Reducing the Potential to Spread Aquatic Invasive Species Via the Seaplane Pathway

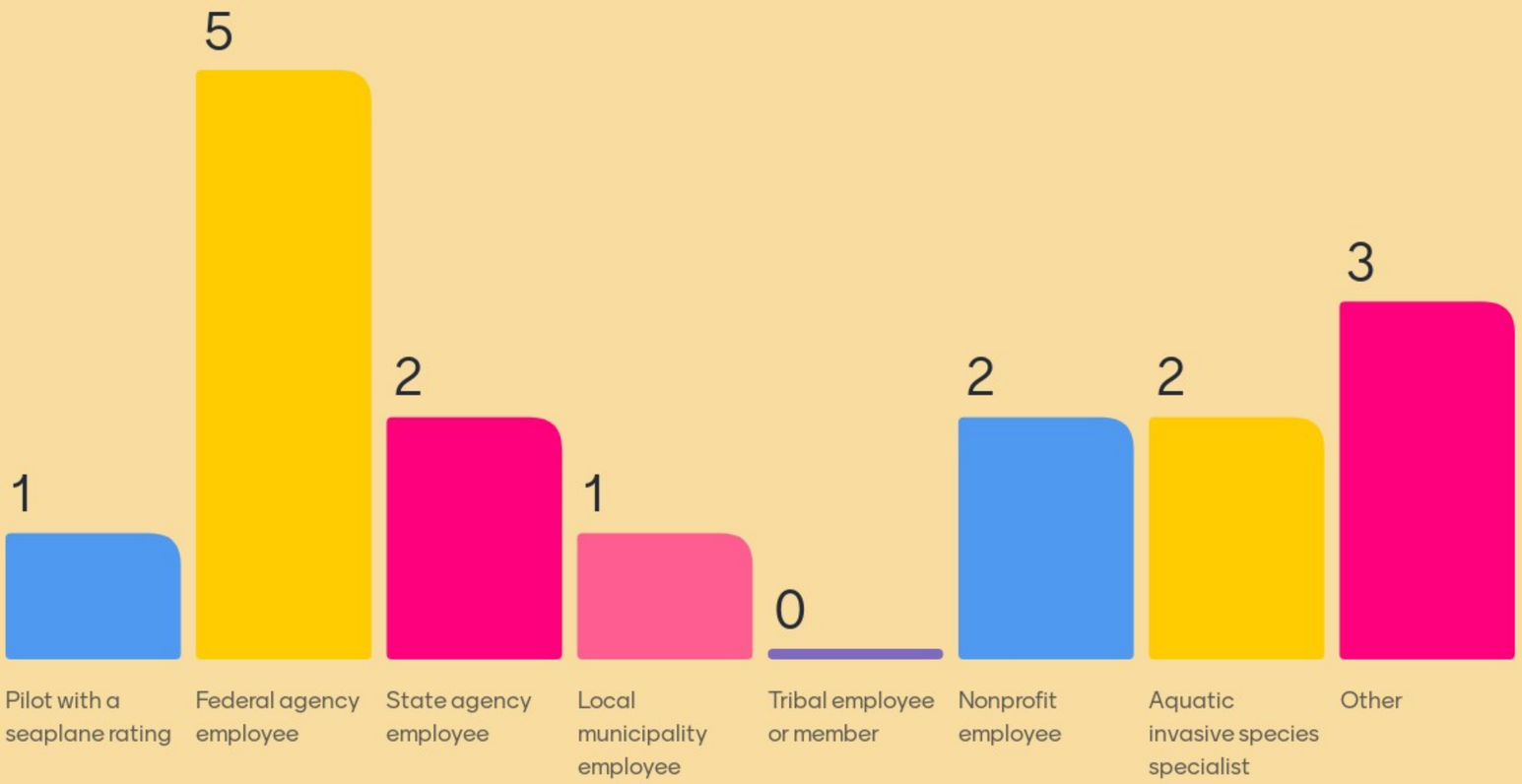
A project funded by the U.S. Fish and Wildlife Service and implemented by:

Recommendations to enhance U.S. AIS-seaplane prevention efforts

AGENDA

- Welcome and Introductions
- Project Goals and Phases
- Phase I Deliverables
  - Website
  - Literature compilation
  - Federal and state laws
  - Seaplane schools
  - Seaplane pilot demographics
- Phase II Deliverables
  - High-risk AIS by FAA region
  - Regional case studies
  - Regulatory framework
  - Seaplane pilot survey results
  - Draft best management practices
- Next steps

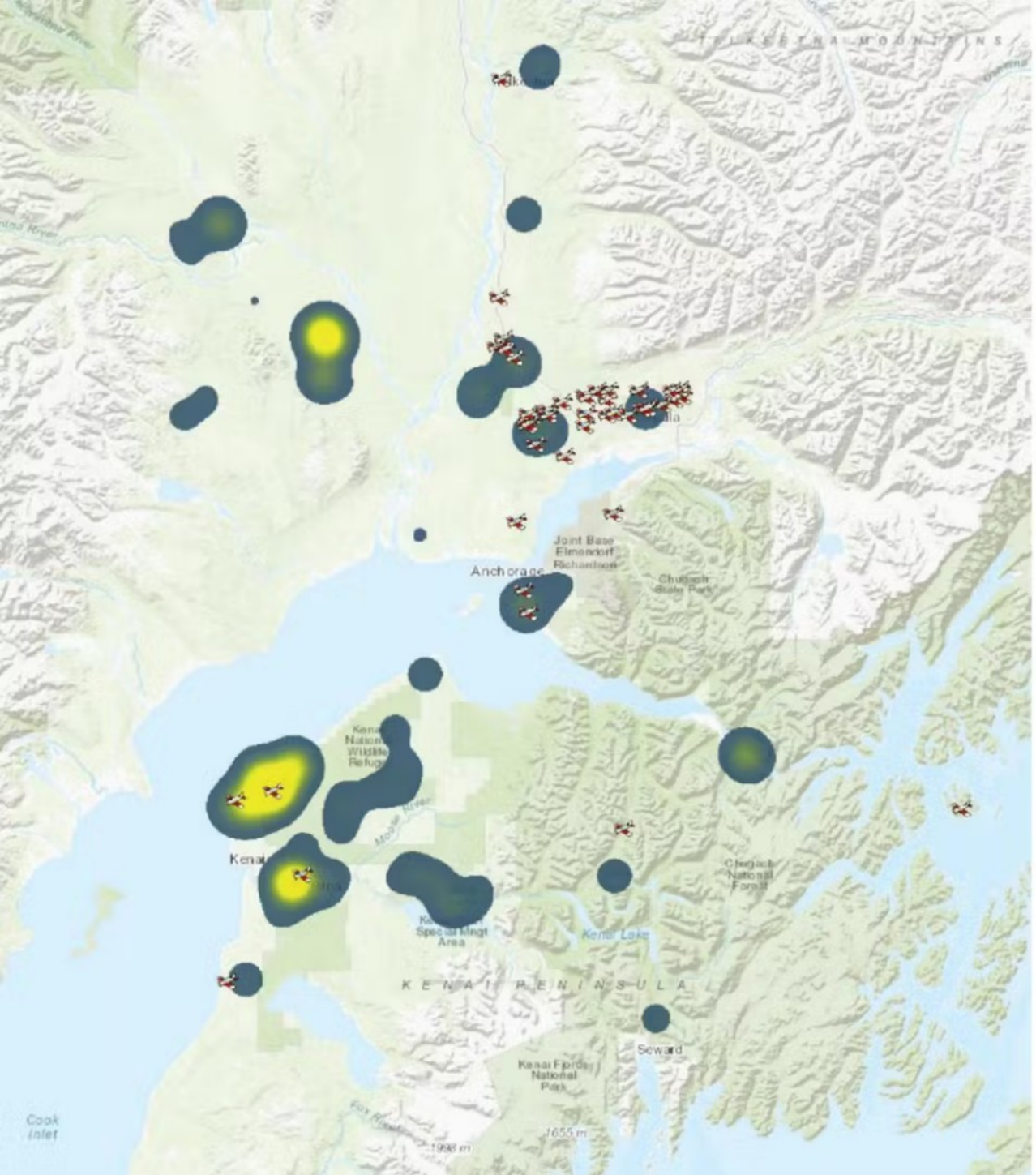
What categories best describe yourself (select all that apply)?



PROJECT GOALS

- Engage with seaplane pilots and seaplane/seaplane equipment manufacturers in the lower 48 and Alaska to help prevent the introduction and spread of aquatic invasive species
- Improve the ability of seaplane pilots to lessen the spread of aquatic invasive species by developing best management practices that will be accepted and used by pilots
- Assess the risk of aquatic invasive species spread by the seaplane pathway in different regions of the United States
- Compile and share all information garnered through this research.

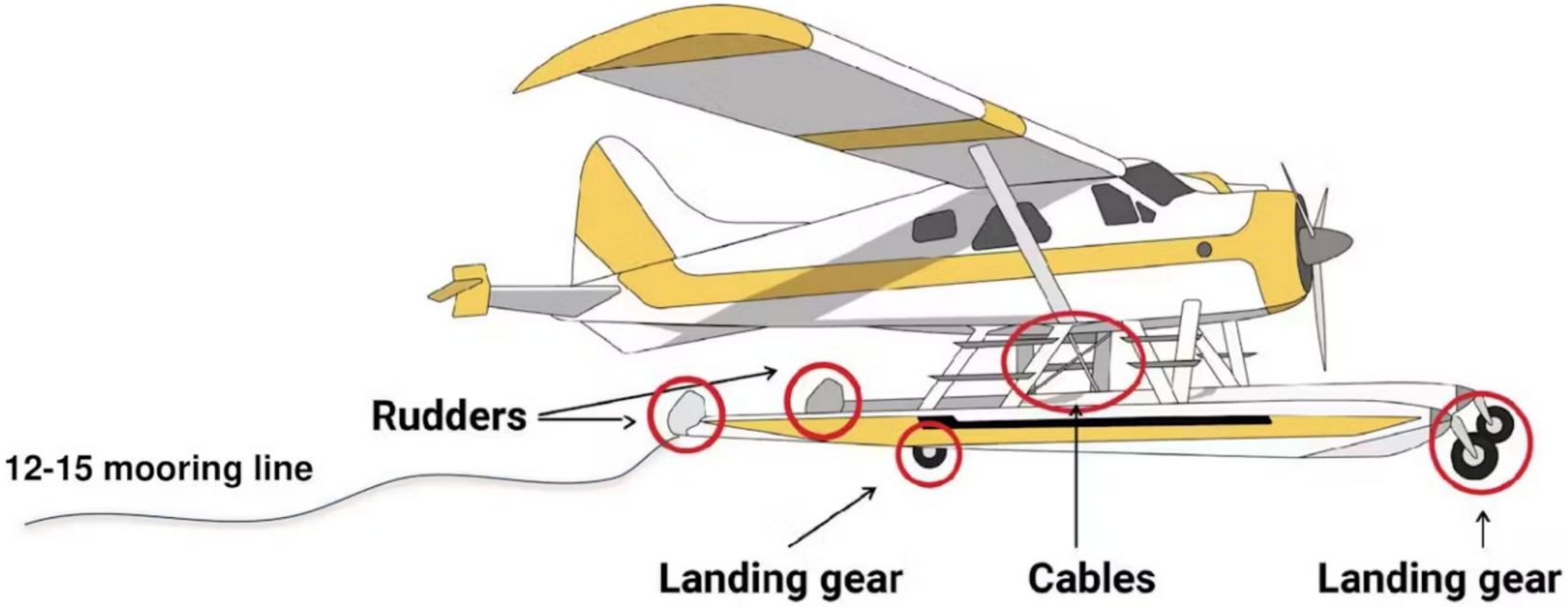
Elodea on a float plane in Alexander Lake, AK. Image by Kristine Dunker with ADF&G.



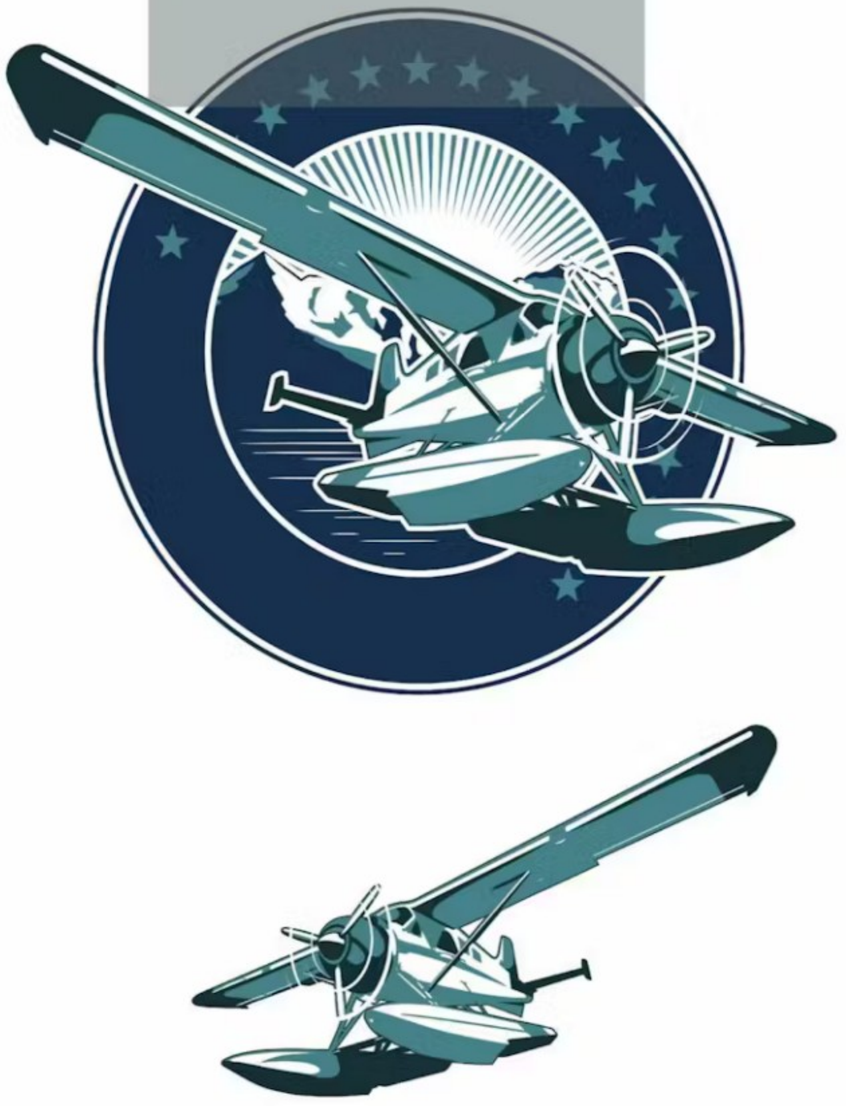
ALASKA CASE STUDY

Elodea spp.

SEAPLANES AS A PATHWAY FOR AIS SPREAD

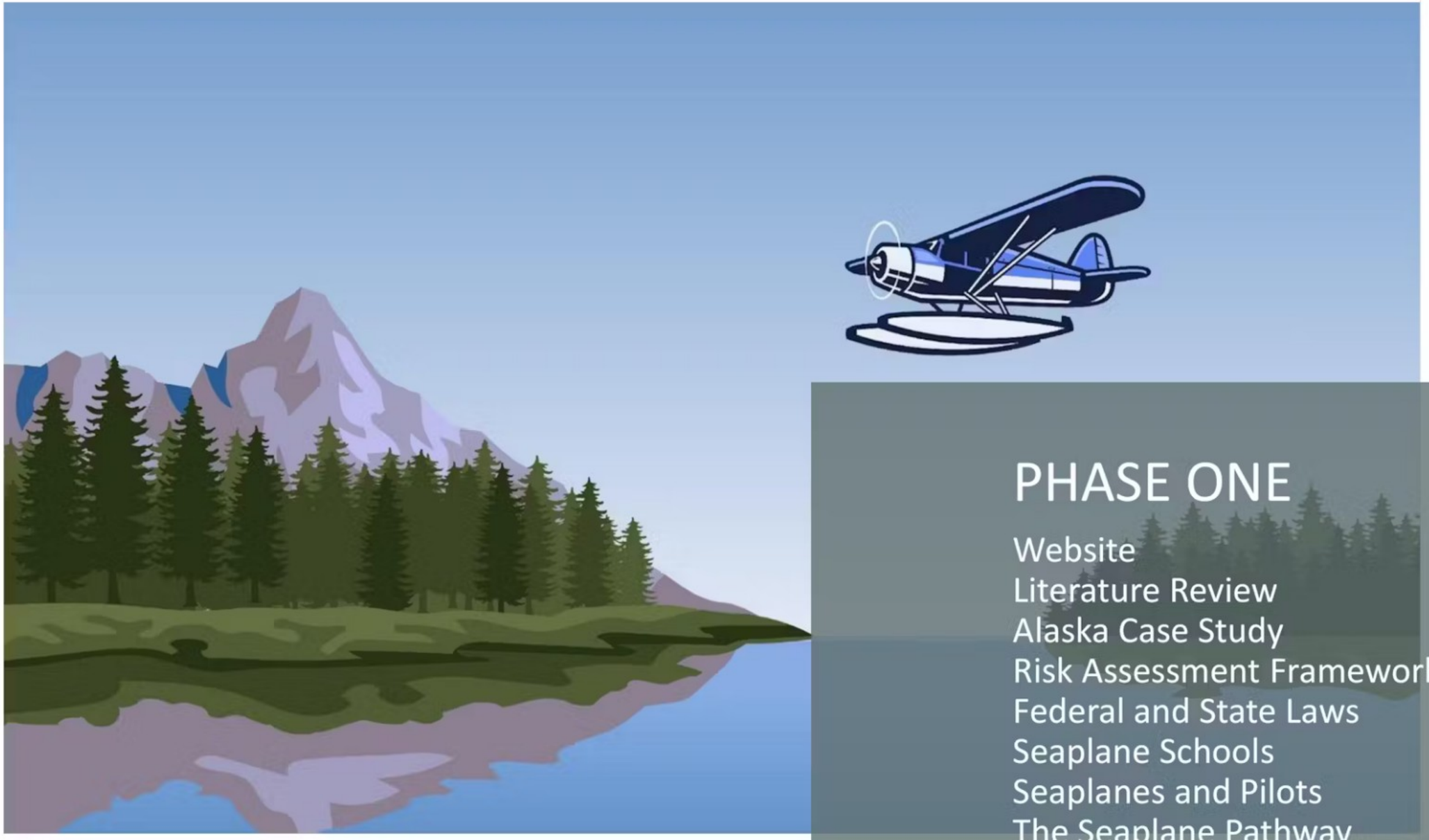


- Construction factors: floats
- Operation factors: taxi, moorage, landing, takeoff
- Survivability of AIS under various conditions



PROJECT PHASES

Phase 1 ✓	Phase 2 ✓	Phase 3	Phase 4
3 Months	6 Months	4-6 Months	2 Months
• Literature review. • Identify, quantify, and map U.S. waterbodies used by seaplanes. • Project website. • Impacts of AIS and the potential effects of climate change.	• Seaplane instructor survey. • Seaplane pilot operations in the lower 48 and Alaska. • The most likely high-risk AIS to be transported by seaplanes in 8 different regions of the country. • Develop 8 case studies.	• Survey Draft BMPs. • Survey to seaplane operators that shares the proposed final BMPs to obtain feedback. • "Think Tank" summit to explore and discuss potential for redesign of equipment.	• Final report and recommendations via the website. • Present recommendations to the U.S. Fish and Wildlife Service and ANS Task Force.

