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Approach

BASH ISSUE

The Navy and Marine Corps Aviation Safety Magazine

Blame Versus Cause

What Happens to All the Birds?

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The Navy & Marine Corps Aviation Safety Magazine
2018 Volume 62, No. 3

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Mishaps cost time and resources. They take our Sailors, Marines and civilian employees away from their units and workplaces and put them in hospitals, wheelchairs and coffins. Mishaps ruin equipment and weapons. They diminish our readiness. This magazine's goal is to help make sure that personnel can devote their time and energy to the mission. We believe there is only one way to do any task: the way that follows the rules and takes precautions against hazards. Approach (ISSN 1094-0405) and (ISSN 1094-0405X online) is published quarterly by Commander, Naval Safety Center, 375 A Street Norfolk, VA 23511-4399, and is an authorized publication for members of the Department of Defense. Contents are not necessarily the official views of, or endorsed by, the U.S. Government, the Department of Defense, or the U.S. Navy. Photos and artwork are representative and do not necessarily show the people or equipment discussed. We reserve the right to edit all manuscripts. Reference to commercial products does not imply Navy endorsement. Unless otherwise stated, material in this magazine may be reprinted without permission; please credit the magazine and author. Approach is available for sale by the Superintendent of Documents, P.O. Box 979050, St Louis, MO 63197-9000, or online at: bookstore.gpo.gov. Telephone credit card orders can be made 8 a.m. to 4 p.m. Eastern time at (866) 512-1800.Periodicals postage paid at Norfolk, Va., and additional mailing office. Postmaster: Send address changes to Approach, Code 022, Naval Safety Center, 375 A Street, Norfolk, VA 23511-4399. Send article submissions, distribution requests, comments or questions to the address above or email to: SAFE-Approach@navy.mil.

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On the cover:
The Smithsonian Institution houses one of the world's largest bird collections and is used as a comparison library for birdstrike identifications. (Photo by Chip Clark)

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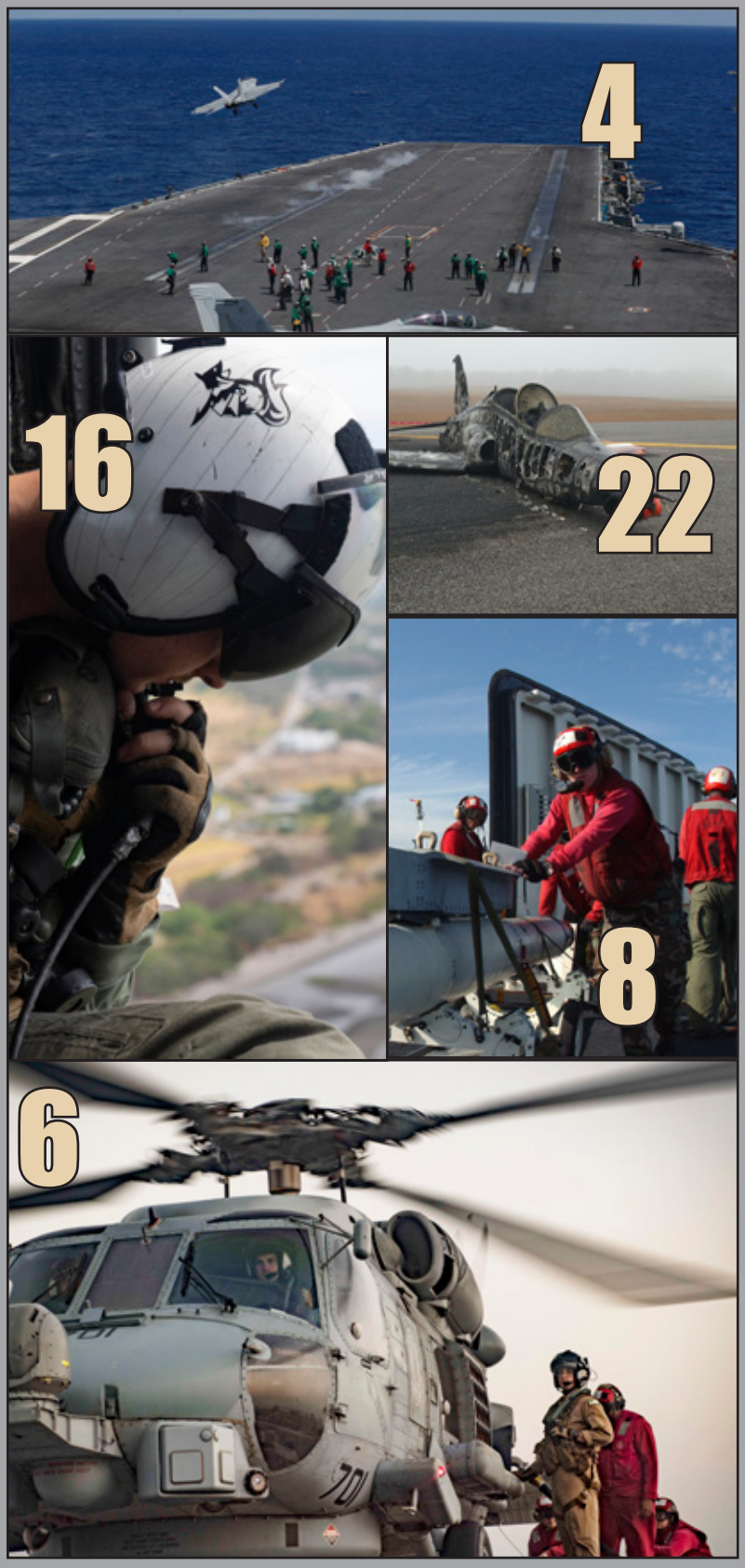

FROM THE EDITOR

This issue of *Approach* focuses on bird aircraft strike hazard, because bird strikes continue to be a major concern for aviators and rightfully so. Bird strikes can lead to Class A mishaps, loss of life, and thousands of dollars' worth of damage to aircraft. The staff at the Smithsonian Institution Feather Identification Lab took the time to prepare an article that shares what happens in the aftermath of a bird strike. This close knit team takes special care to identify and document each bird that comes to their lab. The data they collect becomes a useful resource in combating future bird strikes.

This issue also includes more "There I was," articles from the fleet. These articles have been a tradition of the *Approach* writing style since the very first issue in 1955. However, as writing has become more structured over the years some people question if this type of writing still has relevancy today. As those questions and concerns are presented to me, my knee jerk reaction is to immediately defend the tradition. However, I've given it some thought as well, and I do wonder if the typical Approach article writing style is beneficial to the readers. The only way to find that out is to hear feedback from our readers.

So I'm asking you, would you prefer articles by aviators, written for other aviators in their own voice? Or would you prefer more news-like, Associated Press formatted, articles? The feedback you give me will help determine the future style of the magazine. Therefore, your input would be greatly appreciated. As always, my goal is to please our most loyal readers.

Lastly, I often get messages inquiring about when an article will be published or I'm asked to bump an article to the top of the pile. I sincerely wish there were enough room to put all the articles we receive into this publication. Sadly, that is not the case. Articles are put into a review process and the best are chosen from the bunch. I don't play favorites because that could mean someone potentially missing out on a valuable safety lesson. I hope that helps those of you who are patiently waiting to see your article in print to understand that we have an impartial and unbiased approach to picking articles for publication.

As I mentioned in the previous issue, all articles will now be posted to our website whether they make it into Approach's physical magazine or not.

As always, if you'd like to be added to our distribution list please email your request to SAFE-Approach@navy.mil or SAFE-Mech@navy.mil.

Nika Glover-Ward

Editor, Approach and Mech
Naval Safety Center

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NECESSARY INFO: Include a proposed headline, the full byline of the author (rank, first, and last name), and the unit the author is with.

3. When you email your article, please use the author's name as the filename. Give us the author's full name and a mailing address so we can send a certificate of appreciation and a copy of the issue that the article will appear in. Our surveys consistently show that readers like articles written by their peers, and they like to read about true-life events and experiences. Your effort keeps others from having to learn the hard way. Therefore we want your letters, feedback, and comments.

We want honest appraisals and realistic solutions. Our staff is always open to new ideas, so don't be afraid to try something different. We also want your input. Send your letters, opinions, viewpoints, and comments to safe-mediafdbk@navy.mil.

LEAVE THINGS THE WAY YO

BY LT JOE CALVI

I like to think my parents did a good job raising me, equipping me with a solid moral compass and teaching me a few basic rules to live a meaningful and productive life. Things like cleaning my room, respecting my elders, treating others the way I'd like to be treated, and leaving things the way you found them. Considering that my wife now cleans my room, I accidentally call my Skipper and XO "bro" most days, and routinely verbally accost our new guy until he cries (just kidding), I find it fitting that I now have trouble leaving things the way I found them.

The date was December 10, 2017. A light division of JOs were looking forward to a nice three-leg return to base from Boston to Lemoore. We arrived at the airfield around 11:00 a.m. and much to our dismay, found that our new guy did not get there early to clear the snow off our jets, warm up the seat, or even make some hot cocoa. So after a grueling couple hours inside the FBO, watching the jets being cleared off for us, it came time to launch. We couldn't stall any longer, we had to leave and return to Lemoore.

