

ANNUAL ACCOMPLISHMENT REPORT CY 2022

Bacuit-El Nido Bay Water Quality Management Area



ENVIRONMENTAL MANAGEMENT BUREAU

MIMAROPA REGION

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R4B-2023-001915

Executive Summary

Bacuit Bay, located at the western side of the town of El Nido in the Province of Palawan, is a wide body of marine water consisting of several limestone islands with white sand beaches and home for exotic flora and fauna thus it is a perfect tourist destination. The bay is dotted with islands and islets, most of which are inhabited. Its clear blue waters are teeming with marine life. It is home to dugongs, turtles, manta rays, species of fishes, and coral reefs. Some portions of the bay have been declared as marine parks and reserves, marine sanctuary and protected areas for conservation of biodiversity. The bay caters fishing and tourism activities, the main source of income of the municipality. The Bacuit Bay is a good place for scuba diving, island hopping and recreational tours. The municipal seaport is located in the bay and many marine vessels and pump boats utilize the bay for navigation.

Through the DENR Administrative Order No. 44 series of 2021 dated 23 December 2021 Bacuit-El Nido Bay was designated as Water Quality Management Area (WQMA). The Bacuit-El Nido Bay Water Quality Management Area covers eighteen (18) barangays of El Nido within the province of Palawan. These are the barangays of Maligaya – Zone 1, Buena Suerta – Zone 2, Masagana – Zone 3, Corong-Corong – Zone 4, Aberawan, Bagong Bayan, Batutuan, Bebeladan, Bucana, Mabini, Manlag, New Ibajay, Pasadeña, San Fernando, Teneguiban, Villa Libertad, Villa Paz. Aside from barangays, the WQMA also covers 36 islands and islets within Bacuit Bay.

Bacuit Bay is classified as “Class SB” Coastal and Marine Waters pursuant to DENR Memorandum Circular No. 03, Series of 2013 dated 17 January 2013. The beneficial uses of waters under Class SB classification pursuant to DENR Administrative Order No. 2016-08.

For this year, there were four (4) governing board meetings conducted face-to-face and via Microsoft Teams, two (2) webinars were conducted via Zoom Platform, and one (1) special meeting. The main topic discussed for the year is about the Orientation and Creation of the Governing Board Meeting of the newly designated Water Quality Management Area (WQMA), the Bacuit – El Nido Bay WQMA (BENB WQMA). The creation of governing board includes the creation of proposed committees, and organizational chart of the BENB WQMA, drafting of governing rules. Furthermore, problems arising at Bacuit Bay and El Nido Bay was discussed. Water quality issues of El Nido – Oil Scum in Bacuit Bay, and the potability of groundwater are the problems identified and the action plan is being prepared and will be discussed to the board members for their suggestions, comments and approval.

Background

1. Physical Description

Bacuit – El Nido Bay Water Quality Management Area (BENB WQMA) covers eighteen (18) barangays of El Nido within the Province of Palawan that comprises of four (4) urban barangays and fourteen (14) rural barangays.

The Bacuit – El Nido Bay Water Quality Management Area (BENB WQMA) is comprised of Bacuit Bay and El Nido Bay and the land falling within this hydrologic unit. It is bounded in the on the North by Linapacan Strait (Luzon Sea), on the east by Taytay Bay (Sulu Sea), on the south by Municipality of Taytay and the west of West Philippine Sea. El Nido is a first-class municipality with eighteen (18) barangays covering a total land area of 92,326 hectares and constitutes a 6.30% of the total land area of Palawan. This is subdivided into four (4) urban barangays of Masagana, Maligaya, Buena Suerte and Corong-Corong and fourteen (14) rural barangays of Bucana, Barotuan, Teneguiban, San Fernando, Pasadeña, Villa Libertad, Sibaltan, Villa Paz, New Ibajay, Manlag, Mabini, Aberawan, Bebeladan and Bagong Bayan. It covers a total land area of 20,841.31 hectares or 18.42% of the total land area of El Nido.

El Nido is characterized by rugged hills and mountainous terrain. Only small patches of lowlands are present which occurs on minor coastal plains and some stream alluvial valleys. Coastal boundary of the municipality extends eleven (11) kilometers offshore. Major tourist attractions in the municipality are the various islands of the bay which have unique geological formations, white sand beaches; clear marine waters, hidden lagoons and sinkholes. Tourist activities include beach hopping, island tours and snorkeling. There are thirty (30) diving spots in Bacuit Bay. The tourism program of the municipality is divided into four thematic areas: Marine-based Nature Tourism, Agri-Tourism, Forest-based Nature Tourism Zone and Heritage Tourism Zone.

2. Beneficial Use

Currently, the bay caters fishing and tourism activities, the main source of income of the municipality. The Bacuit Bay is a good place for scuba diving, island hopping and recreational tours. The municipal seaport is located in the bay and many marine vessels and pump boats utilize the bay for navigation.