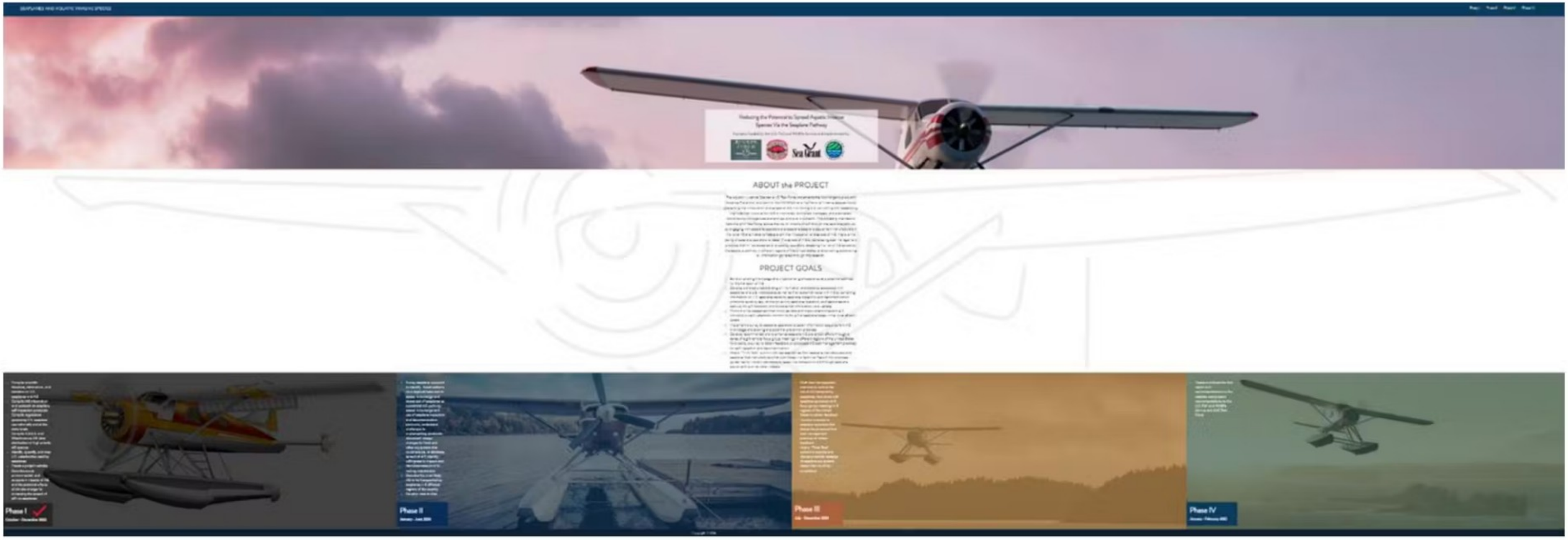


PHASE ONE

Website
Literature Review
Alaska Case Study
Risk Assessment Frameworks
Federal and State Laws
Seaplane Schools
Seaplanes and Pilots
The Seaplane Pathway
Mitigating the Risks

PROJECT WEBSITE

https://www.seaplanesandais.com/

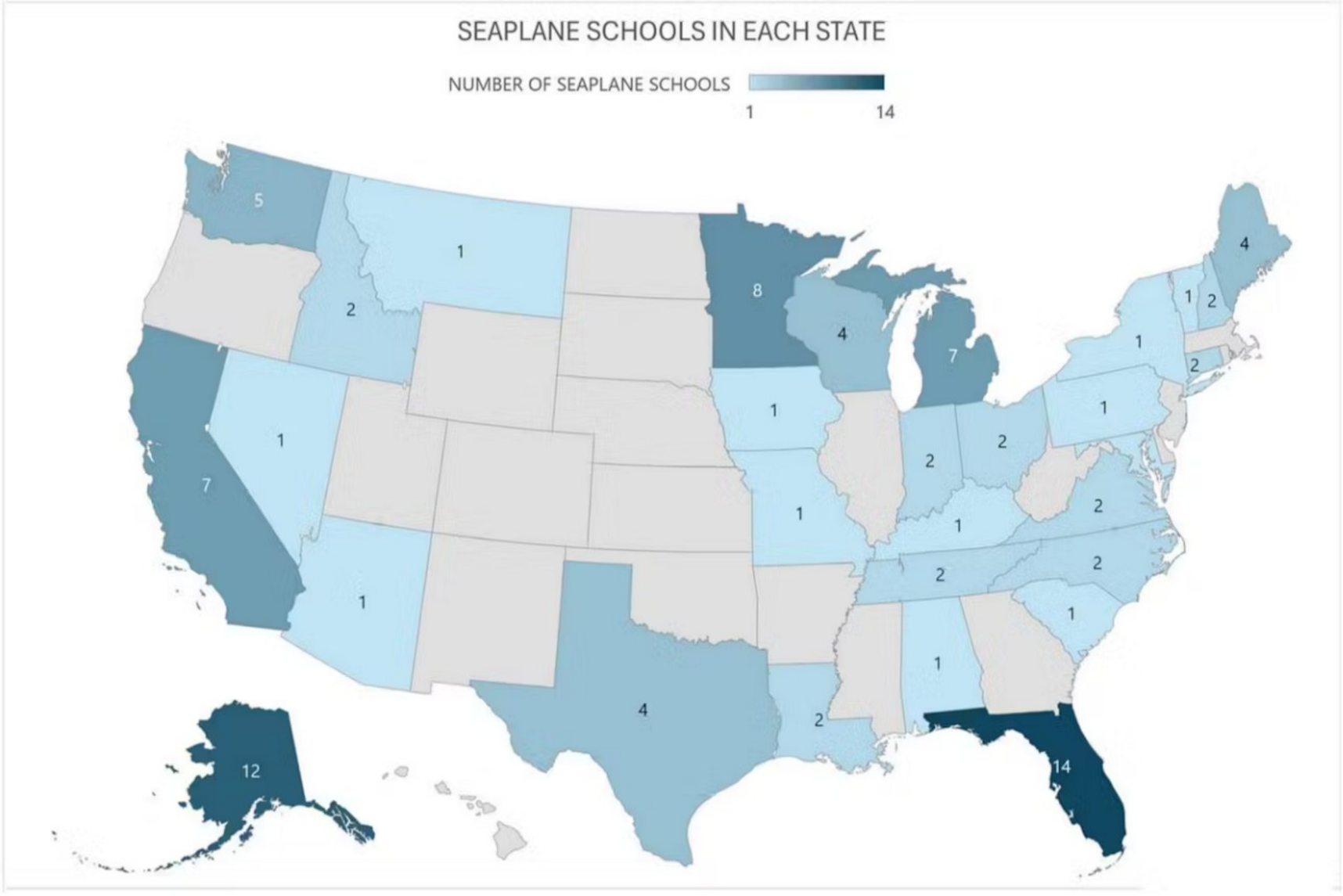


A Risk Analysis to Assess the Potential to Spread Aquatic Invasive Species via the Seaplane Pathway: Recommendations to Enhance U.S. Aquatic Invasive Species—Seaplane Prevention Efforts

Phase 1: Literature Review and Statistics on Seaplanes and Aquatic Invasive Species in the United States

Lisa DeBruyckere, Creative Resource Strategies, LLC
Stephanie Otts, National Sea Grant Law Center
Leah Elwell, Conservation Collaborations, LLC

Contents


SEAPLANE SCHOOLS IN EACH STATE
NUMBER OF SEAPLANE SCHOOLS
1
14
5
1
2
8
4
7
4
1
2
1
1
2
2
1
7
1
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2
2
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2
1
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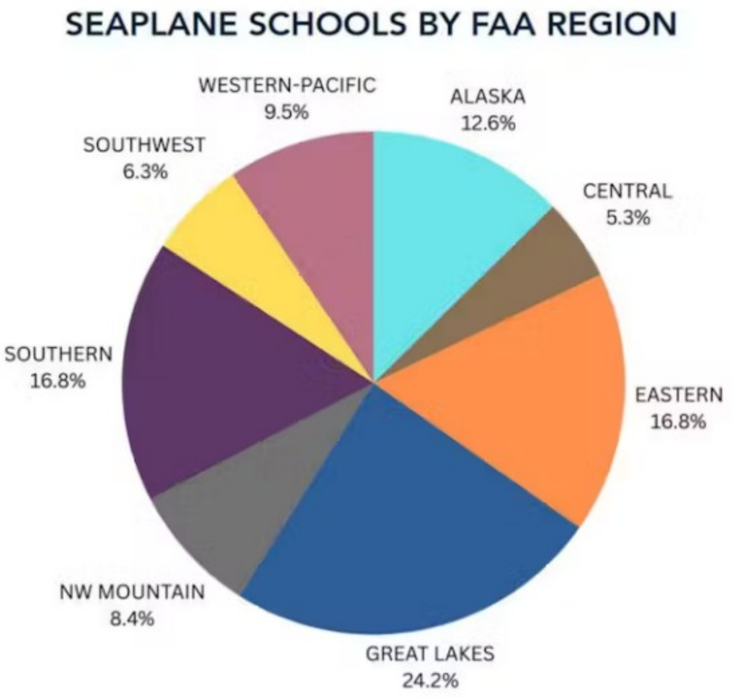
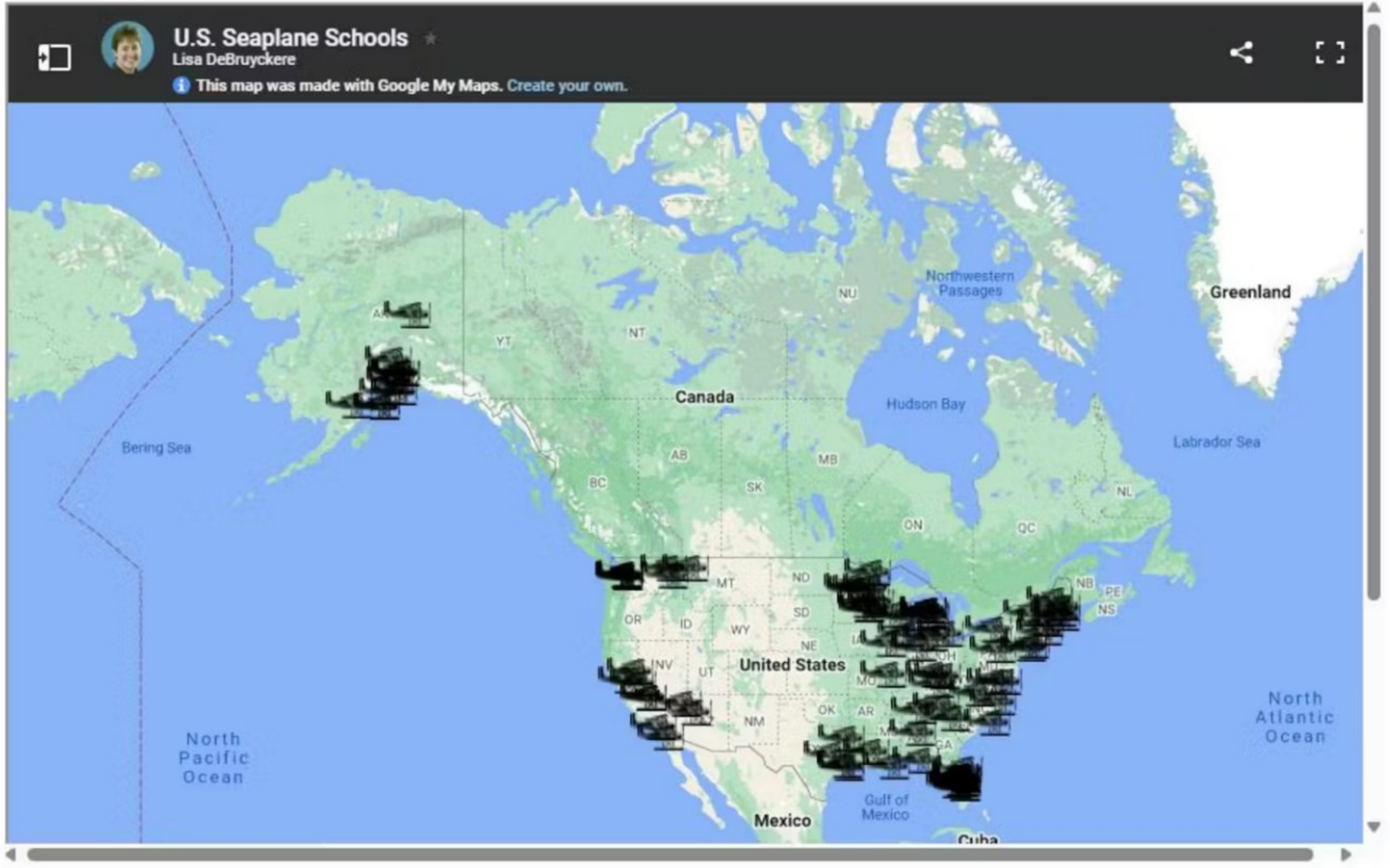
2
14
12


SEAPLANE SCHOOLS BY FAA REGION
WESTERN-PACIFIC
9.5%
ALASKA
12.6%
SOUTHWEST
6.3%
CENTRAL
5.3%
SOUTHERN
16.8%
EASTERN
16.8%
NW MOUNTAIN
8.4%
GREAT LAKES
24.2%

Seaplane Schools in the United States

As of May 1, 2024, there were a total of 95 seaplane schools in the United States (Excel database file).



FEDERAL AND STATE LAWS - SEAPLANES

Seaplane use governed primarily at state and local level

- FAA oversees design, production, and airworthiness certification of seaplanes, as well as the training and licensing of pilots

- U.S. Corp of Engineers, Bureau of Reclamation, U.S. Fish and Wildlife Service, and National Park Service have authority to regulate seaplane use at water bodies they mange

- 30 states have at least one statute or regulation referring to seaplanes. Most of these laws relate to base/pilot licensing, general safety requirements, or geographic restrictions.

REGULATORY CROSSWALK

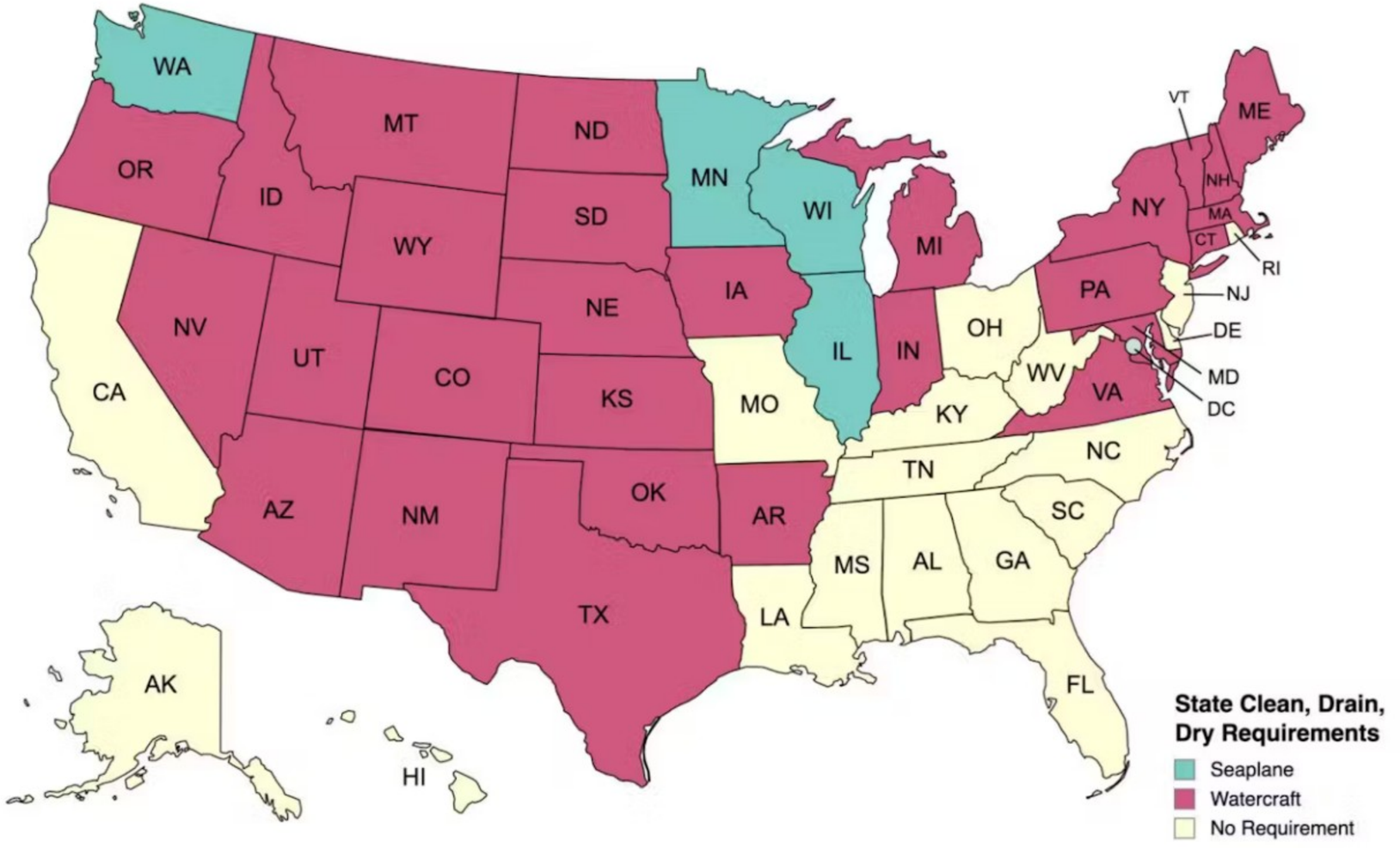
Five legal obligations equivalent to draft Best Practices:

- Duty to Inspect
- Duty to Clean or Remove Species
- Duty to Drain
- Duty to Report
- Duty to Train

One Optional, but Recommended: Duty to Dry

Crosswalk results – Other obligations

- Six states require individuals with knowledge of the presence of AIS to report.
- Three states mandate that boater education courses include modules on invasive species.



DRAFT RECOMMENDATIONS

- States should review their existing AIS laws and consider expanding their scope of their CDD obligations to include seaplanes. States without CDD requirements should consider adopting these requirements to further national alignment of state AIS policy.

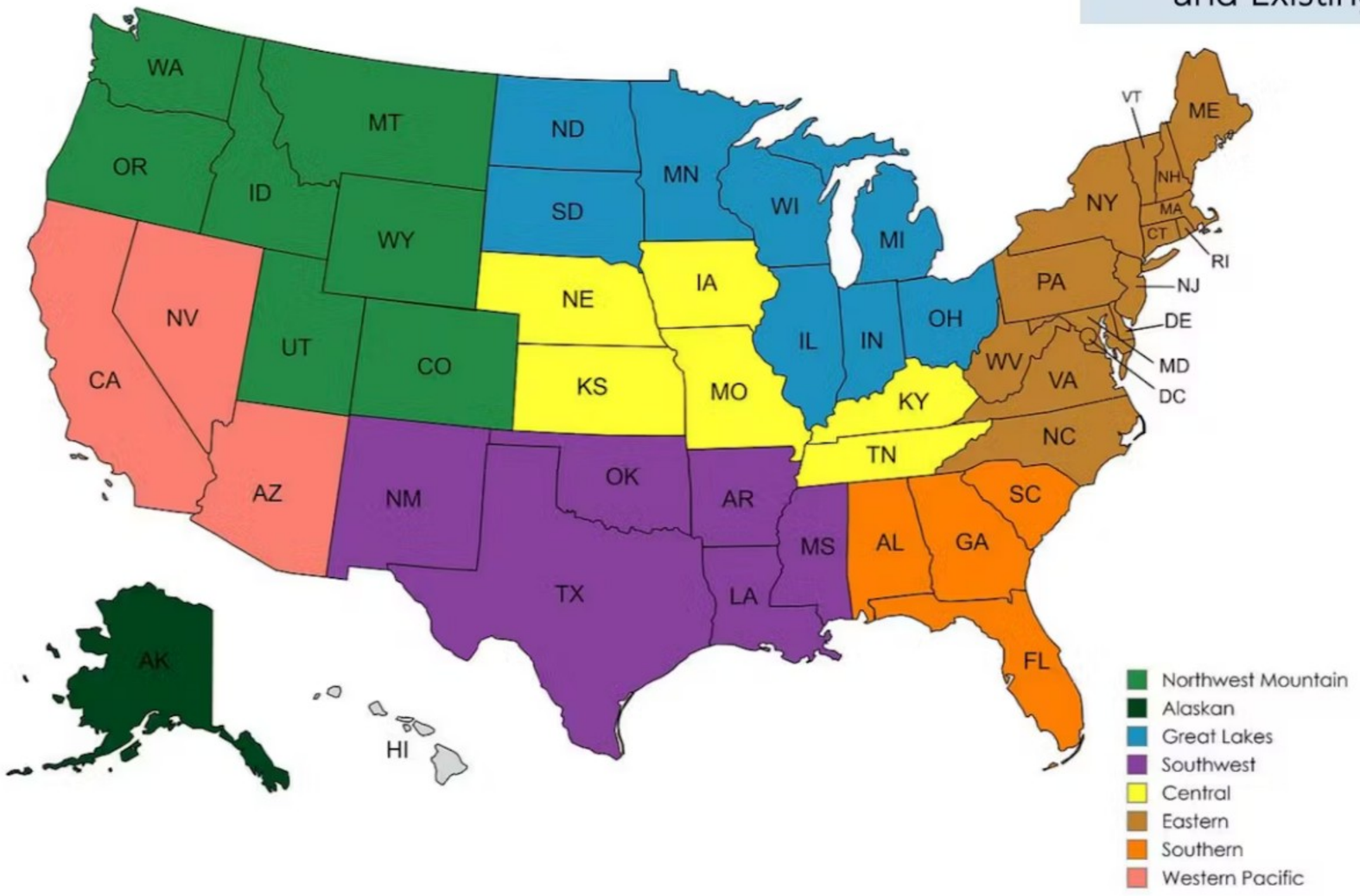
- States should encourage seaplane pilots to report any observations of aquatic invasive species to the responsible state agency or entity.