Good news for me, my battery had died. Maybe I'd get to stay after all! Unfortunately, they had a power cart nearby and I continued my start. Then another small miracle happened, my auxiliary power unit (APU) dumped and I got the opportunity to go pump it up. This might not sound fun, but it's exactly what I needed after a weekend of non-stop clam "chowdah" and cannoli.

When I got down into the starboard landing gear well, I pulled the handle from its stowage position, placed it into the receptacle port while simultaneously singing and struggling

An F/A-18F Super Hornet assigned to the Jolly Rogers of Strike Fighter Squadron (VFA) 103 taxies to a catapult as an F/A-18E Super Hornet from the Sidewinders of VFA-86 launches from the flight deck of the Nimitz-class aircraft carrier USS Abraham Lincoln (CVN 72). (Photo by Mass Communication Specialist 3rd Class Jacob Smith)

OU FOUND THEM

through what would prove to be my hardest workout of the year.

The APU gauge went nowhere, but I optimistically kept pumping (the great thing about frostbitten hands is that you can't feel the massive blisters the APU pump handle is giving you). After about 20 minutes of off and on pumping, the gauge read 2900 pounds per square inch. My quads burned, my biceps were toast, my large, barely within BCA-limits frame was shot. In an effort to catch my breath prior to surfacing from the well, I took care to replace the pump handle correctly – wrapping the wire around the handle and replacing the pin.

I fell short; however, in returning the pump socket cap the way I found it. I placed the pin from right to left, instead of its natural position from left to right. The key here is that if inserted properly, the pin would not shake itself loose in flight if the ball bearings were to fail. This is because the holes are fashioned in a slight downward position, with the handle of the pin at the top. To make matters worse, I cannot for the life of me recall seeing the pin come all the way through the handle and cap, locking the ball bearings into place.

My APU was full (enough), I put the things back into the things and/or onto the things, and as far as I was concerned, it was time to go home!

On takeoff, no delays were noted in getting "up and locked" indications, and flying characteristics of the aircraft were normal. On preflight walk arounds for the next two legs, a dangling cap was not observed, the APU held its charge at 3000-PSI, and my handle stowage was on point. We returned to the land of Lemoore with our heads held high in what we thought was a solid victory for the JOPA. That was, until the best Airframers in the fleet informed me of the damage to the landing gear door.

Unfortunately, the cap had come loose and lodged itself on the edge of the right main landing gear door. There was slight damage to the tire, but more importantly, to the edge of the door itself. Replacing the door will cost the American tax payers $84,000, but will cost me substantially more pride.

Instead of using my time productively – like making sure to teach our new guy how to make a solid cup of coffee, making fun of hinges, or dodging SFWT flights – I am sharing my experiences.

I hope that if nothing else, we all learn that if you put things back the way our excellent maintenance teams left them, you're going to have a good day. We have an amazing crew of talented maintainers who provide the best jets in the world. We have procedures and checklists for good reason. If you understand these concepts, trust the processes in place, and do things the right way, you can have a meaningful and productive career – maybe even one day pick up command and be a total "bro" at the Battle E, Marshal Award winning, best Fighter Squadron in the Navy – VFA-86!

LT Joe "811" Calvi was born and raised in New Lenox, Ill. A 2011 graduate of Bentley University. He attended Officer Candidate School in Newport, R.I., receiving a commission in May 2012. From there he moved on to the Shooters of VT-6, Redhawks of VT-21, and finally attended the FRS at VFA-106 before joining the Sidewinders in February of 2016. Shortly thereafter he deployed in support of Operation Inherent Resolve aboard the USS Dwight D. Eisenhower.

Engine Chip Light With Rear Admiral On Board

BY LTJG STEPHEN PEREZ

When anyone thinks of perfect weather, we had it. Sunny and 75 degrees, with relatively no humidity. As a crew, we could not ask for better conditions to operate in unfamiliar airspaces around the island of Okinawa. We had done our due diligence as Naval Aviators by conducting all our preflight planning of the military and civilian airspaces, filing an international flight plan, and obtaining a Prior Permission Required (PPR) permit for a helicopter pad.

Despite my lack of operational experience as a junior Helicopter 2nd Pilot, I felt ready to assist the crew in our mission: Picking up the Admiral of the Expeditionary Strike Group.

This may sound like a simple task for an H-60, but keep in mind that we were flying an MH-60R.

With the Airborne Low Frequency SONAR (ALFS) on board we can only carry one passenger, so usually an MH-60S handles passenger transfers. This day however, we switched to our other embarked aircraft, which only has the sonobuoy launcher, giving us the capability to carry two passengers.

We departed our ship and had no issues with the foreign controlling agencies. After gaining clearance to land at the helicopter pad, we flew in on what seemed like an old basketball court. As we were approached the area, we did our proper sweep checks to ensure the area was clear of personnel and rocks prior to landing. We arrived safely on deck to greet the admiral.

Following our landing, I sat at the controls while the helicopter aircraft commander (HAC) and aircrewman got out to locate the admiral. Thirty minutes later, with the help of the port authorities, we found the admiral and his aide. Our aicrewman conducted a standard passenger brief and got them situated in the back, one in the instructor seat and the admiral next to the door.

The LHD where we were taking the admiral was forty miles offshore, so we estimated how long it would take to transit and did our best to hit our overhead time. Fifteen minutes prior to our scheduled land time, and approximately 12 miles from the ship, we noticed something flickering on our display: #1 ENGINE CHIP light. At this point, the HAC announced to the crew, "We have a #1 ENGINE CHIP light."

I was at the controls while the HAC reached for the pocket checklist. The HAC checked the engine instruments for secondary indications while flipping through the pocket checklist. No secondary indications were noted. After reading through the emergency procedure, we continued to press inbound to the big deck because we had the ship insight. I maintained safe single engine conditions, straight and level at 70 KIAS airspeed and 300 feet for the approach to the LHD. I maintained controls while the HAC called tower and advised them that we had an engine chip light, with the admiral on board. She requested a straight in to the first available spot. Tower told us we were clear for a straight in to spot 7 and asked if we needed any assistance. The HAC advised that we were okay and on final for spot 7.

The HAC was prepared to take the controls to fly the approach in, however both pilots noticed an MV-22 on spot 6 and an CH-53E on spot 9. Due to the position of aircraft, the HAC decided that I, sitting right seat, should take the landing due to the known hazards. As we approached the deck, I was able to conduct a normal landing without any issue, engine instruments remaining normal. It was not until the admiral came on the intercommunication control system to say, "Thanks guys for a safe landing. Good luck with the emergency and fly safe," that we were reminded that we survived our aircraft emergency with not just any passenger, but the Expeditionary Strike Group Commander in the backseat.

Upon being chocked and chained, the HAC requested the HSC Det officer in charge be available for assistance. After shutting down to inspect the engine, the HSC maintainers found one engine chip in the chip detector. We eventually stuffed the bird to allow for the F-35 cycle to begin and later conducted a 15 minute penalty turn before returning to our home ship.

Thankfully our emergency did not develop into anything life threatening. With constant communication inside the aircraft as well as having studied up on the unfamiliar landing environments, we avoided an exasperating situation by not remaining in flight any longer than we needed to. When we are asked about this incident, our crew simply stated "This is just part of our job."

We did not think we did anything special, rather we used the training we are taught throughout flight school and the Aircraft Commander process: aviate, navigate, and then communicate, and assess risk using ORM. Reflecting on this event makes me realize how good the Navy and Marine Corps aviation training is. We've learned that you never forget the basics.

Sailors refuel an MH-60R Seahawk helicopter assigned to the "Death Howlers" of Helicopter Maritime Strike Squadron (HSM) 72, Detachment 2. Photo by Mass Communication Specialist 1st Class Ryan U. Kledzik.

WHAT ELSE COULD GO WRONG?

BY LT JEFF FINDLAY

Just when I thought nothing else could go wrong one day, I looked up and saw a face full of EA-18G. I'm fortunate to be here to tell my story. However, every thought I have of September 14, 2017 comes with a feeling of queasiness, and I wait for the day I won't be affected by this story or others like it.

That day marked my third week of Air Wing Fallon and large force strikes (LFSs) on the Fallon Range Training Complex (FRTC). LFS planning is a multi-day evolution. The strike's mission planning factors are given to the mission commander (MC) a couple of days prior, and the MC receives briefs from intelligence officers, targeteers, and weather forecasters. The load plan and associated aircrew are provided the day prior. On this particular event, CAG was briefed on the plan the morning of, the final details were hashed out in mission planning throughout the morning, and the event itself was executed in the afternoon.

I was a senior pilot finishing up my department head tour at VFA-137 attached to CVW-2, and was awaiting transfer to my next command. On this particular day, mission planning started at 0830, and my job was to carry and employ an anti-radiation missile (ARM). By no means is this a glamorous job, but I certainly didn't want to be the one to mess things up. Failure could cause the strike package to be threatened and shot at by surface-to-air missile systems.