Aside from recreational activities, it serves as home to dugongs, turtles, manta rays, species of fishes, and coral reefs. Some portions of the bay have been declared as marine parks and reserves, marine sanctuary and protected areas for conservation of biodiversity.

Bacuit Bay is classified as “Class SB” Marine Waters pursuant to DENR Memorandum Circular No. 03, Series of 2013 dated 17 January 2013.

3. DENR Administrative Order

Bacuit – El Nido Bay was officially designated as a WQMA through DENR Administrative Order No. 2021-44 dated 23 December 2021.

Status of Operationalization

There were four (4) governing board meetings, two (2) webinars conducted via Zoom Platform, and a special meeting was conducted for this year. 2nd quarter governing board meeting was conducted at DENR ENTMRA Conference Room wherein the main objective of the meeting was on the orientation of the proposed members for the newly designated Bacuit – El Nido Bay Water Quality Management Area (BENB WQMA). It was attended by NGAs (DILG, DPWH, NEDA, DOSTm DOH, DepEd, and DHSUD), LGU of El Nido (MEEDO, MAO, and MMO), DENR CENRO Taytay, ENTMRPA – PAMO, business sector (El Nido Chamber of Commerce), and NGOs (El Nido Foundation Inc., Malampayan Foundation Inc., and Zoological Society of London). At the 3rd quarter governing board meeting, the Creation of the Board Members of the Bacuit – El Nido Bay WQMA was targeted. Moreover, a board resolution was approved for the Work and Financial Plan for 2024. The said board resolution will supplement the operationalization of BENB WQMA for CY 2024. It was conducted last August 23, 2022 via Microsoft Teams. For 4th quarter, there were two (2) governing board meeting was conducted for CY 2022. First was conducted dated October 12, 2022 via Microsoft Teams and discussed about the Proposed Committees and Organizational Chart of the BENB WQMA, Drafting of the Governing Rules, Latest Water Quality Status of Bacuit – El Nido Bays, and other Waterbodies within BENB WQMA, and Current Water Quality issues of El Nido – Oil Scum in Bacuit Bay and the Potability of Groundwater. Second was last December 5, 2022 focused on the Finalization of Governing Rules, Latest Water Quality Status of Bacuit – El Nido Bays, and other waterbodies within BENB WQMA, and Presentation of the Philippine Coast Guard regarding the Oil Spill in Bacuit Bay. Below are details of the quarterly meetings conducted for CY 2022 within BENB WQMA:

- 2nd Quarter Governing Board Meeting: June 14-15, 2022

Provisional Agenda:

1. Creation of the Governing Board of Bacuit – El Nido Bay WQMA (BENB WQMA)
 2. Orientation of the Creation of the Bacuit – El Nido Bay as a Water Quality Management Area
 3. Discussion on the Current Water Quality Status of Bacuit - El Nido Bay
- 3rd Quarter Governing Board Meeting: August 23, 2022

Provisional Agenda:

1. Presentation of the minutes of the first orientation meeting last 12-15 June 2022
2. Presentation of the submitted names as Permanent and Alternate Representatives fo each member agency
3. Formal Creation of Board through Board Resolutions
4. Presentation of the Draft Work and Financial Plan for 2024 and Approval through a Board Resolution
5. Way Forward: Draft Governing Rules and Draft Action Plan

6. Other Matters: Water Quality Status

- 4th Quarter Governing Board Meeting: October 12, 2022

Provisional Agenda:

1. Presentation / Approval of the Minutes from the Previous Meeting
2. Matters Arising from the Previous Meeting
3. Presentation of the Proposed Committees and Organizational Chart of the BENB WQMA
4. Presentation of the Draft Governing Rules
5. Presentation of the 3rd Quarter Water Quality Status of Bacuit and El Nido Bays
6. Other Matters: Current Water Quality Issues of El Nido – Oil Scum in Bacuit Bay and the Potability of Groundwater

Aside from quarterly meetings, two (2) webinars were also conducted for this year with the following topics:

- 1st Webinar: March 30, 2022: WATER FORUM 2022 “Wastewater Treatment Best Practices Forum”

The main objective of the forum was to introduce and acknowledge projects with best practices regarding treating wastewater that complies with the General Effluent Standard (GES) set by DAO 2016-08 and DAO 2021-19. The following are projects that presented their best practices in treating wastewater:

1. V-4 Swine & Poultry Farms, Inc. located at Del Riterio St., Sagua Banua, Valladolid, Negros Occidental;
 2. San Miguel Brewery, Inc. – Polo Brewery located at Brgy. Marulas, McArthur Highway, Valenzuela City;
 3. Mega Fish Corporation located at Dumagsan, Talisay, Zamboanga City, Zamboanga Del Sur;
 4. Cebu IT Park Sewerage Treatment Plant & Water Pump House located at Pardo, Cebu City;
 5. Coral Bay Nickel Corporation located at Rio Tuba, Bataraza, Palawan; and
 6. Sarangani Energy Corporation (SEC) located at Sitio Tampuan, Brgy. Kamangan, Maasim, Sarangani Province
- 2nd Webinar: June 17 and June 28, 2022: Technical Virtual Assistance on Private Establishments, Governing Board Members, and LGUs within WQMA in Compliance to R.A. 9275.