- States should consider requiring seaplane pilots to complete AIS training either as part of the curriculum of required safety courses or as stand-alone programs. The Washington Seaplane Pilot Association has developed a Seaplane AIS Training for pilots that provides information on CDD practices and how to minimize the risk of AIS transport. Washington, Oregon, Idaho, and Montana recognize the course as a resource for pilots to learn how to self-inspect their seaplanes, and its approval could be expanded to other states.

- States should consider implementing efforts to increase the transparency and accessibility of local seaplane ordinances and restrictions. State Departments of Transportation could maintain websites that compile information on seaplane bases and local water body restrictions. The Wisconsin Department of Transportation's Seaplane Information webpage is a potential model for such a resource.

What is your level of agreement with the following?

Prohibited Species (P), Species of Concern (SOC), and Existing (E) AIS by FAA Airmen Region



Alaskan Region

P, SOC	*Bythotrephes longimanus*	Spiny Waterflea
P, SOC	*Dreissena bugensis*	Quagga Mussel
P, SOC	*Dreissena polymorpha*	Zebra Mussel
P, SOC	*Egeria densa*	Brazilian Waterweed
P, SOC, E	*Elodea canadensis*	Elodea
P, SOC	*Hydrilla verticillata*	Hydrilla
P, SOC	*Landoltia punctata*	Dotted Duckweed
P, SOC, E	*Lythrum salicaria*	Purple Loosestrife
P, SOC	*Myriophyllum spicatum*	Eurasian Watermilfoil
P, SOC	*Myxobolus cerebralis*	Whirling Disease
P, SOC	*Potamopyrgus antipodarum*	New Zealand Mudsnail
P, SOC	*Utricularia inflata*	Swollen Bladderwort
P, SOC, E	*Elodea nuttallii*	Nutall Elodea
E	*Radix auricularia*	Big-Eared Radix
E	*Didymosphenia geminata*	Didymo

https://www.seaplanesandais.com/phase-ii/ais-by-faa-airmen-region

CASE STUDIES BY FAA REGION

CASE STUDY: NEW ZEALAND MUD SNAILS (Potamopyrgus antipodarum)

The introduction and spread of aquatic invasive species (AIS) poses a threat to lakes, rivers, and other water bodies throughout North America. One pathway that has been shown to contribute to AIS spread is seaplanes. This case study illustrates the role seaplanes can play in the spread of AIS and the negative impacts AIS establishment can have on the environment as well as seaplane safety and operations. These case studies also illustrate the important role seaplane pilots can play to prevent the spread of AIS.

FAA Geographic Region: Eastern

First reported in the United States near the Snake River in Idaho, New Zealand mudsnails have spread rapidly throughout the western states, in the Great Lakes, and in lakes and streams in parts of the East Coast, including Pennsylvania and New York. The physiology and biology of mudsnails make them well-suited for human-aided introduction and spread.

What are New Zealand Mudsnails?

New Zealand mudsnails are tiny, brownish freshwater snails about ¼ inch long. These small snails are remarkably adaptable to a wide range of conditions and habitats ranging from cold flowing streams to warm water lakes and brackish water. Their broad tolerances for water temperature, flow rates, and salinity create significant potential for widespread establishment across much of the United States. Mudsnails have a flap (also known as an operculum) that allows them to withdraw into their shells, making it possible for them to survive out of water for days. Populations within the United States are almost exclusively female and produce live young through cloning—the introduction of a single snail can start a new population.

Why are New Zealand Mudsnails a problem?

Once established, mudsnail densities can increase rapidly, sometimes carpeting the shallow portions of water bodies, crowding out native insects and invertebrates essential in the food webs of lakes and streams. Because of their small size and hard shell, mudsnails are not a good food source for fish, often remaining undigested and alive after a trip through a fish's digestive system. Once established, mudsnails are unlikely to be eradicated from natural systems even with targeted pesticides or water drawdowns.

How can New Zealand Mudsnails be spread by seaplanes?

These tiny snails, easily mistaken for bits of gravel or mud, are natural hitchhikers. Because of their small size, they can wedge themselves into cracks and crevices. Mudsnails can also be transported on any entangled aquatic plants or standing water. In addition, any equipment, including anchors, lines, and cables, that come in contact with the sediment at the bottom of a lake can transport mudsnails.

Seaplane pilots can help prevent the spread of aquatic invasive species.

Examples of other aquatic invasive species you may encounter in your region:

- Didymo (*Didymosphenia geminata*)
- European Frogbit (*Hydrocharis morsus-ranae*)
- Faucet Snail (*Bithynia tentaculata*)
- Fishhook Waterflea (*Cercopagis pengoi*)
- Mystery snails (*Cipangopaludina spp.*)
- Spiny Waterflea (*Bythotrephes longimanus*)
- Variable-leaf Watermilfoil (*Myriophyllum heterophyllum*)
- Water Primrose (*Ludwigia spp.*)
- Waterwheel Plant (*Aldrovanda vesiculosa*)
- Yellow Floating-heart (*Nymphoides peltata*)

CASE STUDY: ELODEA SPP.—CANADIAN WATERWEED AND NUTTALL'S WATERWEED (*Elodea canadensis, E. nuttallii*)

The introduction and spread of aquatic invasive species (AIS) poses a threat to lakes, rivers, and other water bodies throughout North America. One pathway that has been shown to contribute to AIS spread is seaplanes. This case study illustrates the role seaplanes can play in the spread of AIS and the negative impacts AIS establishment can have on the environment as well as seaplane safety and operations. These case studies also illustrate the important role seaplane pilots can play to prevent the spread of AIS.

FAA Geographic Region: Alaska

Elodea spp. were the first freshwater AIS reported from the State of Alaska. First reported in 1982 from Eyak Lake, a large lake in Cordova, nearly half of the known infestations in Alaska have been in seaplane-accessible water bodies. In 2015, Lake Hood, home to the world's busiest seaplane base, was the site of a successful extensive and costly Elodea spp. eradication project by the State of Alaska.

What are *Elodea spp.*?

Canadian waterweed and Nuttall's waterweed, also known as Elodea spp., are closely related fresh-water aquatic plants native to much of the contiguous United States and southern Canada. Elodea spp. are submerged aquatic plants that grow in lakes and streams and can form large, dense beds that grow from the bottom of a water body to the surface and then spread horizontally. Aggressive, weedy growth occurs in many types of water bodies, including nutrient-rich as well as clear, cold waters. This plant continues to grow under ice during the winter season when native plants cease to grow.

Why are *Elodea spp.* a problem?

Once established, Elodea spp. grow rapidly, compete with native plants for light and nutrients, and create a dense mat. These dense mats impair water bodies and reduce the quality of spawning and rearing habitat for salmon, whitefish, and grayling. The explosive growth and dense mats of Elodea spp. pose safety hazards for seaplanes, boats, and people. When Elodea spp. dieback, oxygen levels for fish and other organisms are reduced as the plants decompose. The relentless boom and bust of Elodea spp. may decrease property values while increasing management costs.

How can *Elodea spp.* be spread by seaplanes?

Known as oxygen weed in the aquarium trade, uninformed aquarium owners that dump their tank vegetation into water bodies contribute to the spread of Elodea spp. Once established, Elodea spp. spread easily. Fragments of Elodea spp. as small as two inches can root and establish a new population. These fragments, which can withstand both periods of freezing temperatures and drying, can easily be transported on seaplane floats, mooring lines, wires and cables, and rudders.

Seaplane pilots can help prevent the spread of aquatic invasive species.

Other aquatic invasive species you may encounter in your region:

- Didymo (*Didymosphenia geminata*)
- Purple Loosestrife (*Lythrum salicaria*)
- Big-Eared Radix (*Radix auricularia*)

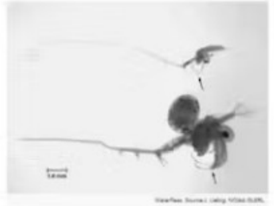
DRAFT Regional Case Studies

The introduction and spread of aquatic invasive species (AIS) poses a threat to lakes, rivers, and other water bodies throughout North America. One pathway that has been shown to contribute to AIS spread is seaplanes. These case studies illustrate the role seaplanes can play in the spread of AIS and the negative impacts AIS establishment can have on the environment as well as seaplane safety and operations. These case studies also illustrate the important role seaplane pilots can play to prevent the spread of AIS.

FAA Region: Alaska

Elodea spp. - Canadian waterweed (E. canadensis) and Nuttall's waterweed (E. nuttallii)

Elodea spp. were the first freshwater AIS reported from the State of Alaska. First reported in 1982 from Eyak Lake, a large lake in Cordova, nearly half of the known infestations in Alaska have been in seaplane-accessible water bodies. In 2015, Lake Hood, home to the world's busiest seaplane base, was the site of a successful extensive and costly Elodea spp. eradication project by the State of Alaska. MORE



FAA Region: Great Lakes

Waterfleas - Fishook waterflea (_Bythotrephes longimanus_) and Spiny waterflea (_Cercopagis pengoi_)

Waterfleas are widespread and well-established in the Great Lakes. Likely introduced in the ballast water of large ships in the 1980s and 1990s, fishhook and spiny waterfleas are a concern to the region. Efforts to reduce their spread are focused on preventing their unintentional movement into and between inland lakes by human activities. Of particular concern are lake-hopping excursions that include visits to one or more lakes containing waterfleas. MORE

FAA Region: Southern

Feathered mosquitofern (_Azolla pinnata_)

Feathered mosquitofern has been found in (and removed from) numerous plant nurseries in the United States. It has a limited distribution to water bodies in Florida and Hawaii. Because of its limited distribution, seaplane pilots can prevent further spread of this plant to new water bodies. MORE

FAA Region: Southwest

Golden algae (_Prymnesium parvum_)

Golden algae have been found in more than 20 states, and blooms were first noted in Texas in the 1980s. During the early 2000s, algae blooms in reservoirs and rivers occurred across the southern United States. The alga occurs in brackish inland waters and coastal freshwater rivers, lakes, and estuaries. Seaplane-accessible water bodies across the Southwest may be at risk from golden algae introductions. MORE

FAA Region: Central

Hydrilla (_Hydrilla verticillata_)

Hydrilla was first found in the United States in Florida in 1952 and has since spread to 27 states primarily in the South and East. In the Central Region, infestations of hydrilla are concentrated in Missouri and Oklahoma. Because of its limited distribution in the Central Region, it is possible that informed seaplane pilots can prevent further spread to other waterbodies. MORE

FAA Region: Eastern

New Zealand Mudsnails (_Potamopyrgus antipodarum_)

First reported in the United States near the Snake River in Idaho, New Zealand mudsnails have spread rapidly throughout the western states, in the Great Lakes, and in lakes and streams in parts of the East Coast, including Pennsylvania and New York. The physiology and biology of mudsnails make them well-suited for human-aided introduction and spread. MORE

FAA Region: Western Pacific

Giant salvinia (_Salvinia molesta_)

Giant salvinia is an invasive floating freshwater fern found in the lower Colorado River basin. It is associated with southern drainages, as well as San Luis Obispo County, California. Native to Brazil and introduced to the United States for use in aquariums and decorative ponds, giant salvinia is one of many similar species of invasive floating vegetation that blanket water bodies, choking out native plants and animals and eliminating recreational opportunities. MORE

FAA Region: Northwest Mountain

Zebra mussels (_Dreissena polymorpha_) and Quagga mussels (_Dreissena bugensis_)

Dreissenid mussels were first found in the Great Lakes Region in 1997 where they were introduced via ballast water from global shipping. They have since spread across the United States via connected water systems, trailered watercraft, and other fouled equipment. Notable reservoirs within the Colorado River Basin are infested with quagga mussels, however invasive mussels have not been detected in most of the Pacific Northwest. The 2023 discovery of dreissenids in the Snake River, Idaho resulted in a prompt eradication attempt by the State of Idaho. Seaplane-accessible water bodies across the Northwest maybe at-risk from the introduction of dreissenids by seaplanes. MORE

SEAPLANE PILOT BEST MANAGEMENT PRACTICES

There are many ways aquatic invasive species (AIS) are spread. The steps you take as a seaplane pilot will help improve your flying safety while preventing the spread of AIS:

Planning a Flight

Familiarize yourself with AIS at destination water bodies, but recognize that not all water bodies are monitored for AIS— always assume a waterbody has AIS.

If you are departing from a waterbody that has confirmed high-risk AIS, consider landing at an airport first to fully inspect and clean your aircraft.

Before Entering the Aircraft

Inspect and remove any visible vegetation or other debris from the aircraft. Remove any plant growth on mooring lines and dispose of any plants or identified AIS in a container, which can then be disposed of properly upon returning to the base location. Inspect the following for AIS:

- Floats
- Hulls
- Rudders
- Wires and Cables
- Mooring lines
- Wheel Wells
- Crossmembers

Visually inspect submerged parts of the aircraft and run your hands along the surfaces to check for any AIS that may be attached.

If no cleaning equipment is available, hand-clean the submerged floats with a scrub brush, and physically remove any attached life. This is especially important if the aircraft has been moored on a lake for more than a few hours.

Pump any water out of bilge compartments. The removal of water from the float or bilge compartments prior to departure will limit the possibility of transporting microscopic AIS.

Before Takeoff

Just prior to takeoff, raise and lower your water rudders several times to remove aquatic hitchhikers, which can cause cable stretch and affect steering.

Avoid taxiing through aquatic plants. If you must taxi through aquatic plants, stop once in open water and manually clear vegetation from floats, hull, and rudders.

After Takeoff

After takeoff at a safe altitude, if conditions permit, raise and lower your water rudders numerous times while flying over the water body you are departing to clear aquatic plants from the water rudders and cables. If aquatic plants remain visible on the plane, return and remove them.

Storage and Mooring

Thoroughly Clean, Drain, Dry the aircraft prior to flying to another waterbody. If the aircraft floats take on water, completely drain and dry if possible, and flush the floats with hot water. Allow to dry completely.

Report

Report any invasive species you see to your state AIS reporting system.

Spread the Word about Clean, Drain, Dry

Informed seaplane pilots can make a difference in preventing the spread of AIS. Talk with your colleagues and spread the word about the importance of Clean, Drain, Dry and the steps pilots can take to minimize the spread of AIS.

Expand your understanding of the types of AIS you might encounter in local and regional waterbodies.

Take the Seaplane Pilot Training for Aquatic Invasive Species challenge!

And remember, invasive species knowledge is important, but your actions to Clean, Drain, and Dry your aircraft and avoid visible vegetation during taxi, takeoff, and landing are critical.

What do you believe is the best approach to getting case studies into the hands of seaplane pilots?

Post on pilot Facebook groups (e.g. FATPNW) or other social media.

Best: meeting directly with pilotsOther idea: forum or meeting for pilots

face-to-face meetings with pilots

Oshkosh EAA Air Venture

give that information during the formation of the pilote and regular review about regulation regularly after the obtention of the licence like every two years

Add to licensing paperwork and have an online test for gaining licenses.Also consider that AIP are hard to identify so maybe ask that submit photos for confirmation when making reports.

As a field director for the Seaplane Pilots Association in Texas, I will be passing this information on to the seaplane groups. in my area.

SPA

7

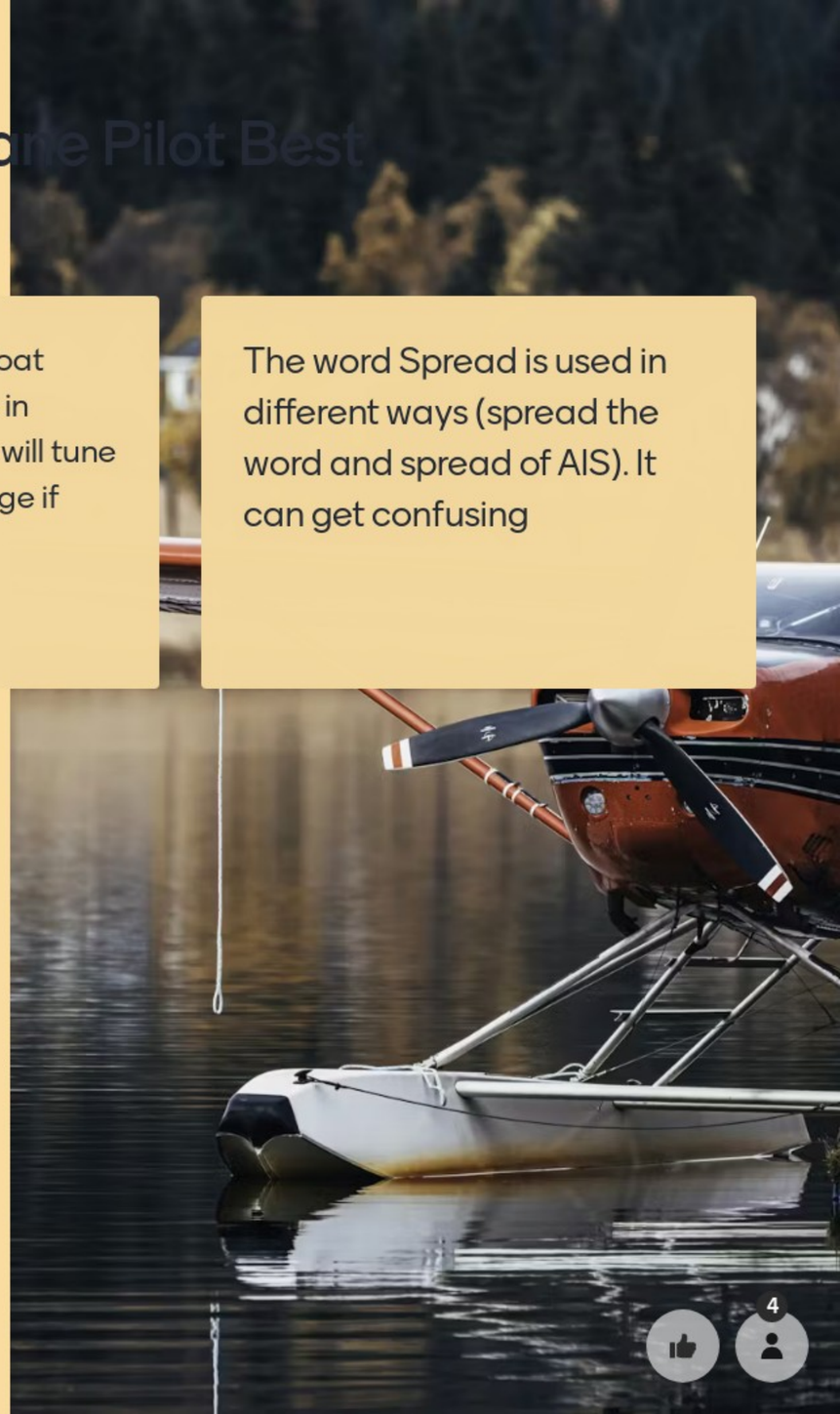
What changes would you suggest to the proposed Seaplane Pilot Best Management Practices to Reduce the Spread of AIS?

Ask that all mud, debris, and plants (don't need to be identified) be removed from planes. Also note docking areas that are infested and ask for maintenance at those locations.

A few of these aren't really viable. Inspecting under the floats on the water is basically impossible. Also nobody is going to power down in the middle of a lake to do another inspection.

Draining and drying for float planes is near impossible in Alaska. I think most pilots will tune out the rest of the message if that is what is being disseminated.

