38, –123.51)

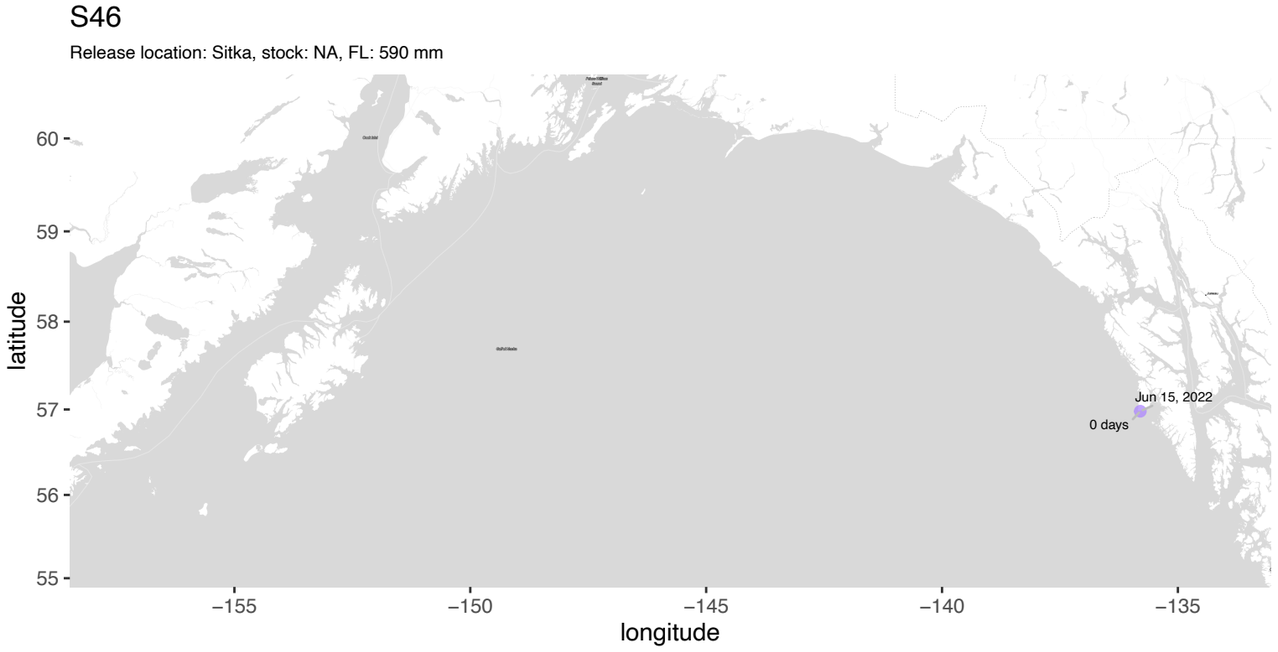


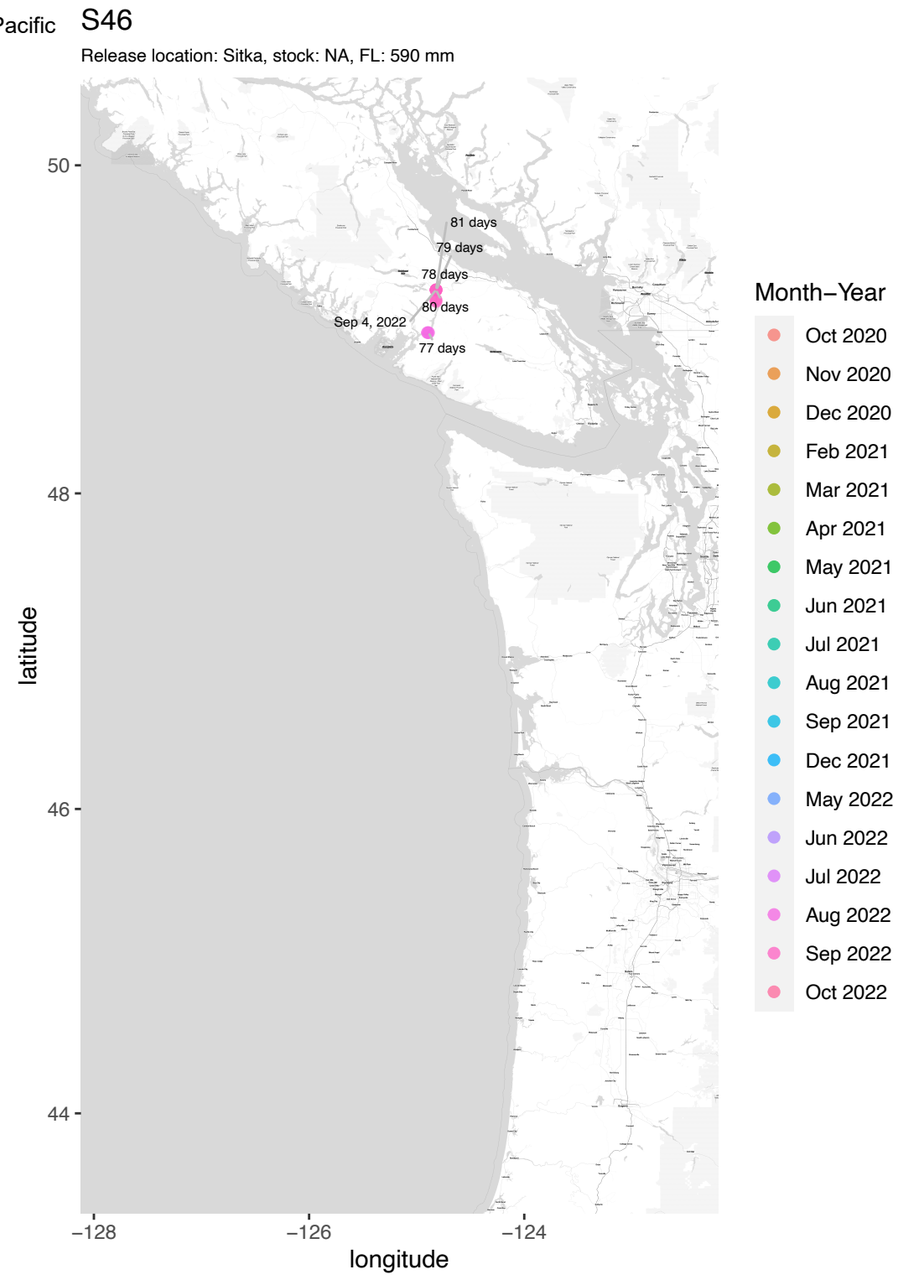
S45
Release location: Sitka, stock: NA, FL: 700 mm
Recovered 2022–09–21 at (43.38, –123.51)



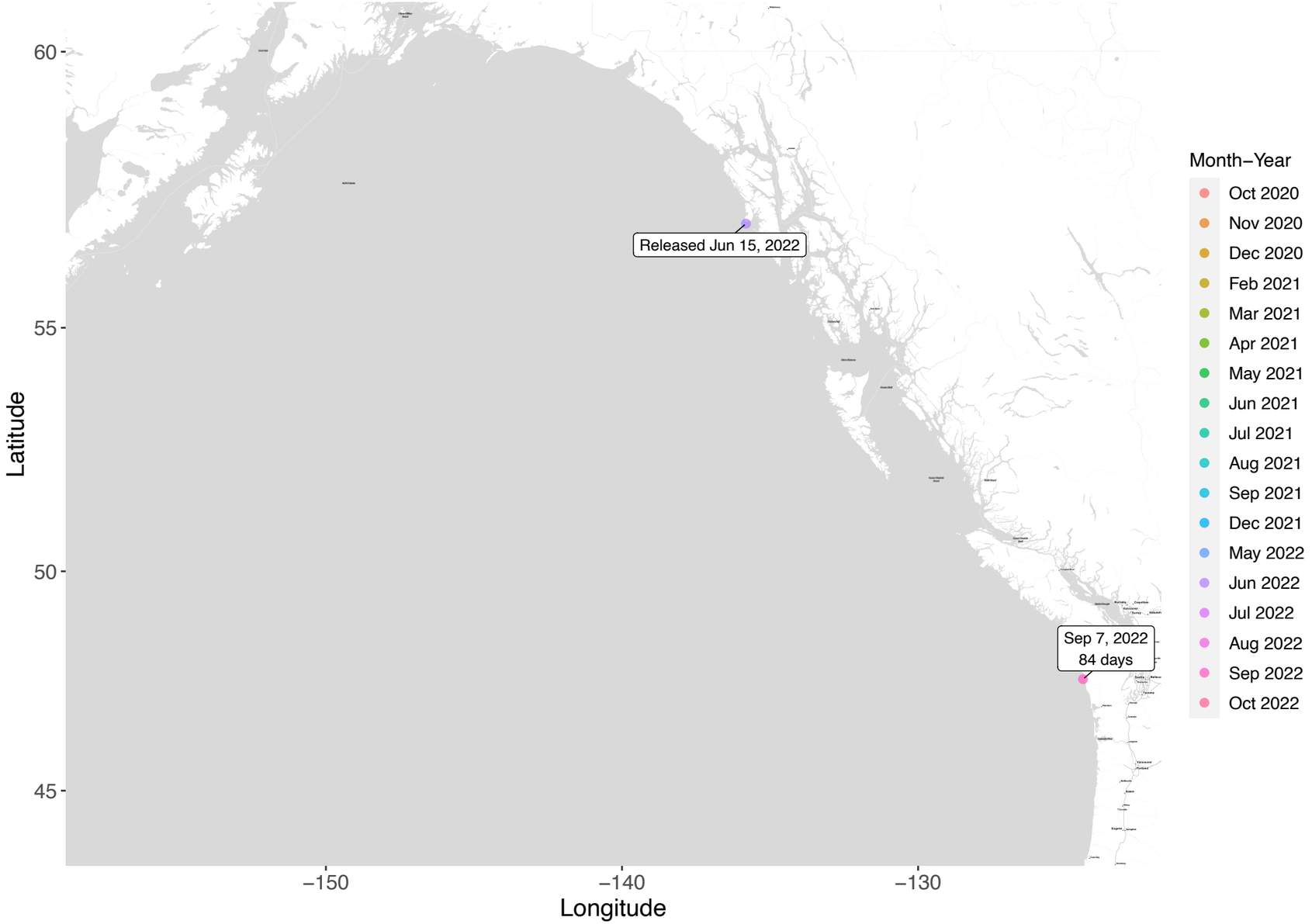
Release location: Sitka, stock: NA, FL: 590 mm

