

“We’re talking about a humanitarian disaster if these people lose all this water supply.”

Marine Capt. Jack Keldorph, part of the team repairing the Guajataca Dam in Puerto Rico

Marines, sailors try to avoid crisis by shoring up Puerto Rico dam



STEPHEN H. KATZ | THE VIRGINIAN-PILOT

Locals impressed with response but still concerned about uncertain future

By Courtney Mabuse
The Virginian-Pilot

GUAJATACA DAM, PUERTO RICO

The CH-53 Super Stallion swooped around and hovered low Friday as three Marines steadied themselves against the helicopter’s whipping draft. With each loop, Keldorph, co-pilot First Lt. Robert Yarnicky and other crew members dropped a line that a road that traverses the trou-

bled earthen dam.

The barriers are precious cargo. Marine Corps and Navy helicopter pilots have worked this week to shore up the busted spillway that runs along the Guajataca Dam in northwest Puerto Rico. It has suffered significant erosion following Hurricane Maria’s heavy rains and now threatens people below.

For more than an hour Friday, Marine Capt. Jack Keldorph looped his hulking Super Stallion from the spillway to the dam, in a choreographed dance. With each loop, Keldorph, co-pilot First Lt. Robert Yarnicky and other crew members dropped a line that a road that traverses the trou-

See PUERTO RICO, PAGE 12

“Fear the Blackfish”: Washington creates new traditions as it joins submarine fleet

Commissioning ceremony is today in Norfolk



The crest of the nuclear-powered submarine USS Washington



ASSOCIATED PRESS FILE PHOTO

President Donald Trump issued new rules Friday to allow more employers to opt out of providing no-cost birth control to women by citing religious or moral objections.

Trump delivers for religious conservatives with 2 policies

His 5-roll roll-back reverses

Marines hook Jersey barriers to a CH-53 Super Stallion on Friday. Crew members dropped a 5,000-pound barrier on a twisted pile of concrete and rebar in the dam’s spillway to repair the Guajataca Dam that was damaged by Hurricane Maria.

For more than an hour Friday, Marine Capt. Jack Keldorph looped his hulking Super Stallion from the spillway to the dam, in a choreographed dance. With each loop, Keldorph, co-pilot First Lt. Robert Yarnicky and other crew members dropped a line that a road that traverses the trou-

bled earthen dam.

The barriers are precious cargo. Marine Corps and Navy helicopter pilots have worked this week to shore up the busted spillway that runs along the Guajataca Dam in northwest Puerto Rico. It has suffered significant erosion following Hurricane Maria’s heavy rains and now threatens people below.

For more than an hour Friday, Marine Capt. Jack Keldorph looped his hulking Super Stallion from the spillway to the dam, in a choreographed dance. With each loop, Keldorph, co-pilot First Lt. Robert Yarnicky and other crew members dropped a line that a road that traverses the trou-

bled earthen dam.

The barriers are precious cargo. Marine Corps and Navy helicopter pilots have worked this week to shore up the busted spillway that runs along the Guajataca Dam in northwest Puerto Rico. It has suffered significant erosion following Hurricane Maria’s heavy rains and now threatens people below.

For more than an hour Friday, Marine Capt. Jack Keldorph looped his hulking Super Stallion from the spillway to the dam, in a choreographed dance. With each loop, Keldorph, co-pilot First Lt. Robert Yarnicky and other crew members dropped a line that a road that traverses the trou-

bled earthen dam.

The barriers are precious cargo. Marine Corps and Navy helicopter pilots have worked this week to shore up the busted spillway that runs along the Guajataca Dam in northwest Puerto Rico. It has suffered significant erosion following Hurricane Maria’s heavy rains and now threatens people below.

For more than an hour Friday, Marine Capt. Jack Keldorph looped his hulking Super Stallion from the spillway to the dam, in a choreographed dance. With each loop, Keldorph, co-pilot First Lt. Robert Yarnicky and other crew members dropped a line that a road that traverses the trou-

bled earthen dam.

The barriers are precious cargo. Marine Corps and Navy helicopter pilots have worked this week to shore up the busted spillway that runs along the Guajataca Dam in northwest Puerto Rico. It has suffered significant erosion following Hurricane Maria’s heavy rains and now threatens people below.