The word Spread is used in different ways (spread the word and spread of AIS). It can get confusing



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THE PILOT TOOLKIT

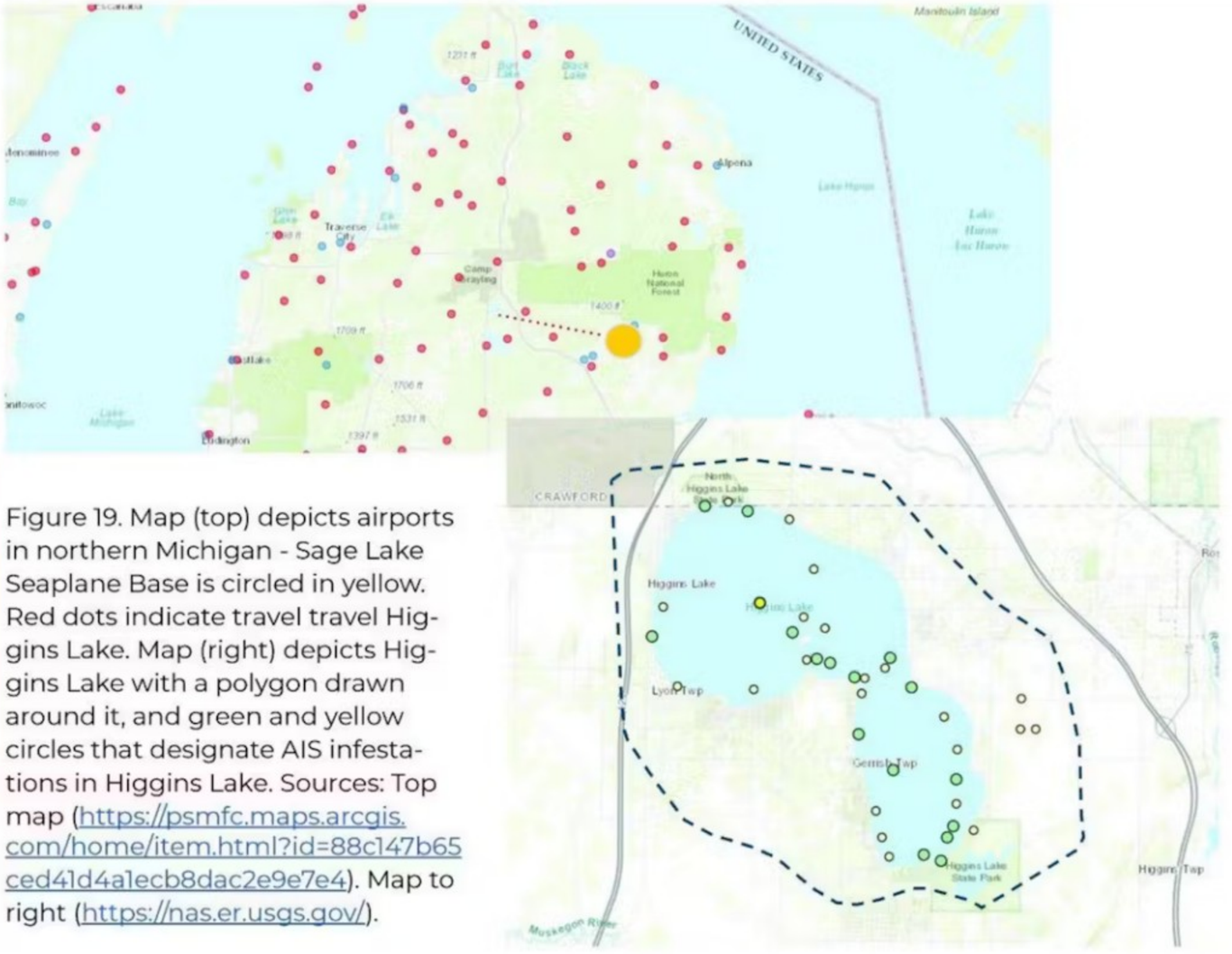
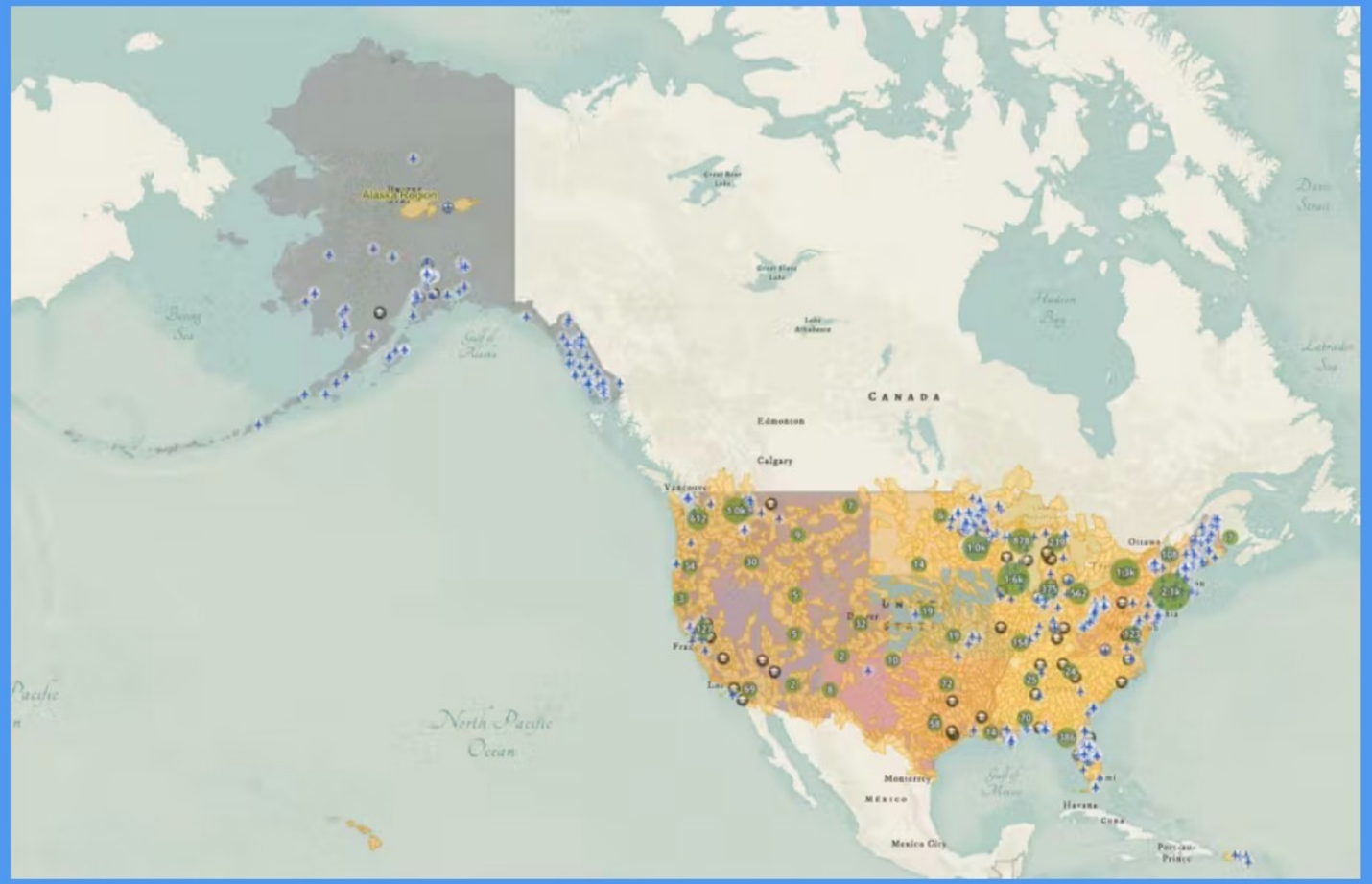
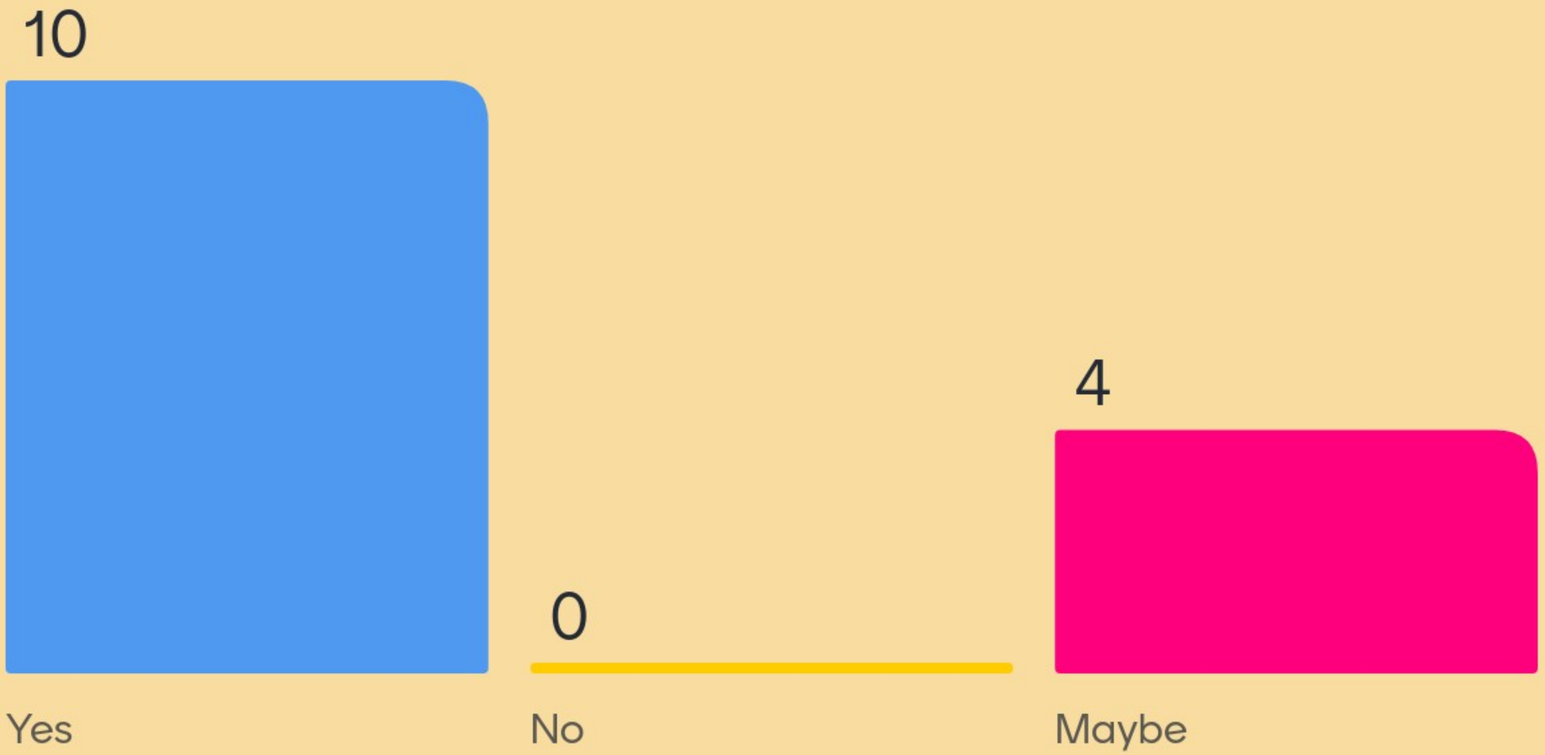


Figure 19. Map (top) depicts airports in northern Michigan - Sage Lake Seaplane Base is circled in yellow. Red dots indicate travel travel Higgins Lake. Map (right) depicts Higgins Lake with a polygon drawn around it, and green and yellow circles that designate AIS infestations in Higgins Lake. Sources: Top map (https://psmfc.maps.arcgis.com/home/item.html?id=88c147b65ced41d4a1ecb8dac2e9e7e4). Map to right (https://nas.er.usgs.gov/).


CANADA
Edmonton
Calgary
Vancouver
Ottawa
Monterrey
MÉXICO
Mexico City
Havana
Cuba
Port-au-Prince
North Pacific Ocean
Pacific
Bering Sea
Gulf of Alaska
Hudson Bay
Davis Strait
Labrador Sea
Great Bear Lake
Great Slave Lake
Lake Athabasca
Gulf of Mexico

Do you believe a mapping tool like this can help inform pilot trip planning and provide general information about AIS?



SEAPLANE PILOT SURVEY

GOAL: Engage with seaplane pilots to better understand their behaviors, perspectives and understanding of aquatic invasive species issues and the role they can play in lessening the spread of AIS via the seaplane pathway.

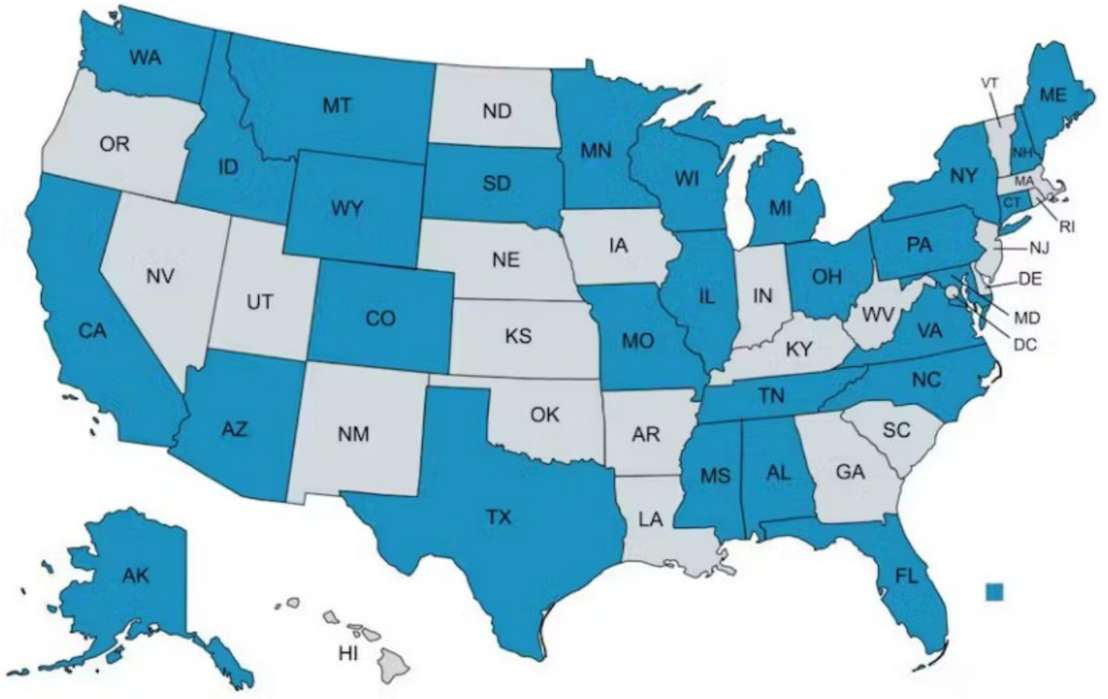
METHODS

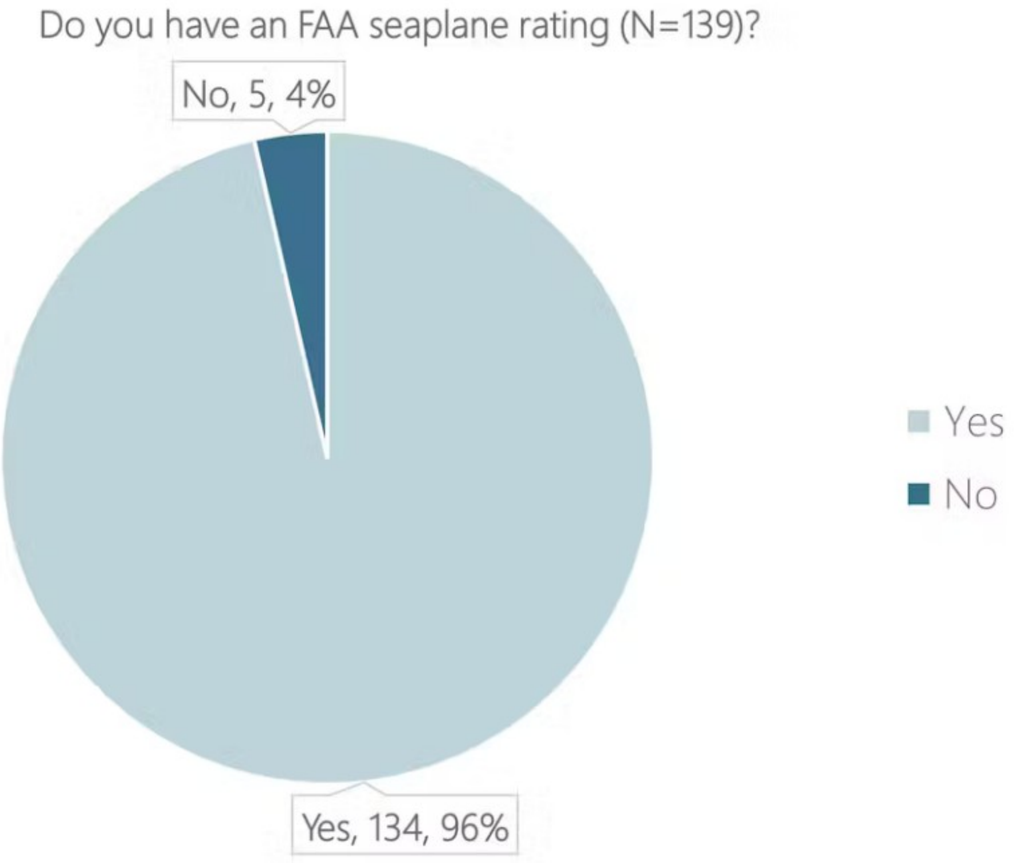
- Survey development
- Survey review by Alaska/retired USFWS seaplane pilot and instructor and national human dimensions expert Dr. Daniel Witter

- Survey outreach
  - Social media posts/re-posts– LinkedIn and Facebook
  - Direct email to seaplane pilots, seaplane pilot organizations
  - Website announcements
  - Google seaplane alerts/news releases/seaplane pilot website articles
- Survey remained open for two months

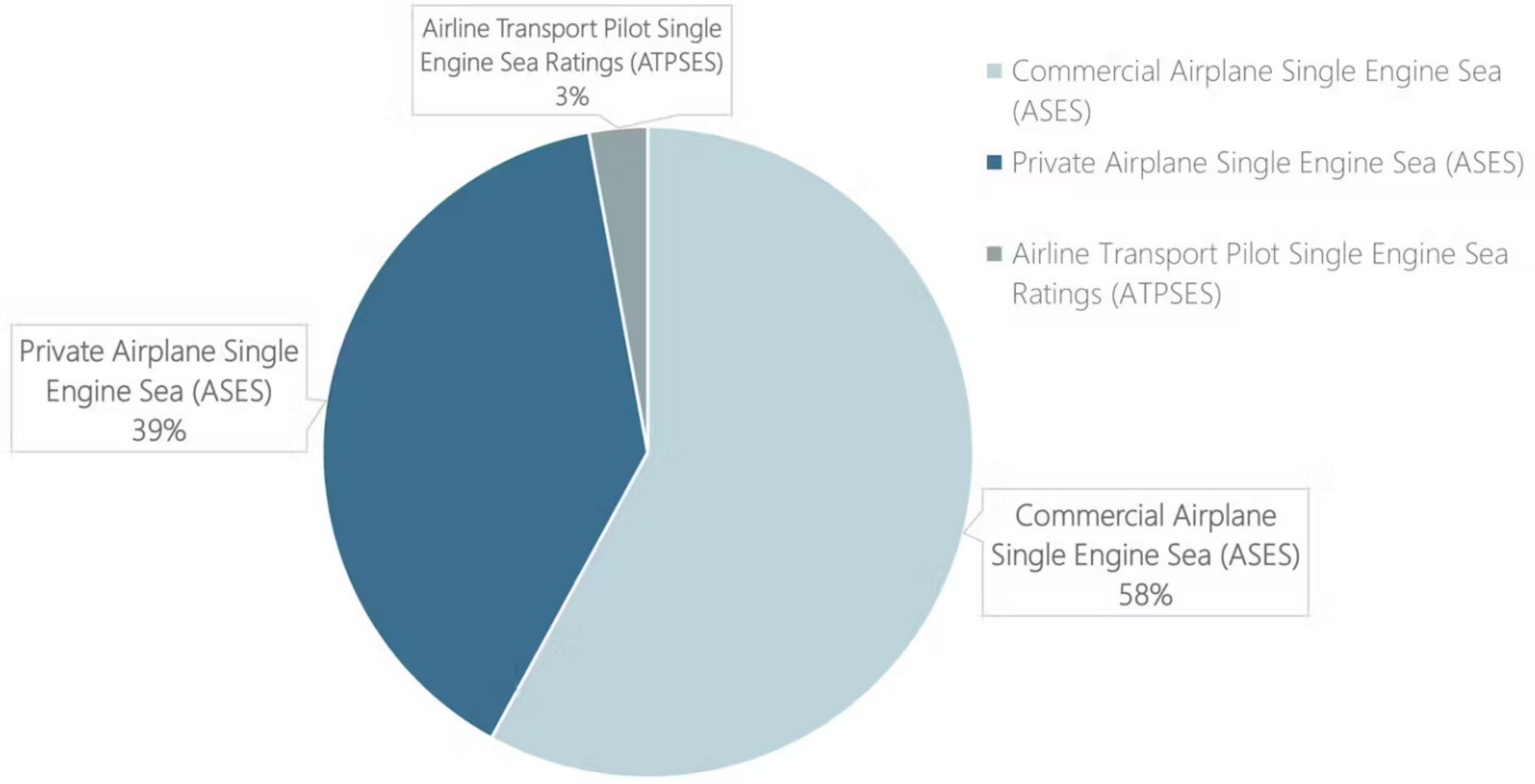
RESULTS

Total of 139 responses, of which 96% had an FAA seaplane rating. The respondents with seaplane ratings included individuals from 28 states.