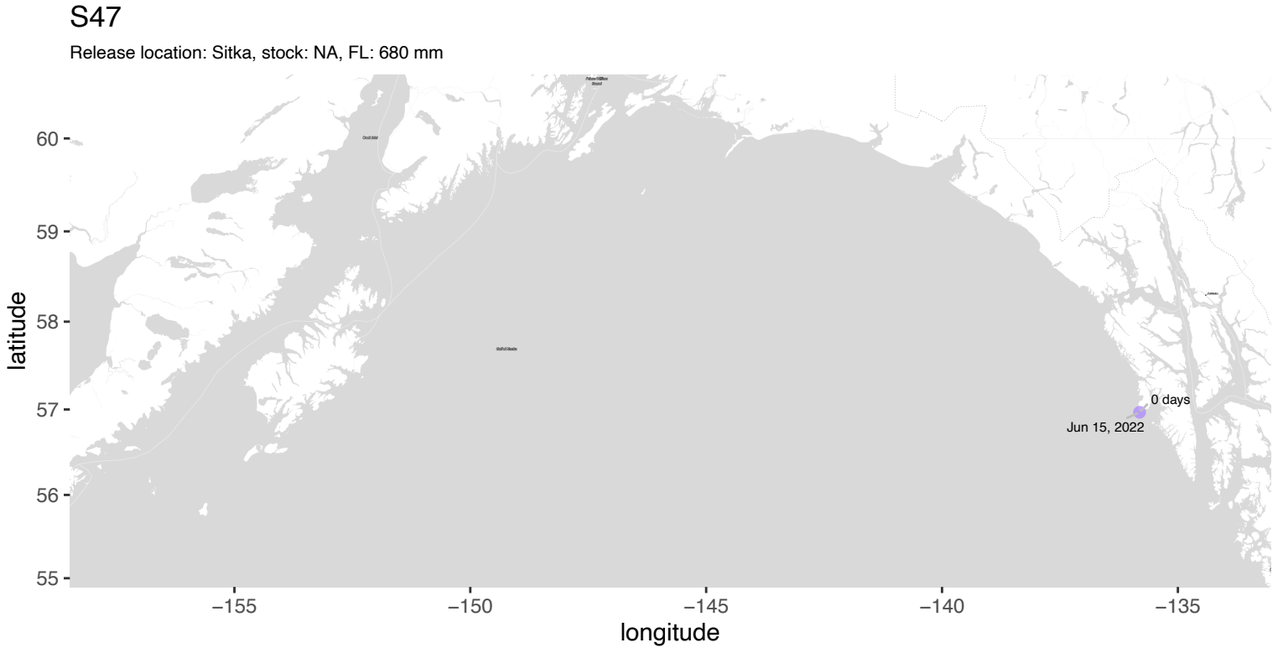


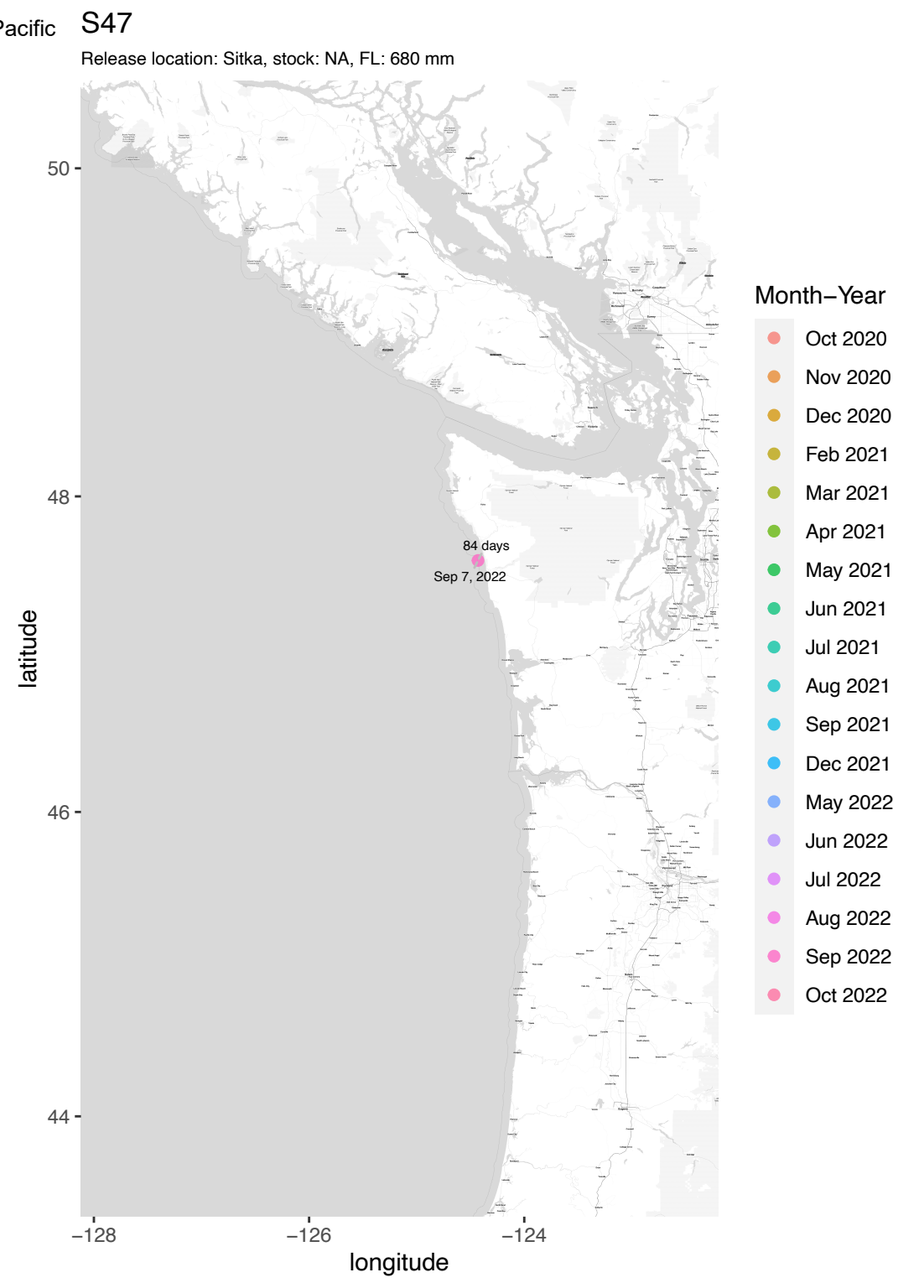

S46
Release location: Sitka, stock: NA, FL: 590 mm
60
59
58
57
56
55
latitude
−155
−150
−145
−140
−135
longitude
Jun 15, 2022
0 days


S46
Release location: Sitka, stock: NA, FL: 590 mm
50
48
46
44
latitude
−128
−126
−124
longitude
81 days
79 days
78 days
80 days
Sep 4, 2022
77 days
Month−Year
Oct 2020
Nov 2020
Dec 2020
Feb 2021
Mar 2021
Apr 2021
May 2021
Jun 2021
Jul 2021
Aug 2021
Sep 2021
Dec 2021
May 2022
Jun 2022
Jul 2022
Aug 2022
Sep 2022
Oct 2022