Pursuant to Republic Act No. 9275 also known as the Philippine Clean Water Act of 2004, specifically Sec. 20 states that the Local Government Units shall share the responsibility in the management and improvement of water quality within the respective territorial jurisdiction, a technical assistance through virtual was conducted to Private Establishments and

Local Government Units (LGUs) within Water Quality Management Areas (WQMA) in compliance to R.A. 9275.

On June 17, Pollution Control Officers (PCO) of private establishments and Governing Board Members of designated WQMA were invited on technical assistance regarding on R.A. 9275. The following are topic tackled on the webinar:

1. DENR – EMB as Lead Implementing Agency and its role;
2. Clean Water Act and its IRR (including Sec. 5, 13, and 14 of R.A. 9275);
3. Water Quality Guidelines and General Effluent Standards (DAO 2016-08 and DAO 2021-19);
4. DAO 2014-02 and DA 2018-07;
5. national and Area Water Quality Management Fund;
6. National Sewerage and Septage Management Plan (NSSMP); and
7. Waterbody Rehabilitation Programs including Adopt-an-Estero.

Technical virtual assistance was also provided to the LGUs within Water Quality Management Areas (WQMA). The following are topic tackled on the webinar:

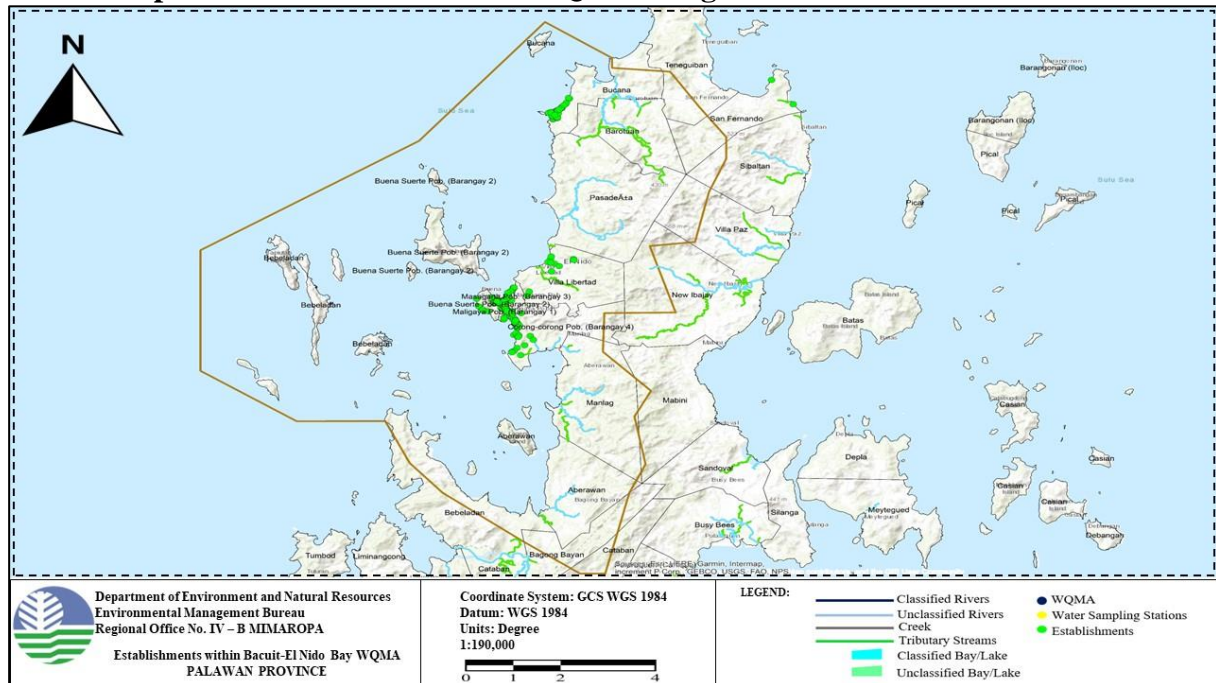
1. DENR – EMB as lead Implementing Agency and its role;
2. Clean Water Act and PCO (including Sec. 5, Sec. 13 and 14, and Role of LGUs in Sec. 20 of R.A. 9275; DAO 2014-02 and DAO 2018-07);
3. National and Area Water Quality Management Fund;
4. Water Quality Guidelines and General Effluent Standards (DAO 2016-08 and DAO 2021-19);
5. National Sewerage and Septage Management Plan (NSSMP);
6. Water Quality Monitoring; and
7. Waterbody Rehabilitation Programs including Adopt-an-Estero.