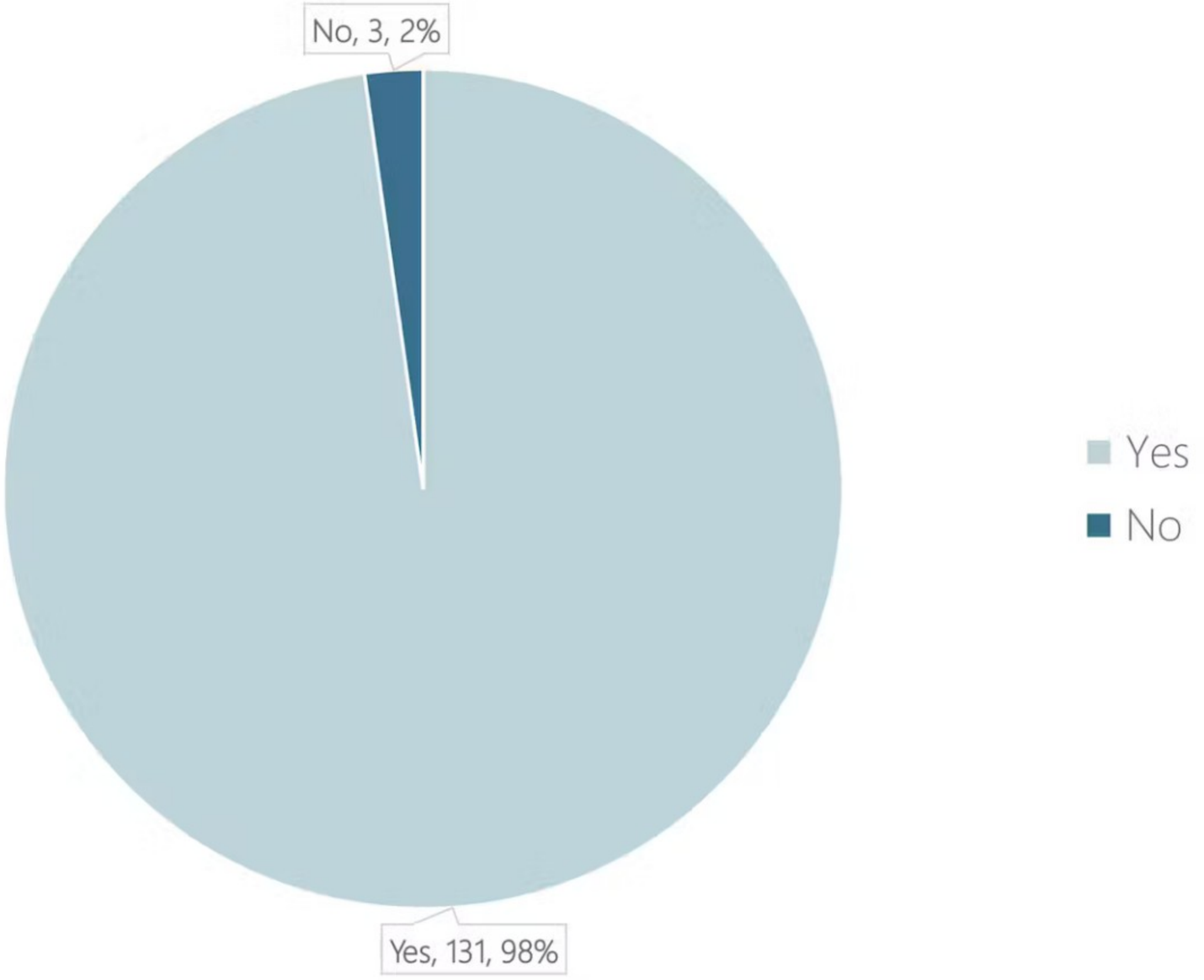




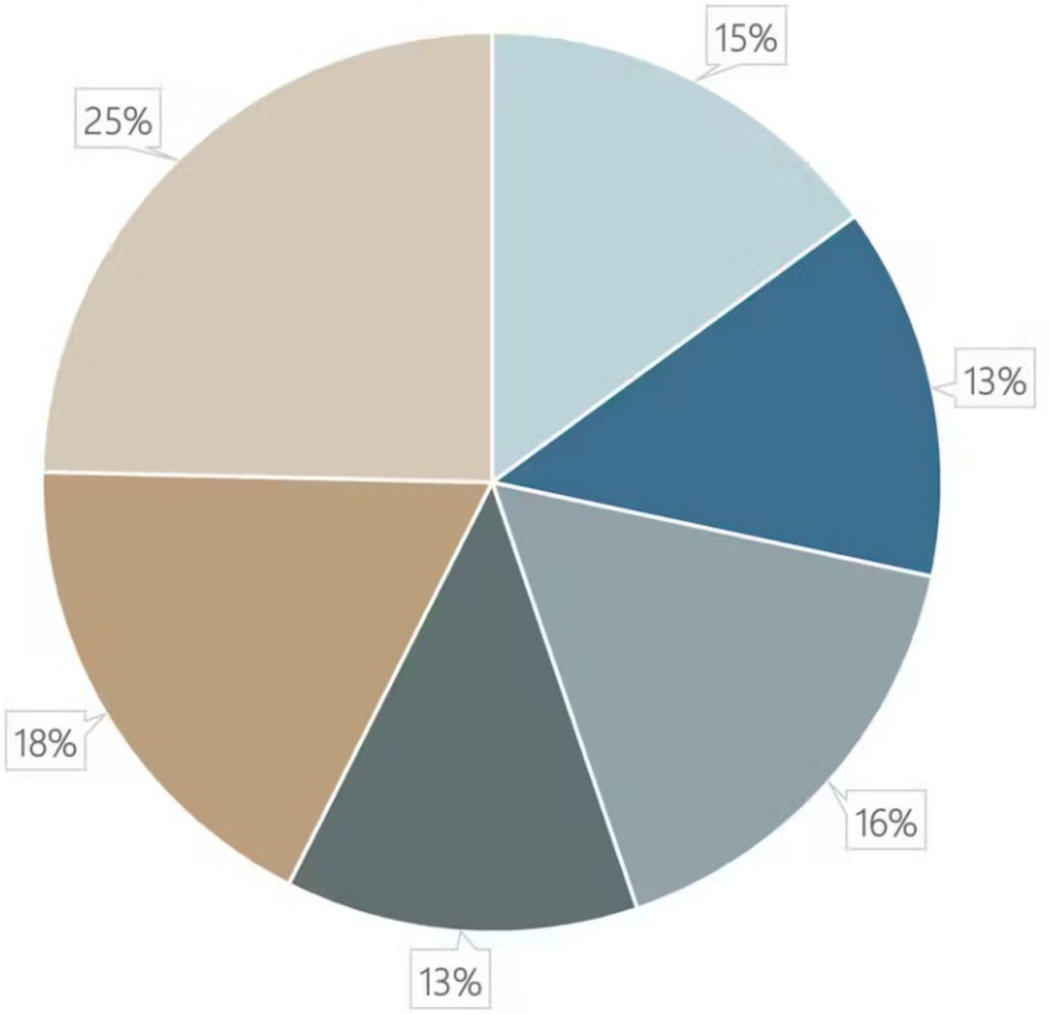
What type of seaplane rating do you have? Please check all that apply (N=135)



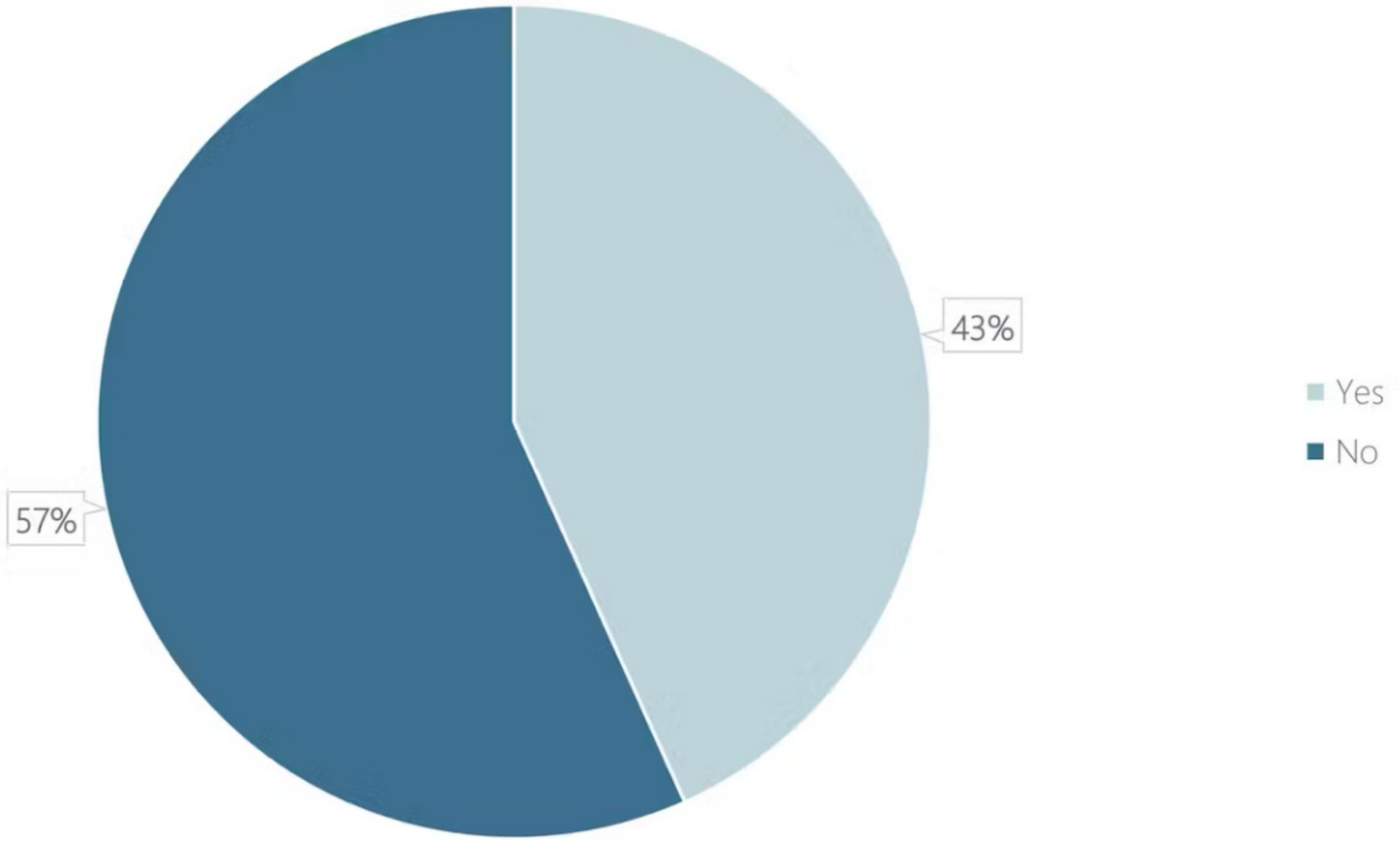
Do you have a current medical certificate that is required by the FAA for you to pilot an aircraft (N=134)?



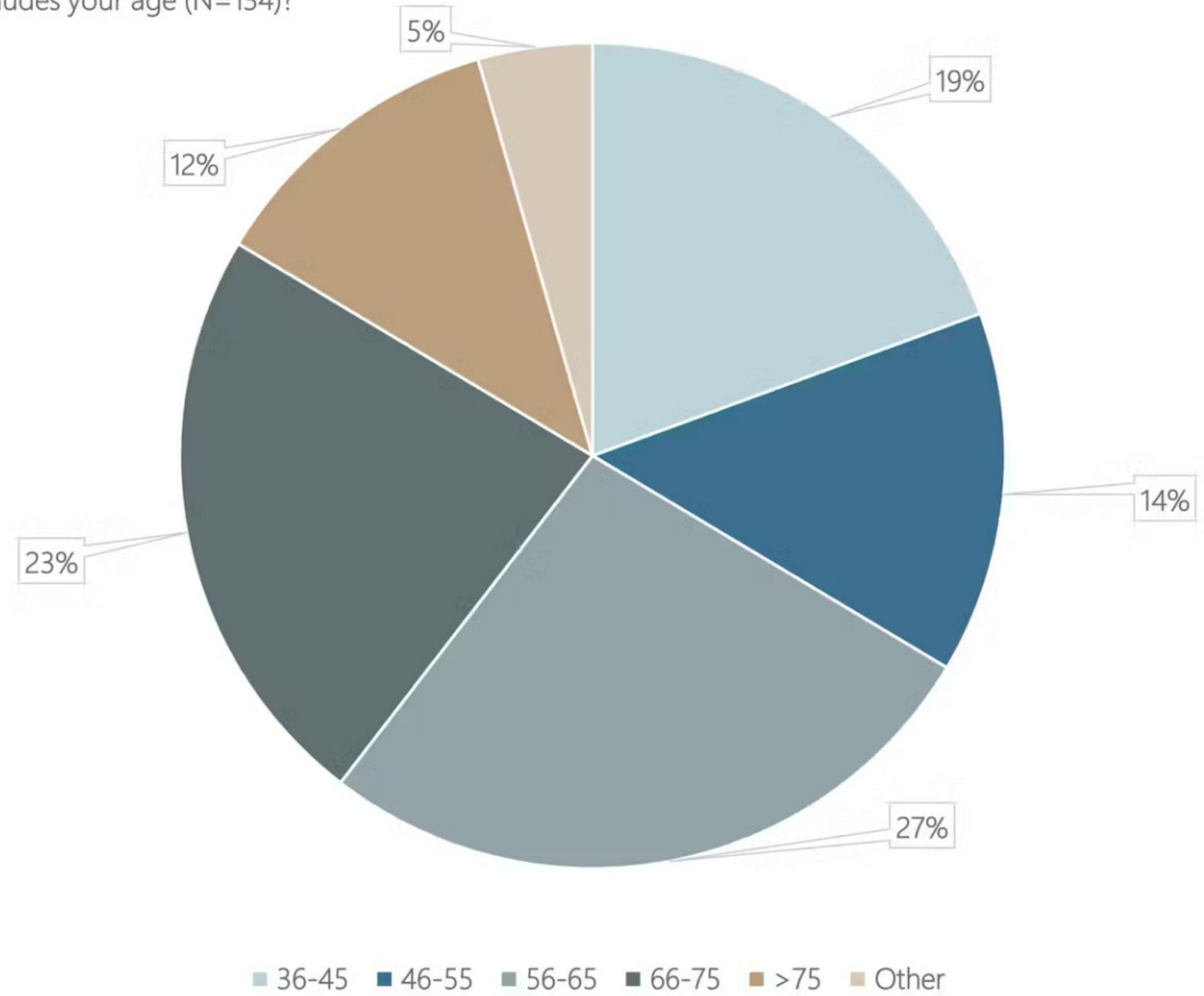
Please provide the number of years of experience you have flying seaplanes (N=134).



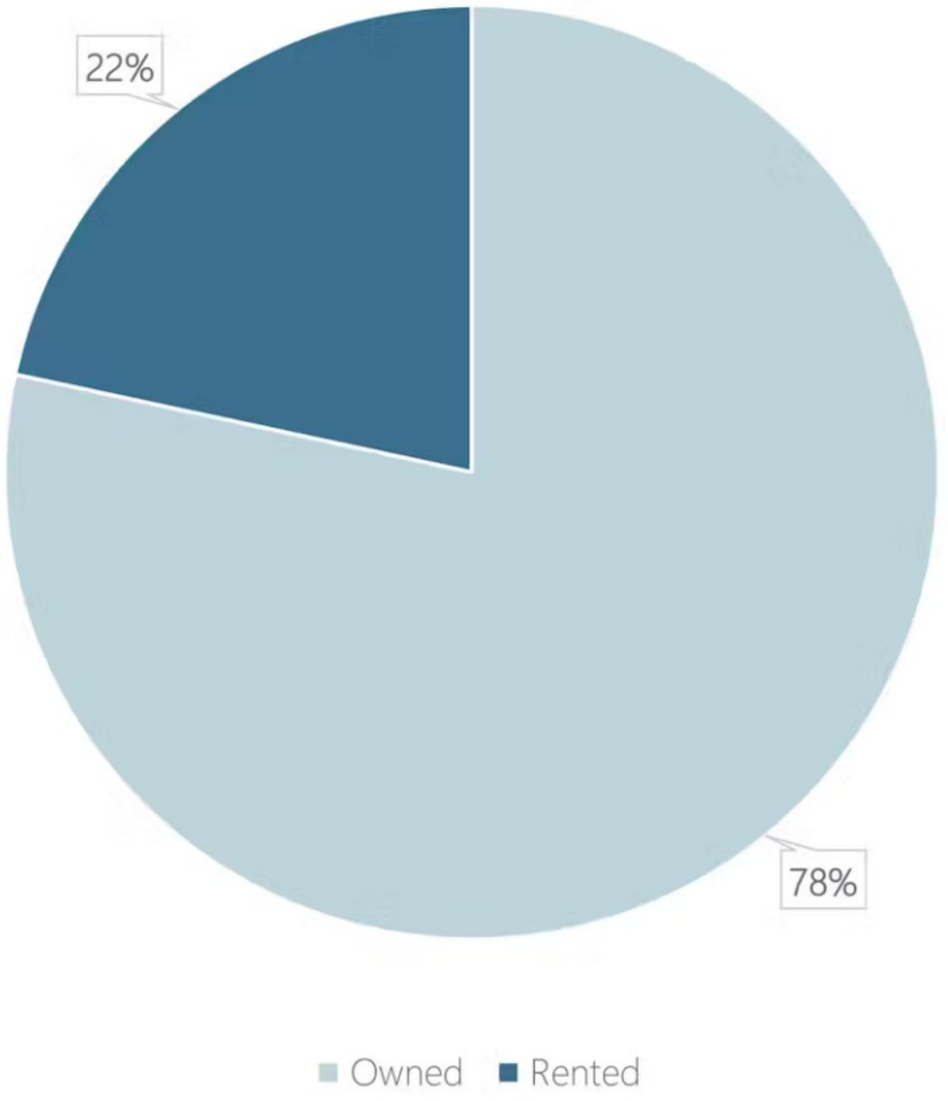
Are you, or have you ever been, an FAA Certified Flight Instructor (N=134)?