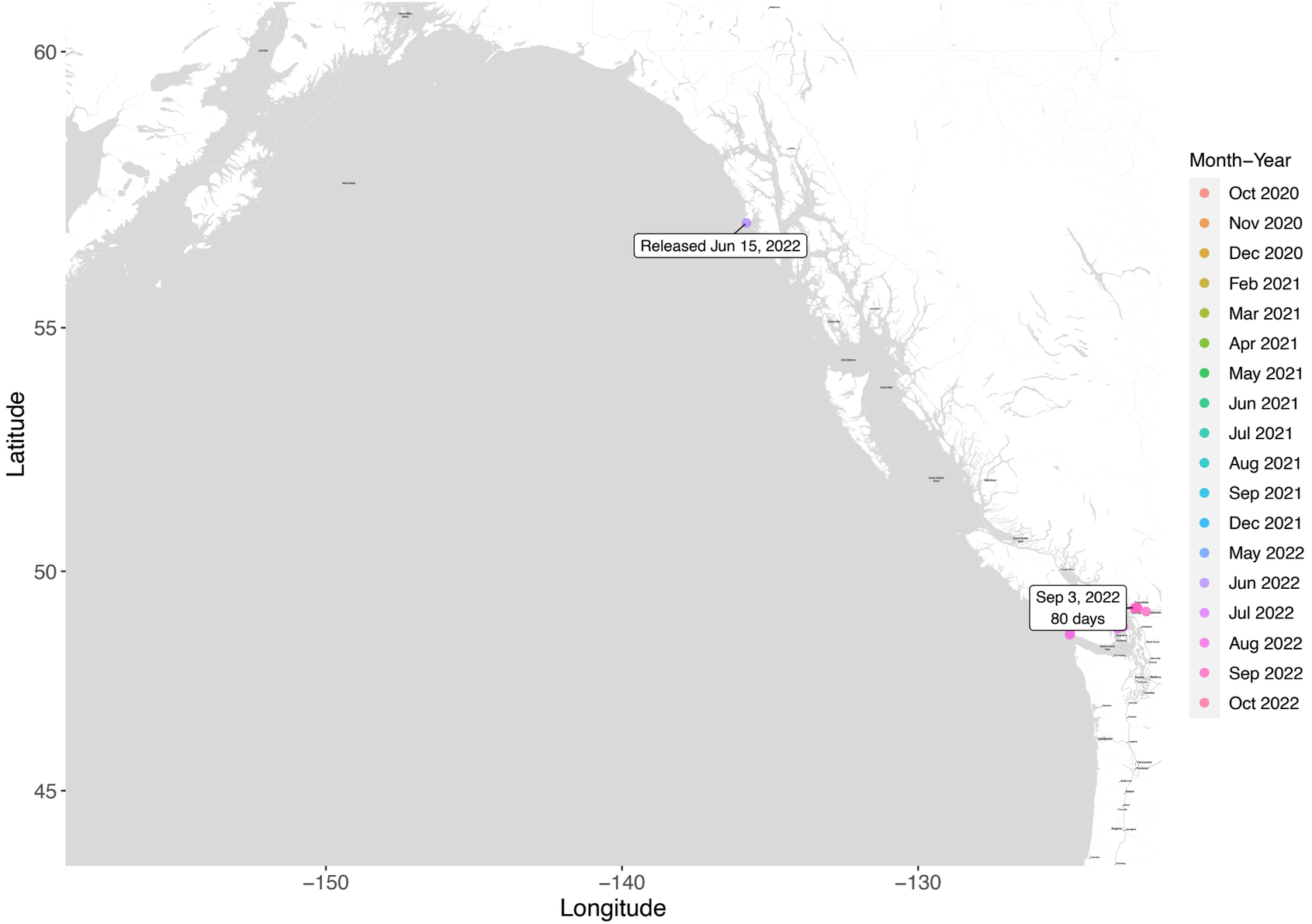
Release location: Sitka, stock: NA, FL: 680 mm

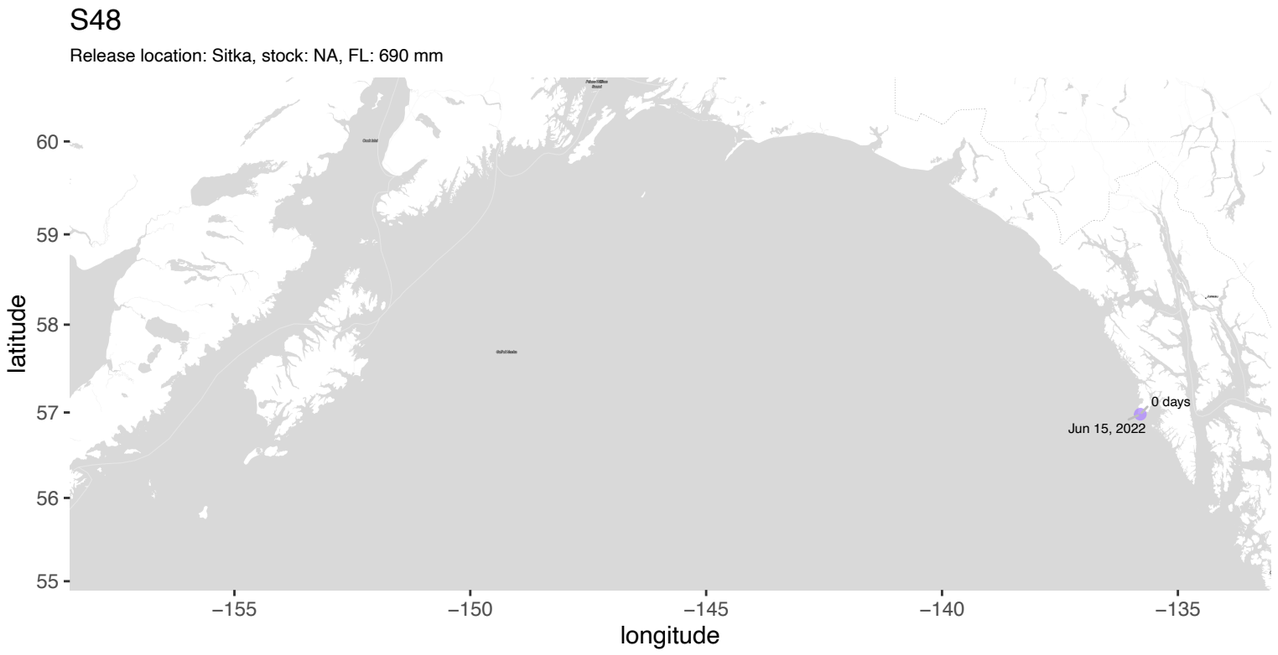


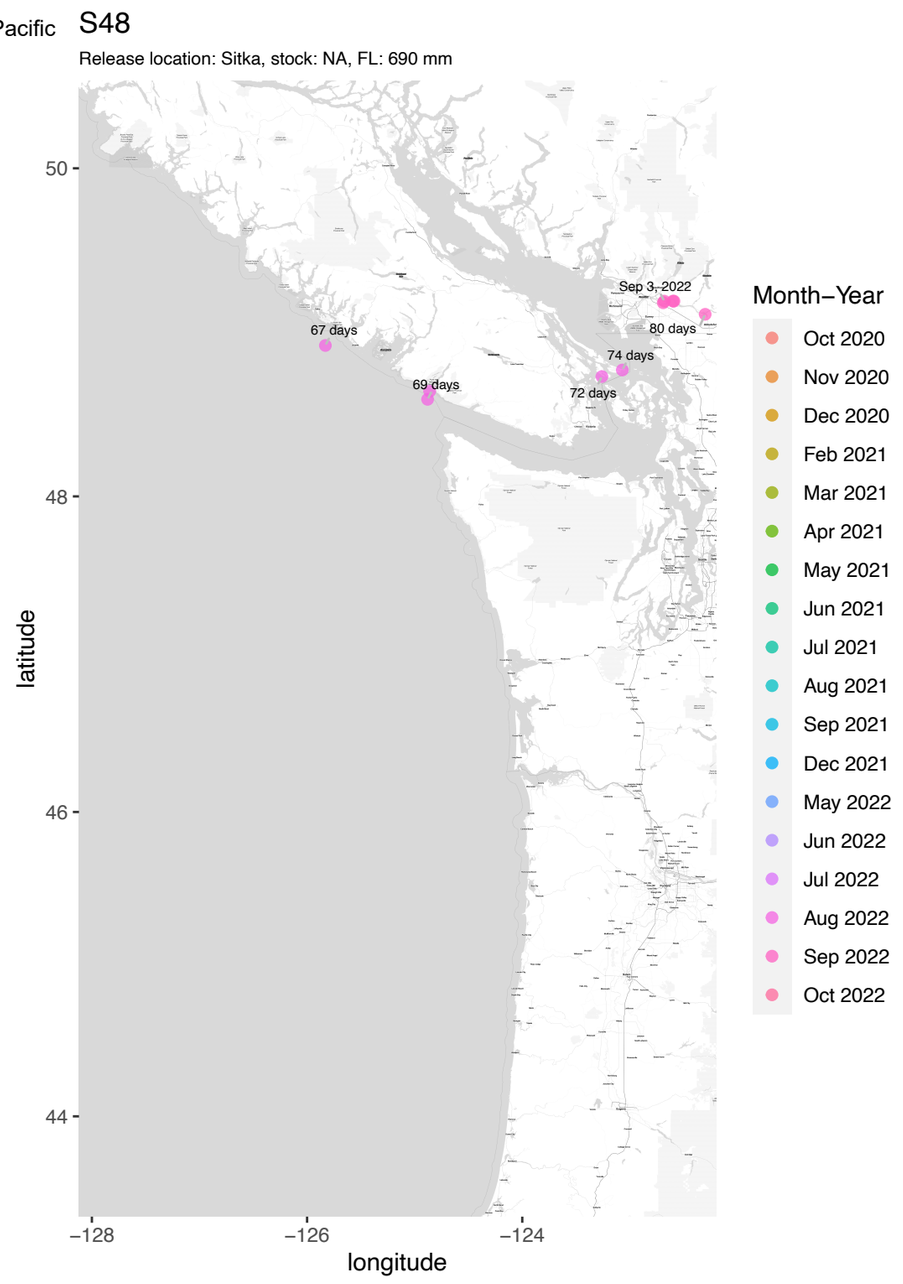

S47
Release location: Sitka, stock: NA, FL: 680 mm
60
59
58
57
56
55
latitude
−155
−150
−145
−140
−135
longitude
0 days
Jun 15, 2022


S47
Release location: Sitka, stock: NA, FL: 680 mm
50
48
46
44
latitude
−128
−126
−124
longitude
84 days
Sep 7, 2022
Month−Year
Oct 2020
Nov 2020
Dec 2020
Feb 2021
Mar 2021
Apr 2021
May 2021
Jun 2021
Jul 2021
Aug 2021
Sep 2021
Dec 2021
May 2022
Jun 2022
Jul 2022
Aug 2022
Sep 2022
Oct 2022