On October 13, 2022, a special meeting was conducted via Microsoft Teams together with the management of El Nido Sewerage and Solid Waste Treatment Plant to address problems and provide updates on the operation of the project. Below are the agenda discussed during the special meeting.

1. Status of the Constructed Collecting Tanks to the El Nido STP
2. Action Plan of BENB WQMA in connection with the operation of STP
3. Number of establishments connected to the STP
4. Status of the connection of the outfalls to the STP

STATUS OF ACCOMPLISHMENTS VS TARGETS BASED ON THE APPROVED TEN-YEAR ACTION PLAN

1. Map of Establishments within WQMA using Arc GIS

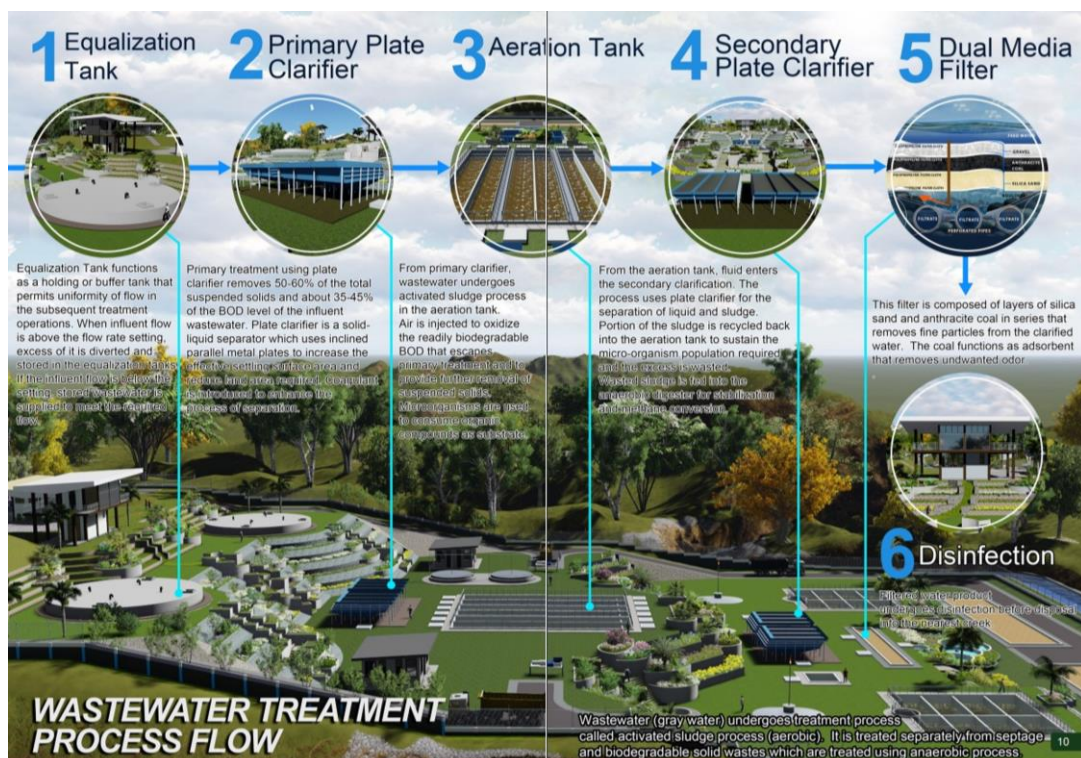


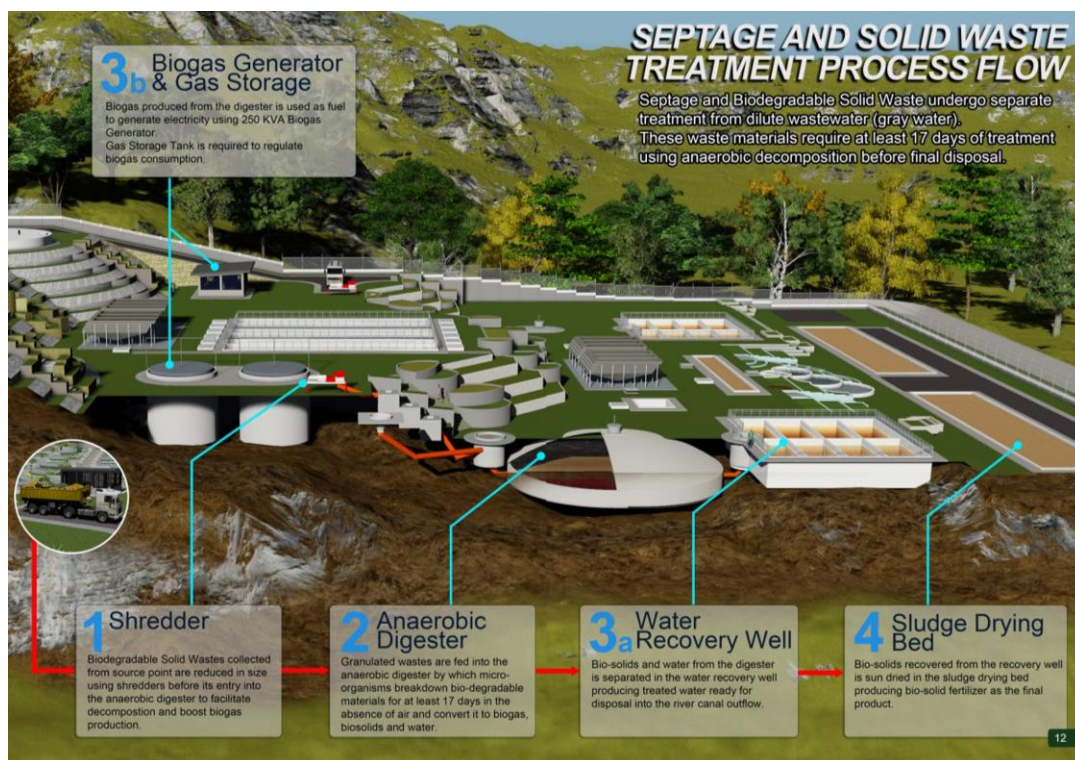
2. Status of Compliances of Establishments within Bacuit – El Nido Bay WQMA

DP: 8 establishment with Approved / Valid Discharge Permit

(Please see the attached list for reference)

3. Updates on El Nido Sewerage and Solid Waste Treatment Plant





- The El Nido Sewerage and Solid Waste Treatment Plant Project was a joint project of the Provincial Government of Palawan (PGP) and Local Government of El Nido. The project was operational since February 2022. Its design capacity is 2,400 cubic meter/day of wastewater (gray water), 50 cubic meter/day of septage (black water), and 20 cubic meters or 4.2 MT/day of biodegradable solid waste.
- There was a total of ten (10) cluster tanks installed at Brgy. Maligaya, Masagana, Buena Suerte, and Corong-Corong. When it comes to environmental permits from this Office, the project was issued with Discharge Permit (DP-R4B-22-01299) issued dated February 17, 2022 valid until February 17, 2023, Permit to Operate (PTO-OL-R4B-2022-02312) issued dated April 21, 2022 valid until April 21, 2027, and an on-going application for registration as Hazardous Waste Generator to this Office (Application No. 111953).
- Due to emerging problems from the operation of El Nido Sewerage and Solid Waste Treatment Plant, the Office called the attention of the management to address the problem such as the constructed cluster tanks that are not yet operational, leakage on laid pipelines, and adjacent waterline and sewerage line.
