

# Basic Water Requirements for the Luna Settlement Site

by: David Dodson

(September 2016)

One of the main criteria for locating the settlement site of the Luna colony today would be discerning the availability of an ample fresh water source in 1559 along the shores of Pensacola Bay. While the documentation found in *The Luna Papers* and elsewhere always relates to the dire necessity for food to alleviate their desperate hunger, the lack of potable or drinkable water is never mentioned. There must be a reason for this omission.<sup>1</sup>

## The Geographical Site

The site presented to Viceroy Luis de Velasco for approval after the successful reconnaissance expedition of Renteria and Gayon in late 1558 and early 1559 would have been thoroughly examined and questioned as to its appropriateness. Indeed, Renteria had been with Francisco de Maldonado on his resupply expedition to the Soto expedition in 1540-41 to Ochuse or today's Pensacola Bay and would have been very familiar with the available water sources. Further, the viceroy was very experienced in laying out new towns in New Spain (today's Mexico) and would not have left anything to chance. The mission was very important to the sustainability of the Spanish Crown, and had been personally authorized by King Phillip II.

Indeed, upon arrival at the bay of Ochuse, a minimum of 1,500 soldiers and settlers and 150 remaining horses had to be kept hydrated, and water was needed for processing and cooking the *maize* and *frijoles* (corn and beans) that served as the main food source—augmented by dried meats and chili peppers, etc., brought along in the food supplies—which were, in theory, supposed to “last a year.” Therefore, if food in general was not a main concern upon the initial landing, then the presence of fresh or potable water was indeed the paramount element for determining the settlement site.

---

<sup>1</sup> This presentation is a much-abbreviated essay of a much lengthier and in-depth investigation into the water requirement and possible sources as it pertains to a Luna settlement site.

## Minimum Daily Water Requirement

If one takes the minimum number of known people present on the expedition—1,500—along with the mariners on the 10 ships that remained after the San Juan had left for New Spain with word of the successful landing—a conservative 230—the total mouths that needed quenching each day during the first month or so at Ochuse totaled around 1,730. Also, there were 150 horses that survived the voyage, each horse needing anywhere from 5 to 10 gallons or more of water every day sans green grazing land to augment their hydration requirement. Any hydration requirements for cows or other livestock that might have survived the long voyage is omitted from our total, since there are no records discovered as yet that mention their successful arrival to Ochuse, nor is the requirement for any fresh water for sanitation purposes included in the total.

Therefore, in human terms, approximately 1,730-plus people would need at least one gallon of water a day to endure the August heat, especially with the tasks of unloading the ships and making an orderly encampment, and an additional 1,500 gallons of water for the horses, assuming that there was adequate grazing land around Ochuse. That total comes to around 3,230 gallons of water needed daily. Again, that figure does not include the hundreds of gallons of water needed to make tortillas or rehydrate and cook *frijoles* (red beans) three times a day, which were the basic staples in each meal, nor does it include the requirement of fresh water for any sanitation purposes. Further, any water supply obtained at Mobile Bay when they departed on August 10, 1559, would have been most likely consumed by the time of the hurricane on September 19-20, 1559. There had to be a local, natural source of fresh water to sustain the settlement.

By the simple calculations above, the minimum amount of fresh water needed per day to meet the basic needs of the settlement was roughly around 3,905 gallons—3,230 for hydration of the settlers and the horses, and over 600 gallons for cooking. With other variables and spilling, the availability of approximately 4,000 gallons of fresh water daily would be a realistic amount that could meet needs of the settlement. And to put that amount into a modern container that is graspable, try to visualize 72 fifty-five gallon drums situated in a square, 8 drums by 9 drums, or approximately 16 feet x 18 feet.

With that calculation, one can now comprehend how much space was required for water aboard the ships in the armada to sail to Ochuse, and why the armada had to refill its water sources three times before arriving to the bay: 1) Veracruz and the initial embarkation, 2) St. Andrews Bay after

finally reaching the coast of la Florida, 3) Bahía de Filipina or Mobile Bay after overshooting the mouth of Ochuse. Further, while the armada was blown south to the Scorpion Isles (the Alacranes Reef) off the Yucatan peninsula, that reef has no flowing fresh water for a resupply, which probably contributed to the deaths of the one hundred horses and having to throw their carcasses overboard. Indeed, when the armada finally sailed north and reached la Florida at St. Andrews Bay, the armada probably unloaded the horses for watering and to exercise their legs in order to get their digestive systems back in order. The documentation also reveals that the armada remained there for approximately ten days or so and took on a good supply of water and firewood, as well as grasses to feed the remaining horses on the next leg of the sail to the bay of Ochuse.

Water in the numerous containers aboard the ships was also used as part of the ballast, which would have been stored in ceramic jars, wooden kegs, and barrels. It is also known that the use of some ceramic, narrow-bottom bulging narrow-necked pitchers with handles was one method employed to ration out the water supply aboard the ships. Conservatively—occupants of the armada under sail—probably consumed 1/3 as much water due to strict rationing, but still consumed close to 60,000 gallons of water (1,333 gals. x 45 days = 59,985 gallons) during the initial 45-day sail of the armada to Ochuse. With the valuable horses consuming the largest amount of water, there would probably be only a quart or less to be rationed to each individual per day. Dividing this total by three fill-ups (20,000 gallons each), this would be the equivalent of over 363 fifty-five gallon drums of water spread out over eleven ships, or almost 33 drums per ship. But of course, the larger ships—especially those transporting the horses—would have carried more containers of water. Also, each drum for human consumption probably had a proportional additive of rum to prevent souring or spoiling of the water. In any case, water—not food—was the main concern of the expedition and the location of the settlement site.

## Conclusion

In conclusion, a freshwater source with a continuous flow exceeding approximately 4,000 gallons a day would have been the minimum but main requirement for the 1559 Luna settlement site. The lack of mention of any shortage or lack of potable water at Ochuse (nor up at the inland settlement site of Nanipacana) in the documental records supports that statement.