



**A** few months after I'd settled in Alaska, I received an invitation from a new friend in Anchorage to fly with him in his little blue-and-white Maule down to his lakeside cabin southwest of Prince William Sound. It sounded like a great way to spend a spring day. "Only thing is," Scott said, "you'll have to help out with the flight." Thinking he meant help in the financial sense, I offered to pay for half the gas.

"No way," he said. "How would you like to be my bombardier?"

The next morning I found him on the shore of Lake Hood, brushing snow off the wing covers. Scott Christy's careful attention to his airplane, its mechanical performance, and the weather and flight safety borders on excessive—precisely the kind of bush pilot with whom I prefer to tempt fate. He's been

flying into the wilds up here for 25 years. He plans to age gracefully and carries several tools for accomplishing this, some of which are a bit unusual.

In the back of his pickup that morning, among the other gear for our flight, I observed a mesh bag containing two bowling balls. Scott noticed my stare.

**Scott Christy** refers to his method of testing lake ice as the "Bounce For Life" theory. The information he learns from each drop allows him to safely choose landing sites for his Maule airplane.



"Meet Jackie and Bubba," he said.

"We're taking bowling balls?" I said.

"You bet your life," he said, smiling. Then he explained his "Bounce For Life" theory.

Winter landings on a frozen lake near the sea are fraught with uncertainty. In spring and fall, unknown ice thicknesses are an added danger. More than one Alaska pilot has had to climb out of a cockpit-cum-aquarium when his aircraft dropped through up to its wings. Even in midwinter, fresh snow can generate a false layer of security over a rain-filled sponge underneath, particularly on lakes, such as the one Scott's cabin sits on, that are susceptible to ocean-warmed storms.

Lake ice may also dip under the weight of a heavy snowfall, forcing lake water to flow out on top of the ice and freeze.

When the thin surface of overflow ice is perforated by landing gear on a cold day, the unfrozen water underneath will freeze to the plane's skis or spray up to freeze heavily onto the skin of the airplane, requiring hours of tedious ice-chipping.

Sometimes, Scott has had to jack the landing gear out of this layer and onto the snow, all the while praying that the remainder of the runway would freeze solid so he could take off again. Scott had a couple of close calls years ago—one including a chipped propeller and a costly helicopter extrication—and he now prefers to avoid such embarrassments.

After that second close call, Scott performed some research, consulting with his colleagues at Jayhawk Air in Anchorage and then following up with mathematical proofs from a physics professor at the University of Alaska in Anchorage. The technique he adopted involved dropping a known weight from a standard altitude and speed and watching the result at impact. Enter the bowling ball. Bowling balls are the perfect ordnance for such an exercise because they are of known and standard weight, they are spherical so they make a uniform plunge through the air, and they are made of rubber with no sharp corners so they won't ding up the interior of an aircraft. Plus, they are cheap and readily available at garage sales and pawn shops.

The technique that Scott first learned involved dropping a standard, 16-pound ball from 400 feet at near-stall speed. If it bounced, one could assume at least six inches of good ice. Over the years, he has refined this strategy into a standard protocol for the Maule M-6 and his own assurance. He prefers to first drop a lighter ball—10 to 14 pounds—at 55 mph, safely above the Maule M-6's stall speed of 39 mph. If that bounces, he climbs to 800 feet and drops a heavier ball—what he calls his insurance policy.

Scott likes to have a bombardier along, particularly one who can watch the ball drop without suffering vertigo or air sickness. The pilot, he explains, has enough to do flying the airplane, particularly when he has high, jagged peaks on both sides of a lake to contend with. Look away from that diminishing black speck for a few seconds to check horizons and instruments, and you rarely can find it again to observe the moment of contact, so rich with data.

