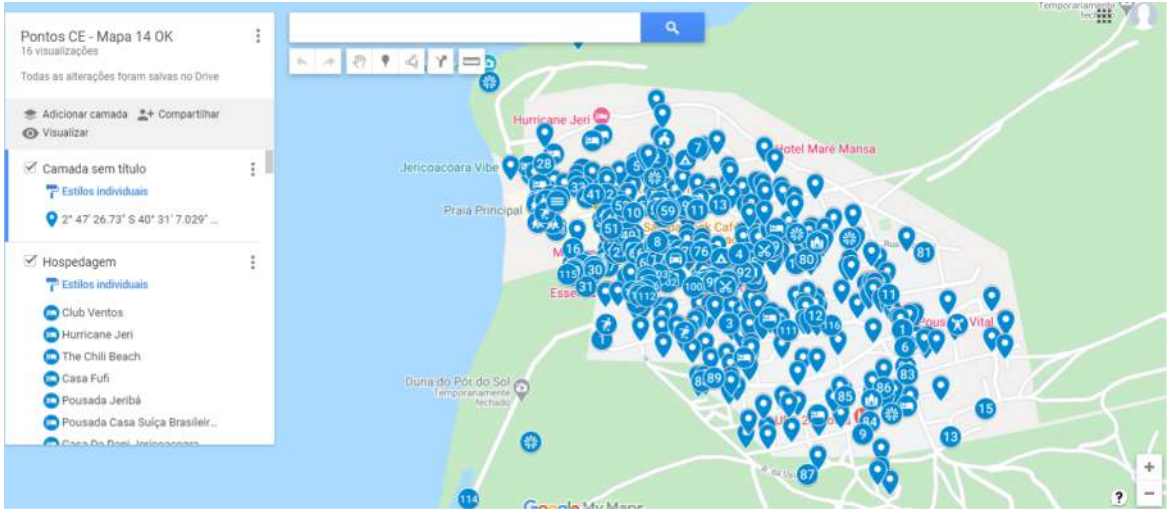
SOCIOECONOMIC VULNERABILITY

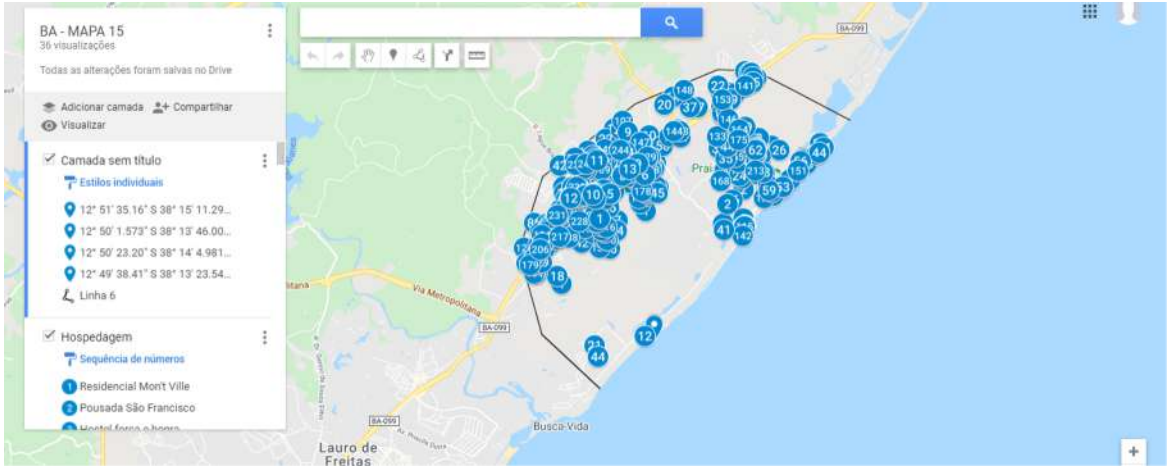
of communities on the Brazilian coast to the largest oil spill (2019-2020) in tropical oceans

Objective:

Identify the socioeconomic vulnerability of establishments located on the coast of Brazil's Northeast region.