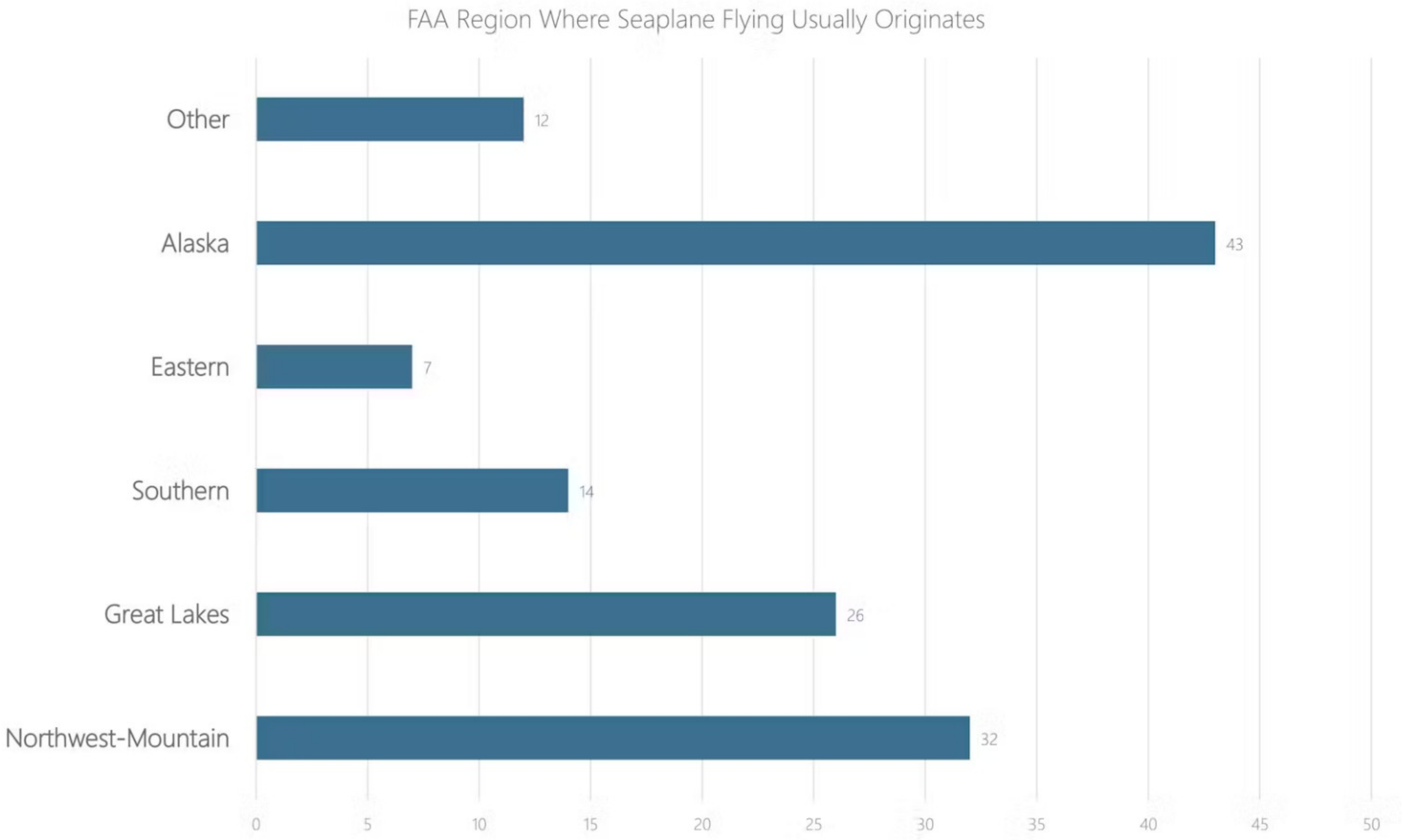


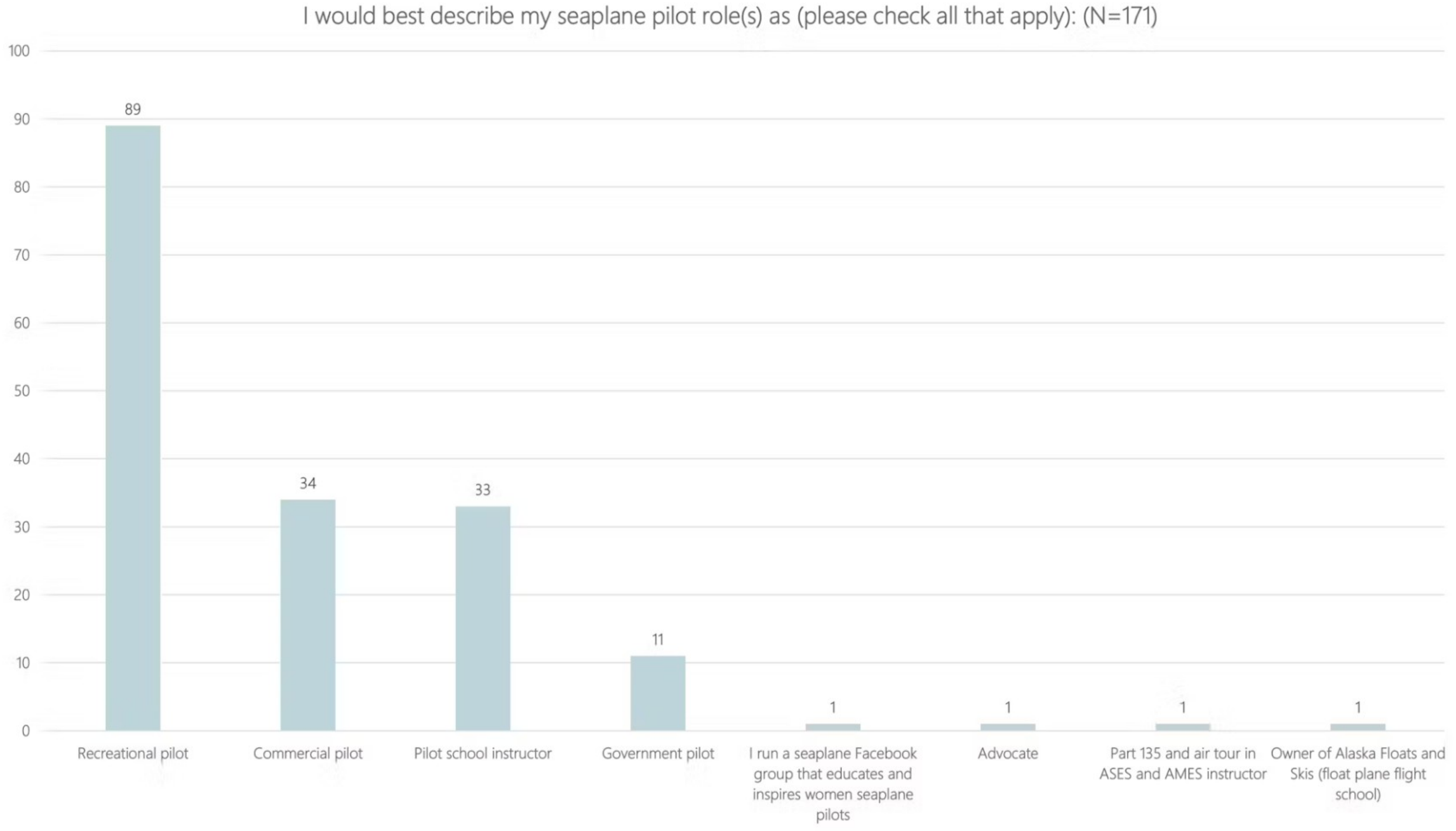
What category includes your age (N=134)?

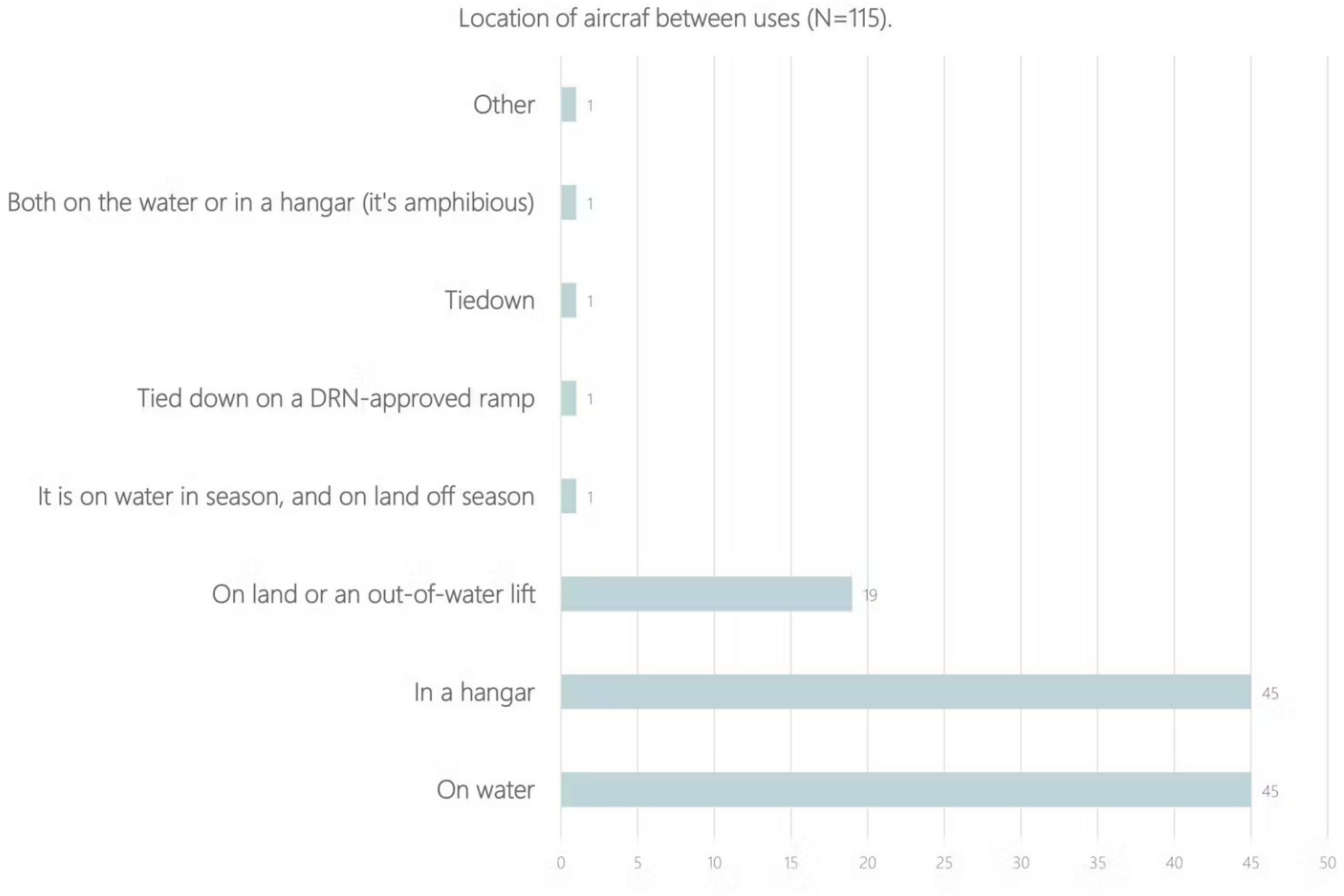


Is the Seaplane You Most Commonly Fly Owned or Rented (N=134)?

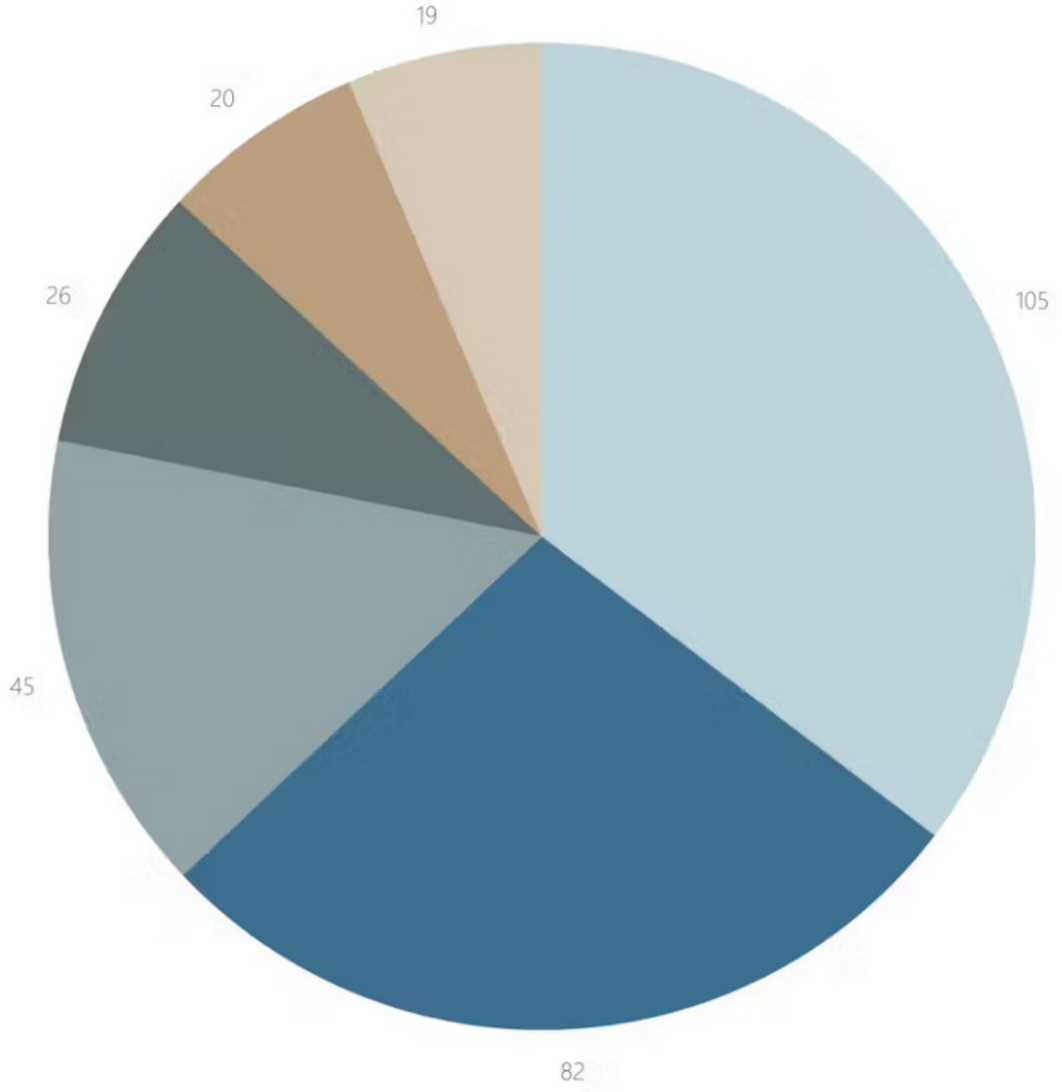



FAA Region Where Seaplane Flying Usually Originates
Other
12
Alaska
43
Eastern
7
Southern
14
Great Lakes
26
Northwest-Mountain
32
0
5
10
15
20
25
30
35
40
45
50

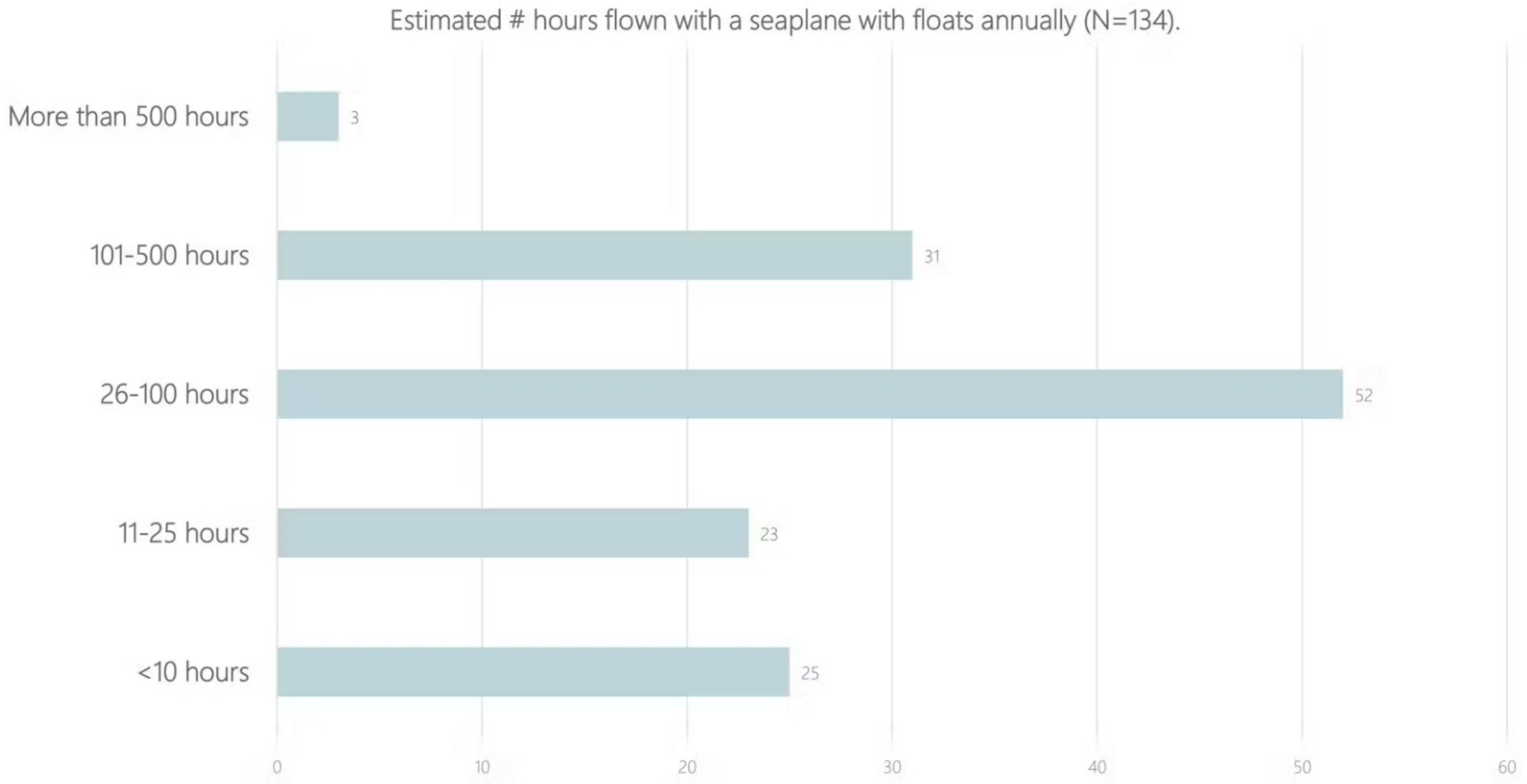

I would best describe my seaplane pilot role(s) as (please check all that apply): (N=171)
100
90
80
70
60
50
40
30
20
10
0
89
34
33
11
1
1
1
1
Recreational pilot
Commercial pilot
Pilot school instructor
Government pilot
I run a seaplane Facebook group that educates and inspires women seaplane pilots
Advocate
Part 135 and air tour in ASES and AMES instructor
Owner of Alaska Floats and Skis (float plane flight school)


Location of aircraf between uses (N=115).
Other
1
Both on the water or in a hangar (it's amphibious)
1
Tiedown
1
Tied down on a DRN-approved ramp
1
It is on water in season, and on land off season
1
On land or an out-of-water lift
19
In a hangar
45
On water
45
0
5
10
15
20
25
30
35
40
45
50

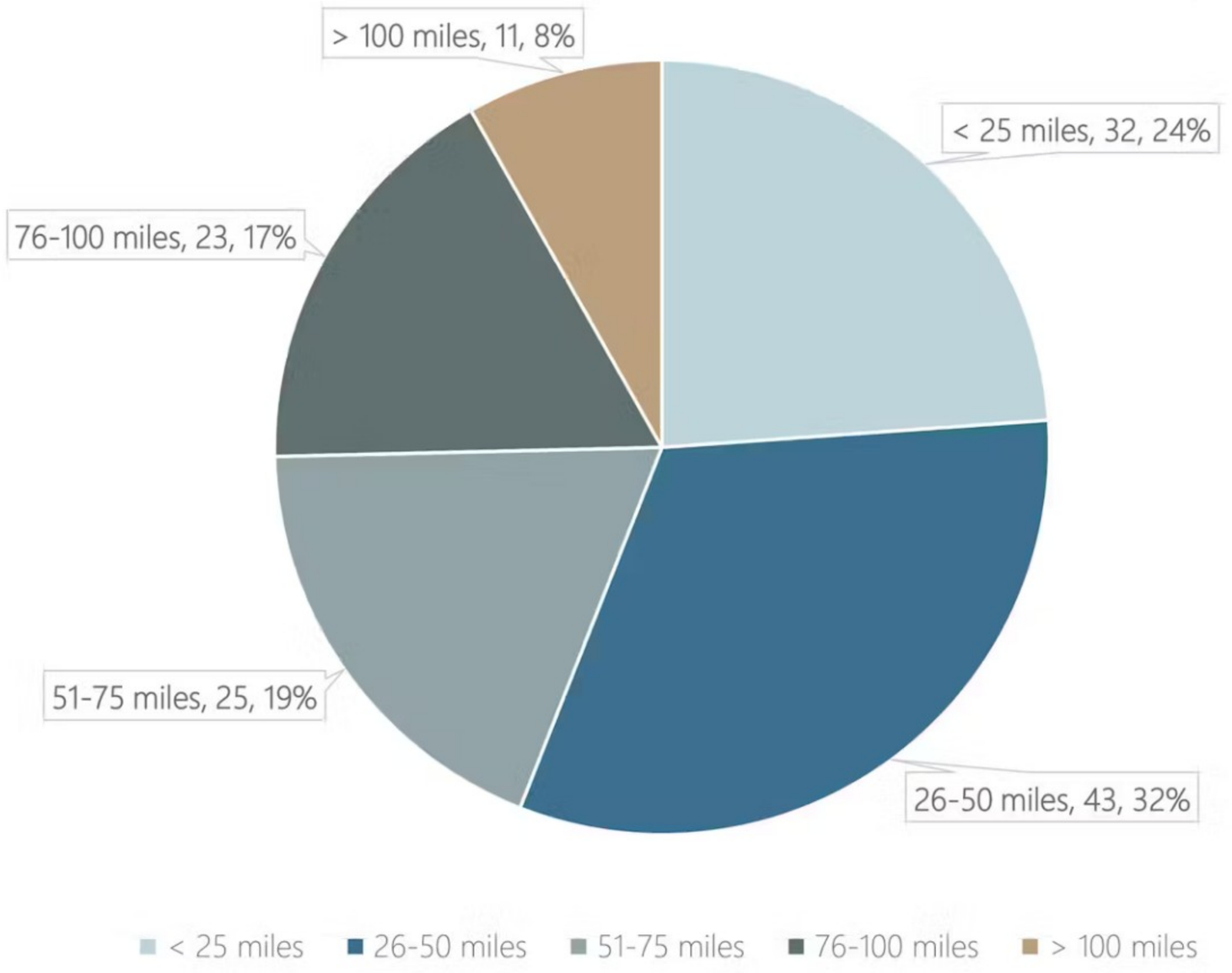
Membership in pilot-related organizations (N=297).