For more than an hour Friday, Marine Capt. Jack Keldorph looped his hulking Super Stallion from the spillway to the dam, in a choreographed dance. With each loop, Keldorph, co-pilot First Lt. Robert Yarnicky and other crew members dropped a line that a road that traverses the trou-

bled earthen dam.

The barriers are precious cargo. Marine Corps and Navy helicopter pilots have worked this week to shore up the busted spillway that runs along the Guajataca Dam in northwest Puerto Rico. It has suffered significant erosion following Hurricane Maria’s heavy rains and now threatens people below.

The high tides just keep on coming

WHY? Researchers blame a push from storms, the pull of the moon — and worsening effects of rising seas

those September days, the weather was downright pleasant, even as many streets were impassable. So what riled the tides? Several things, some of which were as basic as the moon’s position.

More important than the explanation, some scientists say, are what those flooding tides last month may forecast: As sea levels keep rising, Hampton Roads is likely to see more prolonged periods of high water when there’s no obvious reason.

The region was more prone to flooding tides that week in September than in late August because of astronomical conditions. A new moon was to arrive Sept. 20, and in that phase its gravitational pull is stronger, driving tides higher. Because of that and other factors, the long-term tide charts predicted water levels would begin more than half a foot higher around Sept. 18-20 than they would have on Aug. 20, before weather effects were taken into account.

Then came a hurricane named Jose. If it had taken a different path, Jose might be curbed in the same breath as Harvey, Irma and Maria. It peaked as a Category 4 hurricane with winds of 155 mph, but skirted the coast and finally died, after an odd loop, well off New England. It never made landfall.

Jose did, however, make an impact — the only significant impact so far among 2017’s big storms in Virginia’s coastal waters. Though it was just barely a hurricane when it crept hundreds of miles from shore in mid-September, it stirred up long, powerful waves that pushed extra water into the Chesapeake Bay over several days.

Jose’s long-distance punch was a classic example of what scientists assume the peak period for flooding tides in Hampton Roads. During the hurricane season — this year’s ends Nov. 30 — even distant storms far off the coast can drive the water higher.

And because of sea level rise, the effects of storms like Jose are being exacerbated. It doesn’t take a hurricane like Matthew, which pummeled Hampton Roads’ shores, to cause problems. Disturbances way out in the Atlantic that once might have been waved off as inconsequential can now cause

the entire region. For Sewells Point, Ezer has calculated the number of hours per year that the water level is above various thresholds. Even for the most extreme scenario, he considered — 2 feet above a taller measure called “mean higher high water” — he found an overall increase in recent decades.

There was only one year each decade from the 1960s through the 1980s in which the water hovered for 10 hours or more above that level, his research shows. There were five such years in the 1990s, five in the 2000s and six in the seven years from 2010 through 2016.

For 2016, Ezer calculated more than 35 hours at 2 feet or more above mean higher high water at Sewells Point. During those hours, the water would have been above the minor flooding threshold.

Ezer and an ODJL oceanography colleague, Larry Atkinson, have theorized that slowdowns in the Gulf Stream are a factor in some flooding tides across the mid-Atlantic, with the effect particularly noticeable at times when storms disrupt the current’s flow.

The Gulf Stream, because it’s so powerful, is a key to local sea level rise, Ezer said, because it pulls water away as it heads farther into the Atlantic, leaving a vacuum behind.

Larry Brown, a National Weather Service meteorologist in Wakefield, has been documenting the slowdown in high tide water level in Hampton Roads

since 2009. He has found that the slowdown is most noticeable at times when storms disrupt the current’s flow.

The Gulf Stream, because it’s so powerful, is a key to local sea level rise, Ezer said, because it pulls water away as it heads farther into the Atlantic, leaving a vacuum behind.

Larry Brown, a National Weather Service meteorologist in Wakefield, has been documenting the slowdown in high tide water level in Hampton Roads

since 2009. He has found that the slowdown is most noticeable at times when storms disrupt the current’s flow.

The Gulf Stream, because it’s so powerful, is a key to local sea level rise, Ezer said, because it pulls water away as it heads farther into the Atlantic, leaving a vacuum behind.