- To map establishments situated close to the locations where oil stains were seen;
- To generate a vulnerability indicator, from socioeconomic information on the Northeast shore.





Methodology

Secondary sources:

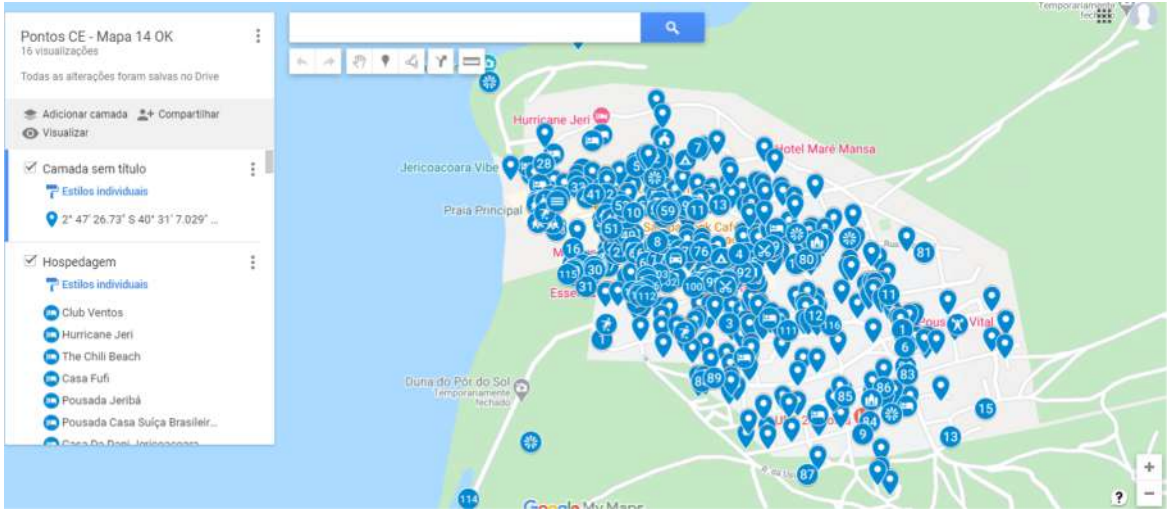
- Mapping (Google maps);
- Buffer zone (25 km);
- Location of each oil stain (available by Ibama, 2020);

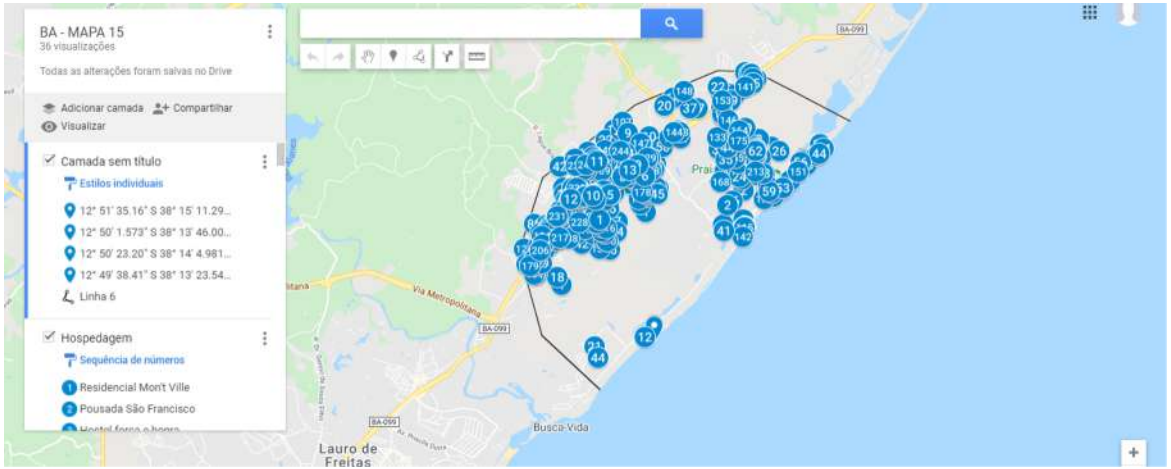
Research steps:

➔ Catalog establishments;

➔ Separated them by sectors;

We limited this study geographically to the 116 cities located in the states of Brazil's Northeast region, which had, at least, one among the 765 localities affected (data collected until December 3, 2019)





Methodology

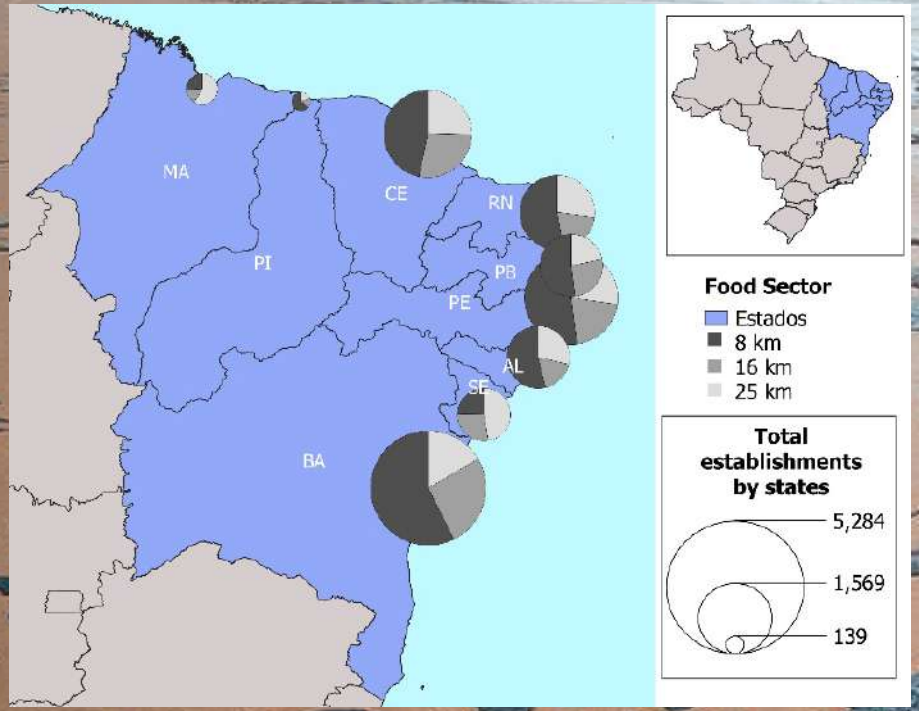
Vulnerability index:

Exposure level (separation of economic activities by susceptibility, according to their level of relationship with the Ocean Economy);

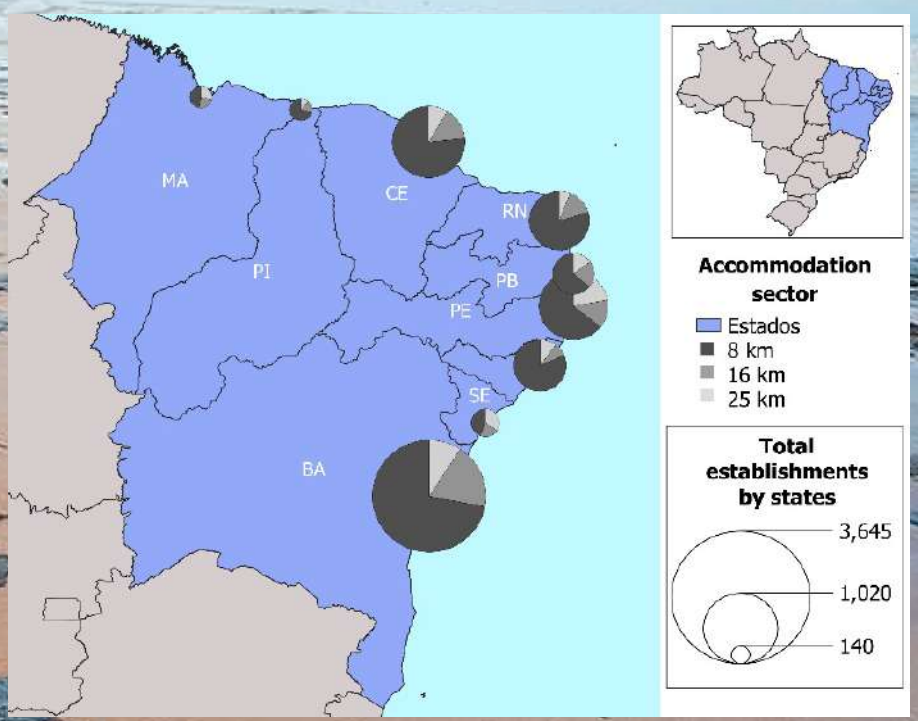
Stain proximity (distance in kilometers from establishments to oil stains);

