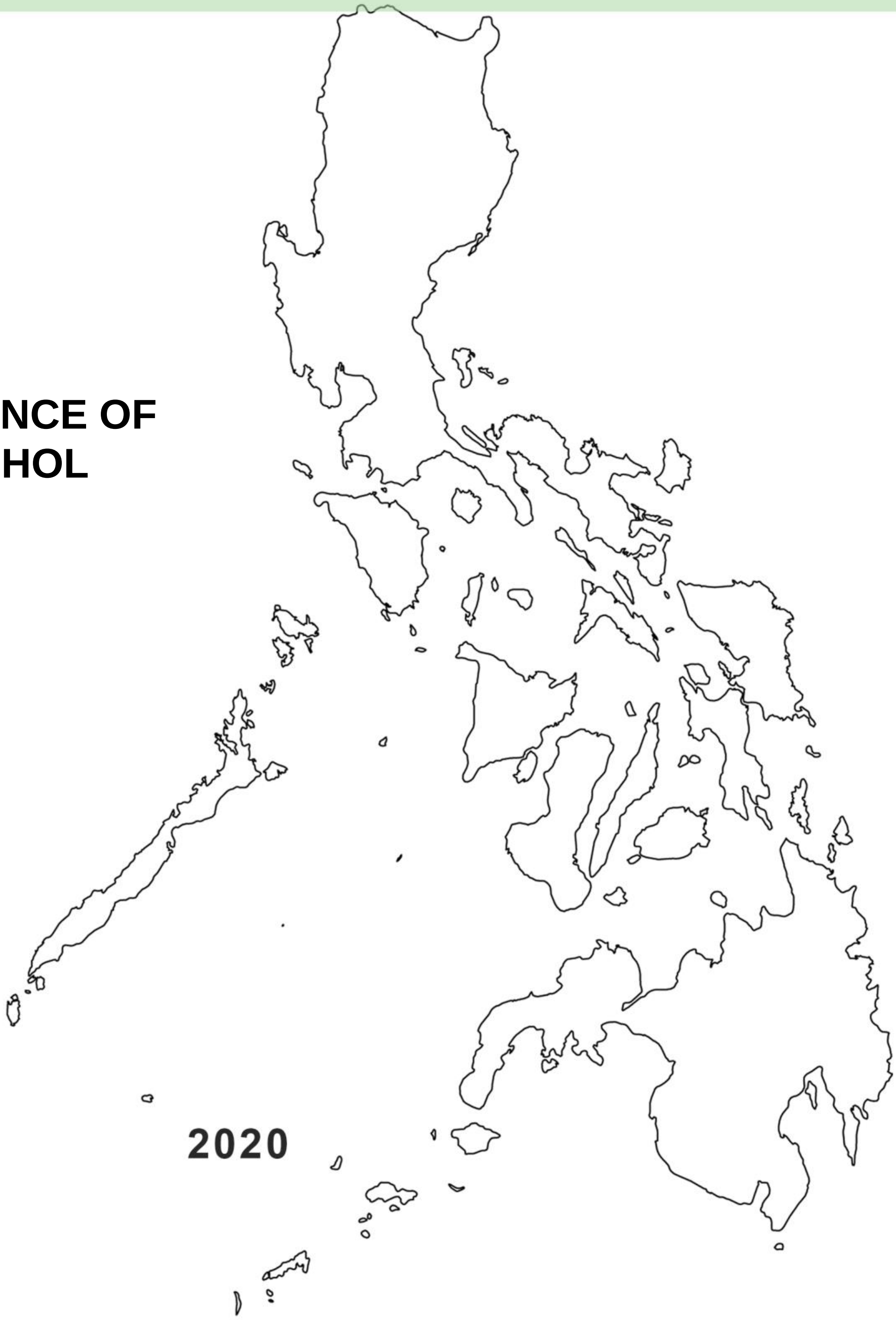
DEPARTMENT OF AGRICULTURE
Bureau of Soils and Water Management

Agricultural Land Management and Evaluation Division

National Mapping, Characterization and Development of Spatial Database for the Coastal Areas Affected by Salinity

PROVINCE OF BOHOL



2020

TABLE OF CONTENTS

RATIONALE

Salinity is long time known as one of the problem soils. It directly affects the agriculture and fishery sector in terms of productivity and income. Seriously salt-affected soils result to a total crop failure. The reasons for salinity are 1) increasing trend in sea level rise, 2) over pumping of the aquifers, and 3) seepage along the river — that is, when seawater moves upstream into the river during periods of high tide and low river flow.

The Bureau of Soils and Water Management (BSWM) have initiated several studies regarding soil salinity, but a nationwide information system has never been developed for areas affected by salinity. A baseline information on salinity will be a significant input in infrastructure planning in agriculture and fishery, risk management— particularly disaster risk management and climate change adaptation,— and policy recommendations.

Based on BSWM Reconnaissance Survey in 1988, forty five (45) provinces are identified affected by salinity. They represent more than half of the country's provinces. However, the extent of this condition to Philippine soils is not yet established and thus the subject of this project.

This project generally aims to develop a national information system for the coastal areas affected by salinity. Specifically, it aims to:

1. describe the soil physico-chemical characteristics;

2. generate salinity maps;

3. develop spatial database on salinity for the coastal areas;

4. undertake suitability evaluation for agriculture and fisheries and prepare scenarios as input to policy.

BOHOL

I. SOIL/LAND PHYSICAL CHARACTERISTICS

A. General Description of Saline Affected Area

Bohol is an island province of the Philippines located in the Central Visayas region and consist of 75 minor surrounding islands. Its land area is 4,821 km^2 and a coastline of 261 km long. To the west of Bohol is Cebu, to the northeast is the island of Leyte and to the south, across the Bohol Sea, is Mindanao. The Cebu Strait separates Bohol from Cebu.