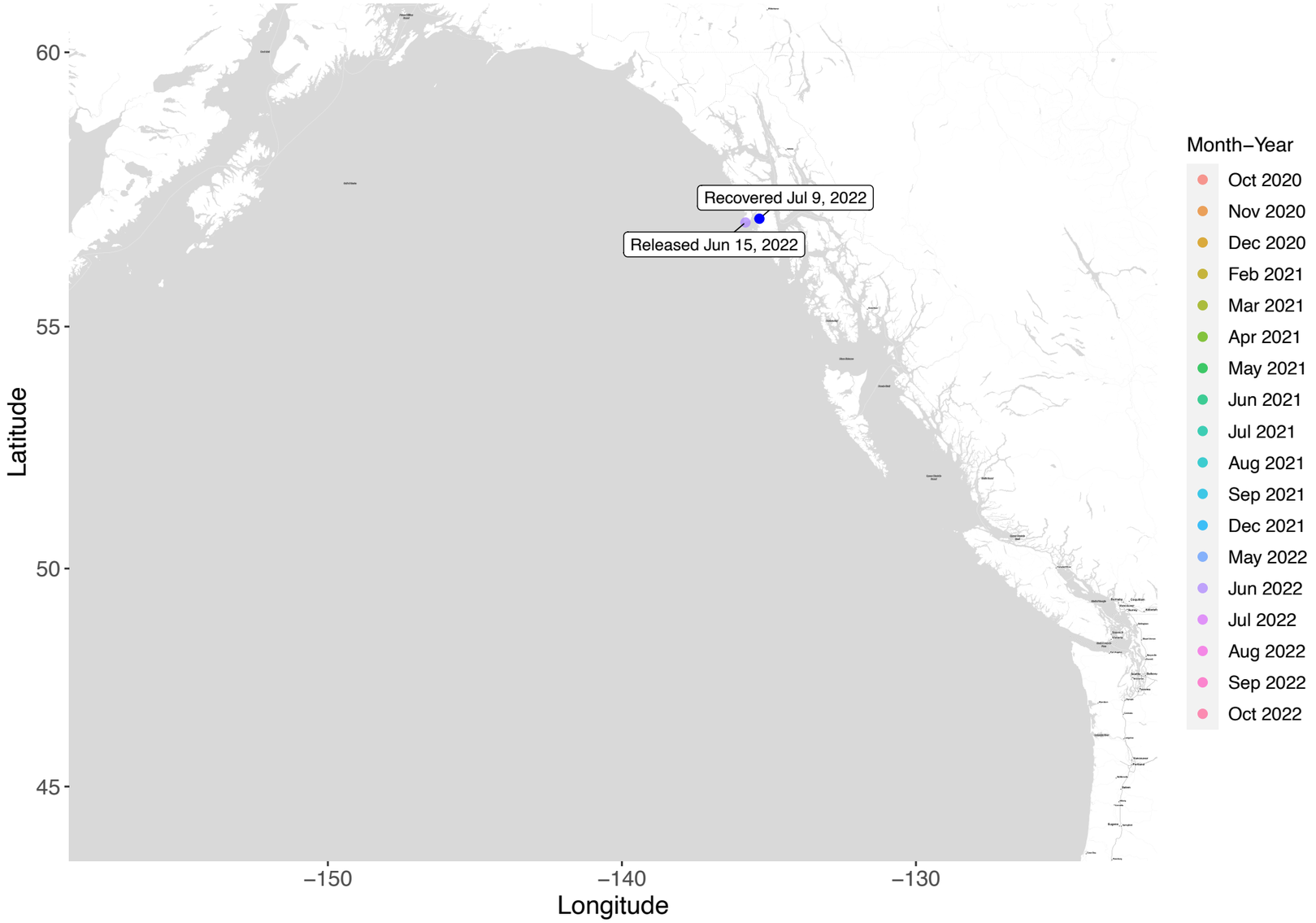
Release location: Sitka, stock: NA, FL: 690 mm

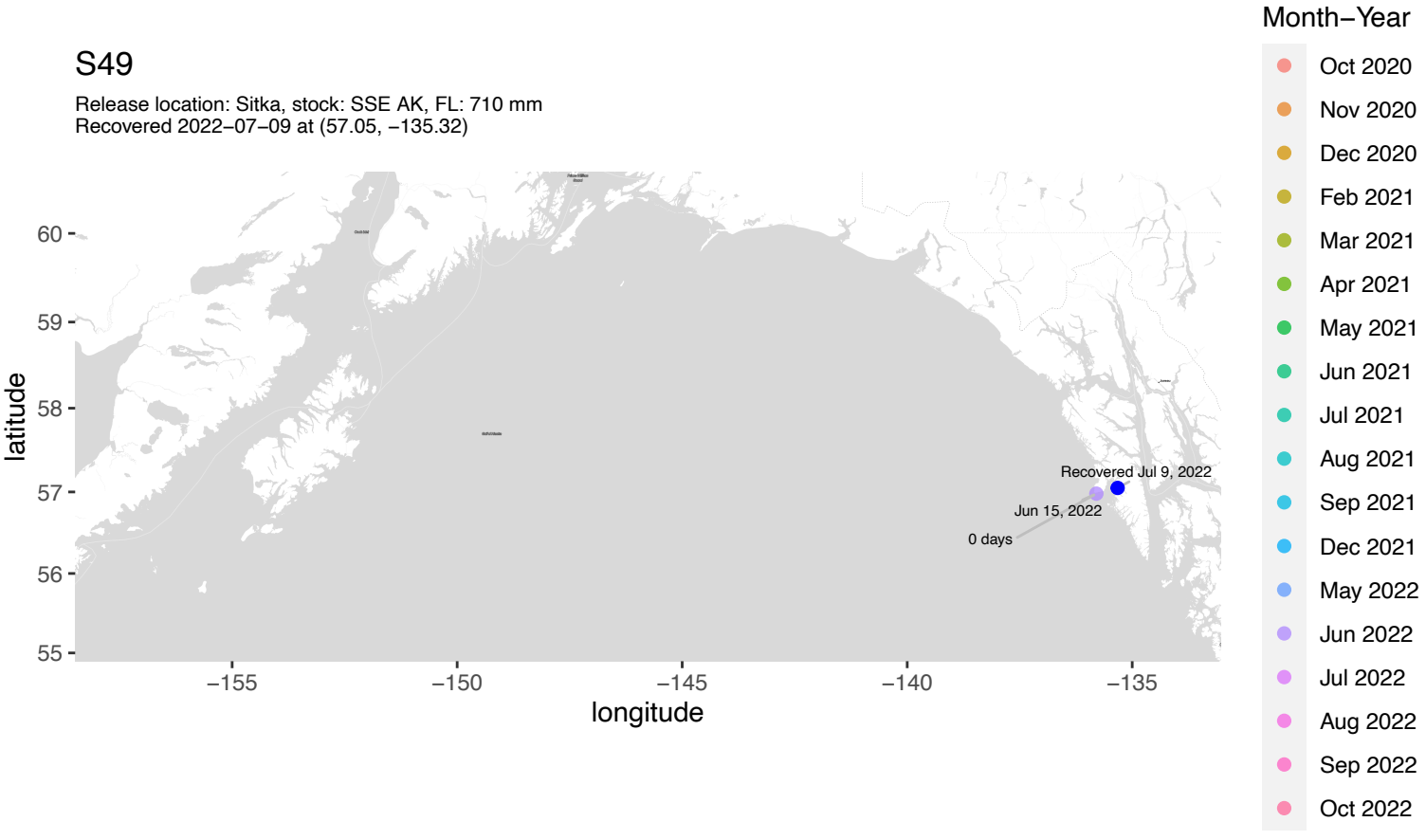



S48
Release location: Sitka, stock: NA, FL: 690 mm
60
59
58
57
56
55
latitude
−155
−150
−145
−140
−135
longitude
0 days
Jun 15, 2022


S48
Release location: Sitka, stock: NA, FL: 690 mm
50
48
46
44
latitude
−128
−126
−124
longitude
Sep 3, 2022
80 days
74 days
72 days
69 days
67 days
Month−Year
Oct 2020
Nov 2020
Dec 2020
Feb 2021
Mar 2021
Apr 2021
May 2021
Jun 2021
Jul 2021
Aug 2021
Sep 2021
Dec 2021
May 2022
Jun 2022
Jul 2022
Aug 2022
Sep 2022
Oct 2022