The results of the experiment are more complex than simply whether the ball bounces. Here's the interpretive schedule: If the lake is obviously covered with overflow or otherwise unsafe, you don't waste a ball; you think of another destination. Home, in a pinch. If the ball drops and simply disappears at lake level, same prognosis. If it bounces clear and certain, you've got good ice. Scott remains wary, however, of the possibility that a lighter ball could bounce off a thin layer of ice, thus the insurance policy. It might also bounce off good ice that is covered with a shallow trap of slush. But he's discovered that if there's any layer of water or snow on top of good ice, the ball will raise a puff of particulate on impact. This must be closely monitored; a white puff signifies crushed ice or dry snow and therefore safe landing, but if the puff appears gray, that's evidence of near-surface slush, and you don't dare land. Scott rarely drops a ball unless he's fairly certain of safe conditions, so he nearly always collects his ordnance on the ground afterwards leaving only the rare artifact behind to be discovered in lake-bottom mud by future archaeologists pondering our recreational behaviors.

That morning on Lake Hood, with the airplane packed and us on board, we practiced. Or, rather, I practiced as Scott recited the easy steps to being a safe bombardier: Certify that bombardier is fully strapped in. Open window in passenger door (this

reduces wind resistance, necessary for step three). Open door, and hold open with left arm. Insert fingers of right hand into appropriate holes in ball on lap; relocate ball to external air-space between bombardier and door, with right arm comfortably hanging down behind rear edge of ski. Release ball when pilot raps the bombardier's left knee—a physical cue is favored, because simple conversation might be interpreted as the signal if the bombardier is awaiting a verbal command. Immediately following release, with left hand holding door ajar, lean out to monitor projectile's fall. Observe impact and report to pilot. If possible, observe approximate location or lake-surface trajectory of projectile after impact so the ordnance can be retrieved.

Pretty simple but we went through it several times, primarily, according to the pilot, to make certain that the dropped ball would not visit the plane's landing gear or delicate tail, either of which could ruin our outing.

Satisfied and confident, we took off, gaining altitude over Turnagain Arm and angled somewhere east of Moose Pass and above the Sargent Icefield before dropping down over the glacier toward our landing strip on the lake below. The snow cover appeared white and smooth. Scott searched for a hazardless straightaway long enough for landing and take-off and I prepared for action.

"Get Jackie out first," Scott said.

"Which one is Jackie?" I asked, bewildered.

"She has her name monogrammed on her," he explained.

Easy enough, but I could not see into the back seat, strapped down and forward as I was up front. I found the mesh bag with my left hand, groped for entry and then judged which ball weighed two pounds less. Extracting that ball and then wrestling it with the wrong hand over the seat backs without bludgeoning the pilot turned out to be the most difficult and strenuous part of the whole operation. After a great deal of contortion and a bit of Canadian French, I had Jackie on my lap. Scott descended to 400 feet, and I initiated my duties.

Opening the window at altitude and while traveling at 60 mph was a bit different than it had been on the runway, primarily in the realm of windchill. Opening the door against a veritable hurricane was a bit more dramatic as well. Then, I discovered the challenge of inserting my fingers into the narrow holes of a ball drilled for a woman's hand—I had practiced only with Bubba. I managed two knuckles and a thumbnail and transferred the ordnance to ready position. Scott slowed to 55

mph, lined up on his target, and, after many long seconds, slapped my knee.

I released the ball—largely by assumption, since my fingers had grown too numb to be certain—and leaned out to peer downward after it. All I had to worry about was losing my glasses in the air stream. The ball was easy to watch because Scott banked the plane for my benefit, and when it hit I saw a beautiful, white puff and a cannon-ball bounding across the lake ice. We climbed to 800 feet and performed the same exercise with Bubba, who reported identical data, so we landed, smooth as hot wax down a candlestick.

While Scott searched for Jackie, I located the small crater of Bubba's original impact. (According to my calculations, Bubba had been traveling vertically at about 150 mph when he hit the ice.) In its center I found a short pedestal of ice an inch and a half in diameter with a glassy top fitting the exact curvature of a bowling ball—fused into glare ice by the heat of impact. From the slight tilt of that concavity, I extrapolated the direction of Bubba's travel. Ninety paces away I found evidence of the second bounce. Bubba was resting about a quarter mile from touchdown.