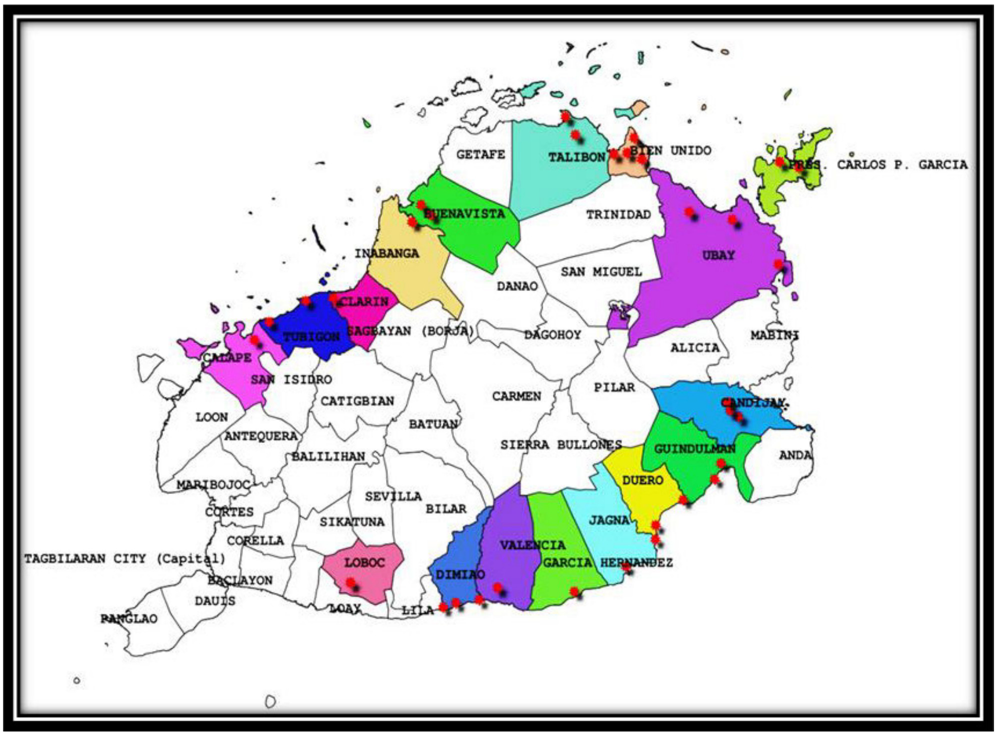
The province of Bohol is a first-class province divided into 3 congressional districts, comprising 1 component city, 47 municipalities and 1,109 barangays.

Study area includes seventeen (17) coastal municipalities of the province that are susceptible to soil salinity, hence the sites for sampling shown in Table 1.1.

Table 1.1. Coastal Areas and Municipalities in Bohol

No.	Municipality	No. of Barangay	No. of Sampling Sites	No. of Soil Samples Collected
1	Bien Unido	15	4	12
2	Buenavista	35	2	6
3	Calape	33	1	3
4	Candijay	21	3	9
5	Clarin	24	1	3
6	Dimiao	35	3	9
7	Duero	21	2	5
8	Garcia Hernandez	30	1	3
9	Guindulman	19	2	6
10	Inabanga	50	1	3
11	Jagna	33	2	6
12	Loboc	28	1	3
13	Pres. Carlos P.	23	2	6
14	Talibon	25	2	6
15	Tubigon	34	2	6
16	Ubay	44	3	9
17	Valencia	35	1	3
	TOTAL	**505**	**33**	**98**

Figure 1.1 Sampling Sites, Province of Bohol



B. Land Management Unit (LMU)

Land Management Unit is a recurring pattern of land which possesses similar physical characteristics such as soil type associated with relatively uniform land use or vegetation cover and parent material. The land management unit is the basis for integration of various resource information in suitability rating for different crops wherein each suitability class can be fitted with specific sets of management requirements and input. It is the building block of the pedo - ecological zone, which represents a broader landscape grouping such as lowland, upland, hillyland and highland.

Table 1.2 shows the Land Management Unit by Municipality and Barangay for the Province of Bohol.

Table 1.2. Land Management Unit by Municipality and Barangay

REF. NO.	PROVINCE	MUNICIPALITY	BARANGAY	LMU
SS1	BOHOL	LOBOC	Valladolid	09
SS2		DIMIAO	Tangohay	17
SS3			Balbalan	17
SS4			Banban	17
SS5		VALENCIA	Tigisanon	17
SS6		GARCIA HERNANDEZ	Manaba	09
SS7		DUERO	Guinsularan	09
SS8			Madua Sur	09
SS9		JAGNA	Alejawan	19
SS10			Looc	09
SS11		GUINDULMAN	Bulawan	09
SS12			Canhaway	19
SS13		CANDIJAY	Poblacion	04
SS14			Boyoan Sur	09
SS15			San Isidro	09
SS16		BIEN UNIDO	Poblacion	09
SS17			Nueva Estrella	09
SS18			Mandawa	04
SS19			Nueva Esperanza	09
SS20		TALIBON	San Francisco	19
SS21			San Jose	09
SS22		PRES.CARLOS P. GARCIA	Poblacion	19
SS23			Tugnaw	19
SS24		UBAY	Cagting	09
SS25			Tipolo	09
SS26			Camambugan	09
SS27		CALAPE	Abucayan Sur	09
SS28		BUENAVISTA	Canggawa	09
SS29			Bugaong	09
SS30		CLARIN	Buacao	09
SS31		TUBIGON	Pandan	09
SS32			Tinanglan	09
SS33		INABANGA	Dait Sur	09

C. Flooding

Flooding classification was based on frequency, duration and depth. The main cause of flooding in the sampling sites that fall under three (3) classifications are due to heavy rainfall and overflow of creek/river.

Table 1.3. Flooding Classification with Description and Causes

SYMBOL	CLASSIFICATION	DESCRIPTION	CAUSES
J	None to slight	Flood water at a depth of < 0.5 m for a duration of 1-2 days or less with a receding period of not later than 6 hours.	Heavy rainfall, Overflow of creek/river
K	Moderate	Flood water at a depth of 0.5- 1.0 m for a duration of 1-2 days or less and recedes within 6-24 hours.	Heavy rainfall, Overflow of creek/river, sea-level rise
L	Severe	Floodwater at a depth of > 1.0 m width duration lasting for 3 days or more and recedes in >24 hours.	Heavy rainfall, typhoon, overflow of dikes, sea-level rise, overflow of dams

D. Elevation

The elevation of a geographic location is the height above sea level (meters above sea level). Since the coastal areas are in the lowland pedo-ecological zone, soil sampling points are taken from elevations ranging from 0-5masl, 5-10masl and 10-15masl.