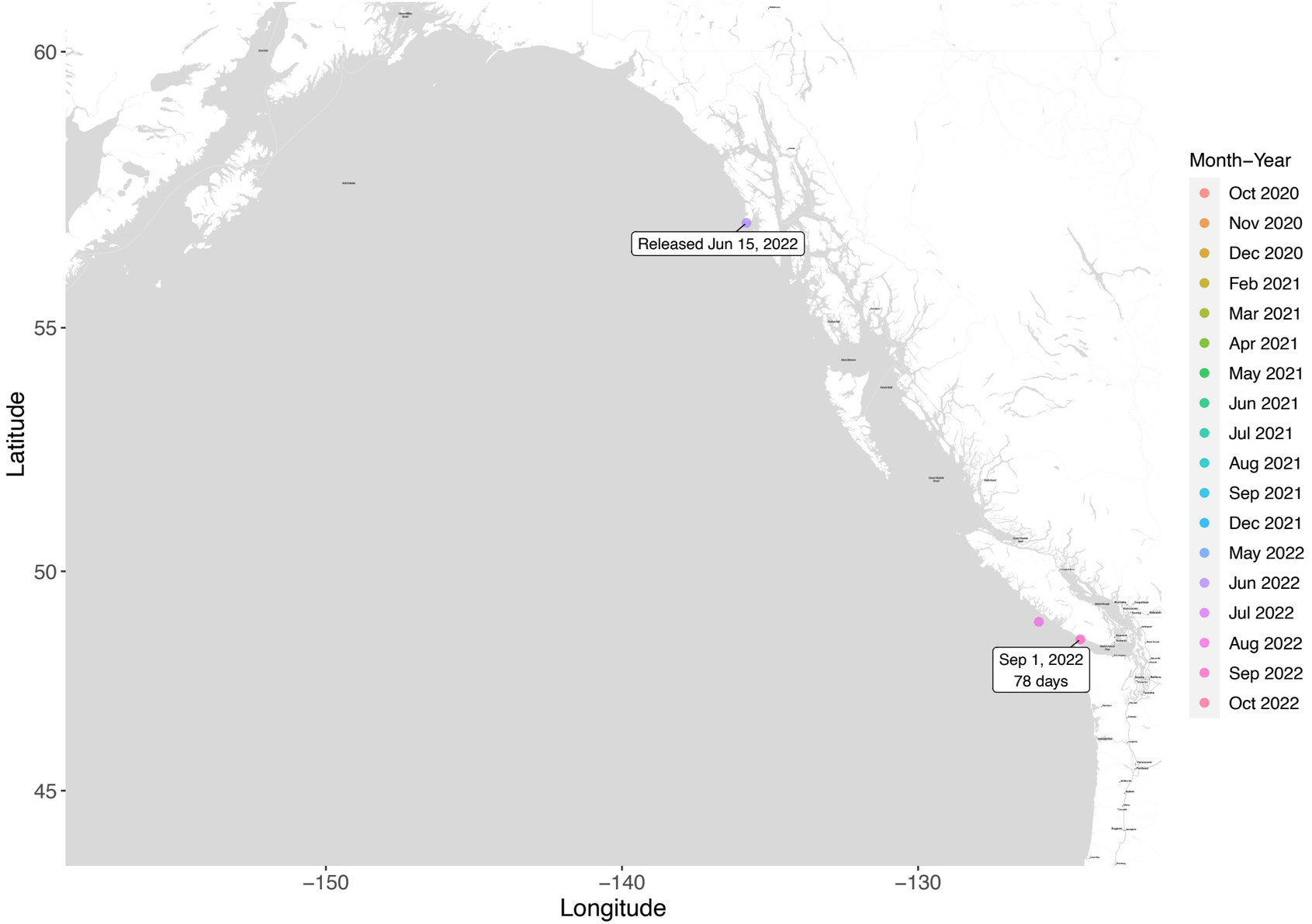
Release location: Sitka, stock: SSE AK, FL: 710 mm

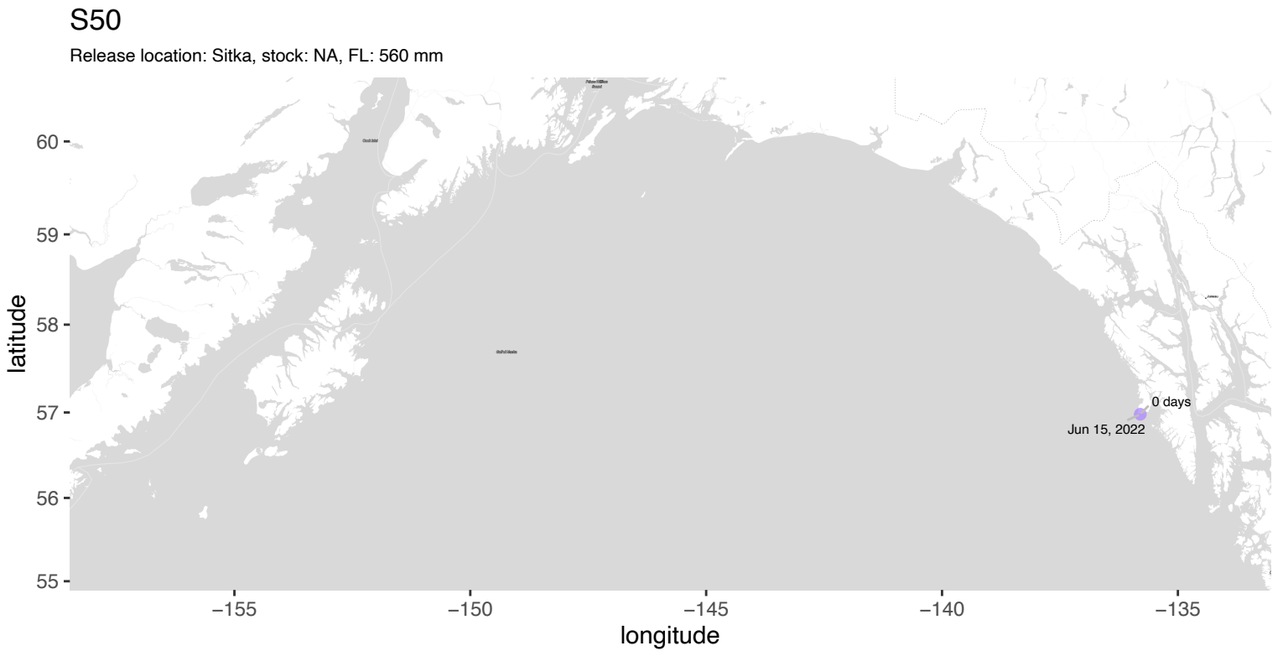


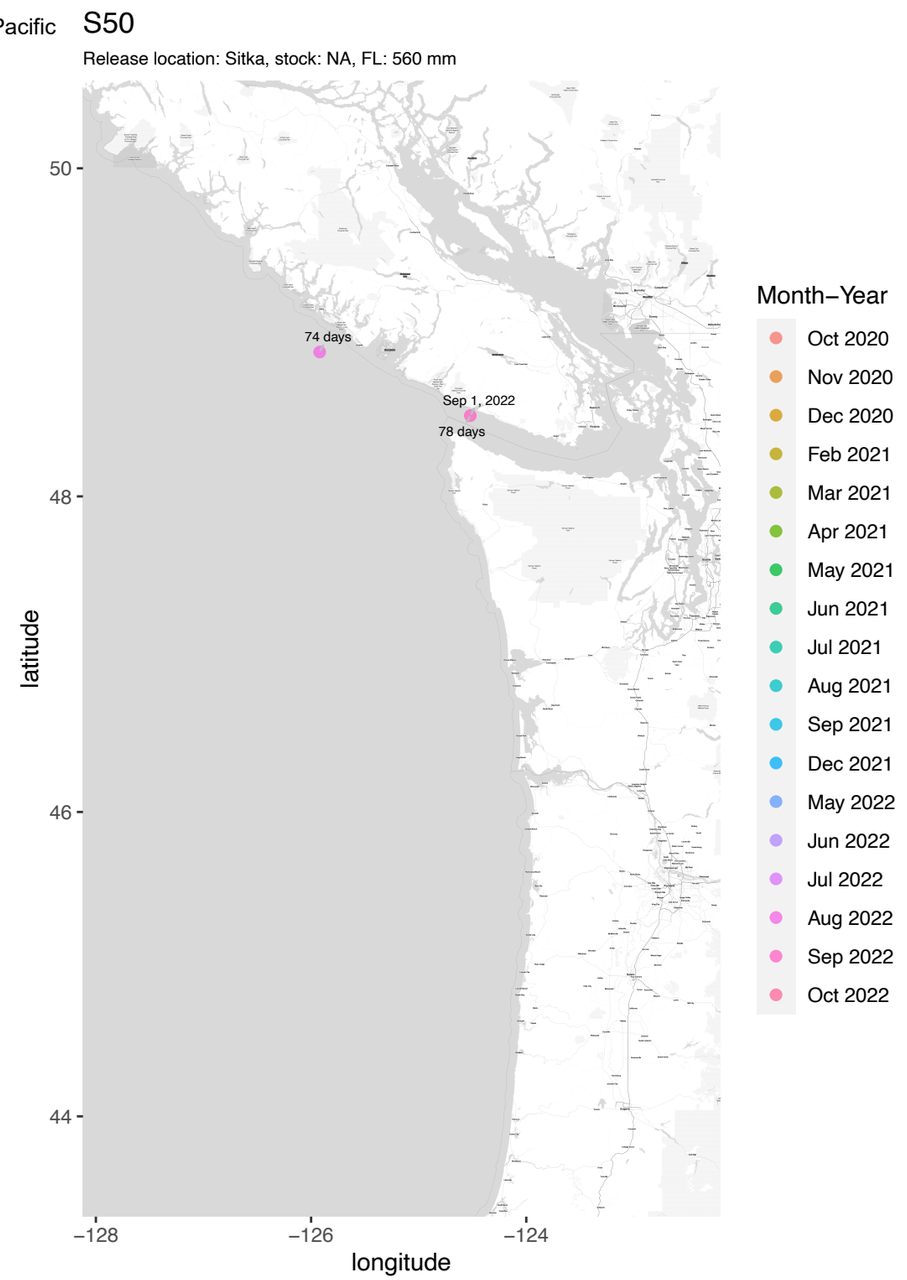

S49
Release location: Sitka, stock: SSE AK, FL: 710 mm
Recovered 2022–07–09 at (57.05, –135.32)
Recovered Jul 9, 2022
Jun 15, 2022
0 days
latitude
longitude
60
59
58
57
56
55
–155
–150
–145
–140
–135
Month–Year
Oct 2020
Nov 2020
Dec 2020
Feb 2021
Mar 2021
Apr 2021
May 2021
Jun 2021
Jul 2021
Aug 2021
Sep 2021
Dec 2021
May 2022
Jun 2022
Jul 2022
Aug 2022
Sep 2022
Oct 2022

