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Lanturn – The Deep Sea Star of the Pokémon World

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Abstract
The world of Pokémon is vast. Very vast. But today, this paper aims to discuss one creature in particular – Lanturn. This fantasy universe is no stranger to introducing universal beings and extremely powerful creatures, yet Lanturn is an intriguing member of the crowd among the vast series of fantastical Pokémon found throughout both the games and series. I will discuss the primary power of this Pokémon, along with comparing it to real-life counterparts in power production for this exciting hypothetical.

Keywords: *Computer Game; Physics; Light; Beer-Lambert; Power; Bioluminescence; Pokémon; Lanturn*

Introduction
Lanturn is both a water and electric type Pokémon, weighing in at around 22.5 kg and a length of 1.2 m [1]. In each iteration/generation of the series and games, each pokédex entry states a different description of the Pokémon, however they all follow one common observation – the light found on top of its head, resembling that of the modern-day anglerfish (see figure 1). This paper will talk about the details of this creature, including its main ability, power production, and compared against real-world counterparts.

Figure 1 – Official character art for Lanturn, displaying the light source upon its head, similar to that of an anglerfish [2].

Environment & Biology
The ocean is the sole habitat for Lanturn, with their population being particularly dense around in-game fishing spots. These fishing spots are typically seen in harbour towns/cities that border a large ocean. Whether they primarily reside in these shallower waters and have the *potential* to swim to deeper parts, or if they travel to these spots solely for food is never clarified. Regardless, their desire to reside around these fishing spots may be due to their diet of primarily plankton and small fish [1], which contributes to the biology of the focal point of this paper – the light upon its head.

This Pokémon earned the nickname the 'deep-sea star' due to it being described as emitting light so immensely bright that it can illuminate the ocean's surface from a depth of three miles, causing the ocean to appear as if it were a starry night sky [3]. As previously stated, Lanturn is an electric-type Pokémon, allowing it to use moves such as Thunderbolt and Voltswitch [4], meaning we can deduce that the emission of light from its head is due to the internal production of electricity rather than an extreme form of bioluminescence. The light produced both passively and during its attack cycle is seen to be very similar shades of yellow, first seen in the episode "The Mystery is History" (2001) [5].

The production of this electricity is a result of an unknown chemical reaction that occurs within the antennae, composed of a mix of both bodily fluids and bacteria, allowing it to be used on demand to blind prey when hunting [6], presumably from the small fish and plankton it consumes as a part of its

diet. Due to its favourability to swim near fishing spots, we can assume that a high-calorie diet is required in order to produce and emit such high levels of energy for a prolonged period of time.

Earth Counterparts

From an initial glance, it can be seen that Lanturn takes heavy inspiration from the already existing anglerfish found on Earth's oceans, residing in the deepest parts of the sea found today. More specifically, it appears that the football fish is a more suitable counterpart to Lanturn in terms of inspiration.

As aforementioned, Lanturn can reside 3 miles (4800 m) under the ocean, whereas these football fish sit between 400-2000 m [7, 8], meaning they are a lot less resistant to water pressure in comparison to its Pokémon counterpart. At this depth (also known as the midnight zone), creatures that intend to capture prey typically utilise bioluminescence as a form of illumination in order to attract prey, rather than electricity-powered mechanisms. This could be due to food being far more scarce, requiring much more energy in order to produce an internal current compared to bioluminescence.

Figure 2 – Image of the modern-day football fish, found between depths of 400-2000 m, complete with its protruding bioluminescent dorsal spine [7].

For the football fish, the bioluminescent light we see is a modified dorsal spine (see figure 2), which relies on a biological partnership between the fish and the microbes, feeding nutrients to the 'light' on its head where these microbes reside [7]. However, Lanturn seems to be self-sufficient, not requiring the partnership between itself and external species for light.