E. Agro-Climate

Bohol belongs to Type 4 climate based on the Climate Map of the Philippines by the Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA). It is characterized by having no dry season with rainfall more or less evenly distributed throughout the year as shown in Figure 1.2 from Tagbilaran PAGASA weather station.

Evapotranspiration (Eto) is the sum of water transpired by the leaves of the crop and evaporation from the surrounding soil when water is not limited. Ideally, rainfall is considered to be sufficient if its amount is equal or higher than the potential evapotranspiration. In Figure 1.3 comparison of rainfall and evapotranspiration in Bohol, the average rainfall is relatively higher than the potential evapotranspiration from September - February and June- July. This means that soil moisture is sufficient to support crop cultivation during these months. However, for the months of April, May and August supplemental irrigation is needed.

Figure 1.2 Average Monthly Amount of Rainfall

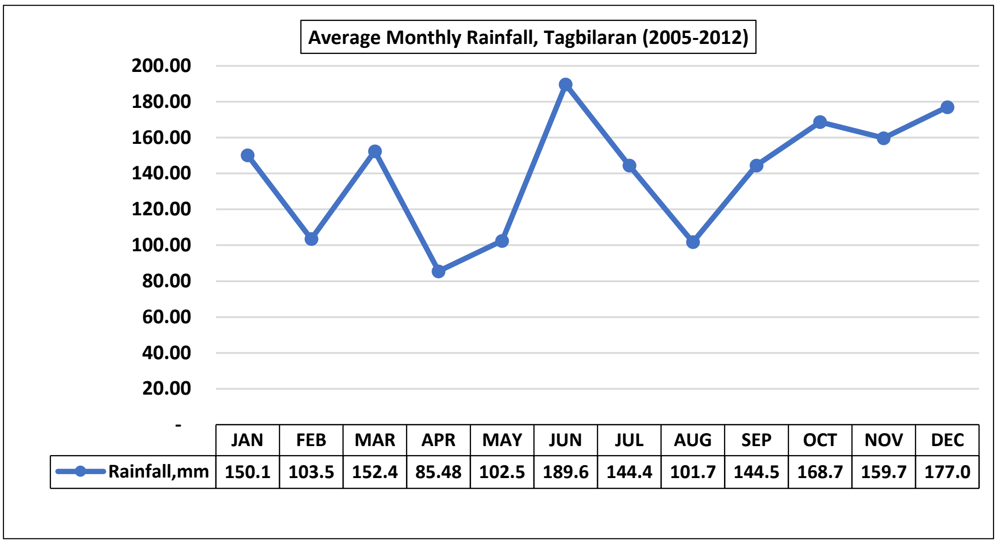
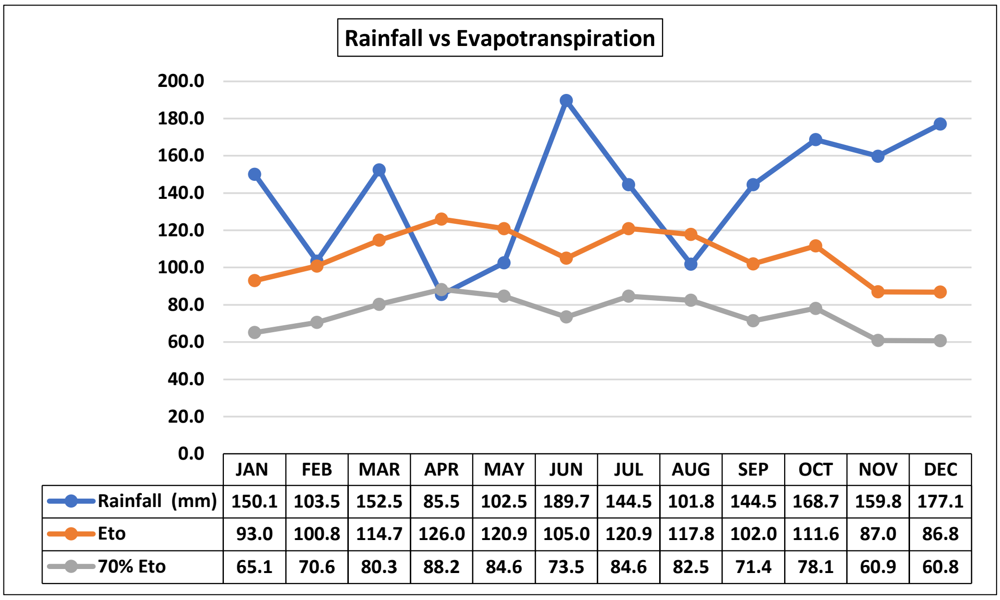


Figure 1.3 Comparison of the Average Rainfall and Evapotranspiration



F. Land Use/Vegetation

Land use involves the management and modification of natural environment. It also has been defined as “the total arrangements, activities, and inputs that people undertake in a certain land cover type.” Land use and vegetation plays an important role in the identification of areas affected by salinity. It provides primarily indicative information on the physical and socio-economic activities prevailing in the area. On the other hand, salinity reduces the kinds of crops that can be grown for economic purposes due to chemical reactions between salt water and soil clay particles.

The most common land use/vegetation in Bohol sampling sites are irrigated and non-irrigated paddy rice.

II. CROP PRODUCTION ON SALINE AFFECTED AREAS

A. Key Informant Profile

Based on the 34 farmer respondents with 9:25 female-male ratio, the average years of age is 58. The eldest and youngest is 80 and 38 years old. Fifty six percent (56%) of the farmer respondents are the owners of their farm, while the rest are tenants (44%). The average farm size is 0.96 hectares per farmer and their average farming experience is 23 years.