S50

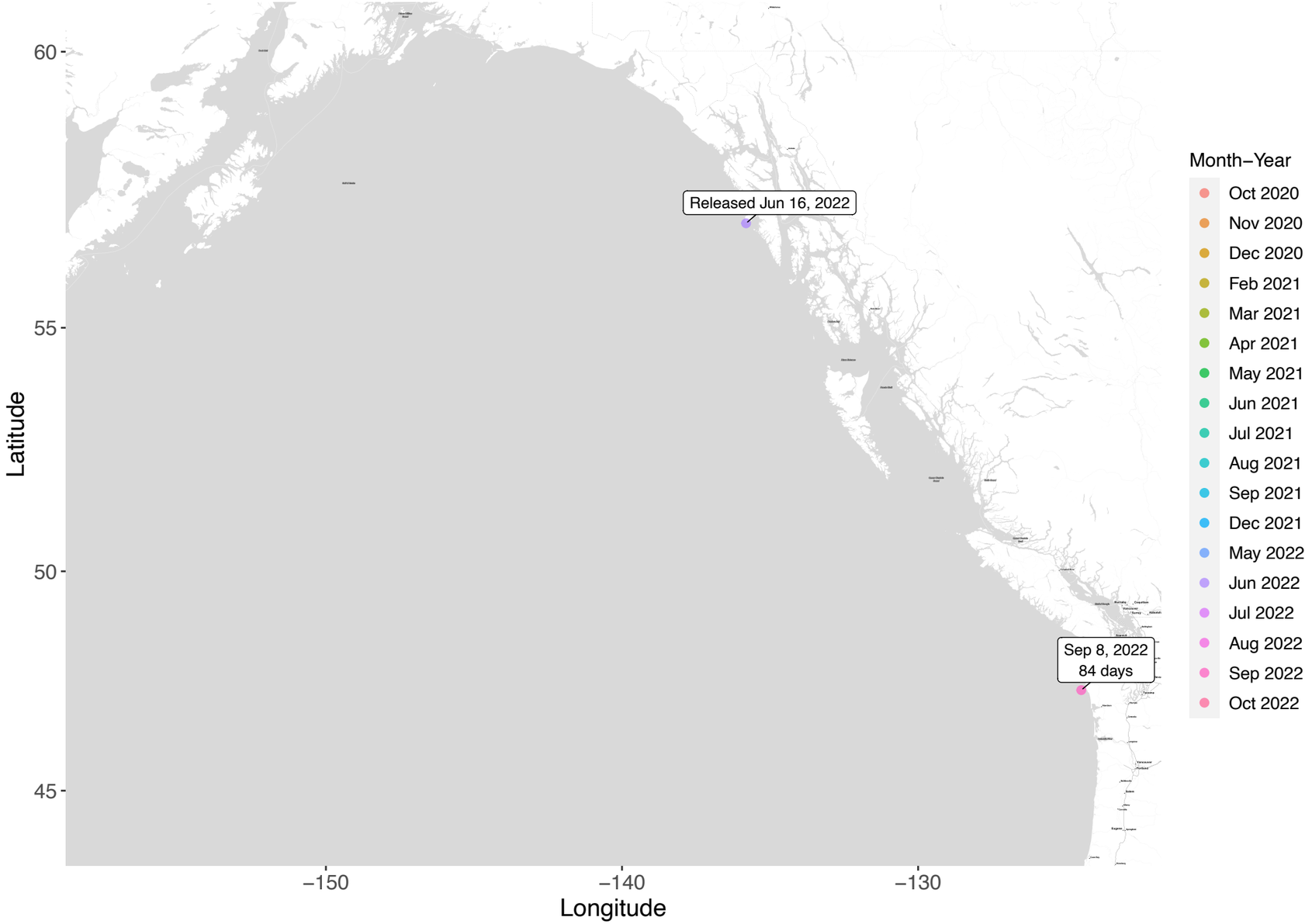
Release location: Sitka, stock: NA, FL: 560 mm

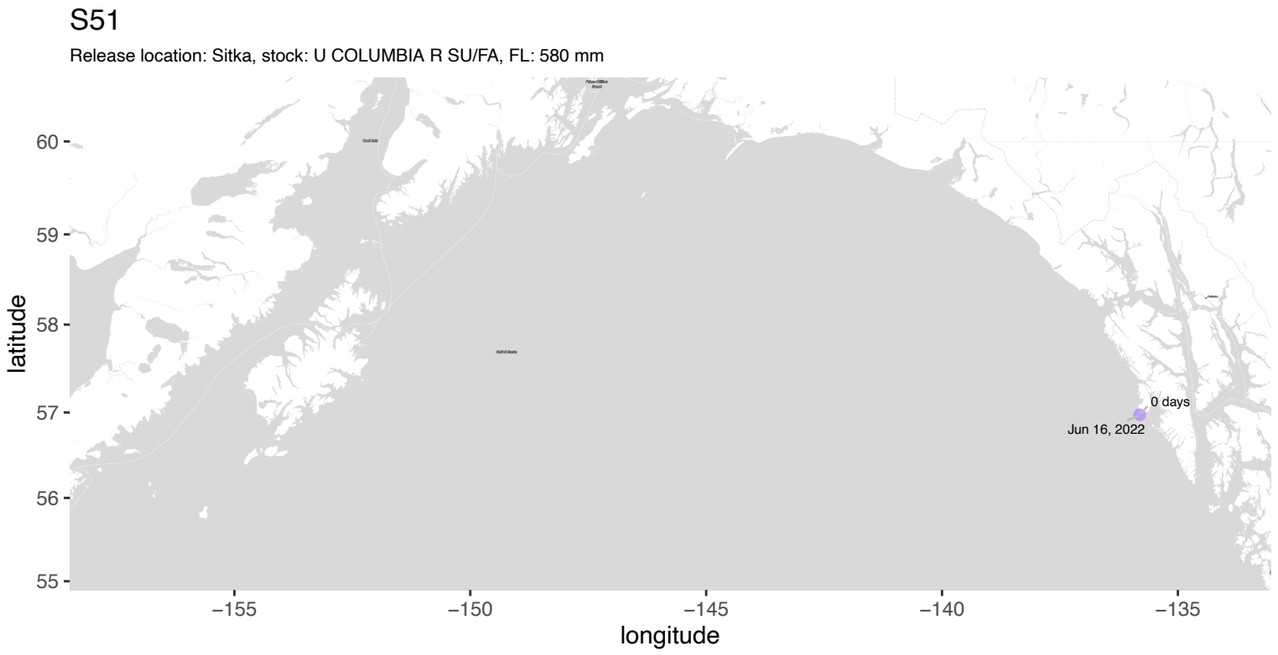


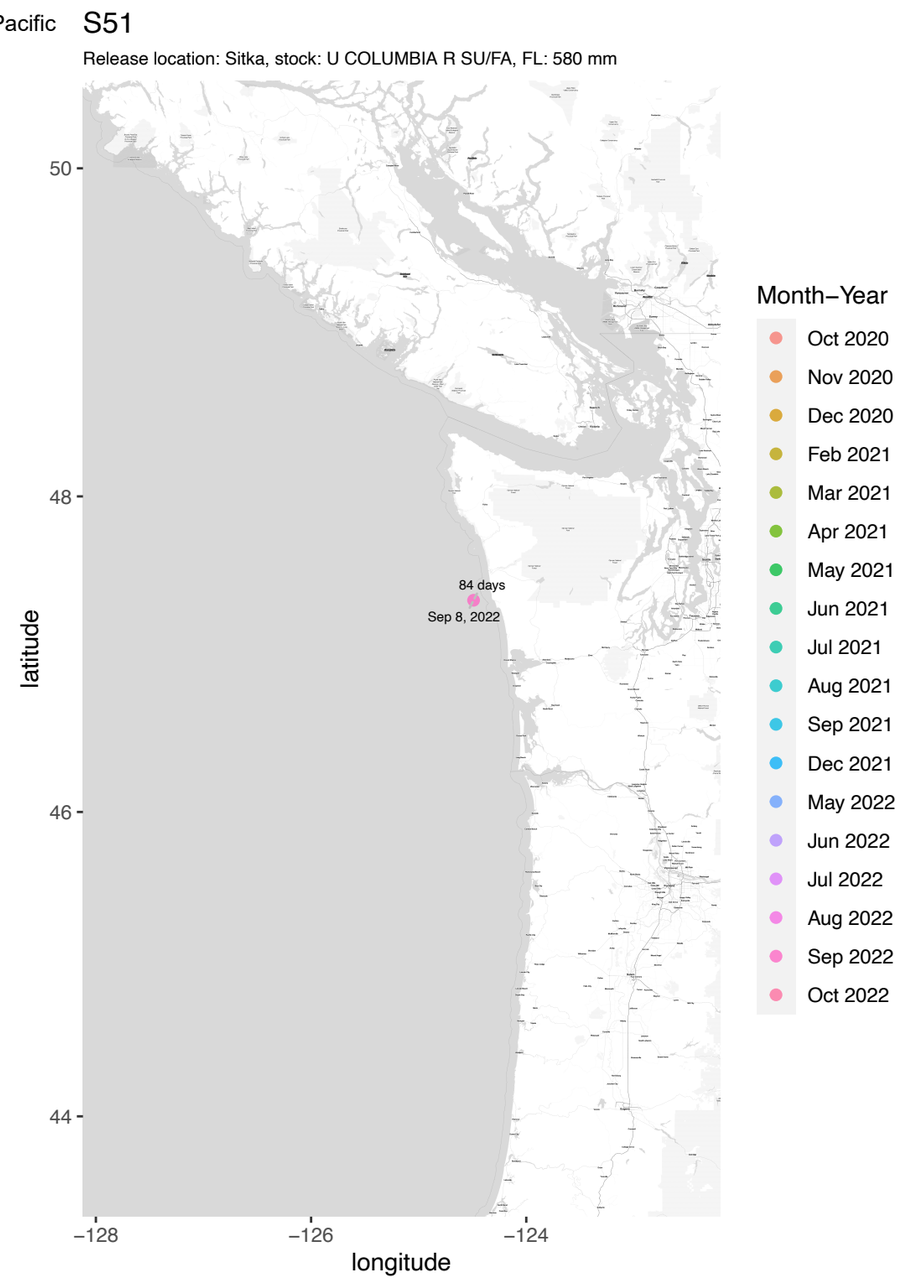

S50
Release location: Sitka, stock: NA, FL: 560 mm
0 days
Jun 15, 2022
latitude
longitude
60
59
58
57
56
55
−155
−150
−145
−140
−135


