

**ALASKA STATE LEGISLATURE**  
**HOUSE SPECIAL COMMITTEE ON ECONOMIC DEVELOPMENT, TRADE AND**  
**TOURISM**

March 21, 2013  
11:19 a.m.

**MEMBERS PRESENT**

Representative Shelley Hughes, Chair  
Representative Lynn Gattis  
Representative Pete Higgins  
Representative Lance Pruitt  
Representative Harriet Drummond  
Representative Geran Tarr

**MEMBERS ABSENT**

Representative Bob Herron  
Representative Craig Johnson  
Representative Kurt Olson

**OTHER LEGISLATORS PRESENT**

Representative Steve Thompson  
Representative Doug Isaacson

**COMMITTEE CALENDAR**

PRESENTATIONS(S): UNMANNED AIRCRAFT SYSTEMS

- HEARD

**PREVIOUS COMMITTEE ACTION**

No previous action to record

**WITNESS REGISTER**

RO BAILEY, Deputy Director  
Alaska Center for Unmanned Aircraft Systems Integration,  
Research, Development, Testing and Evaluation (ACUASI)  
Geophysical Institute  
University of Alaska Fairbanks (UAF)  
Fairbanks, Alaska

**POSITION STATEMENT:** Provided a PowerPoint presentation  
entitled, "Unmanned Aircraft Systems for Alaska."

## **ACTION NARRATIVE**

**CHAIR SHELLEY HUGHES** called the House Special Committee on Economic Development, Trade and Tourism meeting to order at 11:19 a.m. Representatives Gattis, Higgins, Drummond, and Hughes were present at the call to order. Representatives Tarr and Pruitt arrived as the meeting was in progress. Representatives Thompson and Isaacson were also present.

[11:19:39 AM](#)

### **PRESENTATIONS(S): UNMANNED AIRCRAFT SYSTEMS**

[11:20:03 AM](#)

CHAIR HUGHES announced that the only order of business would be a presentation on unmanned aircraft systems. She provided brief background information on her interest in this technology and advised she would be introducing a related House Concurrent Resolution in the near future.

[11:21:35 AM](#)

RO BAILEY, Deputy Director, Alaska Center for Unmanned Aircraft Systems Integration, Research, Development, Testing and Evaluation (ACUASI), Geophysical Institute, University of Alaska Fairbanks (UAF), said she will introduce some of the projects UAF has been working on for almost 13 years and will explain their purpose and their importance to Alaska. Also, her presentation will include a proposal to designate Alaska as a test site for the Federal Aviation Administration (FAA), U.S. Department of Transportation, privacy issues, and the upcoming resolution [slide 2].

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A video was presented from 11:23 a.m. to 11:29 a.m.

[11:29:53 AM](#)

MS. BAILEY explained two of the launches shown on the video were regretted because difficult weather conditions risked a safe recovery. She noted UAF's efforts have been to learn and benefit from the technology related to unmanned aircraft. The history of the project began in 2001 when UAF was working with New Mexico State University seeking to develop civilian applications for unmanned aircraft. Since then, the university

has received funding from the U.S. Air Force (USAF), the U.S. Coast Guard (USCG), and other organizations, and acquired a ScanEagle aircraft in 2006. The ScanEagle is a 40-pound, fixed-wing, gas-powered aircraft with the ability to fly for 22 hours up to 23,000 feet in altitude. The Scout aircraft has the ability to fly for 20 minutes up to 1,200 feet in altitude. The ACUASI missions have expanded to include science projects, emergency response, humanitarian needs, and engineering development, and have advanced the capabilities of systems through payload development and integration [slide 3]. The goal of ACUASI is to meet Alaska's needs using the technology it develops with a focus on working with state agencies and Alaska companies and communities. The Scout flew in Nome during the delivery of fuel to assist in determining where to lay hose, and flew in Bethel on an emergency response exercise [slide 4]. Ms. Bailey said that UAF has brought to the state over \$4.5 million through competitive grants and contracts with private and federal agencies. The state funded \$5 million in last year's capital budget for the purpose of growing ACUASI and for seeking designation as a FAA test site. In the last two and one-half years, there have been three small company start-ups; in fact, two aerospace companies are opening offices in Fairbanks to work with UAF, one of which is the Atkinson Robotics and Technology Integration Corporation (ARTIC) [slide 6].

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CHAIR HUGHES added that two companies in the Matanuska-Susitna area have expressed interest in this field.