B. Farm Production

The total area devoted for Agriculture in Bohol is about 45% of the total land area of the province. Its main products that contribute to agricultural productivity are rice, corn, marine and aquaculture, and livestock and poultry. Fishing is the second main source of income for the Boholanos. Aside from these, the province is also promoting the production of oil palm, mango and other high value crops.

Table 2.1 shows the average rice yield from CY 2016-2018 per municipality, based on the key informant interviews.

Table 2.1 Rice Production in Coastal Municipalities of Bohol

Coastal Municipalities	Average Rice Yield , kg/ha*					
	2016		2017		2018	
	1st Cropping	2nd Cropping	1st Cropping	2nd Cropping	1st Cropping	2nd Cropping
Loboc	4500	3100	2400		4350	4000
Dimiao	2981	2885	2667	2667	2581	2464
Valencia	5280	5280	3960	3960	6600	6600
Garcia Hernandez	2200	2200	2000		2000	
Duero	2415	2500	2230	2415	2625	2850
Jagna	2300	2100	2000	2000	1800	1600
Guindulman	4480	4480	3840	4480	3520	9600
Candijay	940	860	1012	932	616	1076
Bien Unido	1231	925	1006	1090	986	960
Talibon	8000	6000	8000	6000	5000	6000
Pres. Carlos P. Garcia	3200	2800	3000	2800	3200	2800
Ubay	2750	2250	2500	2375	2500	2050
Buenavista	2667	2000	2000	1333	2000	
Clarin	2700	4500	2700	3600		2550
Tubigon	3626	3400		3400	3400	3468
Inabanga	2784	2900	3016	3016	2900	3132

C. Farm Input

The study is limited to the coastal communities of the province therefore, the information on farm inputs are mainly based on the key informant interviews. Farmer respondents usually use commercially available rice seed varieties as shown in Table 2.2.

Table 2.2 Rice Seed Varieties

Seed Variety	Description
NSIC Rc222 (Tubigan 18)	Long maturing rice variety
NSIC Rc226 (Tubigan 20)	Very good milling recovery
Bigante	Tolerant to bacterial leaf blight
PSB Rc18 (ALA)	Moderately susceptible to stem borer
SL 8H	Low shattering characteristics

For other inputs, they use inorganic fertilizers like urea (46-0-0), and complete balanced fertilizer (14-14-14). They also use chemical pesticide Surekill to eliminate golden apple snails. Others use pesticides Karate and Buswak.

D. Source of Irrigation

Table 2.3 Source of Irrigation for Paddy Rice

Source of Irrigation for Paddy Rice	%
National Irrigation Administration	32
Rainfed	50
Communal	6
Shallow Tubewell	6
Creeks	6

Based on the 34 farmer respondents, 32% of them have irrigation system assisted by NIA and 6% have Communal Irrigation System. Most of them are rainfed (50%), while others have supplemental irrigation from shallow tubewell (6%) and from creeks (6%).

Figure 2.1 Key Informant Interview and Data Gathering

E. Period of Salinity Occurrence and Practices to Address Salinity

Majority of the farmer respondents (76%) said that salinity affects their rice farms from the month of June to December. Some of them consider to adopt any other suitable crop to increase their income, while the others still want to continue planting rice as their main crop.

Most of the farmer-respondents' practices to address salinity are: 1) weeding to eliminate infestation of pest and diseases; 2) application of fertilizer to sustain soil nutrient; 3) using rain water for irrigation; and 4) flushing saline water with fresh water.

Figure 2.2 Auger Boring and Soil Sampling

Figure 2.3 Air Drying of Soil Samples

Figure 2.4 Pulverizing of Soil Samples

III. SOIL CHEMICAL CHARACTERISTICS

Soil samples are brought to the BSWM Laboratory Services Division for the soil salinity/alkalinity test which includes pH (1:1) at 25^{0}C, Electrical Conductivity (EC) at 25^{0}C, Calcium (Ca), Magnesium (Mg), Sodium (Na), Potassium (K), Sum of Cations, Carbonate (CO_3), Bicarbonate (HCO_3), Chloride (Cl), Sulfate (SO_4), Sum of Anions, and Sodium Adsorption Ratio (SAR).

The EC test results are classified according to its salinity class and then used to map salinity in the coastal area. Other laboratory test results are gathered as input to the Saline-Affected Areas Database Information System (SADIS v1.1). This spatial database can be used as reference for future research studies on salinity.

A. Salinity Classification

The laboratory results for salinity testing, specifically the EC readings, are classified using Table 3.1 below, based on the BSWM/FAO Salinity Project in 1999. This salinity classification is rice-based and applicable to Philippine setting.

Table 3.1 Salinity Classification (Crop-based, Rice)

Electrical Conductivity *(mS/cm)*	Soil Salinity Class	Hazard for Crop Growth	Plant Response
0 - 2	Non Saline	Very low	Negligible
2.1 - 4	Slightly Saline	Low	Restricted yield of sensitive crops
4.1 - 8	Moderately Saline	Moderate	Restricted yield of many crops
8.1 - 16	Severely Saline	High	Only a few tolerant crops yield satisfactorily
>16	Very Severely Saline	Very high	Only a few tolerant forage grow satisfactorily

Table 3.2 shows the laboratory EC test results of soil samples per Municipality. Each EC readings are further classified using Table 3.1 above. The Municipalities of Guindulman, Canduay, Bien Unido, Talibon, Tubigon, Buenavista, and parts of Ubay and Calape have very severely saline soil. These areas have very high hazard for crop growth and only a few tolerant forage can grow satisfactorily. Severely saline soils are also observed in these Municipalities and in Loboc. These areas are highly hazardous to crop growth, and only a few tolerant crops can yield satisfactorily. Moderately saline soils that are moderately hazard for crop growth are in some areas of Bien Unido, Ubay, Clarin and Tubigon. These areas have restricted yield to many crops. Non saline areas are observed in Dimiano, Valencia, Garcia Hernandez, Duero and Pres. Carlos P. Garcia.