Illumination Calculation

It was previously stated that Lanturn can illuminate the ocean from a depth of three miles, which translates to approximately 4.8 km (4800 m) below the surface. Making use of the Beer-Lambert law, we can make an estimation of the power emitted by Lanturn at this depth, to find out just how feasible this feat is. The equation will be demonstrated as follows [9]:

$$I(0) = I(d)e^{ad},$$
$$I(d) = 10\,mW,$$
$$d = 4800\,m,$$
$$a = 0.0589,$$

where $I(0)$ is light power output, d is depth, a is water absorption for a specific wavelength and $l(d)$ is light power at the surface, which will be assumed to be 10 milliwatts, since most commercial laser pointer operate at approximately 5 mW or below [10]. Due to this, I will double the maximum value to assume a strong laser pointer, since it has been stated to be seen by fishermen while sailing, meaning a consumer-friendly laser pointer's light may be lost in the waves. The value for 'a' is due to the wavelength of yellow light being approximately 589 nm [11]. The final equation is as such:

$$I(0) = 10e^{0.0589\times4800} = 10e^{282.72},$$
$$e^{282.72} \approx 6.3 \times 10^{122} mW,$$
$$I(0) = 10 \times (6.3 \times 10^{122}) = 6.3 \times 10^{123}\,mW,$$
$$I(0) = 6.3 \times 10^{111}\,GW.$$

This is an astronomically huge value of power, with the UK national grid generating approximately 40 GW of electricity per day to operate [12], making the power potential from just one of these Pokémon utterly world changing.

Conclusion

In summary, we have reviewed the Pokémon Lanturn, pinpointing its source of power, and its environment compared to its real-life counterpart – the football fish. Upon calculating the power output, we can deduce that the sheer amount of power that is emitted from this one creature is not feasible by anything known to us. There seems to be enough power to keep the UK running for an almost infinite amount of time, given that this emission is not a one-time use, and can be replicated due to it also being a hunting mechanism.

References

[1] Pokémon Database (2026) *Lanturn Pokédex: stats, moves, evolution & locations*, Pokémon Database. Available at: https://pokemondb.net/pokedex/lanturn/ [Accessed: 2 March 2026]

[2] Pokémon Central Wiki (2026) *Lanturn*, Pokémon Central Wiki. Available at: https://wiki.pokemoncentral.it/Lanturn [Accessed: 2 March 2026]

[3] Nintendo (2004) *Pokémon LeafGreen*, GameBoy Advance, GameFreak, Japan.

[4] GenSM (No Date) *Lanturn,* SM, Smogon Strategy Pokédex. Available at: https://www.smogon.com/dex/sm/pokemon/lanturn/ [Accessed: 2 March 2026]

[5] Takeshi Shudo (2001) *The Mystery is History*, Pokemon, Season 5, Episode 11 [220]. OLM. First broadcast: 2001.

[6] Nintendo (2002) *Pokémon Ruby,* GameBoy Advance, GameFreak, Japan.

[7] AZ animals (2025) *Football Fish*, *Himantolophus groenlandicus*, Species Profile, AZ Animals. Available at: https://a-z-animals.com/animals/football-fish/ [Accessed: 2 March 2026]

[8] Biology Insights (2026) *What Is a Football Fish? Deep-Sea Predator Explained,* Biology Insights. Available at: https://biologyinsights.com/what-is-a-football-fish-deep-sea-predator-explained/ [Accessed: 2 March 2026]

[9] Clark, J. (2023) *The Beer-Lambert Law,* LibreTexts Chemistry. Available at: https://chem.libretexts.org/Bookshelves/Physical_and_Theoretical_Chemistry_Textbook_Maps/Supplemental_Modules_(Physical_and_Theoretical_Chemistry)/Spectroscopy/Electronic_Spectroscopy/Electronic_Spectroscopy_Basics/The_Beer-Lambert_Law [Accessed: 2 February 2026]

[10] Laser Pointer Hub (2026) *How Powerful is a Laser Pointer? Understanding Power Levels, Safety, and Applications,* Laser Pointer Hub. Available at: https://laserpointerhub.com/blog/how-powerful-is-a-laser-pointer-understanding-power-levels-safety-and-applications [Accessed: 16 March 2026]

[11] National Oceanic and Atmospheric Administration (2025) *Factsheet: Light and Colour in the Deep Sea,* NOAA Ocean Exploration, Deep Ocean Education Project. Available at: https://oceanexplorer.noaa.gov/wp-content/uploads/2025/04/light-and-color-fact-sheet.pdf [Accessed: 02 March 2026]

[12] Energy Dashboard (2026) *Live Generation, Demand and Emissions,* Energy Dashboard (LIVE). Available at: https://www.energydashboard.co.uk/live [Accessed: 02 February 2026]