MS. BAILEY surmised one of the companies may be ATI. In further response to Chair Hughes, she said the university has received funding for work done for BP Exploration (Alaska) Inc. (BP) and Chevron Corporation. There has also been interest from other governments such as Iceland and Finland. Other work is expected for ADS-B Technologies in Anchorage, and Lockheed Martin's Skunk Works (Advanced Development Programs) has an exclusive partnership. Interest is growing very fast.

REPRESENTATIVE ISAACSON asked for the current status of airspace issues.

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MS. BAILEY explained to fly an unmanned aircraft in national airspace one must be a public entity established and accepted by FAA. To do so, Alaska's attorney general verified that UAF is

an instrumentality of the state. Also, UAF applied for a certificate of authorization or waiver to the normal rules for flying in the national airspace. Over time, UAF has had 50 waivers approved, and has flown in military restricted airspace by obtaining access through Range Control of the military installation. The university has established a partnership with the Joint Pacific Alaska Range Complex (JPARC) for access to the range. To get a certificate of authority (COA), specific information is provided to FAA on each flight, and a notice to airmen is published 48 hours in advance. Before and after each flight, UAF notifies the airports in Anchorage and Fairbanks.

[11:41:30 AM](#)

REPRESENTATIVE ISAACSON surmised this ability will help with the commercialization of the university's work.

MS. BAILEY agreed, however, UAF does not have the ability to file a flight plan and proceed with a flight. This is due to safety concerns and she assured the committee ACUASI is dedicated to the development of rules that are adequate, well-tested, and thoroughly evaluated. Established procedures should be that operators are rigorously trained and certified, and the flying vehicle is safe for flying. She opined unmanned aircraft flight should not be open to non-public entities until safety procedures are established and approved. Returning to the presentation, Ms. Bailey said UAF has over 50 partners in and outside of Alaska working on the FAA test site designation. Other areas in which the project is expected to bring value to the state are through future search and rescue missions in remote areas and infrastructure monitoring for the purpose of critical assessment and mapping in advance of a disaster. For example, if the buildings in Cordova had been previously assessed with 3D mapping, it would have been known whether they were able to withstand the record snow load last winter.

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CHAIR HUGHES asked whether unmanned aircraft have been used to monitor the Trans-Alaska Pipeline System (TAPS).

MS. BAILEY responded not yet; however, UAF has a funded project with BP to develop a sensor to detect escaping gasses around drilling stations that would indicate a leak. The goal is to identify what sensors are needed to detect the different gasses, in order to locate leaks early enough to eliminate the need to send a human into a possibly dangerous environment. However, at

this time, flights near TAPS are prohibited. In further response to Chair Hughes, she said a proposal is underway with the Department of Transportation & Public Facilities to complete 3D mapping in order to establish changes over time in unstable areas. In 2010, UAF flew unmanned aircraft during the Arctic Edge simulated earthquake scenario to assess overpasses and bridges without risk to an engineer [slides 7 and 8].

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REPRESENTATIVE ISAACSON asked about the range of the Scout aircraft.

MS. BAILEY said the Scout has a 20 minute flight time with a top speed of 31 knots. The ScanEagle can fly 22 hours; the distance away from the controller is limited by radio line-of-sight and the FAA rule of visual line-of-sight. In further response to Representative Isaacson, she described the National Marine Fisheries Service, National Oceanic and Atmospheric Administration, closure of the fishery in the Aleutian Islands that was based on limited data acquired by one week of assessments on the number of Stellar sea lions. After UAF collected three weeks of data counting sea lions, and biologists determined that the sea lions are the same as those found in ample numbers in Southeast Alaska, the North Pacific Fishery Management Council used the data to prove that Stellar sea lions are not endangered [slide 14].

REPRESENTATIVE ISAACSON inquired as to what factor made the unmanned aircraft data more successful than other methods of observation.

MS. BAILEY explained that manned aircraft could not see the entire Aleutian Islands chain, and weather conditions and distance interfere with accurate observation from satellites. The Scout flew from a boat under the weather and collected data over a longer period of time at much less cost. In further response to Representative Isaacson, she said another application would be to count polar bears.

REPRESENTATIVE HIGGINS asked for flight details.

MS. BAILEY restated that the Scout flies for 20 minutes but there are efforts to develop new batteries that will extend the flight time. In further response to Representative Higgins, she said the Scout is controlled by a base station; if on a boat, or with permission in restricted airspace, the ScanEagle can fly

five miles from the base station. Restrictions to line-of-sight are based on the lack of "sense and avoid" technology.

CHAIR HUGHES asked whether this technology will be available soon.