- There were 53 establishments connected to the STP as of October 13, 2022.
- When it comes to outfalls, Milan outfall was the only outfall connected to the STP. Other outfalls will be connected once the pipes were laid.

4. Way Forward for Bacuit – El Nido Bay WQMA

- For the LGU and concerned agencies to conduct Information, Education, and Communication (IEC) Campaign to the community within the Bacuit – El Nido Bay WQMA regarding on the water quality of Bacuit Bay and El Nido Bay and the threat of failing water quality to human health

- The LGU will enforce the environmental code and each member will be given copy for reference
- For LGU and management of the STP to encourage establishments to connect to the El Nido Sewerage and Solid Waste Treatment Plant
- Finalization of Governing Rules of Bacuit – El Nido Bay WQMA and formulation of Ten-Year Action Plan for the improvement of water quality of Bacuit and El Nido Bay

Water Quality Monitoring

DENR Administrative Order No. 08 series of 2016 (DAO 2016-08) also known as the “Water Quality Guidelines and General Effluent Standards of 2016” provides the prescribe water quality guidelines for the classified freshwaters and marine waters. Moreover, the set water quality parameters were used in classifying bodies of water in the Philippines. The parameters as stated at the DAO were categorized as primary and secondary wherein the primary parameters include Biochemical Oxygen Demand (BOD), Chloride, Color, Dissolved Oxygen (DO), *Fecal coliform*, Nitrates (NO₃-N), pH, Phosphate, Temperature, and Total Suspended Solids (TSS). DENR Administrative Order No. 19 series of 2021 (DAO 2021-19) also known as the “Updated Water quality Guidelines (WQG) and General Effluent Standards (GES) for selected parameters” was released last June 30, 2021. The said DAO provides the updated WQG and GES for selected parameters, to wit: Ammonia, Boron, Copper as Dissolved Copper, *Fecal coliform*, Phosphates as Phosphorus, and Sulfate.