Vulnerability persistence (number of days on which beaches remained oiled).

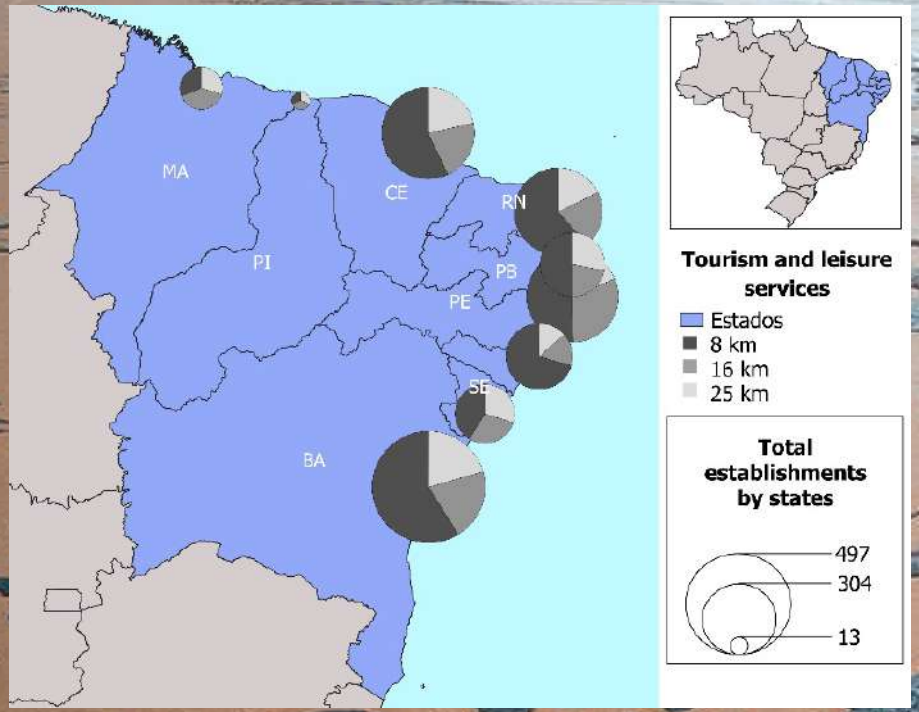
FOOD SECTOR



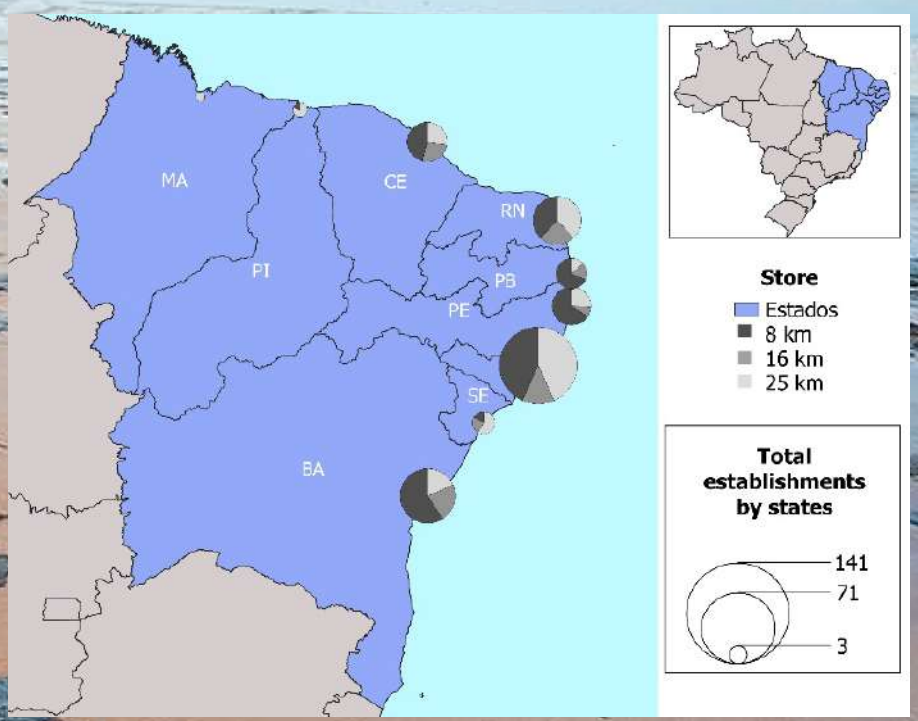
ACCOMMODATION SECTOR



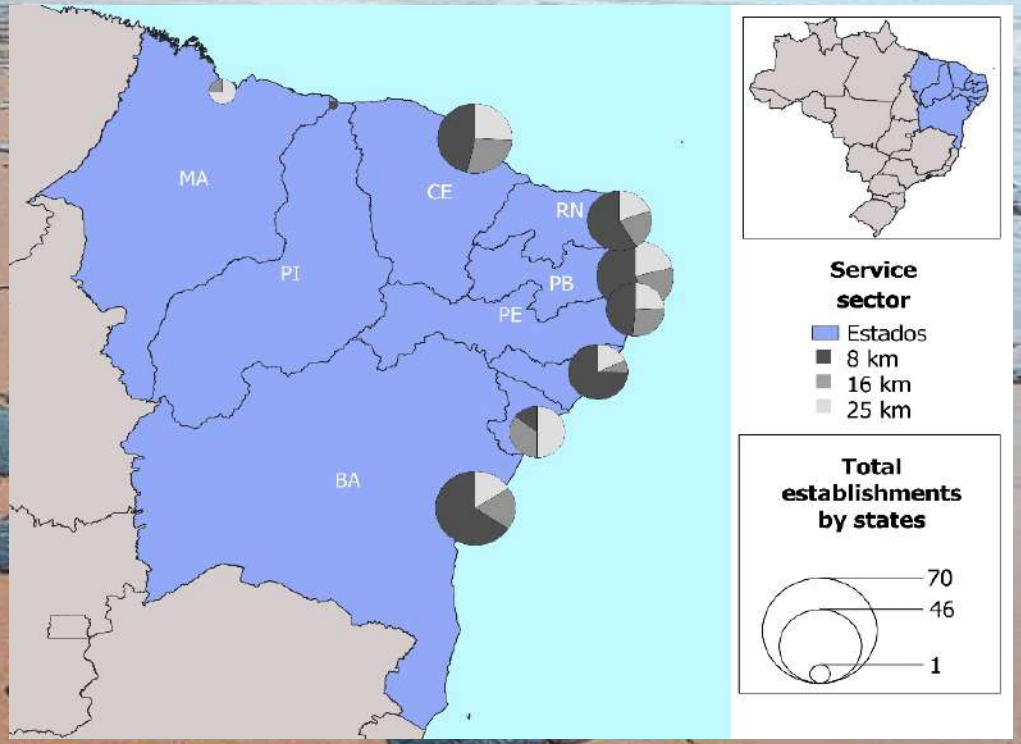
TOURISM AND LEISURE SECTOR



STORE



SERVICE SECTOR



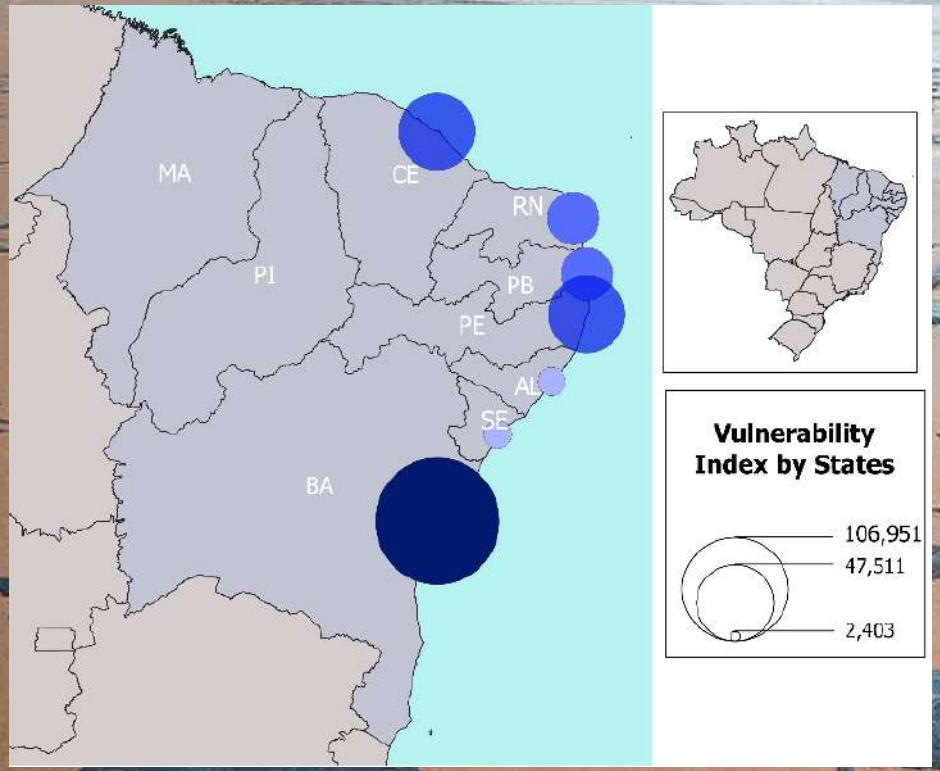
Vulnerability index (VI) by area of influence (25km) of the localities affected by the oil spill (2019/2020) in Brazilian Northeast