My aircraft was loaded with three ARM captive air training missiles (CATMs) and my portion of mission planning was fairly easy, but time-consuming, due to my relative inexperience with the weapon. Although the air wing and I were not as proficient as we would have liked based on operational and maintenance constraints, the plan for the strike was well within our capabilities. For my part, I would keep visual contact with those entities I was supposed to protect and employ weapons as required. The EA-18G Growlers held command of the suppression of enemy air defense (SEAD) package and our division, while I was in charge of my section of FA-18Es.

Simple, right? I thought "easy day."

After the mass and element briefs, my wingman and I headed to our ready room confident we knew the game plan, which included our section owning 27,000 feet in the rendezvous stack and the knowledge of where everyone else was going to be in that stack. Our focus then shifted to getting mentally ready, rewarding ourselves with a sandwich, loading mission cards, and getting dressed in order to make it to the jets for a timely start. However, after walking back to the hangar and looking at dark skies, we should have guessed our plan was about to change.

Once in the ready room, we were told by the squadron duty officer we were in thunderstorm condition 1 (T-1). T-1 went until 1530, which was our walk time. During T-1, NAS Fallon prohibits fueling, the uploading and downloading of ordnance, and personnel on aircraft. In other words, the aircraft sat idle from the time T-1 was called until it was lifted, around an hour total. My aircraft had its ordnance loaded and was fueled prior to T-1, so I walked at the normal time. However, the other four aircraft in my squadron were still not prepared for the training mission, and ultimately required a lot of maintenance manpower to get back the hour lost to weather.

I started up my jet in accordance with NATOPS, and the

"ordies" armed my ARM CATMs. Hoping to get out of the line quickly to allow our maintenance personnel to concentrate on my peers' aircraft, I taxied out in a relatively short time. However, as I finished powering up my systems, I noticed one of my ARM missiles was not functioning properly and had to taxi back in. My wingman had yet to even start up.

As I began to troubleshoot, I heard it questioned over our base frequency if the mission time would be shifted (rolex) or canceled due to the time. The answer was to continue to move forward, but without delineating a new timeline. This is where I could have first helped the situation, and recommended a formal rolex. Since LFSs are scripted and executed based on a timeline, knowing the timetable you are working with is critical to keeping everyone on the same page. I've heard this done many times in my prior experience, but I failed to make the recommendation on this event. Instead, I concentrated on getting my jet into a flying condition, picking up my wingman, and getting airborne. Allowing someone else to make the call or take action is known as diffusion of responsibility. We know it plainly as, "that's his job, not mine." I was 100 percent guilty of it here, but wait and read on ... it only gets worse.

After some troubleshooting on deck, which included cycling my mission computers, I noticed my once "tight" Link-16 information was now corrupt. From experience, I knew Link-16 wouldn't come back unless I did a cold shutdown, aka "control-alt-delete," but I didn't have time for that. I had done plenty of missions without Link-16 and knew I could do this flight without it as well.

Aviation Ordnanceman 2nd Class Ernie Westly assigned to Weapons Department, aboard USS Carl Vinson (CVN 70), transfers an AGM-88 High-Speed Anti-Radiation Missile (HARM), from a flight deck elevator to an awaiting aircraft. Photo by Mass Communications Specialist Chris M. Valdez.

An EA-18G Growler from the Patriots of Electronic Attack Squadron (VAQ) 140 descends and prepares to land on the flight deck of the Nimitz-class aircraft carrier USS Abraham Lincoln (CVN 72). Photo by LTJG Christopher Czapski.

Unfortunately, the information it was providing was not reliable and only distracted me later in the flight. I got my jet back on line and out to marshall after a few minutes. I saw other event players taxiing for takeoff, and I sat anxiously waiting for my wingman. Just as I was about to taxi as a single, my wingman said he was "up." Unfortunately, during the taxi I noticed he had an intermittent auxilary radio issue, and was forced to send him back to the line as a "down" aircraft.

Takeoff was uneventful, although now 25 minutes past my planned launch sequence time. I switched up to Desert Control who gave me the airspace for the event. The FRTC was now capped at 29,000 feet, a loss of over 10,000 feet of the planned altitude. After completing my G-warm, I climbed to 27K, my briefed rendezvous altitude. Turning to the primary strike frequency, I immediately heard the start of the roll call and I thought to myself "awesome, I made it!" At this point I was still in the west portion of the FRTC, but I gave my call sign accordingly when it was my turn.

I soon rolled up SEAD's tactical frequency and let the lead know I was down one ARM missile and I'd be a single for the event. The lead Growler rogered up my comm call with his call sign, and a discussion followed about how to service all the surface-to-air systems with the lack of my ARM missile. This is where I missed another opportunity to help avoid an impending mishap.

I should have proactively asked if there was any change to the game plan after the airspace had been capped. I did not. Instead, I elected to stay a silent wingman and believed that since I didn't get any new information upon checking in, nothing had changed. "Brief your flight, fly your brief," is what I grew up with, but applying this in a vacuum is what almost got me killed.

I missed yet another opportunity to ask about changes when I checked in with AIC (air intercept control). Due to crypto issues with the primary E-2C, I checked in with the backup controller "Bronco" and received only acknowledgement of my presence. Knowing this had become a flexed event, I should have proactively asked Bronco for any updates to the game plan, but failed to do so.

I was halfway thru the FRTC when "COMEX" (commence exercise) was called by the range training officer (RTO). Knowing I needed to ensure de-confliction between myself and an aircraft simulating a Standoff Land Attack Missile – Expanded Response (SLAM-ER) profile, as well as the fighters pushing east to sanitize the air threat, I tried using Link-16 information to find the striker but noticed it was still degraded.

I biased to the north as best I could to stay out of his way and began to think about finding the strike package I was supposed to take separation off of. After having flown many of these events, I still wanted to sanitize my area with radar and confirm my rendezvous altitude was clear. After confirming there were no "hits" at my altitude, I entered the working area at 27,000 feet and rolled my radar down to try to find the strike package, which was briefed to be 1,000 feet below me.

After staying away from where I thought the simulated SLAM-ER missile aircraft was, I pushed down to the southern part of the airspace, skirting weather, and continuing to look for the strike package. I double-checked their planned altitude on my kneeboard card, and I tried to designate their Link-16 information without any luck. Thinking I was alone at 27K, I believed I was keeping a good inside/outside scan. I was wrong.

With an event which clearly wasn't going as planned,

I should have verbally confirmed the location of the strike package and kept my scan level on the horizon vice biased to below me. Instead, as the push time approached, I started to look more underneath my aircraft for the strike package. Looking over my left canopy rail and down, I noticed a darker than sky spot in my peripheral at about the 10:30 level position.

I looked up and found myself on a 100kt collision course with an EA-18G. Two things happened immediately. First, I was convinced I was going to die by having my canopy crushed by the Growler's wing pods and the bottom of its fuselage. I also started to put forward and right inputs into the controls in an initial attempt to fly the aircraft away. Second, I readjusted my flight path to see if I could avoid striking their cockpit with my left wing. I gently adjusted my stick inputs into the Growler in an attempt to get my wing below their cockpit and maybe, just maybe, clear their right wing and pods.

As I flew by the Growler I felt a movement in my flight controls very similar to employing a 500 or 1,000 pound bomb off of my left wing. I immediately looked over my right side and high and saw the other aircraft flying still at its original altitude as I was slowly descending. I looked at my left vertical stabilizer in my mirror and then at my left-wing and didn't notice anything visually wrong from my perspective. I then became concerned with descending through the stack and started to level off slowly. The Growler called a "knock-it-off" over the strike common frequency, and I informed the RTO we had just had a midair.

The recovery of both aircraft was uneventful. Controllability checks were completed and both aircraft took precautionary traps. Relatively speaking, minimal damage was incurred and the mishap was ultimately labeled a Class B. My wingtip nicked the Growler underneath its cockpit. How simple it is to say "class Bravo " for monetary value, when just a few more feet or angle of bank could have ended in the loss of aircraft and life. I've had a great amount of time to reflect on this event, and will carry the experience with me for the rest of my life and career.

Despite my attempt at adhering to Admin and TacAdmin procedures, I failed to ask simple questions at critical points. I had bad situational awareness airborne, and missed the opportunities to correct it. We have been taught in our community to keep communication minimal and treat radio time as precious. However, when questions arise, staying silent is both counterproductive and dangerous.

What had been missed by not asking questions? Five minutes before I launched, the stack-game plan changed, and all players had moved down 2,000 feet in altitude from what was written on the kneeboard card. The Growlers' new rendezvous altitude was 27,000 feet and the strike package I was so concerned with finding was 3,000 feet below me, instead of 1,000. The new game plan was audibled but not rogered up by all players. However, since everyone else was already up strike common, they at least heard the change where I did not. Although no one passed the change to me when checked in, with my experience, I should have known something was up.

We learn from these events through *Approach* articles, word-of-mouth, and through lessons learned. I hope my story reminds aircrew at all experience levels silence is not a solution, and a well-timed question can save the day. Naval Aviation is a dynamic environment and changes are bound to happen. However, when they do, aircrew need to slow things down and ensure they have the appropriate information to execute the event safely.