Bacuit Bay is classified as “Class SB” Coastal and Marine Waters pursuant to DENR Memorandum Circular No. 03, Series of 2013 dated 17 January 2013. Based from the new DAO 2016-08, the beneficial uses of water bodies under “Class SB” water are: (1) Fishery Water Class II – Waters suitable for commercial propagation of shellfish and intended as spawning areas for milkfish (*Chanos chanos*) and similar species, (2) Tourist Zone – For ecotourism and recreational activities, and (3) Recreational Water Class I – Intended for primary contact recreation (bathing, swimming, skin diving, etc.)

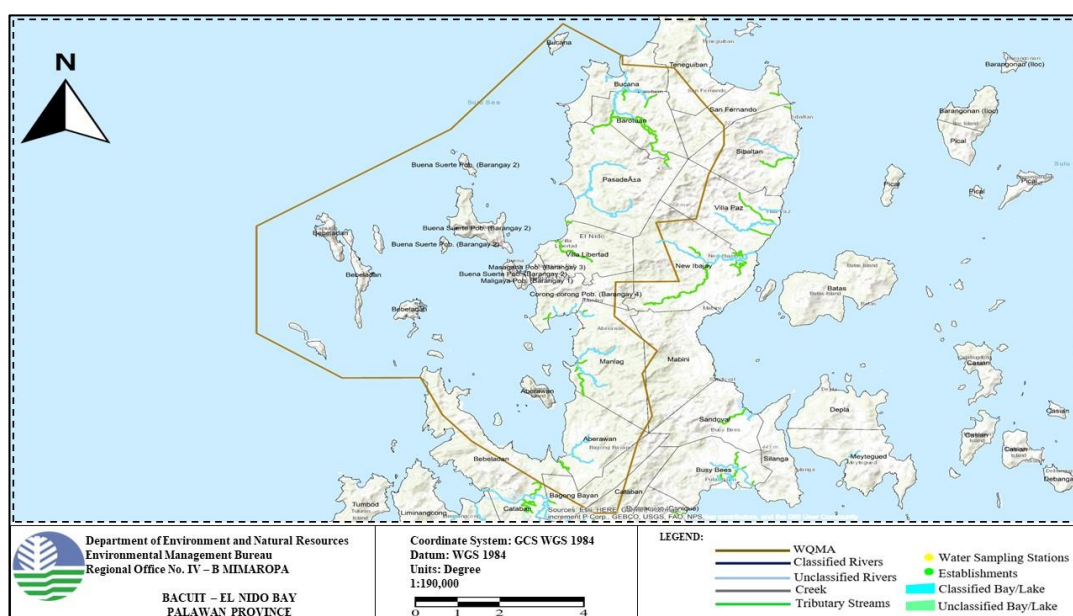


Figure 1. Coverage of the Bacuit -El Nido Bay Water Quality Management Area (BENB WQMA)

1. BACUIT BAY

A total of 39 sampling stations were monitored in Bacuit Bay wherein ten (10) stations identified for coastal monitoring on a monthly, five (5) stations for outfalls monitored monthly, twenty (20) stations for tourist attractions for water quality monitoring of Bacuit Bay monitored quarterly, and four (4) stations for ambient monitored semi-annually. Water quality monitoring stations were established for the sampling of the physico-chemical and bacteriological parameters. Locations of each station were determined using Garmin portable Global Positioning System (GPS) receiver. Important basic information is shown in the table below and plotted through Google Earth.

Table 1. Bacuit Bay Costal Area Water Quality Monitoring Stations

STATION NUMBER	STATION IDENTIFICATION	LATITUDE	LONGITUDE
1	Masagana	11°11'1.20"	119°23'32.27"
2	Maligaya	11°10'52.80"	119°23'26.10"
3	Buena Suerte	11°10'49.70"	119°23'18.90"
4	Lugadya	11°09'49.50"	119°23'47.60"
5	Maramegmeg III	11°08'42"	119°23'35"
6	Maramegmeg II	11°08'46"	119°23'46"
7	Maramegmeg I	11°08'57"	119°23'48"
8	Corong Corong Cove III	11°09'22"	119°23'45"
9	Corong Corong Cove II	11°09'31"	119°23'46"
10	Corong Corong Cove I	11°09'40"	119°23'46"