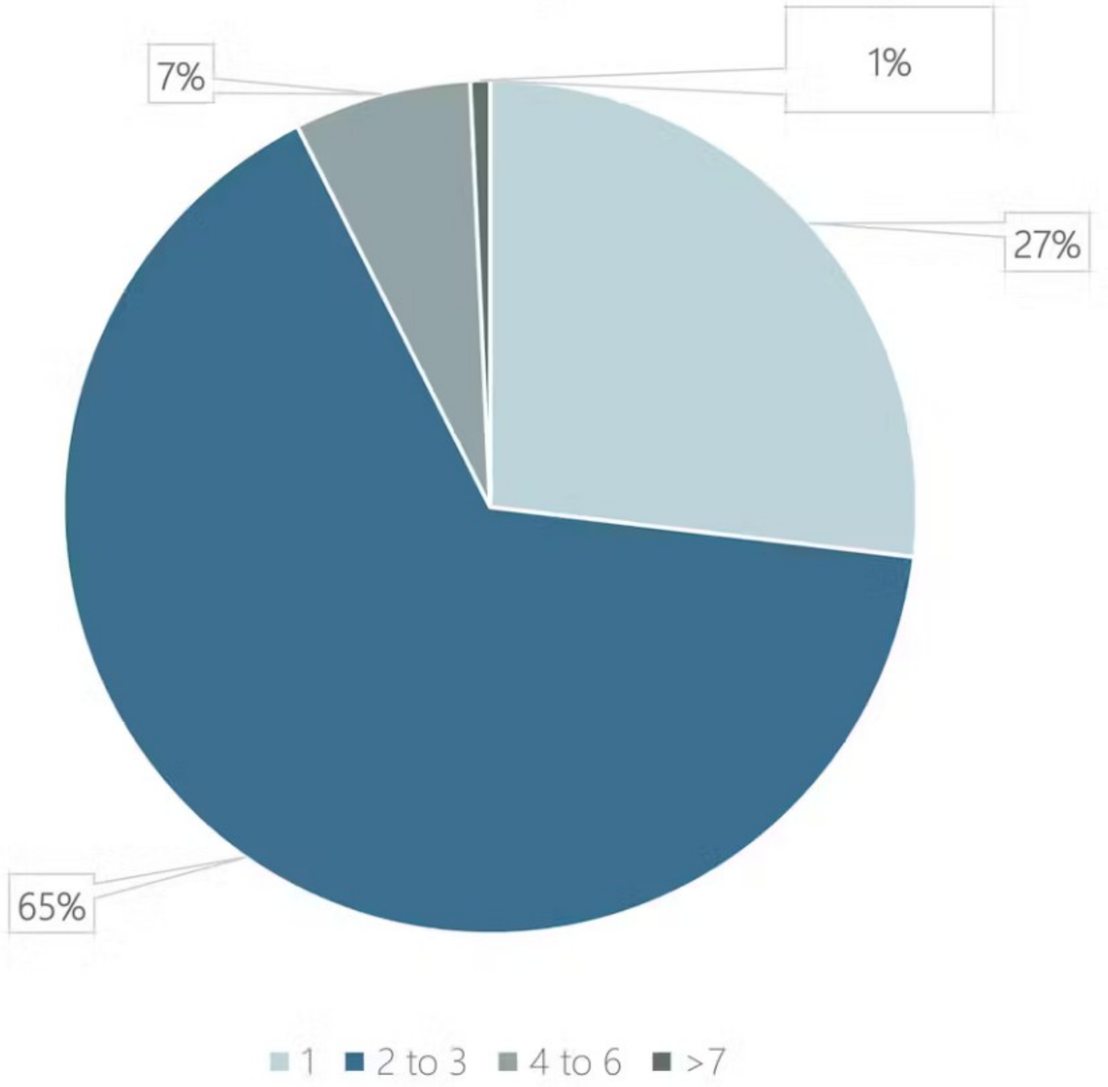
- Aircraft Owners and Pilots Association
- Seaplane Pilots Association
- Other
- Recreational Aviation Foundation
- National Association of Flight Instructors
- I am a not a member of any pilot-related organization


Estimated # hours flown with a seaplane with floats annually (N=134).
More than 500 hours
3
101-500 hours
31
26-100 hours
52
11-25 hours
23
<10 hours
25
0
10
20
30
40
50
60

Estimate of average distance flown each time a seaplane is flown to a water destination (N=134).

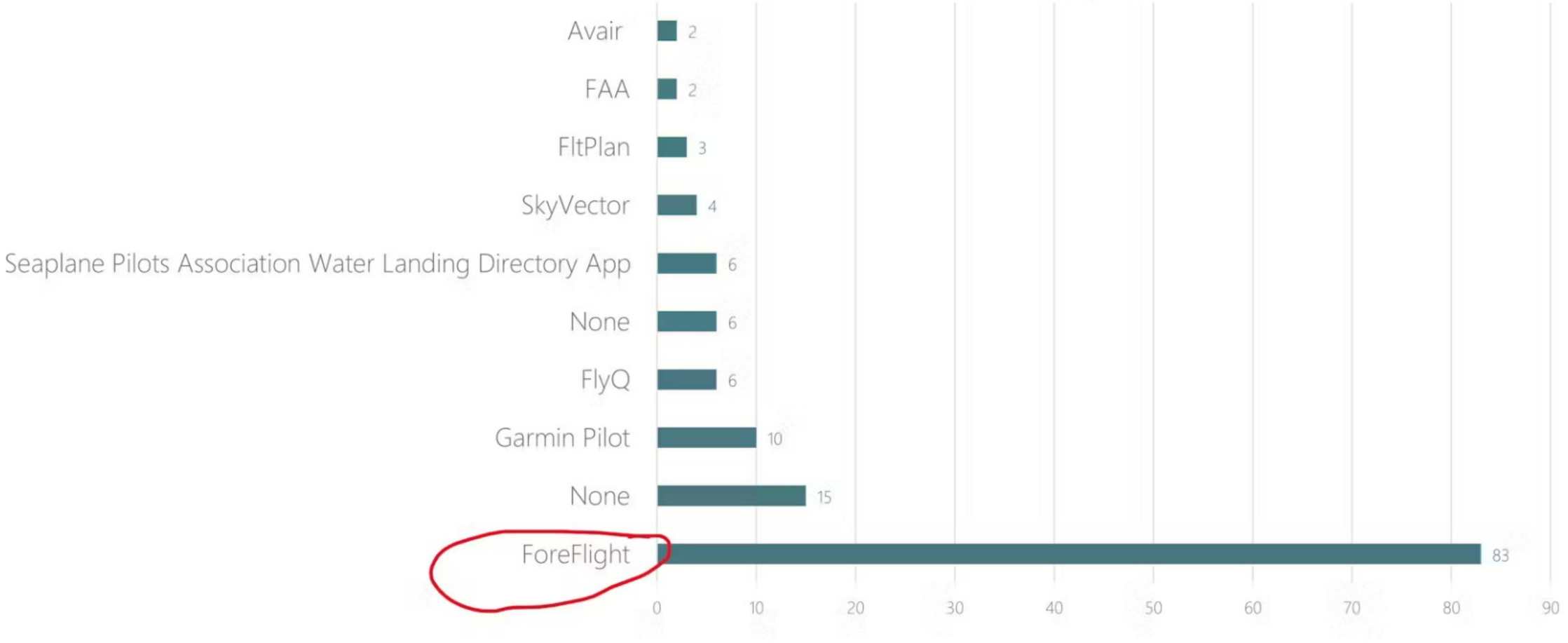


Number of waterbodies visited during one "trip" (a single or multi-day event) (N=134).

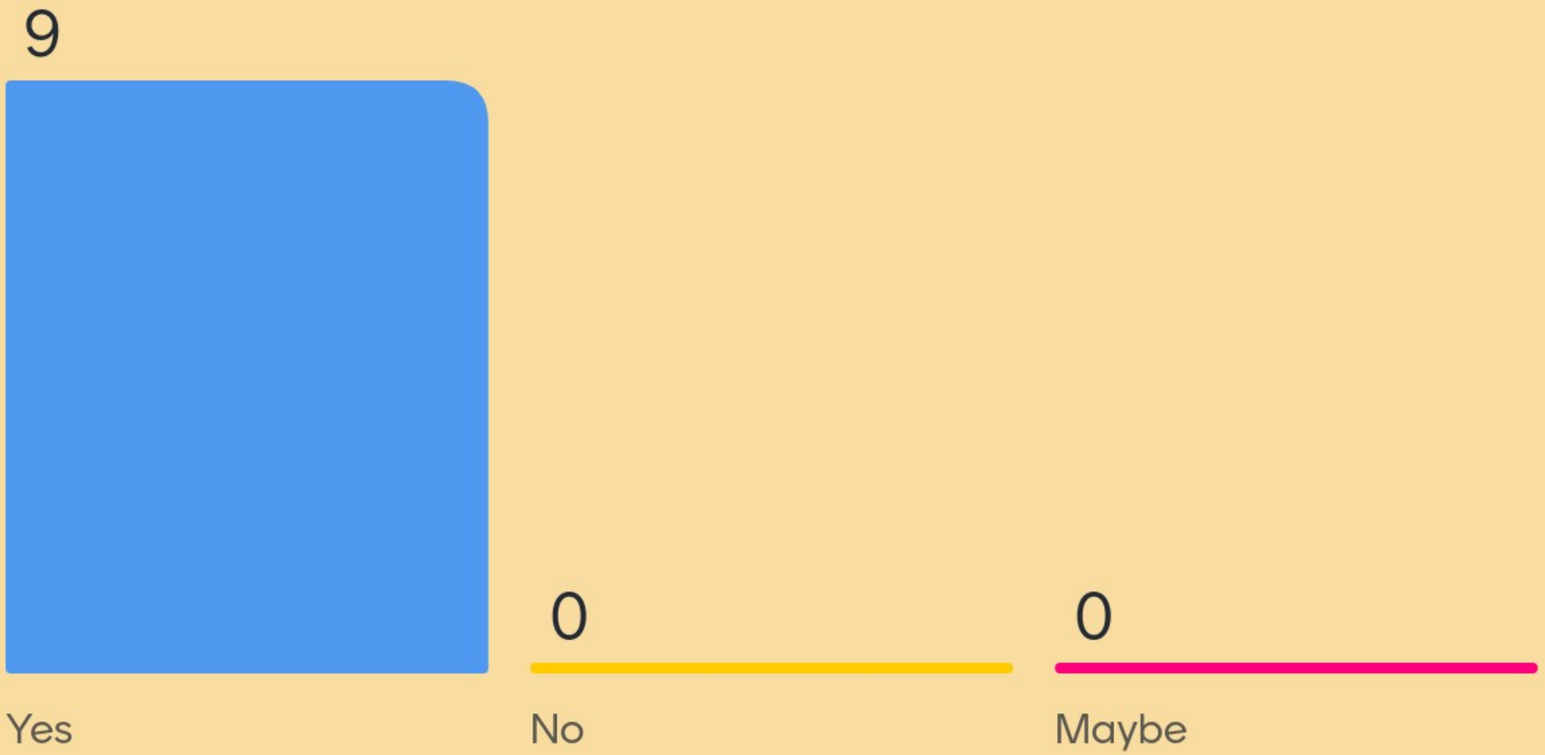


Software generally used for flight planning purposes (N=206).

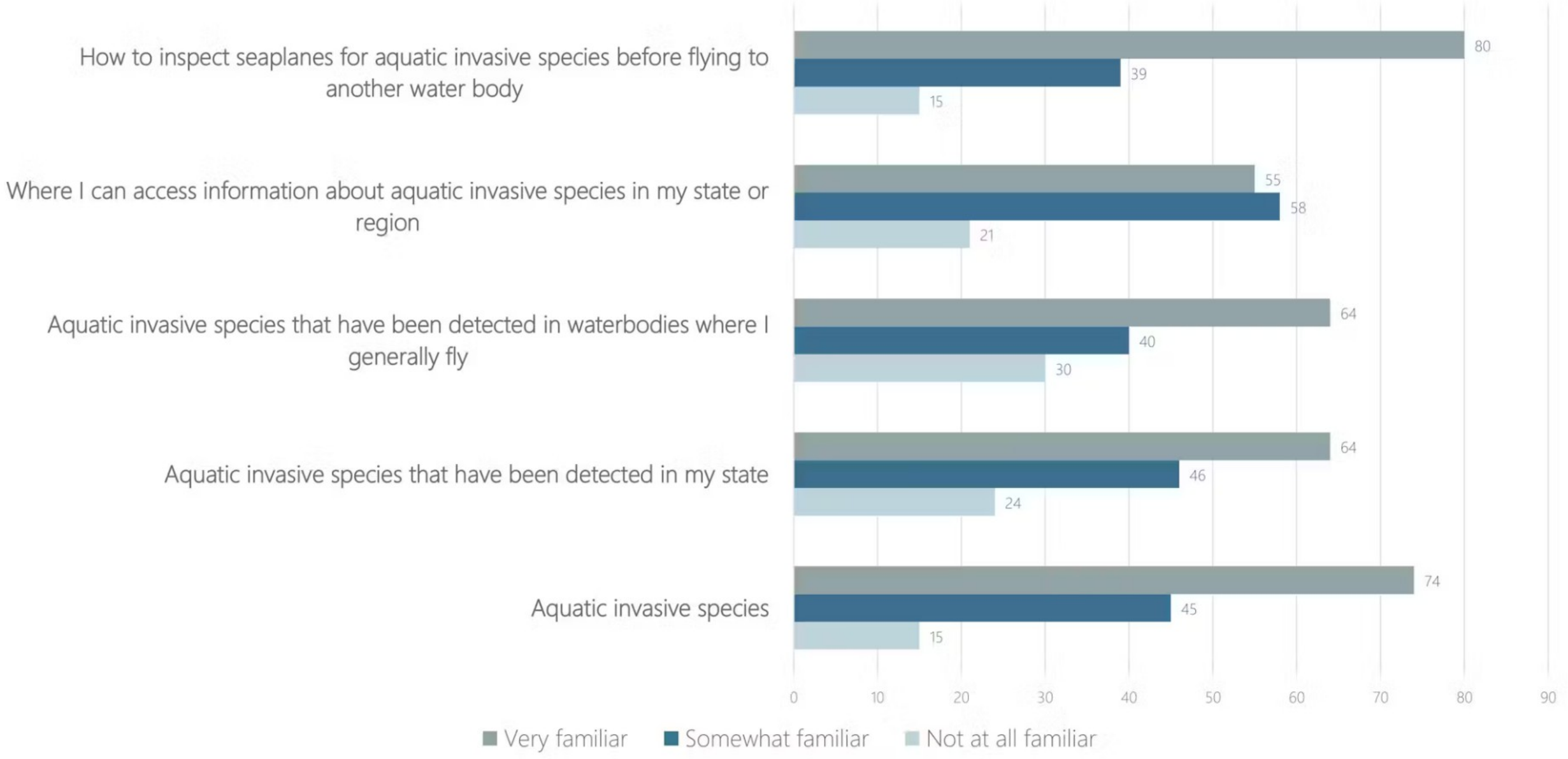
Software used most often for flight planning by seaplane pilots (N=134).

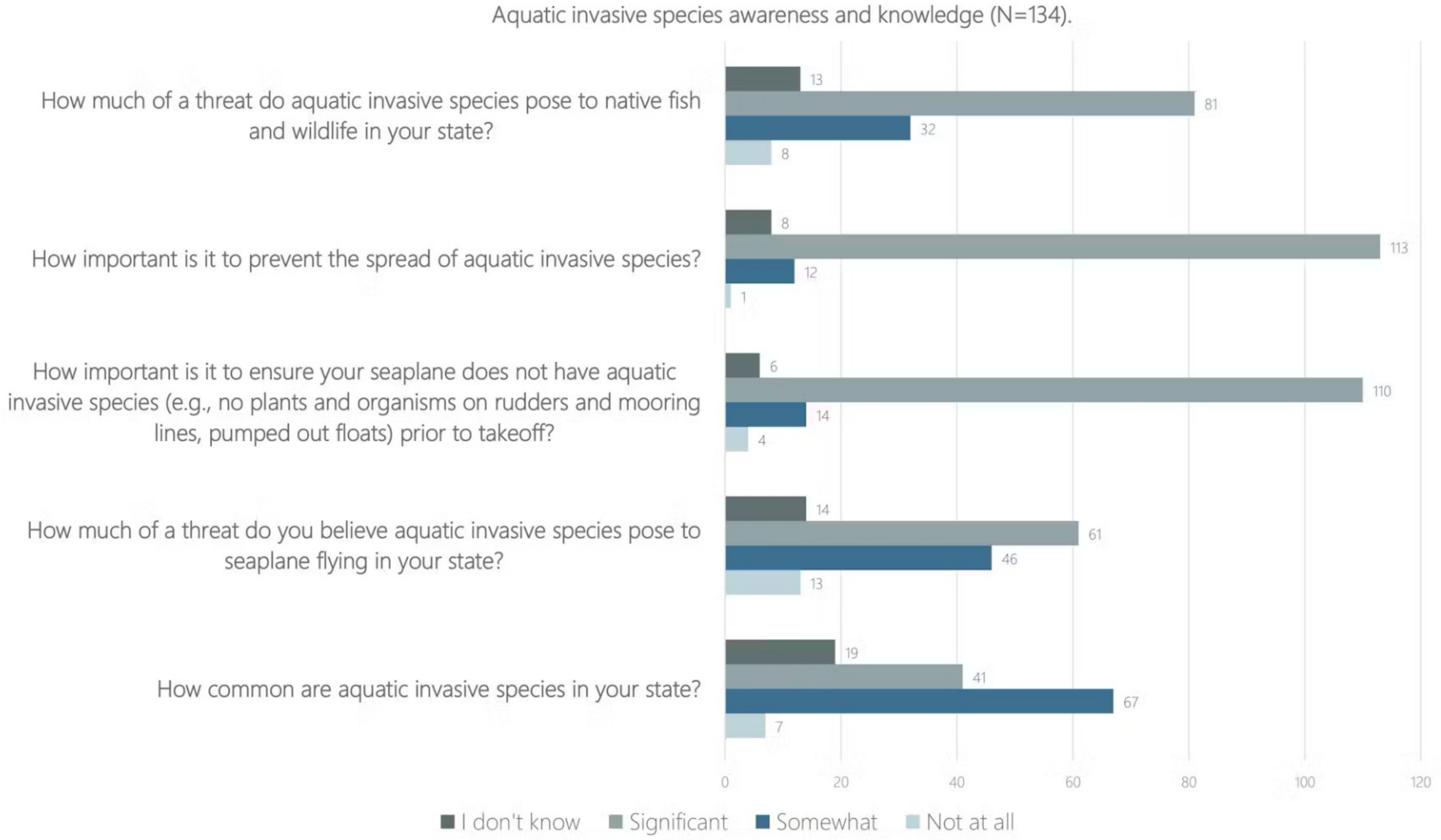


Do you believe it would be beneficial to pilots if the PSMFC mapping tool that was shown was available through Foreflight and Garmin Pilot?

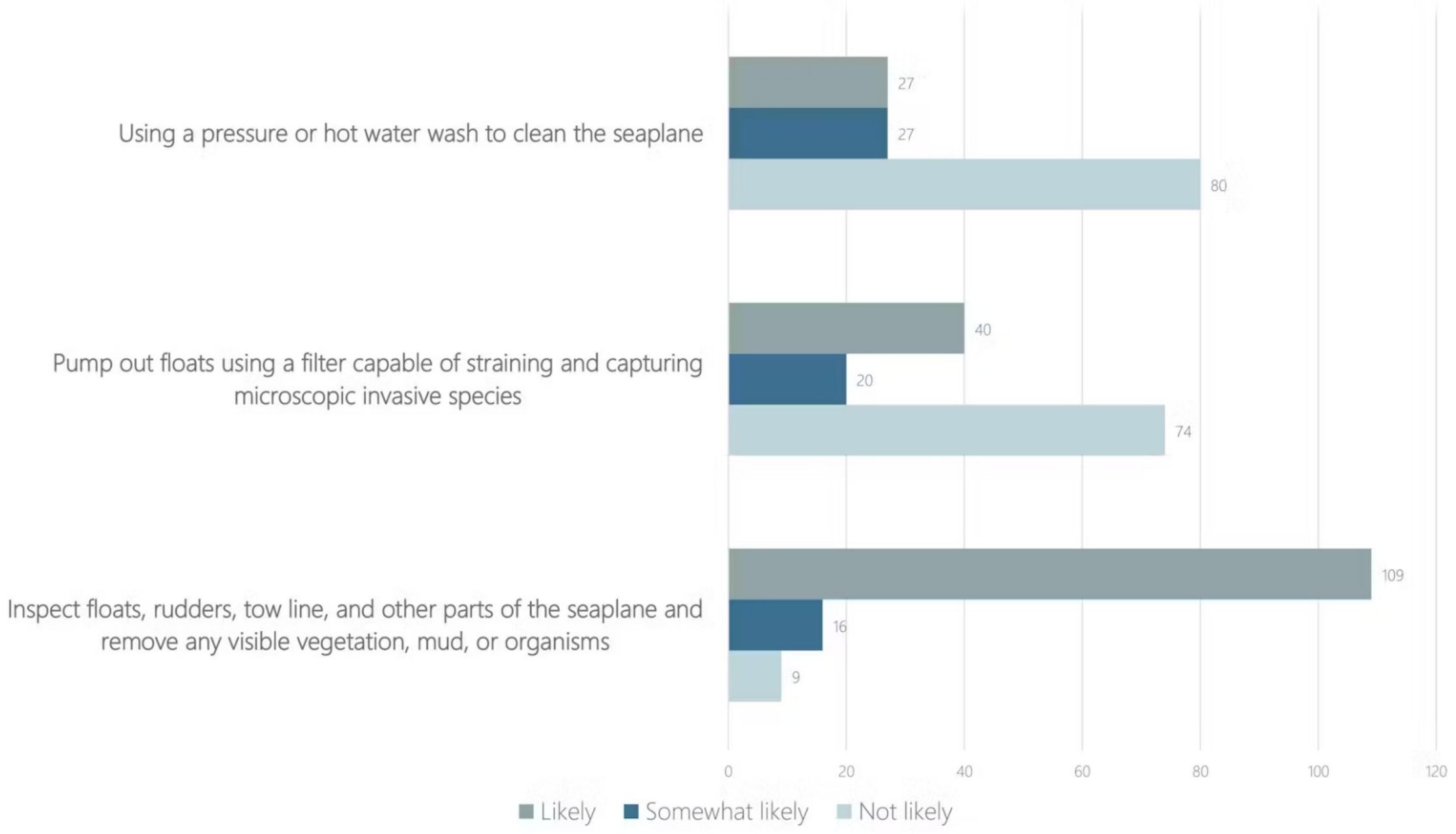


Familiarity with aquatic invasive species (N=134).