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MS. BAILEY expressed her belief that the solution will be a combination of techniques. The technology is based on risks, such as the risk of bringing down a high altitude aircraft, which can be addressed by an altitude limit on unmanned aircraft of 400 feet. Higher flyers need radar systems or the ability to communicate via transponder. The ability to detect another aircraft from an unmanned aircraft is not available.

REPRESENTATIVE DRUMMOND asked for clarification.

MS. BAILEY answered the sense and avoid technology is about detecting other aircraft. The Scout is autonomous for landing, except under certain conditions like landing on a boat. Currently, hand piloting is responsible for avoidance of obstacles at landing.

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CHAIR HUGHES asked whether FAA will require a second pilot on the ground.

MS. BAILEY advised a pilot and an observer are required now. In further response to Chair Hughes, she said currently a general aviation license is required for a pilot to fly above 400 feet, but training on the individual system and on how to work in the airspace is what is most important. In further response, she said FAA is going to release rules on small unmanned aircraft which are defined as either under 55 pounds or under 25 pounds. The aviation community considers 55 pounds and under small, because aircraft above that weight require runways and "air force-level stuff." The ScanEagle is a 40-pound, fixed-wing, 10-foot wing span, catapult-launched aircraft.

CHAIR HUGHES asked whether universities are offering courses in this field.

MS. BAILEY indicated that the University of North Dakota has a training program for operators and UAF is allocating funds to education and outreach on the engineering side. She suggested

an operator class may be offered at the University of Alaska Anchorage (UAA) because they already have pilot training. She returned to the reasons to use unmanned aircraft and said its use is to do work that is "dirty, dull, or dangerous." For example, Alaska has remote, extreme terrain and volatile weather conditions and unmanned aircraft are ideal for collecting data under risky conditions; dirty work includes observations over chemical spills, volcanoes, and wildfire smoke; and mapping is dull work, involving taking tens of thousands of photographs along a grid pattern [slide 8]. Alaska offers the program vast airspace with little traffic; access to military ranges with data gathering ability; and a history of pioneering aviation technology and thoughtful policy decisions [slide 9]. She said ACUASI's job is to determine how this technology is used and to ensure it is used properly for the benefit of Alaska. The mission is to establish a research center for small, unmanned aircraft systems providing integration of unique payloads and supporting pathfinder missions within government and science communities, with a special emphasis on the Arctic region [slides 10 and 11].

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MS. BAILEY described an ice seal population study and pointed out that the seals were not frightened away by the unmanned aircraft - as they are by helicopters - which resulted in a more accurate count [slides 13-15]. During the Crazy Mountain Complex Wildfires in 2009, manned aviation was unable to fly for five days due to smoke so the unmanned aircraft located the boundaries of the fires, whether structures were threatened, and behavior of the fire at night [slide 16]. Along the Snake River and Clearwater River in Idaho manned aircraft cannot fly in the canyons and salmon spawning redds were located by the unmanned aircraft [slides 17-19]. A comparison of a satellite and an unmanned aircraft picture of fish habitat was displayed [slide 20]. Ms. Bailey described a Prescribed Fire Combustion and Atmospheric Dynamics Research Experiment (Rx-CADRE) in Florida [slide 21]. The Bear Bite-SAREX mass casualty exercise in Bethel demonstrated the aircraft's search and rescue capabilities in extreme cold temperatures [slides 22-24]. Images from the Shoreline Clean-up Assessment Technique (SCAT) Evaluation for BP were shown. The purpose of this mapping is to record the condition of the shoreline before it is impacted by an oil spill [slide 26]. Also for BP, work has been done on oil infrastructure monitoring [slide 27]. Another possible application is to assist ships piloting through ice to locate a pathway [slides 28-30]. During the winter Nome fuel delivery,

the unmanned aircraft provided guidance on where to lay the hose, monitored for polar bears and open leads, and documented the site [slide 31]. The university has developed a radar system known as iPASS to monitor airspace; the system has been certified by the National Aeronautics and Space Administration (NASA) for use during rocket launch operations and was funded by FAA [slide 32]. Ms. Bailey said ongoing projects include the detection of marine debris generated by the 2011 Japanese tsunami and the Marginal Ice Zone Ocean and Ice Observations and Processes EXperiment (MIZOPEX) for NASA and NOAA to encourage FAA to allow multiple aircraft to fly over international waters [slides 33 and 34]. Work done for the Department of Public Safety (DPS) included a demonstration of the Scout, and she described how unmanned aircraft could be used by state troopers [slide 35]. The most recent project is an oil spill response exercise along the Columbia River estuary in Washington State [slide 36]. Another unique ACUASI capability is the ability to collect information in extremely remote areas [slides 37 and 38].