Larry Brown, a National Weather Service meteorologist in Wakefield, has been documenting the slowdown in high tide water level in Hampton Roads

since 2009. He has found that the slowdown is most noticeable at times when storms disrupt the current’s flow.

The Gulf Stream, because it’s so powerful, is a key to local sea level rise, Ezer said, because it pulls water away as it heads farther into the Atlantic, leaving a vacuum behind.

Larry Brown, a National Weather Service meteorologist in Wakefield, has been documenting the slowdown in high tide water level in Hampton Roads

since 2009. He has found that the slowdown is most noticeable at times when storms disrupt the current’s flow.

TIDE | Sea levels have amplified storms’ effects

Continued from Page 1

those September days, the weather was downright pleasant, even as many streets were impassable. So what riled the tides? Several things, some of which were as basic as the moon’s position.

More important than the explanation, some scientists say, are what those flooding tides last month may forecast: As sea levels keep rising, Hampton Roads is likely to see more prolonged periods of high water when there’s no obvious reason.

The region was more prone to flooding tides that week in September than in late August because of astronomical conditions. A new moon was to arrive Sept. 20, and in that phase its gravitational pull is stronger, driving tides higher. Because of that and other factors, the long-term tide charts predicted water levels would begin more than half a foot higher around Sept. 18-20 than they would have on Aug. 20, before weather effects were taken into account.

Then came a hurricane named Jose. If it had taken a different path, Jose might be curbed in the same breath as Harvey, Irma and Maria. It peaked as a Category 4 hurricane with winds of 155 mph, but skirted the coast and finally died, after an odd loop, well off New England. It never made landfall.

Jose did, however, make an impact — the only significant impact so far among 2017’s big storms in Virginia’s coastal waters. Though it was just barely a hurricane when it crept hundreds of miles from shore in mid-September, it stirred up long, powerful waves that pushed extra water into the Chesapeake Bay over several days.

Jose’s long-distance punch was a classic example of what scientists assume the peak period for flooding tides in Hampton Roads. During the hurricane season — this year’s ends Nov. 30 — even distant storms far off the coast can drive the water higher.

And because of sea level rise, the effects of storms like Jose are being exacerbated. It doesn’t take a hurricane like Matthew, which pummeled Hampton Roads’ shores, to cause problems. Disturbances way out in the Atlantic that once might have been waved off as inconsequential can now cause

the entire region. For Sewells Point, Ezer has calculated the number of hours per year that the water level is above various thresholds. Even for the most extreme scenario, he considered — 2 feet above a taller measure called “mean higher high water” — he found an overall increase in recent decades.

There was only one year each decade from the 1960s through the 1980s in which the water hovered for 10 hours or more above that level, his research shows. There were five such years in the 1990s, five in the 2000s and six in the seven years from 2010 through 2016.

For 2016, Ezer calculated more than 35 hours at 2 feet or more above mean higher high water at Sewells Point. During those hours, the water would have been above the minor flooding threshold.

Ezer and an ODJL oceanography colleague, Larry Atkinson, have theorized that slowdowns in the Gulf Stream are a factor in some flooding tides across the mid-Atlantic, with the effect particularly noticeable at times when storms disrupt the current’s flow.

The Gulf Stream, because it’s so powerful, is a key to local sea level rise, Ezer said, because it pulls water away as it heads farther into the Atlantic, leaving a vacuum behind.

Larry Brown, a National Weather Service meteorologist in Wakefield, has been documenting the slowdown in high tide water level in Hampton Roads



PHOTO BY TERRANCE VIRGINIAN-PILOT FILE PHOTO

Burning high tide, the Lafayette River flooded the 200 block of Lafayette Ave. in Norfolk on Sept. 15. Similar sights are getting more common.

This year’s highest astronomical tide — the tide that’s predicted with out any weather effects factored in — is due in Hampton Roads on the morning of Nov. 5. At Sewells Point, the forecast is for a 14-foot above-mean lower water.

John Boone, an emerita professor at the Virginia Institute of Marine Sciences, said the convergence of two cycles around that time a full moon and a lunar perigee — when the moon is closest to the Earth in its orbit — will set the stage for higher-than-average tides.

That increase in sea levels, exacerbated because the coastal land is sinking, in one of the fastest in the country.