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The second time I flew as Scott's bombardier, we were carrying three balls—a new option that Scott had added to the protocol after his wife had dropped a ball that ricocheted

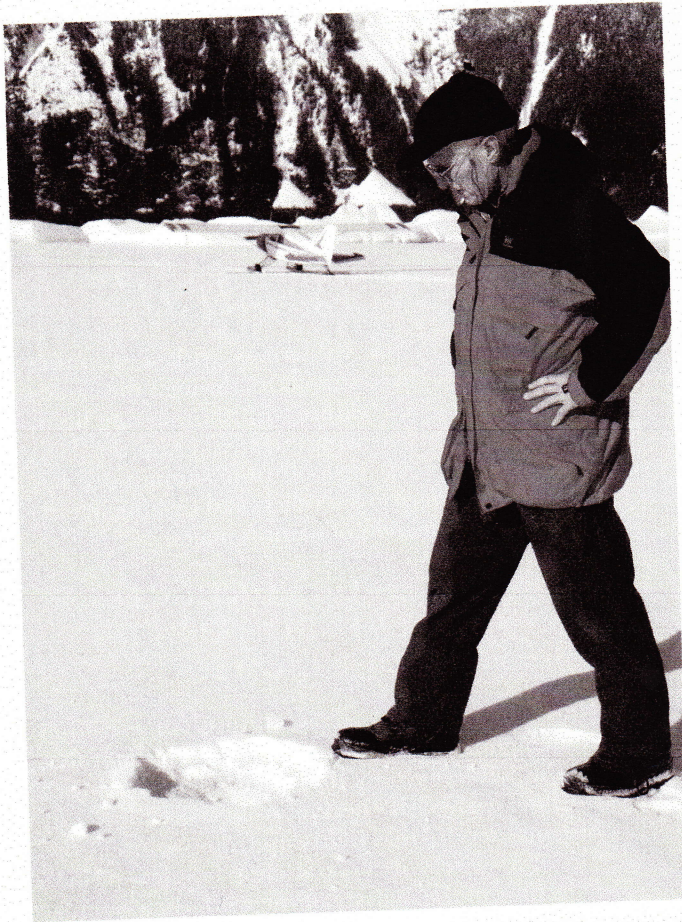
off an iceberg instead of the lake surface, disappearing into the wild and delivering zero data. On our approach that morning, things looked pretty good so Scott decided to just make the high drop with the heavier ball. When Bubba hit, however, I observed a broad splash of gray. The lake was lying to us again. We tried a different spot with Jackie, and then another with a nameless ball Scott had recently adopted. More slush on both runs. I was certain we were headed home.

But my senior officer banked us hard, his head cocked obliquely to the east. He appeared to be searching for one more potential landing strip across the lake, perhaps having discerned a different color or texture to the snow over there. He then quietly announced that he had decided—in defiance of all the data I had just collected—to touch down. What? How bold was that? A feeling of helpless discomfort descended upon my half of the cockpit. Scott was already explaining that we would only partially land—we would touch the skis down and taxi for a hundred yards or so at half speed, so that some but not all of



**The landing of several pounds of hard rubber** isn't a gentle event.

After blasting a crater (foreground) out of the snow, a ball that hits a reliable layer of ice will keep going.



the weight of the airplane was on the snow. Tracks made, we'd power up and lift off again, circle for a minute or two, allowing time for any near-surface water to soak into the ski tracks, and then swing back. If the tracks were still white, the snow would be dry. If they turned gray, we would not land.

I thought of protesting through his headset: "Bombardier to Maule five-one-niner: What's the point of the bowling-ball test if we're not going to abide by its results?" (Beyond that, I took umbrage from the realization that this alternate approach certifiably downgraded the value of my esteemed role as bombardier.) But I held my tongue.

**From 400 feet at near-stall speed, if the ball bounces, one can assume at least six inches of good ice.**

Scott made his taxi run and, upon our subsequent inspection, the tracks appeared white and dry. We landed perfectly and taxied an extra distance straight ahead, preparing our runway for later take-off. Scott was grinning again, his instincts victorious.

Me, I never said a word. I was still relatively new to the Last Frontier, but I'd already picked up a piece of Alaska backcountry savvy—what some call the golden rule of bush flying: Never, ever, try to tell your pilot what to do. ■

Field biologist and freelance writer **Jeff Fair** spends a significant number of his days hitchhiking by bush plane around the backcountry of Alaska with his binoculars and bedroll, a pocket notebook and the knife-sharpened stub of a No. 2 pencil.

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