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MS. BAILEY returned to the subject of the FAA test site application, explaining that FAA has been directed to select six test sites to research and test for the safe integration of unmanned aircraft into airspace. The university is leading a team that has submitted the first of multiple proposals required prior to the selection date of 12/31/13 [slide 39]. The proposed test site is known as the Pan Pacific UAS Test Range Complex, and has specified fourteen test ranges within the test site in Alaska, Oregon, and Hawaii [slide 40]. Turning attention to the subject of privacy, she said ACUASI is dedicated to ensuring that privacy is protected so that the beneficial uses of the technology are not blocked. Although this is a new technology, many rules for manned aviation apply to unmanned aviation. Furthermore, the Fourth Amendment to the U.S. Constitution has accommodated privacy issues associated with new technology such as portable cameras, manned aviation, and paparazzi, by statutory provisions and case law on the expectation of and right to privacy. Ms. Bailey acknowledged that although many issues have been addressed, others require appropriate procedures that are unique to unmanned aircraft to protect privacy. The National Institute for Justice, U.S. Department of Justice, and the U.S. Department of Homeland Security are committed to defining specific rules at the federal level. Also, FAA is anticipating privacy issues will be addressed along with the test site policies. In addition, the

U.S. Department of Defense and the National Guard have training guidelines in place regarding current rules for gathering intelligence [slide 41].

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REPRESENTATIVE ISAACSON recalled procedures by the U.S. Air Force that required the destruction of recordings of Americans' voices. Since [the terrorist attacks of September 11, 2001] he heard spying on Americans was permitted. He asked, "... whether or not Alaskans need to be afraid of having these devices being used as spy, you know, the government spying on us."

MS. BAILEY said:

From our viewpoint the Congress and the intelligence committee rules on these things in the sense that they establish what are the provisions that the military, which is who is guided by this from my own experience, but I don't believe it's just the military, that is my own experience and all I'm willing to speak to on, but the military is still actively training about destroying tapes just as, whether it's voice tape or visual, about the separation between domestic and foreign. [The Posse Comitatus Act] is still in existence and that, posse comitatus is the specific rule that says that the military cannot be used for domestic police work ... so, where they've wanted to use military technology in support of some kind of, is mostly drugs, is where it has been used mostly, Gulf of Mexico area and south where drugs are coming into the country. They've had to have other agencies on board, and that's all of who is actually allowed to collect information or anything; so from the military perspective, that privacy is rigorously protected and the separation between domestic and overseas or foreign operations is rigorously defined, and they're actively training on it. ... They're literally putting a program together for our team so that we can go out with them and be properly trained. The [Uniting and Strengthening America by Providing Appropriate Tools Required to Intercept and Obstruct Terrorism Act of 2001 (the Patriot Act)] is, I think, what you're referring to, is rules that were changed after 9/11, that is an act of Congress and did change some rules,

and I'm not qualified or prepared at the moment to go into detail on that sort of thing ...

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CHAIR HUGHES pointed out that Congress is looking at this topic.

MS. BAILEY noted that the full text of guidelines from the International Association of Chiefs of Police on the use of unmanned aircraft for law enforcement is included in the committee packet. She reviewed some of the guidelines [slide 42].

CHAIR HUGHES understood that some of the appointees to the proposed task force will be working on state policy over the summer.

MS. BAILEY concurred and added that a group that includes the lieutenant governor is working on that policy. She turned to the issue of weapons on unmanned aircraft, saying there are media scares about weapons because the public image of unmanned aircraft comes from what the military is doing overseas. The military is using unmanned aircraft that carry weapons; however, the unmanned aircraft community is totally against this use because it would destroy the possibility of beneficial use. In addition, most unmanned aircraft cannot carry the weight [of weapons], and FAA prohibits weapons and the dropping of objects from manned or unmanned aircraft. Finally, this use is unacceptable to the public [slide 43].

REPRESENTATIVE PRUITT asked about using unmanned aircraft for avalanche control.

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MS. BAILEY stated that the first consideration for expanded uses of unmanned aircraft is where there are other means to do a task, do not use unmanned aircraft.

MS. BAILEY observed the upcoming legislation recognizes the hard work being done at UAF always with the goal to benefit Alaska. The impression of danger will be absolved by approaching this technology in a methodical and thoughtful way [slide 44].

CHAIR HUGHES said the development of this technology holds potential for Alaska in new jobs because of commercial interest.

12:38:12 PM

**ADJOURNMENT**

There being no further business before the committee, the House Special Committee on Economic Development, Trade and Tourism meeting was adjourned at 12:38 p.m.