State	VI – State	Area	Localities	City	VI – Localities
BA	106,951	1st	From Praia do Piatã to Ondina	Salvador	19,033
		2nd	From Praia do Taipe to Paraíso dos Pataxós	Porto Seguro	9,146
		3rd	From São Domingos to Praia dos Milionários	Ilhéus	8,035
PE	68,751	1st	Praia de Dell Chifre	Olinda	29,406
		2nd	From Boa Viagem to Praia da Barra da Jangada	Recife/ Jaboatão dos Guararapes	13,016
		3rd	From Praia do Pontal de Maracaípe to Praia de Gamboa	Ipojuca	7,668
CE	58,770	1st	Praia de Iracema	Fortaleza	23,555
		2nd	Praia do Futuro	Fortaleza	9,312
		3rd	Praia da Prainha	Aquiraz	3,425
RN	47,511	1st	From Ponta Negra to Barreira do Inferno	Natal/Parnamirim	13,500
		2nd	From Praia do Forte to Praia da Via Costeira	Natal	12,662
		3rd	From Praia do Madeiro to Sibaúma	Tibau do Sul	4,073
PB	38,515	1st	From Praia do Bessa to Praia do Cabo Branco	João Pessoa	29,582
		2nd	From Praia Formosa to Praia de Intermares	Cabedelo	6,259
		3rd	From Praia de Tabatinga to Praia de Gramame	Conde	1,973

