Methodology

All data that was used for the creation of the Landing Page and the Carbon Offset Calculator has been listed below. There, you will find the input data for the calculator, information on how we calculated each option, information on other activities that can save CO2, and finally, the list of sources used for the LP.

Input Data

The data you see below have been collected from various sources all across the web. The list of sources can be seen at the bottom of the page.

1 kg	2,20 lb
Average offset price [1 tonne]	$16,25
Average tree price [1 piece]	$1,00
CO2 absorption by 1 tree [kg]	21
Oxygen production by 1 tree [kg]	118
Oxygen inhaled by a human per year [kg]	740
Average CO2 absorption by mangroves, salt marshes, and seagrass meadows [tonnes per square meter].	0,1
Oxygen production by 1 square meter of seagrass [liters per day]	10
The median cost of seagrass restoration [1 hectare]	$106 782
The median cost of seagrass restoration [1 square meter]	$10,68
How many fish can be supported by 1 square meter area of seagrass	8
How many invertebrates can be supported by 1 square meter area of seagrass	100

Infographics

Planting Trees

1. To calculate the offset price, we took the average offset price for 1 tonne and multiplied it by the amount of emitted tonnes on a given flight.

   a. Example: 20 tonnes of emitted CO2 x $16,25 per tonne

2. To calculate the number of potentially planted trees, we divided the average offset price by the average tree price.

   a. Example: $325 offset price / $1 tree price

3. To calculate the CO2 absorbed by matured trees planted with the offset price, we multiplied an average CO2 absorption by 1 tree by the number of potentially planted trees.

   a. Example: 21 kg of absorbed CO2 by one tree x 325 potentially planted trees

4. To calculate the amount of oxygen produced by matured trees planted with the offset price, we took the average amount of oxygen produced by one tree and multiplied it by the number of potentially planted trees.

   a. Example: 118 kg of produced oxygen by one tree x 325 potentially planted trees

5. To calculate the number of people supplied by oxygen produced by trees every year, we took the amount of produced oxygen by the potentially planted trees and divided it by the average amount of inhaled oxygen by a human per year.

   a. Example: 38,350 kg of potentially produced oxygen (by 325 trees) / 740 kg an average amount of inhaled oxygen

Seagrass restoration

1. To calculate the offset price, we took the average offset price for 1 tonne of CO_2 and multiplied it by the amount of emitted tonnes of CO_2 on a given flight.

   a. Example: $16,25 per tonne x 20 tonnes of emitted CO_2

2. To calculate the number of potentially restored seagrass, we took the offset price and divided it by the median cost of seagrass restoration per square meter.

   a. Example: $325 offset price / $10,68 cost of seagrass restoration per square meter

3. To calculate the absorbed CO_2, we multiplied the number of potentially restored seagrass by the average CO_2 absorption by mangroves, salt marshes, and seagrass meadows.

   a. Example: 30,43 square meters of potentially restored seagrass x 0,1 tonnes of CO_2 absorption

4. To calculate the produced oxygen in liters per day, we took the number of potentially restored seagrass and multiplied it by the oxygen production of 1 square meter of seagrass in liters per day.

   a. Example: 30,43 square meters of potentially restored seagrass x 10 liters of oxygen produced by 1 square meter of seagrass

5. To calculate the number of humans supplied with produced oxygen, we took the produced oxygen for the offset, multiplied it by 365 (days in a year), and divided it by the average amount of oxygen inhaled by a human per year.

   a. Example: (About) 304,3 liters of oxygen x 365 days / 740 kg of inhaled oxygen

6. To calculate the number of fish supported by restored seagrass, we took the number of potentially restored seagrass and multiplied it by the number of supported fish with 1 square meter of seagrass.

   a. Example: 30,43 square meters of restored seagrass x 8 number of fish supported by 1 square meter of seagrass

7. To calculate the number of invertebrates supported by restored seagrass, we took the number of potentially restored seagrass and multiplied it by the number of supported invertebrates per 1 square meter of seagrass.

   a. Example: 30,43 square meters of seagrass x 100 invertebrates supported by 1 square meter of seagrass

Sources

- https://impactful.ninja/how-effective-is-carbon-offsetting/
- https://www.whoi.edu/oceanus/feature/nasem-report-ocean-carbon-dioxide-removal/
- https://www.rensmart.com/Calculators/KWH-to-CO2
- https://tappwater.co/en/carbon-footprint-bottled-water-2/
- https://www.saving-light-bulbs.co.uk/blog/how-much-co2-does-a-light-bulb-create/
- https://www.renewablewise.com/how-much-electricity-does-an-air-conditioner-use/
- https://www.rapidtables.com/calc/electric/watt-to-kwh-calculator.html
- https://bulb.co.uk/blog/your-carbon-impact-on-lockdown
- https://www.omnicalculator.com/ecology/meat-footprint
- https://www.wearedonation.com/en-gb/do-actions/eat-seasonably/#climate-change
- https://qz.com/1987590/the-carbon-footprint-of-creating-and-selling-an-nft-artwork/
- https://solarbay.com.au/newsroom/how-much-emissions-does-solar-power-prevent/
- https://tappwater.co/us/carbon-footprint-bottled-water/
- https://standfortrees.org/
- https://carbonfund.org/product-category/plant-trees/
- https://www.viessmann.co.uk/heating-advice/how-much-co2-does-tree-absorb
- https://oceanfdn.org/donate/donate-to-seagrass-grow/
- https://www.frontiersin.org/articles/10.3389/fmars.2020.00617/full
- https://www.wwf.org.uk/what-we-do/planting-hope-how-seagrass-can-tackle-climate-change
- https://ocean.si.edu/ocean-life/plants-algae/seagrass-and-seagrass-beds