Is There Ever Such a Thing as a "Good Deal Cross Country?"

BY LT ROBERT GRANT

Veteran's Day 2017 marked the 100th Anniversary of Naval Air Station (NAS) North Island's founding. To celebrate, the base hosted a special Veteran's Day event and requested a national anthem flyover from the tenant commands of NAS Lemoore. As a relatively new F-35C pilot and lover of all things American, I jumped at the opportunity to lead our executive officer (XO) down to NAS North Island and perform the flyover. We were to fly down on a Thursday evening, perform the flyover on Saturday, and return to base early Monday morning. We recognized and thoroughly briefed the Operational Risk Management (ORM) associated with our good deal: "get-there" and "get-home-itis", cross-country and unfamiliar airfield operations with short runways, lack of full maintenance support, and finally the flyover itself.

The event came at a busy time for our command. Strike Fighter Squadron ONE TWO FIVE (VFA-125) was preparing to embark onboard USS Abraham Lincon (CVN 72) to be the first-ever fleet aviators performing day and night Carrier Qualifications (CQ) in the F-35C. The F-35C is still in the development phase, therefore we fly low rate initial production (LRIP) aircraft. Not all of those aircraft have the modifications required to perform field carrier landing practice (FCLP) or CQ. Due to our flyover not being an operational necessity, we were assigned to

Aviation Boatswain's Mate (Handling) 3rd Class Caleb Swaim directs an F-35C Lightning II assigned to the Grim Reapers of Strike Fighter Attack Squadron (VFA) 101 on the flight deck of the USS Abraham Lincoln (CVN 72). Photo by Mass Communication Specialist 1st Class Brian M. Wilbur.

fly down two of our "older" aircraft (i.e. jets that would not impact FCLP operations if we got stuck down in San Diego).

Thursday, the day we were to fly down to San Diego, our assigned aircraft were unavailable due to maintenance requirements. We were given two of the CQ aircraft, (411 and 412). We expected to return to Lemoore early Monday morning so as not to impact CQ workups.

My aircraft (412) had a clean maintenance record, but the XO's (411) had been failing the Vehicle Systems Built-In Test (VS BIT). The VS BIT is aptly named; it tests all of the aircraft's flight critical systems, ensuring it is safe for flight. The jet must pass the VS BIT both before and after flight in order to be deemed "up." If the aircraft fails the VS BIT, we perform a "cold iron," essentially turning the entire jet off and then back on again. This allows the computers in the F-35C to reset, and this will normally clear erroneous faults. For a couple weeks, 411 required a post-flight cold iron in order to pass the VS BIT and call the aircraft "up." The jet had been setting Health Reporting Codes (HRCs) for a hydraulic issue almost every flight, but maintenance could not find anything wrong with the aircraft. The aircraft was returned to service following each cold iron and subsequent successful VS BIT.

Launching out of Lemoore, I raised the landing gear and promptly heard an alarming sound. Checking my Integrated Cautions and Warnings (ICAWs) and Flight Control Systems (FCS) pages, my aircraft had a FCS SURFACE DEGD ICAW – the ICAW was due to a failed actuator in the left Trailing Edge Flap (TEF). I set the autopilot, pulled out my Flight Checklist (FCL), completed the steps indicated, and the ICAW cleared.

With no other indications, I radioed my XO and we opted to continue the short flight down to San Diego, assuming the ICAW was a transient fault or sensor issue. Unfortunately, when I put the landing gear back down at North Island, the caution asserted again. This time it would not clear. The TEFs in the F-35C are double redundant (they have two actuators), so the surface was still functioning but had lost redundancy. The FCL had no applicable steps for landing other than "Land as soon as practical," so I continued my approach turn and rolled to an uneventful full stop at North Island. Once parked, I communicated my issue to our small maintenance catch crew, and we troubleshot the issue unsuccessfully. The jet was down and would end up remaining at North Island for a week while they fixed it. In the end, maintenance discovered that a wire leading to the actuator was chafed and was shorting out with each cycle of the landing gear, asserting the ICAW. The bracket that held the wiring harness had been installed backwards at a previous inspection. While I was troubleshooting 412's issue, the XO in 411 performed a Cold Iron to clear yet another hydraulic related VS BIT No-Go in that aircraft. We planned to "flex" to use 411 for the flyover on Saturday vice 412.

The flyover went off without a hitch. We worked together to nail the timing to the National Anthem, and as I landed I felt very good about our execution of a successful evolution. Only slightly dampening my positive mood was the pesky VS BIT No-Go before shutdown, prompting me to execute yet another Cold Iron in order to clear the ICAW.

For the return to base on Monday morning, the XO directed me to fly 411 back to Lemoore so that it could be used later in the day for FCLPs. At the time we still thought 412 might be fixable, so he stayed behind to fly it back in the event it was ready that day. Having already mitigated the numerous risks previously mentioned, I felt good about the easy 30-minute flight back to Lemoore. I started the jet up at 0600 local for a 0630 launch. Lemoore didn't open until 0730, but NASNI closed at 0700, so I had a narrow window in which to takeoff.

Luckily, the jet started with no issues, and I rolled down the runway right at 0630. I flew at max endurance back to Lemoore to preserve fuel since I knew I would have to hold prior to landing. Of note, the runways at North Island are slightly short for F-35C operations. We light-loaded the jets to mitigate the risk of a high-speed abort, but that meant less fuel available once in-flight.

As expected, there was no Automatic Terminal Information Service broadcast and no one on the radios at the Master Jet Base until exactly 0730. I held overhead in the military operations area until I got in contact with the tower.

They cleared me into the break, and as I put my landing gear down, I heard the all-too-familiar alarming sound. Checking my ICAWs once again, I saw HYD DEGD B written in yellow and noticed that the landing gear was not coming down in the normal amount of time (typically 7-10 seconds). As I processed what was going on with the aircraft, I elected to stay at pattern altitude (600' above ground level), set the autopilot, and radio tower that I would be troubleshooting at altitude rather than landing. The tower controller acknowledged my call and advised me to report when I was ready to come aboard. By the time this happened, the landing gear finally indicated three down and locked, but HYD DEGD B remained along with some resultant ICAWs. I broke out the FCL to determine what steps were required for landing.

The F-35C has two hydraulic systems (A and B). The B side has most of the essential functions, including primary landing gear and hook extension. The A side can back it up in case of failure, and each side powers half of the braking ability to each wheel. Additionally, the aircraft is equipped with a Ground Maintenance Motor Pump (GMMP) that can power a few essential functions in the event of primary pump failure. HYD DEGD B indicated that the hydraulic pump for the B side had failed, but the absence of a more serious ICAW, such as HYD FAIL B, and the three down and locked landing gear indications signaled to me in the cockpit that the GMMP was working as advertised. My aircraft was not in immediate peril.

Following the steps in the FCL, I accomplished Alternate Gear Extension, which shuts off the GMMP to prevent overheating. I also performed Alternate Hook Extension, which uses HYD A to lower the tailhook since HYD B is the primary method. The procedure directs an arrested landing due to the lack of Nose Wheel Steering from the HYD DEGD B. With the steps in the FCL complete and good landing gear and hook indications, I radioed to the tower that I would be taking an arrested landing, and they approved me to trap on Lemoore's runway 32L.

My final step was to radio my squadron base and explain my system failure and game plan. However, construction in our hangar rendered the base radio nearly inoperative, and therefore I was unable to effectively communicate with the operations duty officer (ODO) on the base frequency. He was able to hear that I was taking a trap due to a hydraulic issue, but nothing more. More importantly, I was unable to hear his responses. If I had another issue that could have required assistance, the ODO would have not been able to assist. The event highlighted the crucial nature of a properly functioning base radio.

My trap was uneventful, and maintenance promptly came out to the runway to tow me back to the line. With post-flight data analysis, it was determined that the hydraulic pump itself had not failed, but rather had been shut down due to a faulty firewall shutoff valve, which is supposed to isolate hydraulic fluid in the event of a fire. The valve was what had been causing the intermittent VS BIT No-Go indications on the ground and had finally failed in flight after many weeks causing the VS BIT No-Go. This posed an interesting duality – the "book" said the jet was up, even though pilots and maintainers alike knew that there was a brewing problem. As a result, we have since implemented a new way to track "non-downing" but nonetheless important discrepancies in ALIS.

In summary, our seemingly good deal and easy cross country ended up turning into a quagmire. Despite our best efforts in planning and execution, both aircraft we took were unable to support many FCLPs. We left 412 at North Island, and 411 ended up taking a trap at Lemoore. However, due to sound safety practices and ORM, no aircraft or personnel were damaged. It would have been easy for us to succumb to the desires to get home and press the jets' issues to a potentially perilous ending, but our identification and mitigation of threats and climate of safety excellence helped prevent this. In the F-35C community, we recognize our responsibility to lead the way and build a lasting legacy of safety. As we continue to learn our new aircraft's idiosyncrasies, we will have to continue to implement new practices and controls to ensure safety and combat readiness.