Soil Salinity Maps at three different depths (0-30cm, 30-60cm, and 60-90cm) are delineated using the corresponding Electrical Conductivity (EC) readings, then interpolation is used to estimate the soil salinity at unsampled locations to create a continuous representation. Tables 3.3-3.5 interpret the land area in hectares per municipality at different degrees of salinity.

Table 3.2 Electrical Conductivity (EC) of Soil Samples at Different Depths

AUGER REF	BARANGAY	MUNICIPALITY	EC (mS/cm) @0 -30cm	EC (mS/cm) @30 -60cm	EC (mS/cm) @60 -90cm
SS1	Valladolid	LOBOC	13.23	11.31	10.54
SS2	Tangohay	DIMIAO	0.874	0.3	0.251
SS3	Balbalan		1.23	0.63	0.518
SS4	Banban		0.771	0.451	0.791
SS5	Tigisanon	VALENCIA	0.579	0.349	0.3
SS6	Manaba	GARCIA HERNANDEZ	0.767	0.83	2.219
SS7	Guinsularan	DUERO	1.318	0.352	
SS8	Madua Sur		0.444	0.544	0.562
SS9	Alejawan	JAGNA	0.748	0.649	1.217
SS10	Looc		1.217	2.863	2.66
SS11	Bulawan	GUINDULMAN	1.858	9.001	24.83
SS12	Canhaway		18.73	9.173	16.7
SS13	Poblacion	CANDIJAY	26.57	21.56	33.38
SS14	Boyoan Sur		19.25	13.12	14.52
SS15	San Isidro		11.5	9.359	10.08
SS16	Poblacion	BIEN UNIDO	12.12	15.94	20.6
SS17	Nueva Estrella		5.678	9.121	11.23
SS18	Mandawa		13.25	12.16	18.72
SS19	Nueva Esperanza		2.483	2.985	1.885
SS20	San Francisco	TALIBON	2.013	2.736	8.386
SS21	San Jose		49.45	29.65	20.54
SS22	Poblacion	PRES.CARLOS P. GARCIA	0.97	0.468	0.34
SS23	Tugnaw		1.592	1.191	1.076
SS24	Cagting	UBAY	8.568	13.13	18.48
SS25	Tipolo		3.709	2.124	3.901
SS26	Camambugan		5.854	2.481	1.968
SS27	Abucayan Sur	CALAPE	21.86	9.115	12.3
SS28	Canggawa	BUENAVISTA	9.196	9.561	11.66
SS29	Bugaong		27.91	23.61	23.95
SS30	Buacao	CLARIN	6.698	4.027	3.525
SS31	Pandan	TUBIGON	32.31	24	27.56
SS32	Tinanglan		5.517	4.087	5.126
SS33	Dait Sur	INABANGA	2.133	0.929	2.608

Note: Please refer to Table 3.1

Table 3.3 Coastal Land Area (in hectares) per Municipality at Different Degrees of Salinity (0-30 cm depth)

Coastal Municipality	Non Saline	Slightly Saline	Moderately Saline	Severely Saline	Very Severely Saline
ALBURQUERQUE			135.58	166.01	
ALICIA				894.86	
ANDA				1,101.88	
ANTEQUERA				197.47	
BALILIHAN				23.84	
BACLAYON			150.29		
BIEN UNIDO		80.45	372.44	1,852.09	
BUENAVISTA	2.24	28.27	198.97	1,426.33	283.16
CALAPE				2,555.39	81.63
CANDUAY				2,557.06	835.40
CLARIN			951.11		
CORTES				508.36	
DANAO				40.28	
DIMIAO	302.12				
DUERO	420.02				
GARCIA HERNANDEZ	313.16	2.62			
GETAFE				1,932.29	
GUINDULMAN	41.02	22.40	56.22	1,289.55	
INABANGA	59.69	115.88	1,638.02	2,214.62	0.41
JAGNA	145.76	306.49			
LILA	123.02	45.78	10.58		
LOAY			75.12	638.95	
LOBOC				513.47	
LOON				808.68	
MABINI				2,690.03	
MARIBOJOC				986.19	
PRES. CARLOS P. GARCIA (PITOGO)	3,294.13				
SAN MIGUEL				880.56	
TAGBILARAN			674.43	109.77	
TALIBON		74.00	401.03	2,887.56	1,198.51
TRINIDAD			704.67	5,757.70	
TUBIGON			759.81	148.32	633.07
UBAY		3,226.25	2,393.23	3,029.53	
VALENCIA	411.48				
TOTAL	**5,112.65**	**3,902.14**	**8,521.48**	**35,210.79**	**3,032.18**

Table 3.4 Coastal Land Area (in hectares) per Municipality at Different Degrees of Salinity (30-60 cm depth)

Coastal Municipality	Non Saline	Slightly Saline	Moderately Saline	Severely Saline	Very Severely Saline
ALBURQUERQUE			135.58	166.01	
ALICIA				894.86	
ANDA				1,101.88	
ANTEQUERA				197.47	
BALILIHAN				23.84	
BACLAYON			150.29		
BIEN UNIDO		80.45	372.44	1,852.09	
BUENAVISTA	2.24	28.27	193.55	1,431.75	283.16
CALAPE				2,555.39	81.63
CANDUAY				2,557.06	835.40
CLARIN			951.11		
CORTES				508.36	
DANAO				40.28	
DIMIAO	302.12				
DUERO	420.02				
GARCIA HERNANDEZ	313.16	2.62			
GETAFE				1,932.29	
GUINDULMAN	41.02	22.40	56.22	1,289.55	
INABANGA	59.69	115.88	1,637.67	2,214.97	0.41
JAGNA	145.76	306.49			
LILA	123.02	45.78	10.58		
LOAY			75.12	638.95	
LOBOC				513.47	
LOON				808.68	
MABINI				2,690.03	
MARIBOJOC				986.19	
PRES. CARLOS P. GARCIA (PITOGO)	3,294.13				
SAN MIGUEL			238.23	642.33	
TAGBILARAN			674.43	109.77	
TALIBON		74.00	401.03	2,887.56	1,198.51
TRINIDAD			892.16	5,570.21	
TUBIGON			759.81	148.32	633.07
UBAY		3,226.25	2,471.11	2,951.65	
VALENCIA	411.48				
TOTAL	**5,112.65**	**3,902.14**	**9,019.32**	**34,712.95**	**3,032.18**