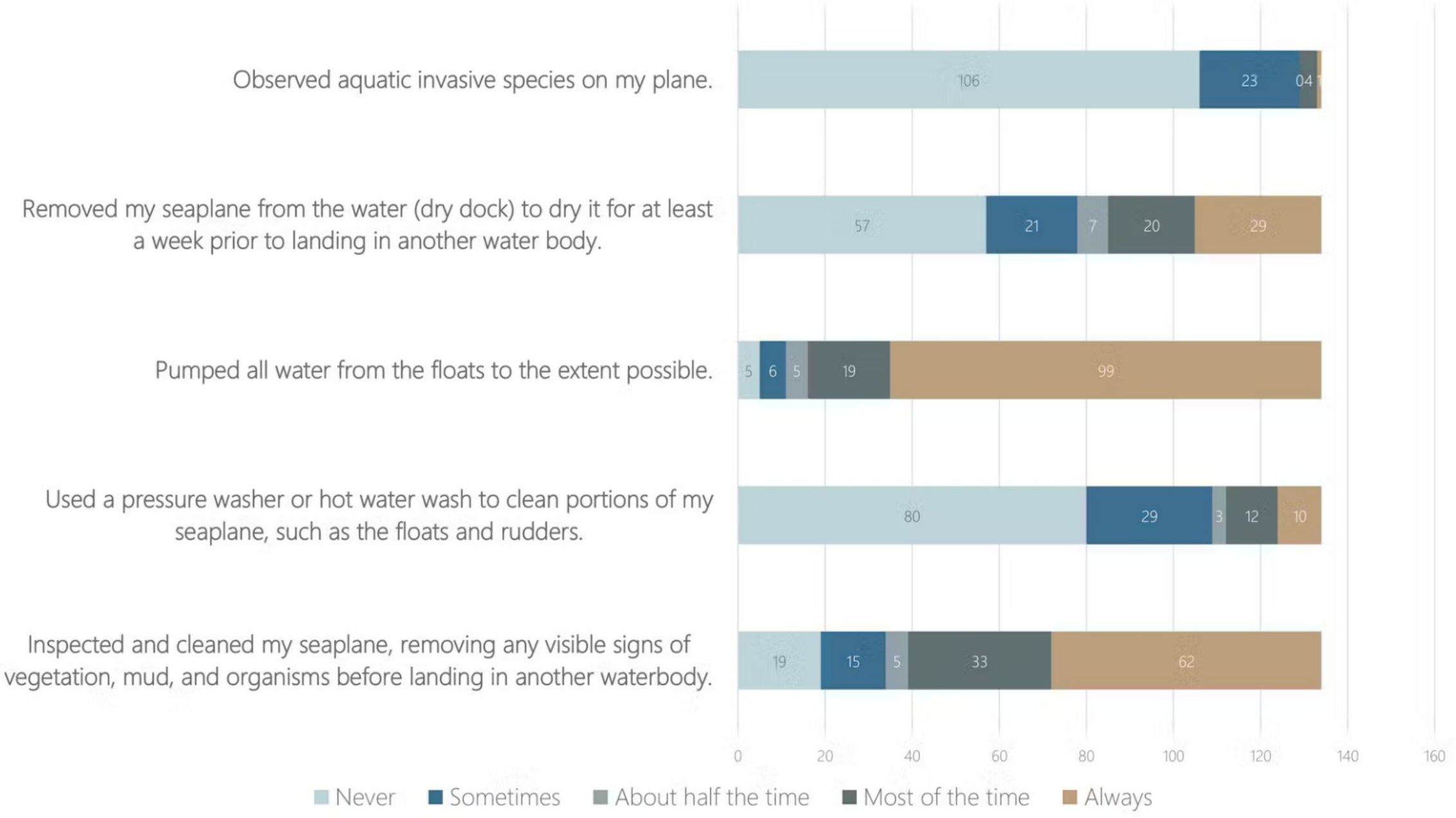



Aquatic invasive species awareness and knowledge (N=134).
How much of a threat do aquatic invasive species pose to native fish and wildlife in your state?
13
81
32
8
How important is it to prevent the spread of aquatic invasive species?
8
113
12
1
How important is it to ensure your seaplane does not have aquatic invasive species (e.g., no plants and organisms on rudders and mooring lines, pumped out floats) prior to takeoff?
6
110
14
4
How much of a threat do you believe aquatic invasive species pose to seaplane flying in your state?
14
61
46
13
How common are aquatic invasive species in your state?
19
41
67
7
0
20
40
60
80
100
120
I don't know
Significant
Somewhat
Not at all

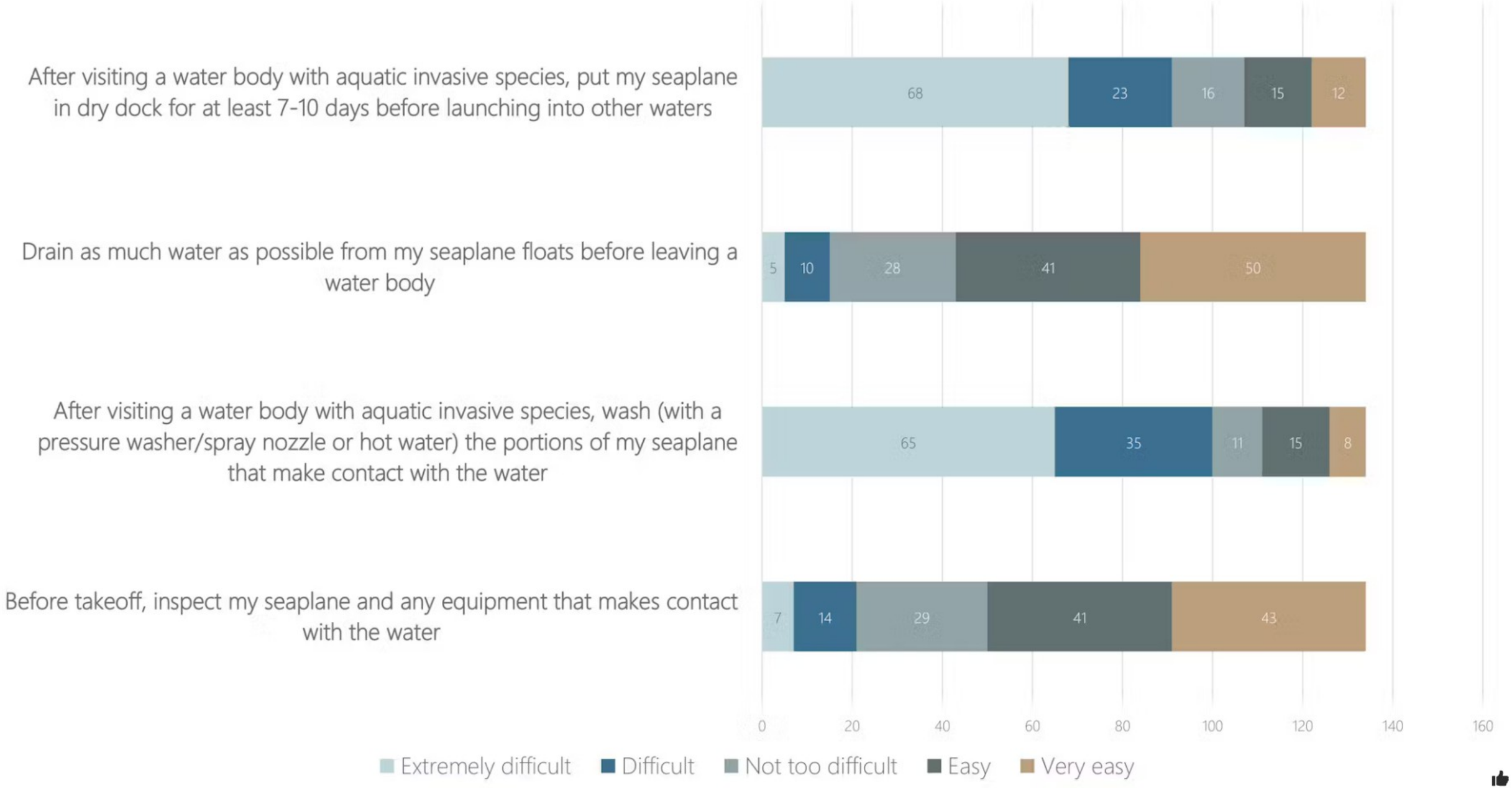
Likely to practice activity prior to leaving a water body with known aquatic invasive species (N=134).



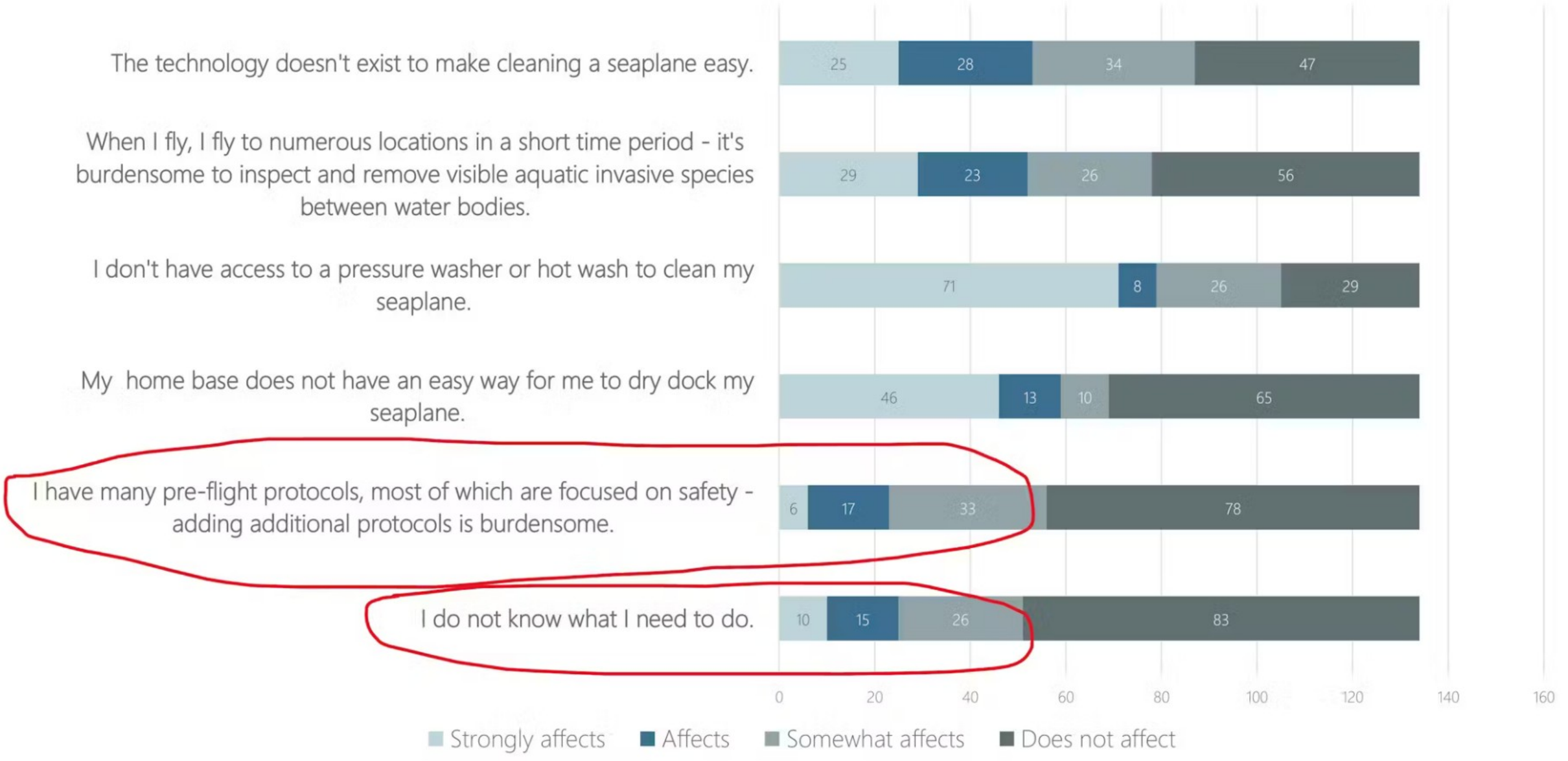
Actions seaplane pilots have taken in the past 2 years (N=134).



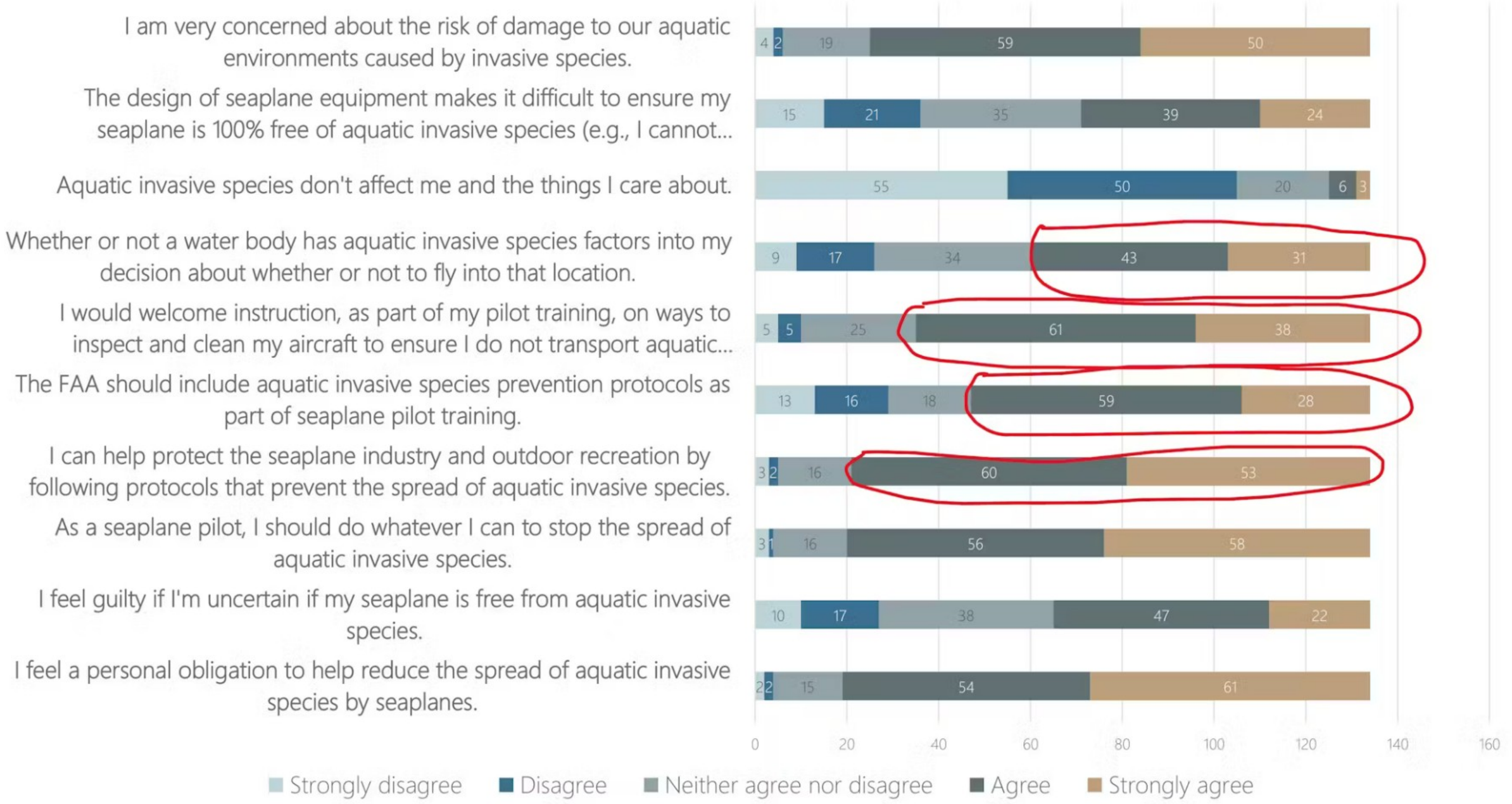
Difficulty of actions associated with aquatic invasive species (N=134).



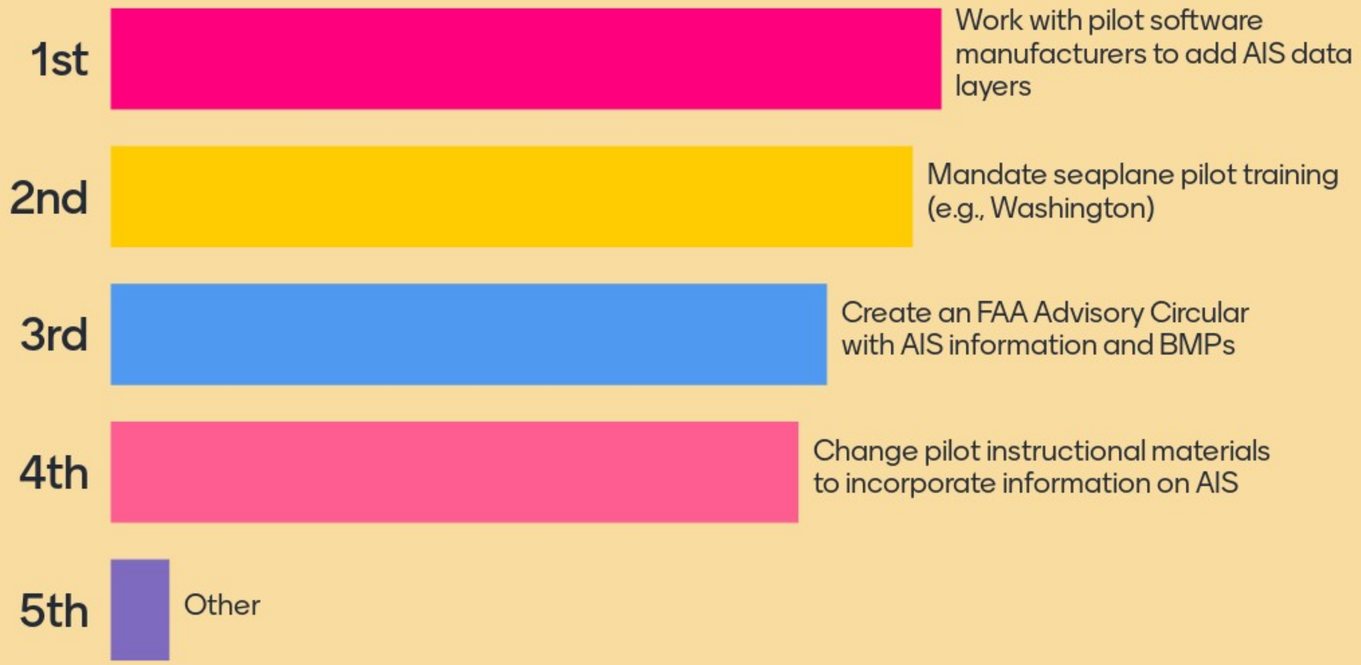
Extent to which these issues prevent seaplane pilots from inspecting and removing aquatic invasive species prior ot takeoff (N=134).



Level of agreement (N=134).



How should we prioritize the best methods to raise pilot AIS awareness and train pilots about AIS protocols and BMPs?



What other suggestions do you have to raise pilot AIS awareness and train pilots about AIS protocols and BMPs?

Standardized training videos to be shared with all states.

Better access to cleaning stations adapted for seaplanes

Develop training modules to share with flight schools

3

NEXT STEPS

- Host virtual FAA-region focus groups with pilots.
- Discuss w/industry potential equipment design modifications to lessen AIS spread.
- Vet draft pilot best management practices via a survey.
- Recommend AIS-specific language and inspection protocols into pilot instruction.
- Vet draft regulatory best management practices recommendations.
- Complete risk assessment.

What recommendations do you have to reduce the spread of AIS via the seaplane pathway?

0 responses

INTERESTED IN PARTICIPATING IN A REGIONAL FOCUS GROUP TO DIVE DEEPER?

Express your interest here:

https://bit.ly/3zn5Gyn