EDITOR'S NOTE: LT Robert Grant is part of the first cadre of instructor pilots for VFA-125, the West Coast F-35C Fleet Replacement Squadron.

BLAME VS. CAUSE

BY CDR RUDOLF HAWKINS

In the halls of the Naval Safety Center, I hear this all the time, "Should we blame the pilot or the procedure?" During our "round table" safety investigation report endorsement debates in the aviation shop at the Naval Safety Center, we do not use the word "blame." Blame indicates a pilot, NFO, aircrew, maintainer, CO, Ship's CO, Commodore, CAG, MAG, Admiral, or General is responsible for the outcome or the events leading up to a mishap. It usually means they will be held accountable for their actions. Blame has a very real place in today's Navy and our society as we have seen in Seventh Fleet incidents, but it has no place in an aviation mishap safety investigation. One of the objectives of the Aviation Safety Management System, OPNAV 3750.6S, is to investigate and determine cause so that we can learn from past incidents and prevent mishap recurrence.

When addressing blame, we can consider the third principle from the Navy's Charge of Command – accountability; which is the process through which we hold military members accountable for their actions. The Uniform Code of Military Justice (UCMJ) covers the rules and regulations expected of military service members. There are multiple current cases where Commanding Officers are facing court martial for mishaps that have occurred within their commands. It is specifically addressed in the charge of command; you must "accept the extraordinary responsibility of Command with full regard for its consequences." Accountability (or blame) addresses the individual's actions and is not directly meant to help others learn from the individual's mistake.

Since this is a non-privileged forum, I will bring up a hypothetical incident. In my junior officer days flying the mighty SH-60F anti-submarine warfare dipping helicopter, we would constantly prepare for a scenario where the aircraft would have a single engine failure while in a dip. Imagine the dipping SONAR is being streamed. The aircraft has a #2 engine failure as a result of internal engine FOD.

The aircraft is now single engine, in a 70-foot hover rapidly losing altitude. The pilots elect to cut the dipping SONAR and fly away using all power available from the good engine. We did not have Integrated Maintenance Data System (IMDS) on the legacy H-60, but now we do. Say the IMDS software picks up an Ng exceedance that requires removal and replacement of the good engine. The pilots safely fly away the aircraft and recover as soon as practical at NAS North Island. Did we have a mishap?

Paragraph 306b of OPNAV 3750.6S covers the intentional jettison of dipped SONAR systems when the reason is not malfunction. Paragraph 306e covers the #2 engine failure as a result of internal engine FOD. Now, as a result of the pilots' actions, to safely fly the aircraft away from the water, they had to "torch" the good #1 engine. The IMDS says you have an exceedance that requires engine replacement in case you were focused on keeping the aircraft out of water. Do we have a mishap? The answer is yes. There is no mishap exception for damage to other aircraft components as a result of an internal FOD engine failure. You must now investigate this mishap. The #1 engine is repairable so you apply the 15 percent rule plus man-hours required to remove and replace the engine at the O-level. The overall cost of the reportable components from the mishap is $103,892, which is a Class C mishap.

It is your duty as an aviation mishap board member to determine the causes of the mishap. Causes are determined so we can make recommendations to mitigate risks during current operations and prevent future mishap occurrences. Are there any human factors associated with this mishap? I would say yes. Mishap pilots caused Ng exceedance requiring engine replacement. It does not matter that the initial material failure of internal engine FOD began a series of events that led to the pilots overstressing the good engine.

The pilots definitely should be commended for saving an aircraft and aircrew, but they still can be found causal in the mishap. This is critical. The pilots and their actions can be the single most heroic incident since Clementine Two rescued downed aviators after colliding with a tree in Vietnam and flew a damaged helicopter back to the boat. In the Clementine Two case the pilots' actions of flying into a tree caused the mishap. It doesn't matter that the action was the right choice. I think we can all agree Clementine Two made the right choice, but the mishap action is still causal. In case you don't agree they received the Congressional Medal of Honor for their actions. Cause determines what happened and what we can do to prevent future mishaps. In this case, it may lead to building a better engine contingency power system or a collision avoidance system. Mishap recommendations are for the safety of those that are left behind that need to learn from the incident.

Blame is for holding individuals accountable for their actions. Blame is reserved for the individual and needs to stay out of safety investigations and endorsements.

CDR Rudolf "Rudiger" Hawkins is an assessment team leader for the Naval Safety Center.

He is also the editor of the Navy rotary wing Safety Gram newsletter.

Naval Aircrewman (Helicopter) 3rd Class Justin Ricciuti, ensures an MH-60S Sea Hawk helicopter assigned to the "Sea Knights" of Helicopter Sea Combat Squadron (HSC) 22 maintains safe flight operations during a vertical replenishment. Photo by Mass Communication Specialist 1st Class Scott Bigley

Know the Enemy

BY MR. JAY HIGGINS

The statistics associated with wildlife strikes on naval aircraft are in for Fiscal Year 2017. A total of 1,247 strikes were reported to the Naval Safety Center with more than $45 million in aircraft damage costs accrued from mishaps (one Class A, two Class B, 16 Class C). The strike totals are slightly down from 2016, mainly because of a three-month pause in flight operations at Chief of Naval Air Training (CNATRA) airfields. Still, the trend line projection is clear– wildlife strikes continue to present significant risks to shore-based flight operations and the Department of the Navy mission.

Mitigating these risks in the shore environment is a never-ending battle. Management of wildlife hazards involves effective training and vigilance by all airfield users, flexible and innovative flight scheduling, day-to-day control of wildlife activity, and manipulation of the airfield habitat over the long term to remove wildlife attractants. As a result, the effectiveness of a BASH program necessarily rests on teamwork by all hands working together in the airfield environment – flight crews, aircraft maintainers, tower controllers, airfield managers, natural resources personnel, wildlife services biologists, grounds maintenance crews and even fire and security personnel.

That effectiveness rests first on one simple objective– we have to KNOW THE ENEMY. In a BASH context, that means we have to know the specific species of wildlife that threaten local flight operations through each season of the year. That information is obtained through two primary means: direct visual identification of live species by trained observers and through submission of bird strike remains packages to the Smithsonian Feather Identification Laboratory (FIL) for identification. Once the various species are identified and correlated to specific geographic locations, local BASH teams can develop wildlife control and habitat management techniques for the most serious wildlife threats on their airfield.

Not all airfields have trained biologists conducting monthly visual surveys of active wildlife and, even if they do, biologists cannot see most wildlife, especially birds, at night. For these reasons wildlife strike reporting – submitting a hazard report (HAZREP) and mailing in the remains – is the critical first step in developing and maintaining an effective BASH program.

Naval strike reporting is getting better each year but still lagging behind other services. The trends show that of the total strikes reported annually, we are steadily submitting remains for only about 65 percent of events as compared to 90 percent for the Air Force. In addition, FIL receives remains every week that are either incorrectly packaged, do not have a web-enabled safety system (WESS) number attached, or involve strikes that occurred so far in the past that the material is too degraded to yield identifiable DNA. We can do better! Each error in submission either prevents an ID or greatly slows down the process. For aviators using the Aviation Safety Awareness Program (ASAP) system, please remember, every BASH incident reported in ASAP and not in WESS also constitutes the loss of a data point for the strike database. The two systems are not connected. Here's a few other lessons that should improve your reporting, and hence, your BASH program effectiveness.

REPORTING PROCESS INTEGRITY

Procuring a rapid FIL bird strike identification following an event enables local BASH teams to assess and respond to ongoing wildlife activity in the current season of the year. To make this happen, someone—usually an Aviation Safety

A flock of birds flies near a Navy Blue Angels aircraft. Photo courtesy of Jay Higgins

Officer (ASO)—needs to be accountable for the reporting process. Lay out reporting procedures for all hands involved and train to them annually. Include aircraft maintainers and handlers! Make sure all strike events with recovered remains are mailed to FIL regardless of whether a local identification is performed. Any carcass found on a runway or inside of 1,000 feet from the centerline should be considered a wildlife strike. Ensure your building freezers, are working properly. Ensure carcasses from wildlife strikes do not linger in storage for weeks or months on end. Submit the remains to FIL as soon as possible but not later than a month after the strike event. Submit the HAZREP in WESS concurrent with mailing the package so the species identified can be readily entered into the database under the correct WESS number. Doing these two things within a month allows time for approval of the HAZREP locally and facilitates species identification within the same season. When mailing the package, ensure a printout of the HAZREP is attached. If the whole printout is not sent, the package should at least contain a WESS number, date, location, time, aircraft type and unit name.

Strike data affords best value in analysis when it contains a species identification and the specific parameters of the operating environment in which the event occurred. Accordingly, a complete, correctly submitted wildlife strike report requires packaging and mailing of remains according to FIL protocols and entering a HAZREP in WESS with as much amplifying information as can be known.