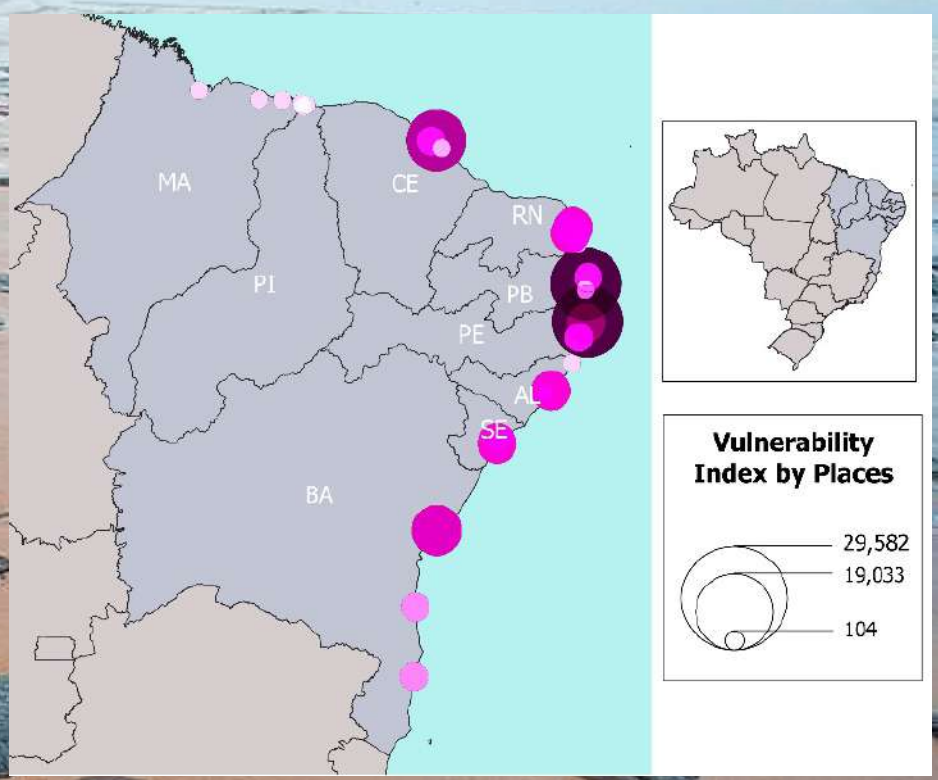
Vulnerability index (VI) by area of influence (25km) of the localities affected by the oil spill (2019/2020) in Brazilian Northeast

State	VI – State	Area	Localities	City	VI – Localities
AL	33,179	1st	From Assis Chateaubriand to Pajuçara	Maceió	13,220
		2nd	From Ponta do Mangue to Praia de São Bento	Maragogi	3,917
		3rd	From Praia do Francês to Allot. Encontro do Mar	Marechal Deodoro/ Barra de São Miguel	3,277
SE	21,074	1st	From Praia do Mosqueiro to Praia Atalaia Nova	Aracaju	12,852
		2nd	Praia dos Náufragos	Aracaju	3,018
		3rd	From Atalaia Nova to Santo Amaro das Brotas	Santo Amaro das Brotas/ Nossa Senhora do Socorro	1,436
MA	4,724	1st	Av. Litorânea	São Luís	2,711
		2nd	Tutóia	Tutóia	841
		3rd	Atins	Barreirinhas	575
PI	2,403	1st	From Praia Peito de Moça to Luís Correia	Luís Correia	1,780
		2nd	From Praia do Arrombado to Praia do Coqueiro	Luís Correia	519
		3rd	From Praia do Pontal to Parnaíba ‘s South Delta	Parnaíba	104

VULNERABILITY INDEX STATES



VULNERABILITY INDEX OF LOCATIONS (BEACHES)



Conclusion:

- The results of this study show that the three largest economies in the Northeast region (Bahia, Pernambuco, and Ceara) with the highest socioeconomic vulnerability indexes.
- The use of digital mapping, together with building vulnerability indices, is a step forward in the development of measures to fight the increase in coastal susceptibility associated with wicked problems.
- Building these vulnerability indicators might not only show susceptible regions, but also allow the development of policies to strengthen the resilience of these communities regarding future impacts.