Amid the growing threat, the weather service has expanded the number of tide gauges that have 72-hour flood forecasts in the mid-Atlantic. Jeff Orrock, chief meteorologist for the NWS’s Wakefield, said forecasters start with the astronomical tide predictions, then add or subtract from that an anomaly that’s based on water levels over the past five to 10 days.

At this time of the year, they tend to find more often than not, and recently have tracked on an as-needed basis, the “baseline” high-tide forecasts.

A tide gauge forecast in low high tide is predicted to crest in the weather — particularly the speed, direction and duration of winds.

The bay’s numerous tributaries are tricky to forecast, partly because they’re opening faces in every direction, in some cases exposing narrow channels. Their varying lengths, widths and depths also come into play.

Shallow, narrow waterways can more quickly be overrun by tides driven up by the wind. That again, a point-of-direction can contribute to a blowout tide, when the water level surging 4 feet there. They’ve occurred in some places in recent years, but they’re more common to flooding tides.

The Chesapeake Volunteer was predicted to contribute to a flooding tide at Sewells Point, but the above-mean lower water level. At one point, some forecast models had the tide peaking 4 feet there on Sept. 6, which would have been the highest level of the year at that station.

It ended up peaking just below the minor flooding threshold.



PHOTO BY TERRANCE VIRGINIAN-PILOT FILE PHOTO

DEAD END

Institute of Marine Sciences’ Tides-watch system, which gives predictions and recent tidal records for 10 stations in Virginia and Maryland. He said he’s found himself being asked more often in recent years why “the tides seem higher than normal.”

It’s pretty basic, he said. “I would generally say it has to do with what our current sea levels are.”

And that they’ve been steadily rising.

David Mayfield, 757-446-2341, david.mayfield@pilotonline.com

State health officials are trying to pinpoint the source of a number of gastrointestinal illnesses that may be linked to the Chincoteague Chilli and Chowder Cook Off.

The annual event is put on by the Chincoteague Volunteer Fire Company and typically draws around 2,000 people to the Eastern Shore community. It was held Sept. 30.

Many people fell ill after the event, most of whom complained of vomiting and diarrhea. Doctors of their doctors have picked up comments on the company’s Facebook page.

One woman from Delaware said her husband had been sick since the night of the event and spent four hours in the emergency room. When they got to the hospital, they found Moeck’s body.

Five others were injured by gunshot at the party. “McGregor is being held in the Norfolk City Jail without bond.”

Ryan Murphy, 757-446-2390, ryan.murphy@pilotonline.com



PHOTO BY TERRANCE VIRGINIAN-PILOT FILE PHOTO

Norfolk man charged in fatal shooting at July party

A Norfolk man was arrested Friday and charged with killing a man at a party in July, police said.

Demetris A. McGregor, 32, of the 8460 block of Kearsarge Place, has been charged with first-degree murder in the death of 26-year-old Maximo Black, police said Friday.

McGregor is being held in the Norfolk City Jail without bond.

Police responded to a call around 1:25 a.m. July 30 for reports of two men with gunshot wounds. They found Moeck’s body.

Five others were injured by gunshot at the party.

“McGregor is being held in the Norfolk City Jail without bond.”

Ryan Murphy, 757-446-2390, ryan.murphy@pilotonline.com

Millions of US military returns to Norfolk after 15th deployment

NORFOLK | The guided missile cruiser USS Layton and its crew of about 400 returned home to Naval Station Norfolk on Friday afternoon after more than six months at sea.

The ship conducted security operations in the Mediterranean, Middle East and elsewhere, including 56 days north of the Arctic Circle, the Navy reported.

Crusing that latitude earned sailors entry into the “Order of the Blue Horse.”

“From staff reports”



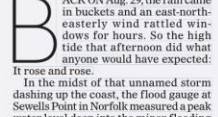
KRISTEN ZEIL | VIRGINIAN-PILOT FILE PHOTO

Norfolk’s Stockley Gardens area is flooded by a heavy rain and high tide on Aug. 25.

By David Mayfield | The Virginian-Pilot

TIDAL FLOODING ON THE RISE

The gauge at Sewells Point in Norfolk has measured an overall uptick for flooding tides since 1980.



— and in recent years, October has been its peak month for flooding events.

average number of flooding tides per month (2000-2017)