PACKAGING OF REMAINS

The main thing to remember is to send in feathers from several body areas if available, such as breast, back, wing and tail. Do not submit whole carcasses—imagine the smell when it arrives at the Smithsonian! If limited tissue and feathers are available, include dried feather fragments and fluff. Wipe bloody smears from aircraft using alcohol spray and paper towels or pre-packaged alcohol swipes. Do not use detergents or bleach. Dry the paper before mailing. Strike events sometimes have multiple impacts and often yield identification of multiple species in the same event. If multiple impacts occur, ensure that each impact site is collected and bagged separately, even if a bug strike is suspected. Packages can and should be sent to FIL free of charge through official mail. FIL support is resourced by the Navy, so all identifications are also free of charge to the sending organization.

HAZARD REPORTS

Recent analysis of existing data sets indicates many HAZREPs have limited usability for analysts due to inaccurate or incomplete entries of key information. If a strike event or near miss was observed in flight, location of the event is particularly important.

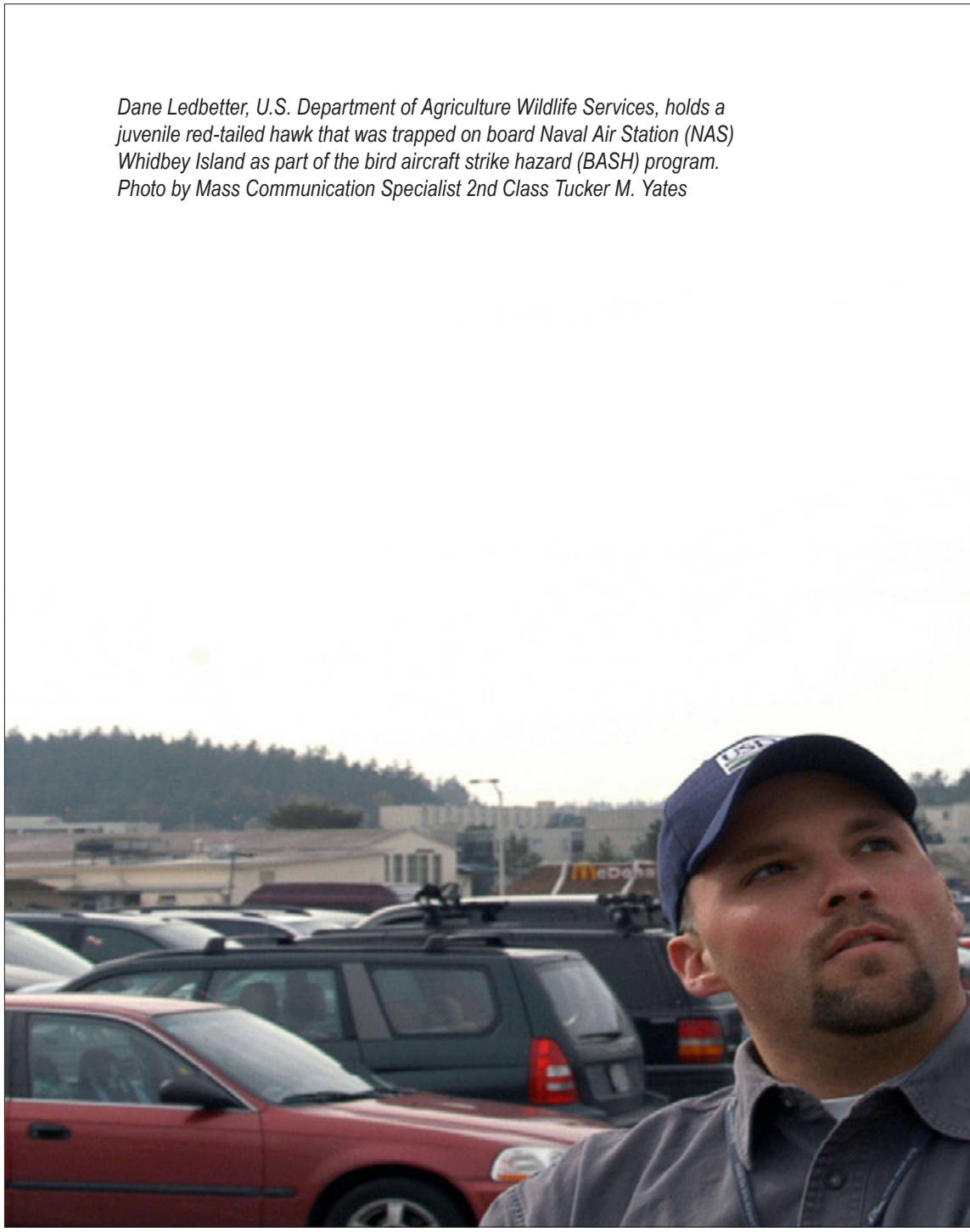
Did it occur at a home airfield, an away airfield, over water, in a training range, on a low-level, on an airway? Did you note the latitude and longitude or range and bearing from a specific navigation aid? If at the airfield, did it occur during take-off or landing, immediately before or after approach or take-off? How far was it from the runway or where in the pattern did it occur?

Which runway was in use? Direction of aircraft flight is important. What was the altitude? If unknown, please write in "Unknown." Only enter "0" if the aircraft was actually on the ground. If a strike is discovered post-flight and all these parameters are unknown, then remarks about the flight plan and any observed in-flight bird activity, including numbers of birds seen, could be helpful to an analyst. If bird remains are discovered post-flight by maintainers, they need to know to report the tail number to the duty officer immediately so the aircraft can be correlated to the assigned flight crew.

They will possibly have details of the flight profile relevant to HAZREP submission. Lastly, an accounting of damage costs provides important data for evaluating BASH program effectiveness both locally and at the Department of the Navy level. Analysts estimate we are significantly under-reporting this particular metric. Damage costs might not be available during initial HAZREP submission while assessment of repair costs is ongoing. Make sure to enter those costs once they are known.

If no actual damage occurred but naval personnel man-hours were expended for aircraft cleanup, multiply the amount of total time required by $24 per hour to calculate total human labor cost. If contractor personnel were involved, costs per hour may vary according to local contracts.

Since submission of a HAZREP can be lengthy, here are some tips to save time. Unless a person was injured or there was a known human error, it is not necessary to complete the involved person, factors, recommendations, or CO's comments sections. In addition, refrain from entering the species identification even if locally known. The FIL will enter it for you once their remains analysis is complete.



Dane Ledbetter, U.S. Department of Agriculture Wildlife Services, holds a juvenile red-tailed hawk that was trapped on board Naval Air Station (NAS) Whidbey Island as part of the bird aircraft strike hazard (BASH) program. Photo by Mass Communication Specialist 2nd Class Tucker M. Yates

There is truth in the saying that BASH is a team sport. Managing wildlife strike risks to our aircraft and flight crews in the shore environment requires persistent planning, analysis and coordination from all involved. If we want to increase the margin of safety against wildlife threats, BASH program effectiveness must start with reporting.

When we know the enemy (hazardous wildlife species) threatening operations, then science-based damage management techniques can be developed to protect our resources and mission readiness. Preach awareness and reporting!

For further information on reporting requirements and procedures, contact Naval Safety Center at 757-444-3520, extension 7245. For more information on packaging and mailing bird/wildlife remains, call the Smithsonian Feather Identification Lab at 202-633-0801.

EDITOR'S NOTE: Jay Higgins is CNIC's N32 Airfield Operations Program Manager.

What Happens to All The Birds?

BY MS. CARLA DOVE & MR. JAMES WHATTON
Smithsonian Institution Feather Identification Lab

The Strike

On January 19, 2017, a U.S. Navy T-45 Goshawk faced an in-flight emergency shortly after takeoff from NAS Meridian, Miss. A bird was sucked into the right air intake resulting in a fiery crash and a destroyed aircraft. What kind of bird caused this Class A (>$38 million) birdstrike? To find out, the U.S. Department of Agriculture (USDA) wildlife biologists at NAS Meridian sent packets of the charred and burnt feather remains to the Smithsonian Institution's Feather Identification Lab in Washington, D.C. for species identification. Although the evidence was burnt and fragmented, the staff of four immediately went to work to identify the species involved in this costly birdstrike as a black vulture, a bird commonly observed around NAS Meridian and weighing about 4.5 pounds — big enough to take down the aircraft!

With more than 600,000 bird specimens, the Smithsonian Institution's National Museum of Natural History houses one of the largest bird collections in the world and is an ideal place to conduct this kind of detective work. The U.S. Navy collaborates with the U.S. Air Force and the Federal Aviation Administration (FAA) to support a free-of-charge service to identify the 'culprits' in events like the Meridian crash. Scientists in the lab use the collections, microscopic expertise, and DNA analysis to investigate more 9,500 birdstrike samples annually.

A T-45 Goshawk crash resulted after a birdstrike with a Black Vulture at NAS Meridian, MS 19 January 2017. Photo courtesy of the U.S. Navy

Birdstrike Reporting

The first step in the identification process requires proper reporting of the strike and adequate collection of the sample. Submitting all information to the Web Enabled Safety System (WESS) is vital to tracking the case through the lab pipeline at the Smithsonian. The Navy submits more than 800 samples each year for species identification but we know that many cases go unreported. Reporting strikes and submitting samples for identification is the only way to determine what species are causing problems on each airfield. Species diversity varies depending on geographic location, season, and population status of the birds. Reporting all birdstrikes raises risk awareness and reduces costs of damaging strikes ... period! Knowing the 'culprit' provides information on habitat preference, dietary needs, life history and other data to help direct BASH management decisions at each specific Navy installation.