Table 3.5 Coastal Land Area (in hectares) per Municipality at Different Degrees of Salinity (60-90 cm depth)

Coastal Municipality	Non Saline	Slightly Saline	Moderately Saline	Severely Saline	Very Severely Saline
ALBURQUERQUE			208.30	93.28	
ALICIA				894.86	
ANDA					1,101.88
ANTEQUERA				197.47	
BALILIHAN				23.84	
BACLAYON			150.29		
BIEN UNIDO	6.01	98.75	219.52	1,184.20	796.49
BUENAVISTA		5.53	95.08	1,501.77	336.60
CALAPE				2,396.15	240.88
CANDUAY				995.60	2,396.85
CLARIN		132.84	641.12	177.16	
CORTES				508.36	
DANAO				40.28	
DIMIAO	302.12				
DUERO	374.93	45.09			
GARCIA HERNANDEZ	24.40	291.39			
GETAFE				1,932.29	
GUINDULMAN	33.17	12.34	24.18	63.34	1,276.15
INABANGA		76.57	505.24	3,417.05	29.75
JAGNA	135.03	317.21			
LILA	120.98	49.65	8.74		
LOAY			83.54	630.53	
LOBOC				513.47	
LOON				808.68	
MABINI				1,814.26	875.77
MARIBOJOC				986.19	
PRES. CARLOS P. GARCIA (PITOGO)	3,293.83	0.31			
SAN MIGUEL				880.56	
TAGBILARAN			40.57	743.62	
TALIBON		20.37	277.24	3,567.63	695.87
TRINIDAD			296.75	6,165.62	
TUBIGON		115.68	632.74	91.89	700.88
UBAY	15.65	1,484.03	3,622.09	2,120.58	1,406.66
VALENCIA	411.48				
TOTAL	**4,717.61**	**2,649.76**	**6,805.40**	**31,748.68**	**9,857.80**

Table 3.3 shows the coastal land area (in hectares) affected by salinity for 0-30cm depth. Very severely saline is 3,032.18 hectares mostly from the Municipalities of Talibon, Canduay and Tubigon. These areas the hazard to crop growth is very high and only a few tolerant forage grow satisfactorily. Majority of the coastal land area is severely saline at 35,210.79 hectares. Top municipality is Trinidad followed by Ubay, Talibon, Mabini, Canduay, Calape, Inabanga, Getafe and Bien Unido. Moderately saline area is 8,521.48 hectares, mostly in Ubay and Inabanga.

On Table 3.4 at 30-60cm depth, the land area affected by salinity is almost the same at 0-30cm depth. Majority of the coastal land area is severely saline (34,712.95 hectares) also from top municipalities mentioned above. Moderately saline area is slightly higher than at 0-30cm depth (9,019.32 hectares).

Table 3.5 shows the largest very severely saline area (9,857.80 hectares) compared to Tables 3.3 and 3.4, wherein Canduay is the top municipality. Although only very few plants have root system that can reach this depth, there are chances that during dry months, salts will accumulate at the surface of the soil and thus, can be moderately to highly hazardous to crop growth. The total area for all other salinity classification lowers at 60-90cm depth.

Table 3.6 Distribution of Coastal Land Area at Different Degrees of Salinity, Bohol Province

Salinity Class	Soil Depth (cm)					
	0-30		30-60		60-90	
	hectares	%	hectares	%	hectares	%
Non saline	5,112.65	9.17	5,112.65	9.17	4,717.61	8.46
Slightly saline	3,902.14	7.00	3,902.14	7.00	2,649.76	4.75
Moderately saline	8,521.48	15.28	9,019.32	16.17	6,805.40	12.20
Severely saline	35,210.79	63.13	34,712.95	62.23	31,748.68	56.92
Very Severely saline	3,032.18	5.44	3,032.18	5.44	9,857.80	17.67
TOTAL	**55,779.24**	**100**	**55,779.24**	**100**	**55,779.24**	**100**