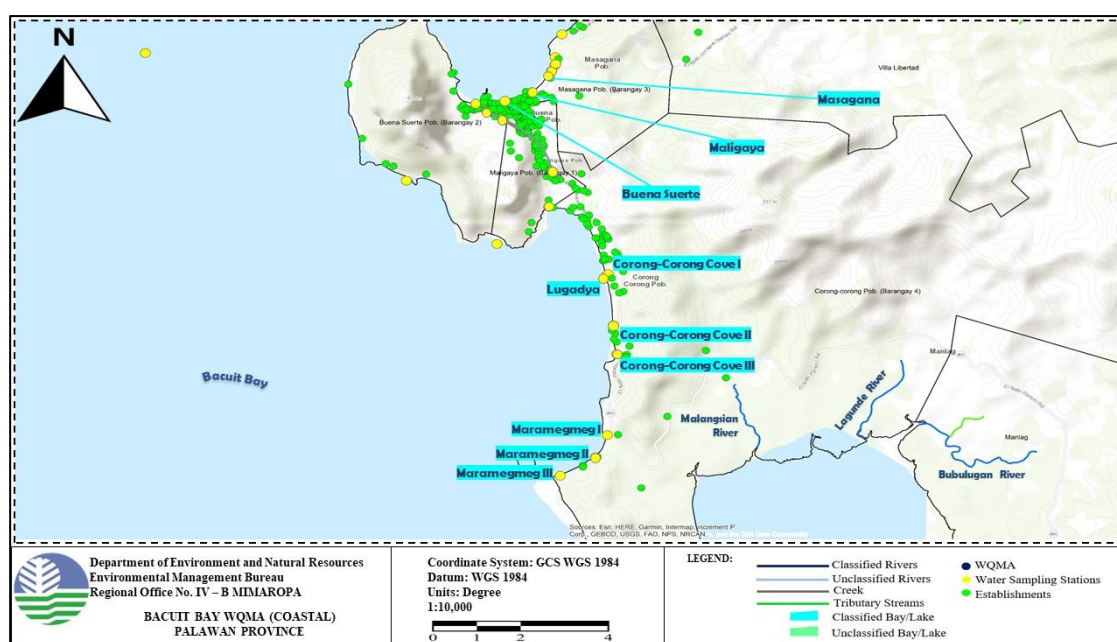


Figure 2. Location of Bacuit Bay Coastal Area Water Quality Monitoring Stations

Table 2. Outfalls in Bacuit Bay Water Quality Monitoring Stations

STATION NUMBER	STATION IDENTIFICATION	LATITUDE	LONGITUDE
1	Corong-Corong Outfall	11° 10' 13"	119° 23' 32"
2	El Nido Estero Outfall	11° 10' 47"	119° 23' 10"
3	Masagana Outfall	11° 11' 01"	119° 23' 33"
4	Cabugao Outfall	11° 11' 04"	119° 23' 33"
5	Masagana II	11° 11' 01" N	119° 23' 33" E