Charred remains collected by USDA biologists from the right air intake of the crashed T-45 at NAS Meridian. Many times, even small fragmentary evidence like this can lead to species identifications (Photo by Carla Dove)

Sample Collection

Gathering birdstrike investigation evidence is simple. A few minutes of your time can go a long way to improving the species information in the Navy wildlife strike database. Complete data and fresh samples are key to better identifications and allows results to reach the airfield in a timely manner. The quickest and most straight-forward method of species identification occurs when the sample contains enough whole feathers, or feather fragments, to directly compare with museum specimens for positive identification). If whole feathers are available, it is important to collect as many as possible.

A variety of whole feathers allows scientists to visualize what the whole bird looks like and narrows options. Please do not send complete whole bird carcasses or chunks of flesh for identification. They can arrive quite smelly and rotten. We want to remain friends with our mailroom folks! If a

From left to right: A team of 4 scientists Marcy Heacker, Faridah Dahlan, Carla Dove and Jim Whatton) investigate more than 9,5000 birdstrikes annually using the Smithsonian Institution's research collections. Photo by Chip Clark

whole carcass is available, pluck feathers from all parts of the body (head, body, wings and tail) and place in a ziplock bag. You may send photographs as email attachments (to Feather Lab Staff) for supplemental information, but most species of birds cannot be positively identified from photos alone, so remember, the more the merrier when it comes to submitting birdstrike remains for identification.

DNA Analysis

Over 60 percent of the samples sent to the Feather Identification Lab are identified using DNA analysis. Because we have access to our own Smithsonian DNA lab, the process is quick and efficient. However, there are a few important points to remember when submitting 'snarge,' or bird ick, for identification (see side box on page 25 for quick sample tips)

Microscopic Analysis

When all else fails, or when other methods need verification, microscopic analysis is conducted by examining the characters found in the fluffy (or downy) part of the feather. Birds such as ducks, pigeons, gulls, owls, and hawks have unique suites of micro-characters that aid in guiding us to the proper group of birds. When collecting feather evidence, it is important to send as much as possible and never cut the feathers from the bird's body, because we rely on the fluffy part for our analysis. Most often, we use a combination of all of the tools in our toolbox for species identifications.

"Why Identify?"

Fortunately, not all birdstrikes are as serious or costly as the Meridian example. However, in 2017, wildlife strikes cost the U.S. Navy more than $45 million. Proper species identifications provide baseline data used to make decisions about habitat management, assist engineers in designing safer engines and windscreens, and is used to warn aircrews of birdstrike dangers. Additionally, information from species identifications is used when applying for depredation permits, to analyze bird weight data, assess regional, local, national, and global birdstrike patterns, and make bird control decisions. Knowing the species involved in the Meridian crash may help biologists learn more about eliminating attractants for black vultures, provide information on flying times and altitudes, as well as migration patterns for this species, and provide education for pilots about the risk of these large and common birds.

The lab is busiest during fall migration (September through November) when many birds are heading south for the winter. It is common for birds to migrate at night and at high altitudes during migration. Spring migration (March through May) is the second busiest time in the lab. The winter is the slowest time for birdstrikes, but often many of the damaging strikes occur in winter since there are many larger-bodied birds such as ducks and geese that have

The Smithsonian Institution houses one of the world's largest bird collections and is used as a comparison library for bird strike identifications. Photo by Chip Clark

migrated to their wintering grounds in the lower 48 states.

Room for Improvement

Although the number of samples submitted from the Navy for identification has doubled since the beginning of the Navy-Smithsonian collaboration in 2010, we are still only receiving remains for about 62% of the total reported strikes. Further, birdstrike remains are often received in batches that have accumulated over several months. Annual trends are inaccurate if remains are not recorded in the calendar year in which the strike occurred and old samples are often moldy or too degraded to yield DNA sequences for identification. The database is only as good as the data that's in it. This is why he lab needs to keep comprehensive and accurate data regarding ALL bird strike activity. Occasional reporting or reporting only the damaging birdstrikes provides only a glimpse of the big picture of birdstrike activity. This could ultimately result in an incomplete and possibly misleading database.

The lab still often receive birdstrike reports that lack WESS serial numbers or only include a WESS serial number and no other information. It is important to include a copy of the WESS report with the strike submission. If that is not possible, please include the WESS serial number and pertinent details such as date, location, time of day, squadron, aircraft, modex or BUNO with the remains so the information can be tracked through our lab and through the Naval Safety Center. These data not only help corroborate species identification but also allow for linking the wildlife identification to the proper report. Including the WESS serial number is also essential because the Smithsonian has direct access to data entry into the WESS database. When you

Jim Whatton is a research assistant in the Feather Identification Lab at the National Museum of Natural History. He holds a B.S. in Biology from Ball State University. He said they often get questions about the preservation of the birds. "They are basically stuffed animals with only cotton and a few bones left.

The specimens then don't need cold storage, just a room temperature, dark place and with proper care they will last hundreds of years," he said.

Carla Dove is Program Manager of the Feather Identification Lab at the National Museum of Natural History.

Her expertise is in the specialized field of microscopic identification of feathers.

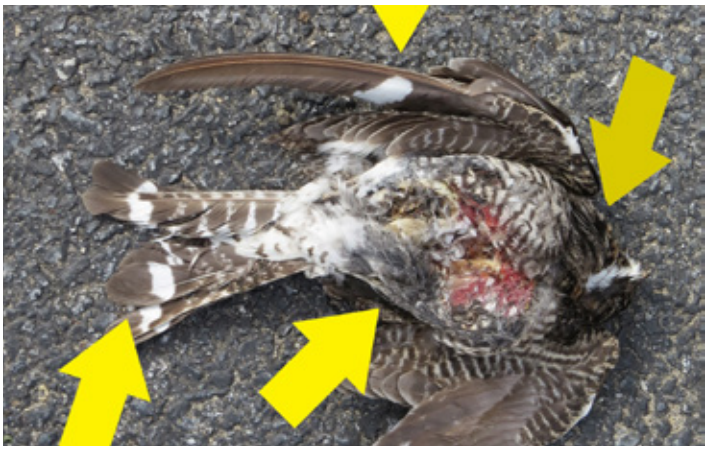
Carla holds a Ph.D. in Environmental Science and Public Policy at George Mason University. She also holds a M.S. in Systematics, Evolution and Population Biology from George Mason University and a B.S in Wildlife Biology from the University of Montana.

She often collaborates with scientists in the fields of Anthropology, Ecology, and Evolutionary Biology, and has served as a consultant to many government agencies.

submit remains for identification, remember to release the report in WESS, which will allow the Smithsonian to edit the species information.

Please report all bird strikes and send any remains for identification as required by OPNAVINST 3750.6S, Naval Aviation Safety Management System. Each unit's aviation safety officer (ASO) has access to the electronic online WESS reporting forms and can provide information on how to send feather remains. By working together, the lab can continue to upgrade our birdstrike database with more precise information, better species identifications and ultimately make the skies a little safer for all!

TOP: Whole feathers from birdstrike samples can be matched to museum study skins for positive species identification. Here, tail feathers from an American Kestrel are matched to a museum specimen for accurate identification.(Photo by Carla Dove)
BOTTOM: When whole carcasses are available, pull (do not cut) feathers from all parts of the body so scientists can visualize the bird from the feather samples. Photographs of whole carcasses may be included as supplemental information to help speed up the identification process, but feather evidence is essential for positive identifications. (Photo by Carla Dove)



How to Collect

- Use gloves to collect 'snarge' and wash hands after sampling
- Remove samples from each impact point on the aircraft and place in zip-lock bags. Be sure to label each bag with the specific impact point if multiple impacts (engine, wing, radome).
- Samples are best preserved for DNA analysis using ethanol (70% if possible) to collect the snarge and allowing the sample to dry before packaging for shipment. Alcohol prepackaged wipes are widely available, but be sure that they are not 'BBQ wipes' with only cleaners or detergents. Place unknown material in a zip-lock bag, and label each bag with the proper impact point (if more than one impact is noted).
- Log on to WESS and complete the electronic report. Attach a hard copy of the WESS report to the properly labeled samples.

When to Send

- Send the samples as soon as possible. Do not save up reports over several months. Samples degrade, rot, and can be unidentifiable.

What NOT to Do

- Never use tape on feathers. Downy barbules get tangled and glued, thus becoming impossible to remove.
- Never use post-its. Feathers get stuck in the glued edge.
- Never cut feathers off the bird or cut the tips away from whole feathers. Sometimes it's necessary to examine the fine structures in the fluffy part of the feather. If that part has been cut away, it's impossible to do the analysis.
- Never use bleach or cleaning chemicals to collect strikes.