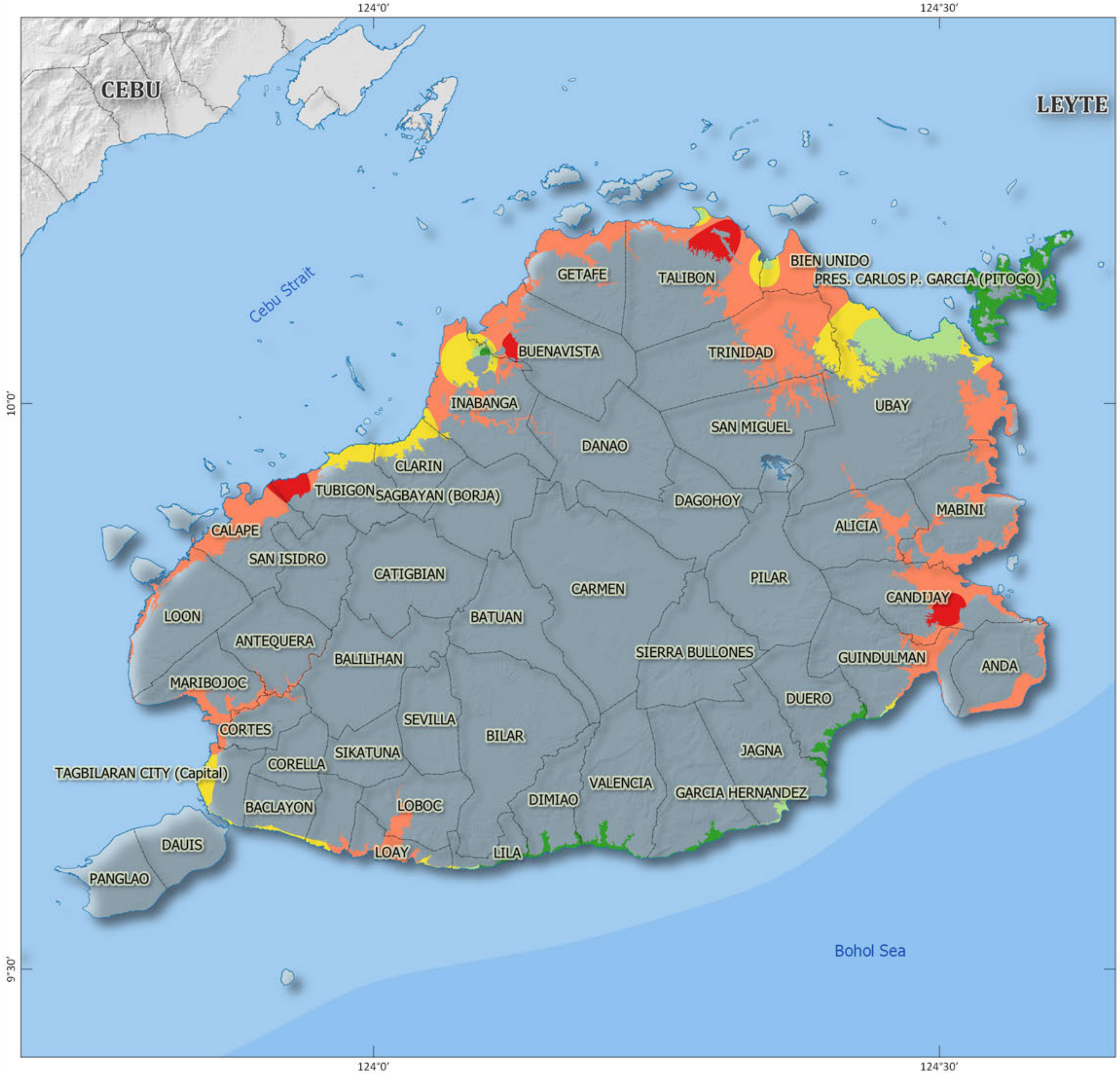
Table 3.6 summarizes the total coastal land area of Bohol per degree of salinity. Note that 17.67% of the coastal land area at 60-90cm depth is very severely saline. Moreover, 63.13% of the total coastal land area is severely saline for the 0-30cm depth, almost the same with the 30-60cm depth. Generally, majority of the coastal land area is classified as severely saline.

B. Output Maps

The following pages are the output maps of the project: the Soil Salinity Maps of the Province of Bohol at 0-30cm depth; 30-60cm depth; and 60-90cm .

SALINITY MAP (0-30cm)

Province of Bohol



N

Scale 1:500,000

0 6 12 18 24

Kilometers

LEGEND

Administrative Boundaries

- Municipal
- Shorelines

Elevation (masl)

- >15 meters

Degree of Salinity	EC (mS/cm)
Non-Saline	0-2
Slightly Saline	2.1-4
Moderately Saline	4.1-8
Severely Saline	8.1-16
Very Severely Saline	>16

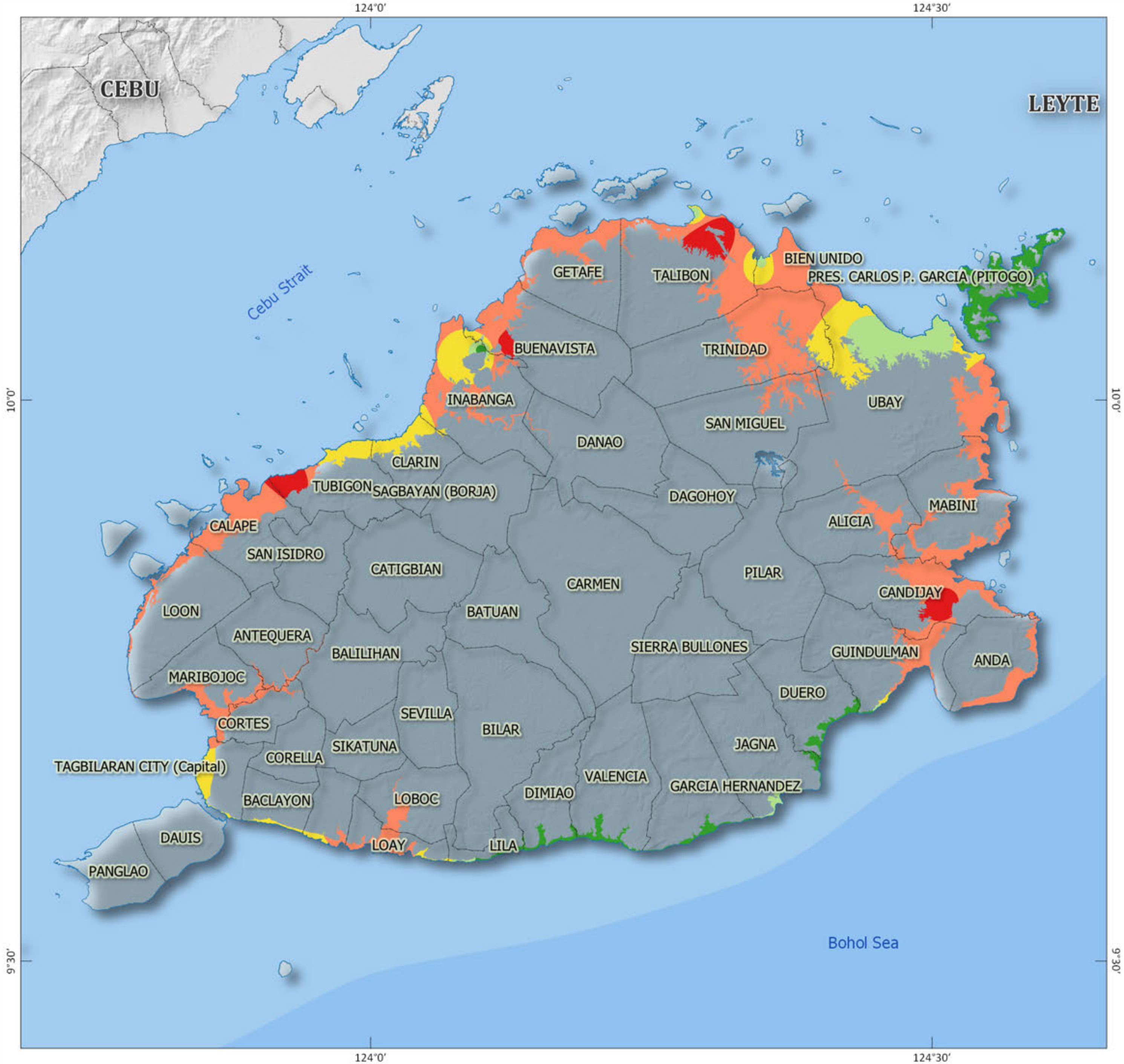
SOURCES OF INFORMATION :