S50
Release location: Sitka, stock: NA, FL: 560 mm
74 days
Sep 1, 2022
78 days
latitude
longitude
50
48
46
44
−128
−126
−124
Month−Year
Oct 2020
Nov 2020
Dec 2020
Feb 2021
Mar 2021
Apr 2021
May 2021
Jun 2021
Jul 2021
Aug 2021
Sep 2021
Dec 2021
May 2022
Jun 2022
Jul 2022
Aug 2022
Sep 2022
Oct 2022

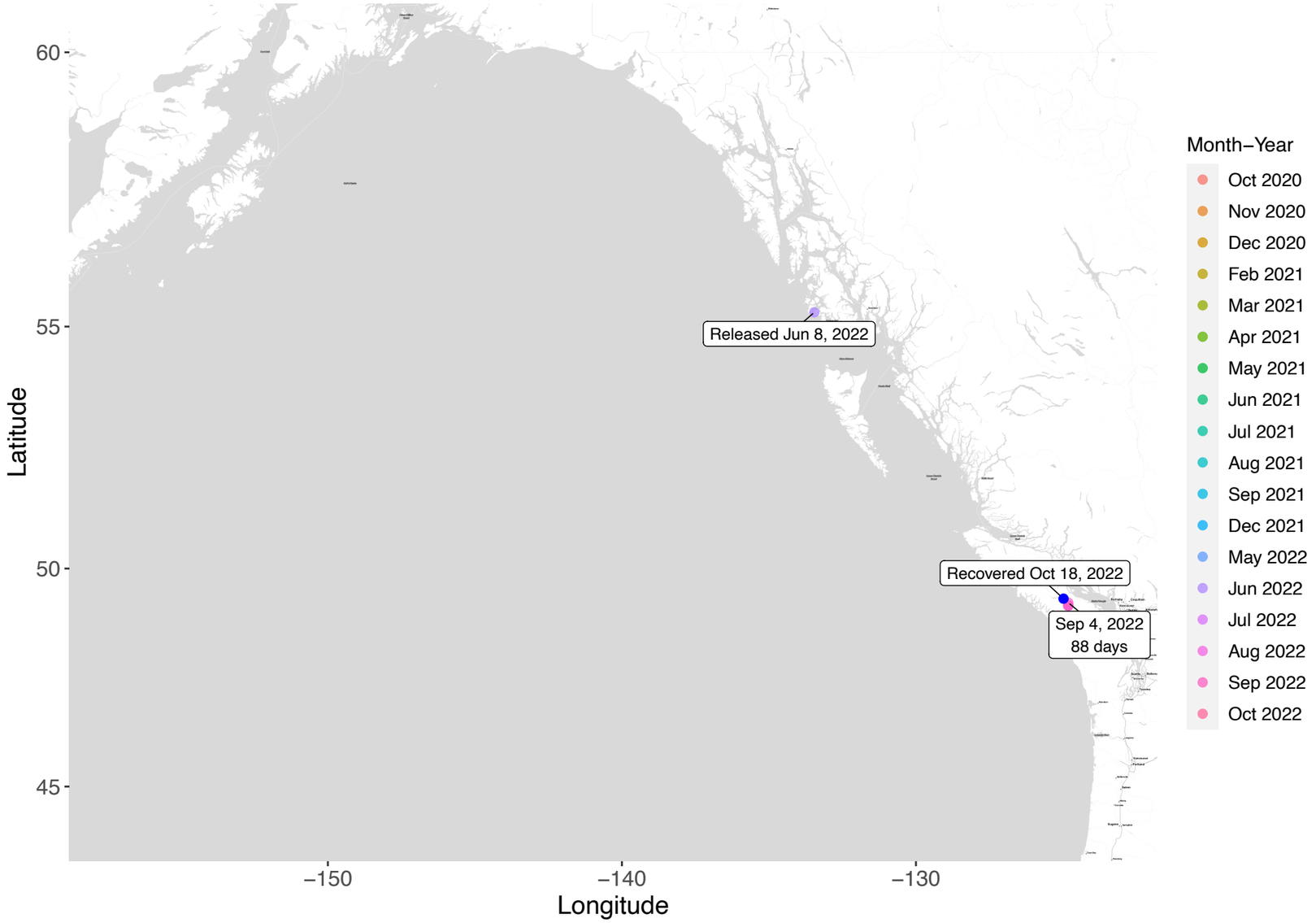
Release location: Sitka, stock: U COLUMBIA R SU/FA, FL: 580 mm




S51
Release location: Sitka, stock: U COLUMBIA R SU/FA, FL: 580 mm
60
59
58
57
56
55
latitude
−155
−150
−145
−140
−135
longitude
0 days
Jun 16, 2022

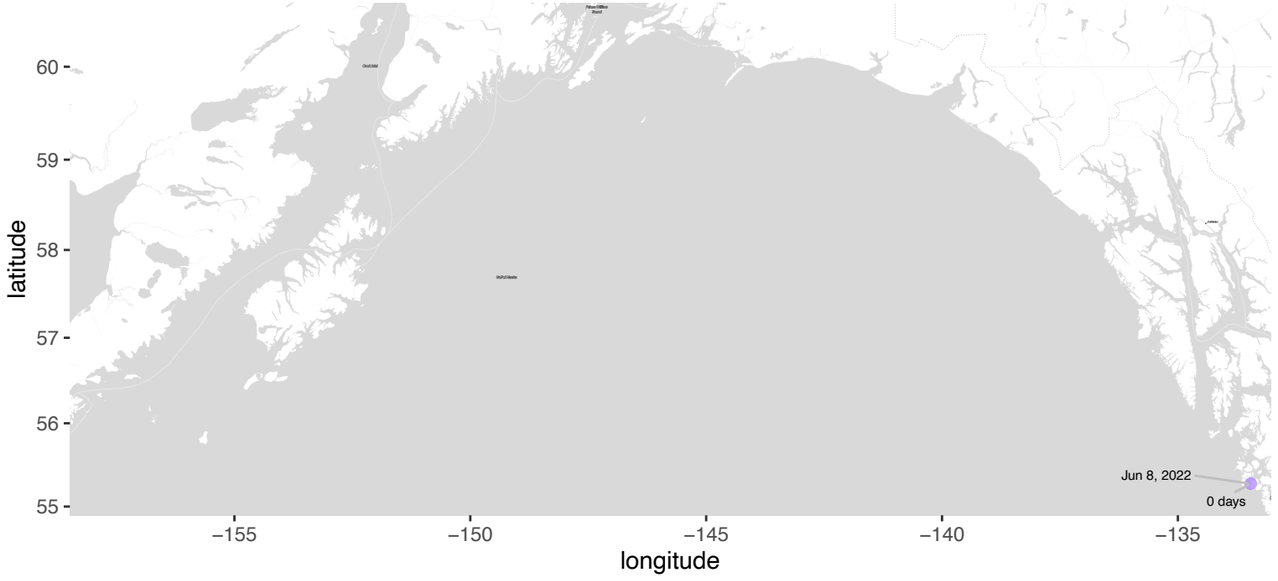

S51
Release location: Sitka, stock: U COLUMBIA R SU/FA, FL: 580 mm
50
48
46
44
latitude
−128
−126
−124
longitude
84 days
Sep 8, 2022
Month−Year
Oct 2020
Nov 2020
Dec 2020
Feb 2021
Mar 2021
Apr 2021
May 2021
Jun 2021
Jul 2021
Aug 2021
Sep 2021
Dec 2021
May 2022
Jun 2022
Jul 2022
Aug 2022
Sep 2022
Oct 2022

Release location: Craig, stock: W VANCOUVER IS, FL: 750 mm
Recovered 2022–10–18 at (49.34, –124.98)