Where to Send

Mail a hard copy of the WESS report to:

Smithsonian Institution
Feather Identification Lab
NHB E-600, MRC 116
PO Box 37012
Washington, DC 20013
(for overnight address see Navy website)

HSC-3 Reaches 300,000 Mishap-Free Flight Hours

In the evening hours of Thursday October 25, Naval Air Station North Island's HSC-3 Merlins crossed the incredible milestone of 300,000 Class A mishap-free flight hours on a nighttime formation flight. Throughout its history, HSC-3 has distinguished itself for providing mission readiness and unparalleled safety.

HSC-3 serves as the Navy's premier helicopter training squadron and provides pilots and aircrewmen to units that are deployed worldwide. HSC-3 executes its primary missions with precision across multiple airframes, including the MH-60S, HH-60H, and MQ-8B. In this capacity, HSC-3 provided 136 fleet replacement pilots, 85 fleet replacement aircrewmen, and 32 air vehicle operators in Fiscal Year 18.

These pilots and aircrew train to become tactically proficient in a broad range of missions including anti-surface warfare, personnel recovery, special operations force support, and search and rescue. The Merlins are also developing and expanding aerial mine countermeasure capabilities and tactics, adding a new dimension of warfighting capability to the MH-60S.

In addition to its role as a Fleet Replacement Squadron, HSC-3 provides operational support for the Southern California offshore range (SCORE) based on San Clemente Island and maintains the readiness of a reserve unit. HSC-3 also serves as the CHSCWP firefighting model manager, training other Navy helicopter squadrons on airborne firefighting operations while providing CALFIRE with on-call support to combat fires in the Southern California fire sector.

Despite the complex, evolving, and diverse day-to-day missions of a single squadron, HSC-3 continues to meet and exceed all expectations through superlative dedication, exceptional professionalism, and a daily commitment to safety from every Sailor. In 44 years of continuous flight operations, HSC-3 has now flown 300,000 flight hours without a Class A mishap.

"I couldn't be more proud of the Merlin team in accomplishing 300,000 Class A mishap-free flight hours. This accomplishment is truly a testament of the outstanding teamwork and contribution of every Merlin and would not have been possible without a complete all-hands dedicated effort," said CAPT Sean Rocheleau, Commanding Officer of HSC-3.

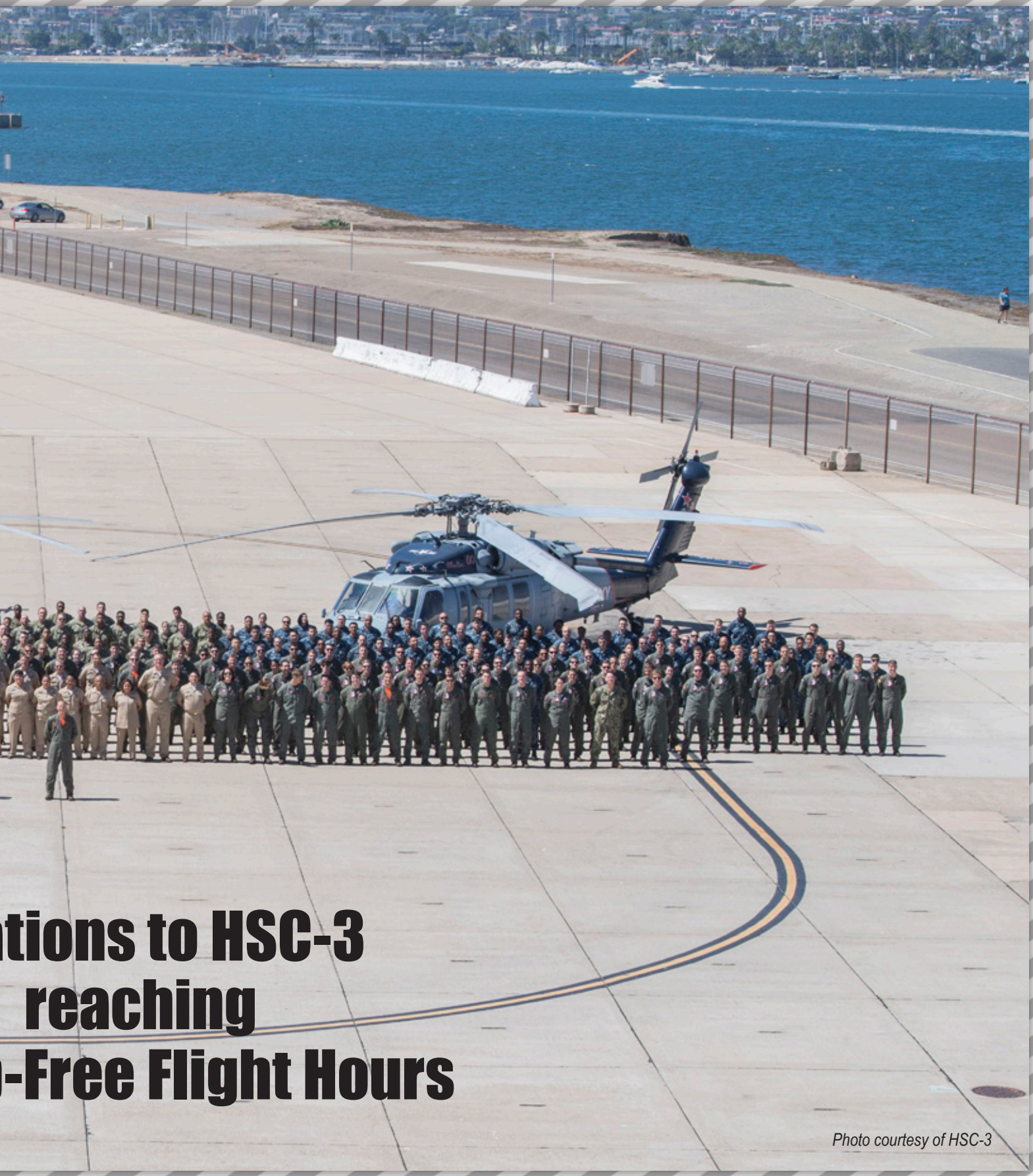
"From all rates and paygrades, our culture of safety first and by-the-book procedures was vital to the success of the HSC-3 team and there is not one Merlin who was not a contributor to this milestone. I look forward to the continued success of the Mighty Merlins!"

Thursday's milestone was reached during a dual-ship nighttime low-level formation flight. The four pilots and

Maintainers, Aircrew, and Pilots assigned to the Merlins of Helicopter Sea Combat Squadron (HSC) Three celebrate after landing from the flight that surpassed 300,000 Class A Mishap free hours. Pictured left to right (kneeling): AE2 Lonnie Maynard, AT2 Fatima Abubakar, LS2 Nanjing Chu. Pictured left to right (standing): SA2 Ashley Duncan, AWS2 Kyle Daggett, LT Mark Trask, AWS2 Jacob Powell, AWS1 Jason Schamp, LCDR Kevin Ringelstein and AM1 Eun Yi. Photo courtesy HSC-3.

five aircrewmen aboard the two helicopters recognize that while it was just another successful mission, they are excited and humbled to reach the 300,000 Class A mishap-free flight hour mark. Helicopter Aircraft Commander, LT Kristin Bowen stated, "I'm proud and excited to be part of a squadron that has hit such an amazing milestone. It's saying a lot about how hard our instructors and maintainers work on a daily basis."

Congratulati
on
300,000 Mishap-



tions to HSC-3 reaching -Free Flight Hours

Photo courtesy of HSC-3

Bravo Zulu

Sailors and Marines Preventing Mishaps

AO3 Kristina Ingram

AO3 Kristina Ingram was standing post as a safety watch of weapons elevator, lower-stage four, during a weapons handling evolution. AO3's role was to ensure no personnel were permitted to transit behind the weapons elevator hatch during the evolution. This precaution is taken to ensure no one is crushed in the event the hatch were to fail and fall backwards. During this evolution, the ship's safety officer walked through a nearby hatch and into the hangar bay near lower stage four. Visibly fatigued after exercising, the safety officer's situational awareness had degraded and he attempted to transit behind the weapons hatch. AO3 Ingram forcibly grabbed him by the arm and prevented him from walking behind the hatch and possibly being crushed by a failed hatch. AO3 Ingram's alertness and concern for the safety of her shipmates were critical to the safe execution of the mission.

A C-2A Greyhound assigned to Fleet Logistics Support Squadron (VRC) 30 launches from the flight deck of the Navy's forward-deployed aircraft carrier and flagship of Carrier Strike Group Five, the aircraft carrier USS Ronald Reagan (CVN 76). Photo by Mass Communication Specialist 3rd Class Eduardo Otero.

“The database is only as good as the data that’s in it. This is why we need to keep comprehensive and accurate data regarding ALL bird strike activity. Occasional reporting or reporting only the damaging birdstrikes provides only a glimpse of the big picture of birdstrike activity. This could ultimately result in an incomplete and possibly misleading database.”

– Carla Dove & James Whatton
Smithsonian Institution Feather Identification Lab