Electrical Conductivity (EC) test from Laboratory Services Division (LSD). Soil sampling and preparation by the Agricultural Land Management and Evaluation Division (ALMED) 2018. Topographic information taken from NAMRIA Topographic Map at 1:50,000 scale.

Map produced by the Geomatics and Soil Information Technology Division (GSITD).

Users noting errors or omissions in this publication are requested to inform the Bureau of Soils and Water Management.

BSWM, 2021 Salinity Map



SALINITY MAP (30-60cm)

Province of Bohol

N

Scale 1:500,000

0 6 12 18 24

Kilometers

LEGEND

Administrative Boundaries

- Municipal
- Shorelines

Elevation (masl)

- >15 meters

Degree of Salinity	EC (mS/cm)
Non-Saline	0-2
Slightly Saline	2.1-4
Moderately Saline	4.1-8
Severely Saline	8.1-16
Very Severely Saline	>16

SOURCES OF INFORMATION :

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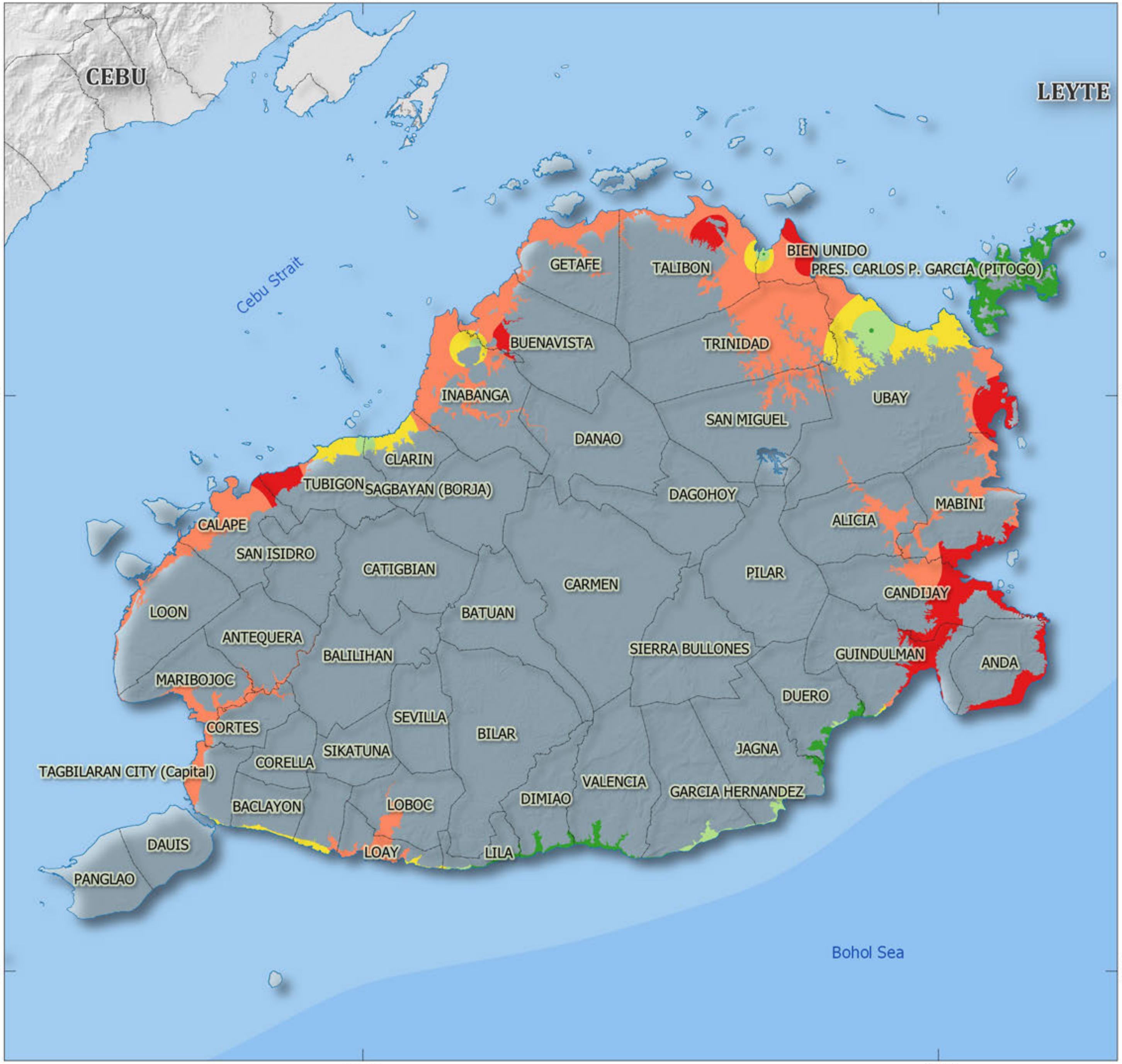
BSWM, 2021 Salinity Map



SALINITY MAP (60-90cm)

Province of Bohol

N

Scale 1:500,000

0 6 12 18 24

Kilometers

LEGEND

Administrative Boundaries

Municipal

Shorelines

Elevation (masl)

>15 meters

Degree of Salinity	EC (mS/cm)
Non-Saline	0-2
Slightly Saline	2.1-4
Moderately Saline	4.1-8
Severely Saline	8.1-16
Very Severely Saline	>16

SOURCES OF INFORMATION :

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BSWM, 2021 Salinity Map

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