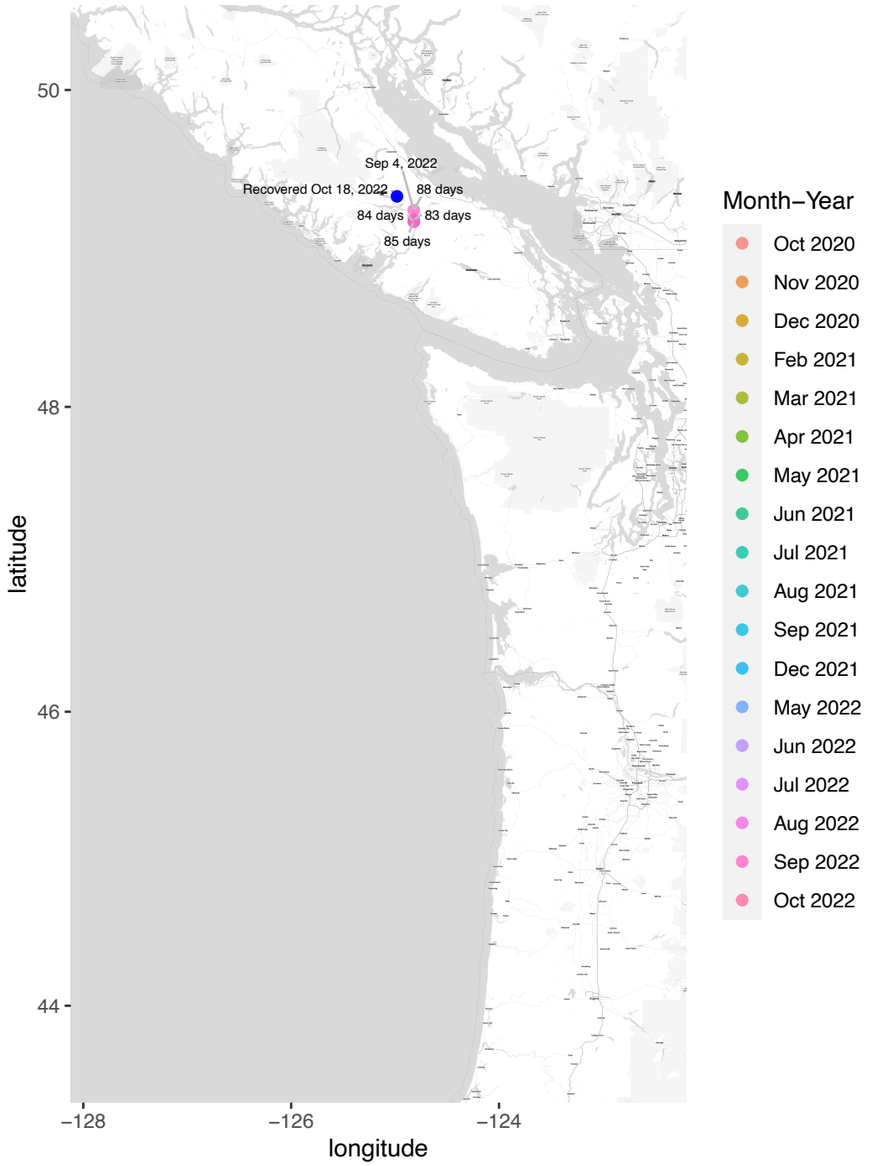


S52

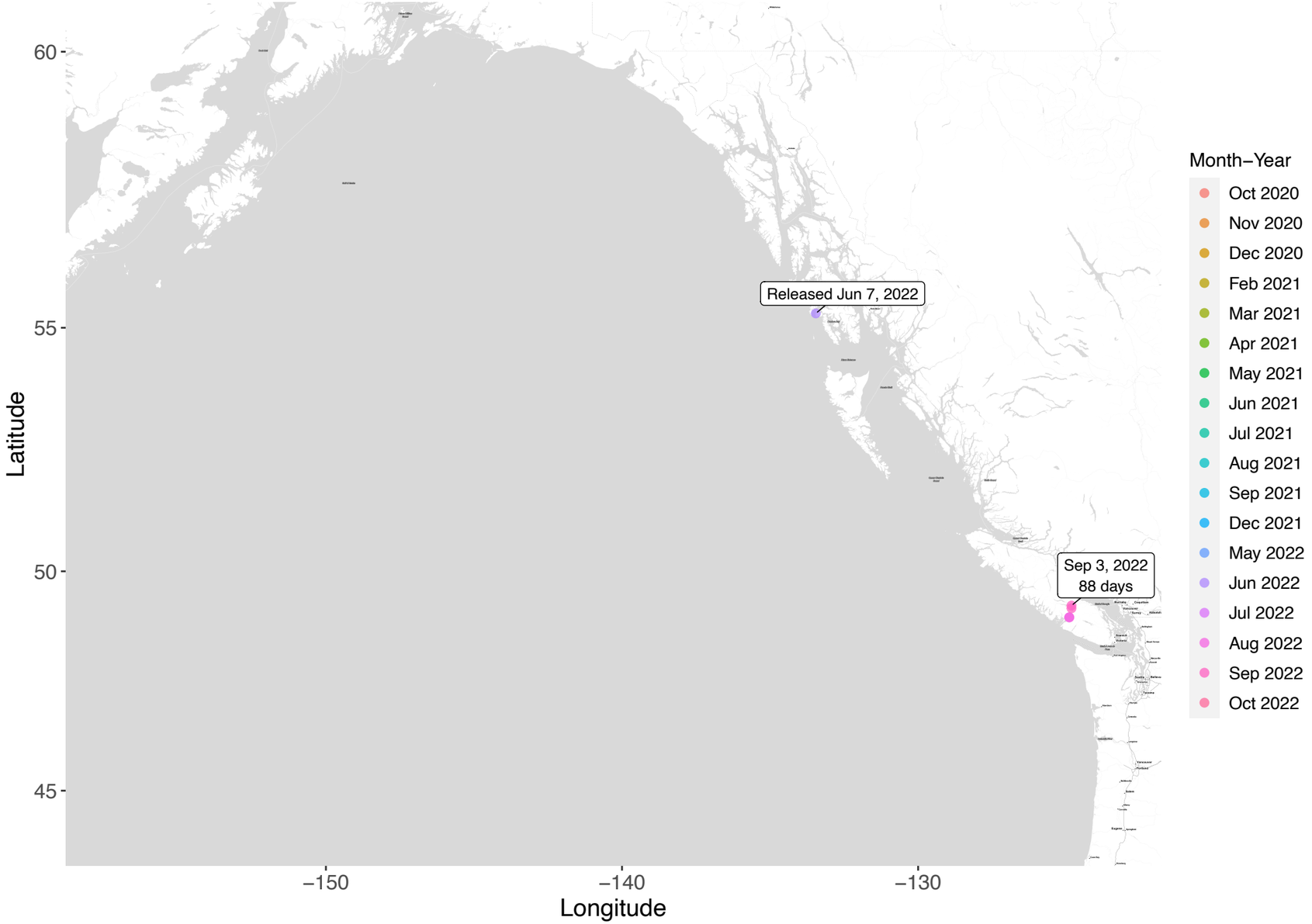
Release location: Craig, stock: W VANCOUVER IS, FL: 750 mm
Recovered 2022–10–18 at (49.34, –124.98)



S52
Release location: Craig, stock: W VANCOUVER IS, FL: 750 mm
Recovered 2022–10–18 at (49.34, –124.98)

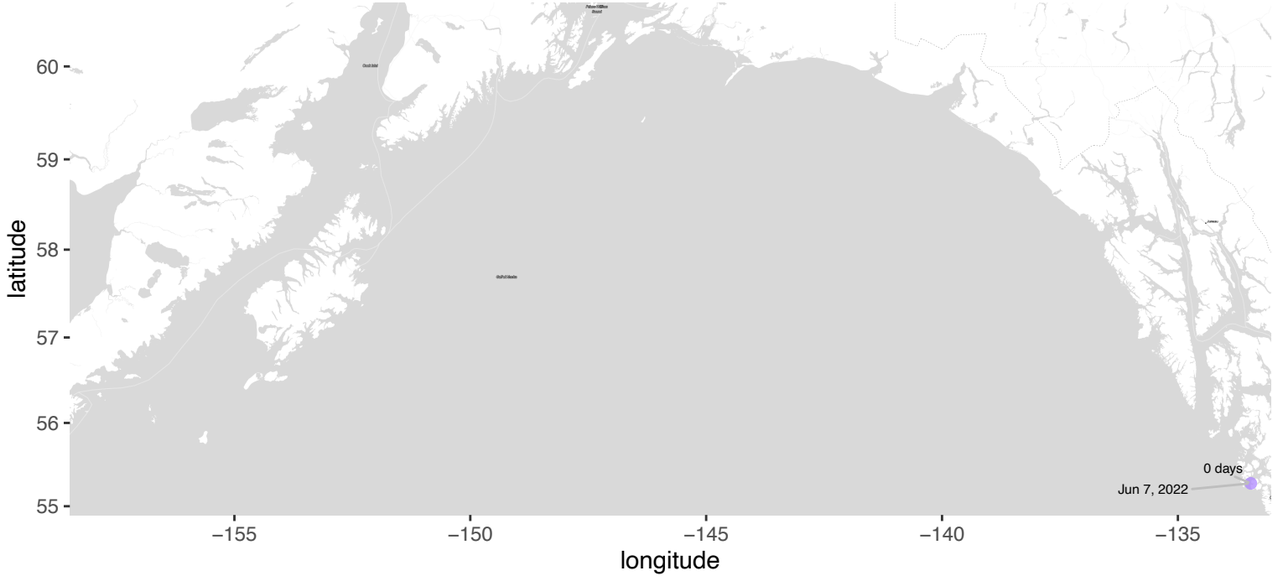


Release location: Craig, stock: W VANCOUVER IS, FL: 630 mm



S53

Release location: Craig, stock: W VANCOUVER IS, FL: 630 mm



S53

Release location: Craig, stock: W VANCOUVER IS, FL: 630 mm