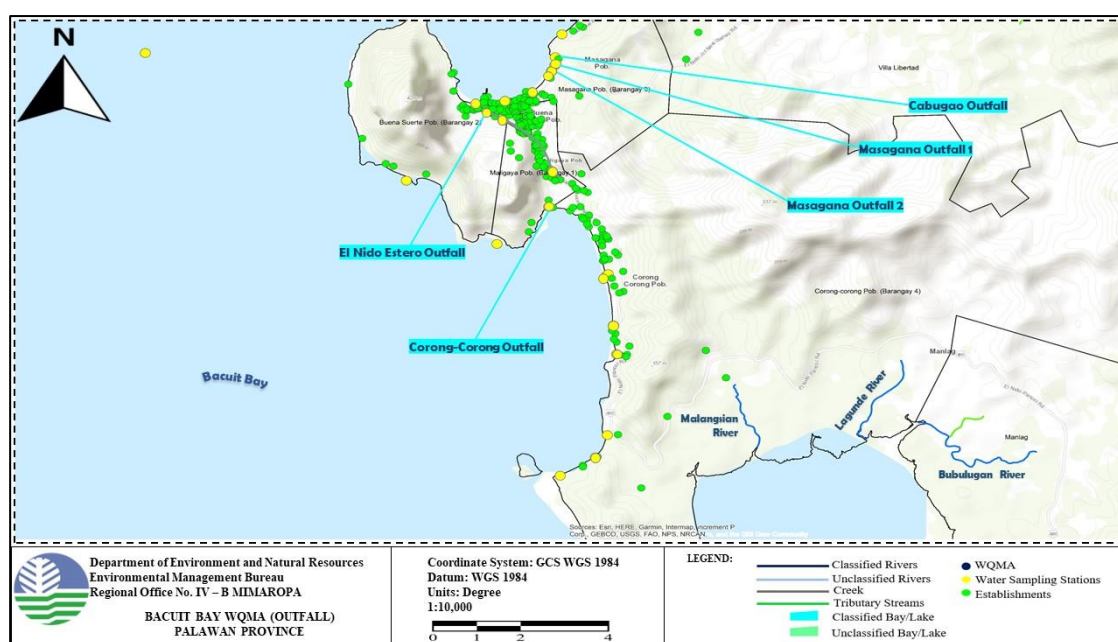


Figure 3. Location of Outfalls in Bacuit Bay Water Quality Monitoring Stations

Table 3. Tourist Destinations in Bacuit Bay Water Quality Monitoring Stations

STATION NUMBER	STATION IDENTIFICATION	LATITUDE	LONGITUDE
1	Pinagbuyutan Island	11° 07' 14"	119° 23' 40"
2	Cathedral Cave	11° 04' 29"	119° 23' 03"
3	Snake Island	11° 05' 39"	119° 20' 25"
4	Codugnun Island	11° 05' 03"	119° 21' 10"
5	Entalula Island	11° 07' 42"	119° 20' 11"
6	Simizu Island	11° 08' 18"	119° 19' 08"
7	Big Lagoon	11° 09' 08"	119° 19' 29"
8	Small Lagoon	11° 09' 20"	119° 19' 18"
9	Seven Commando Island	11° 10' 24"	119° 23' 44"
10	Helicopter Island	11° 11' 45"	119° 20' 16"
11	Pasandigan Beach	11° 12' 12"	119° 21' 29"
12	Paradise Island	11° 12' 02"	119° 22' 23"

13	Bukal Beach	11° 12' 30"	119° 22' 41"
14	Cadlao Lagoon	11° 12' 51"	119° 22' 42"
15	Hidden Beach	11° 11' 28"	119° 16' 58"
16	Matinloc Shrine	11° 12' 8"	119° 16' 29"
17	Talisay Beach	11° 11' 43"	119° 16' 19"
18	Secret Beach	11° 10' 37"	119° 16' 50"
19	Secret Lagoon	11° 8' 43"	119° 18' 46"
20	Papaya Beach	11° 10' 22"	119° 22' 53"

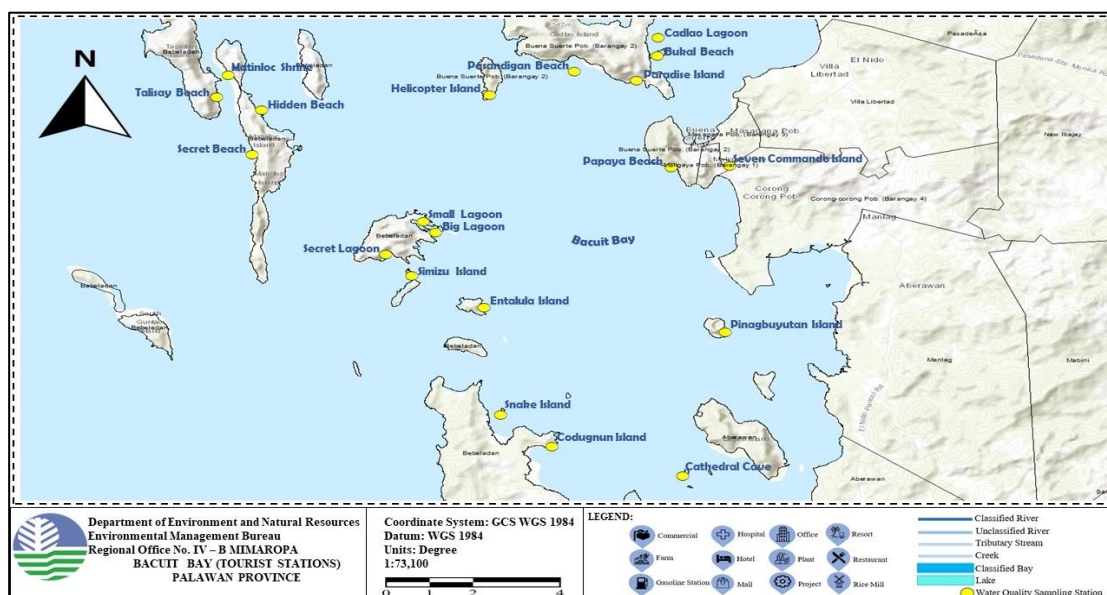


Figure 4. Location of Tourist Destinations in Bacuit Bay Water Quality Monitoring Stations

2. EL NIDO BAY

Ten (10) stations were identified for the water quality monitoring of El Nido Bay. All the water quality monitoring stations were established for the sampling of the physico-chemical parameters and for the bacteriological parameters. Locations of each station were determined using Garmin portable Global Positioning System (GPS) receiver. Important basic information is shown in the table below and plotted through Google Earth.

Table 4. El Nido Bay Water Quality Monitoring Stations

STATION NUMBER	STATION IDENTIFICATION	LATITUDE	LONGITUDE
1	Sitio Caalan	11°11'13"	119°23'35"
2	Caalan Beach	11°11'29"	119°23'47"
3	Lio Runway	11°12'27"	119°24'53"
4	Lio Port	11°12'29.0"	119°24'54"

5	Lio Beach	11°12'36"	119°24'59.0"
6	Lamoro Beach	11°13'50"	119°25'19"
7	Calitang Beach	11°18'29.0"	119°25'5"
8	Twin Beach	11°18'43"	119°25'8"
9	Nacpan Port	11°18'52"	119°25'22"
10	Nacpan Beach	11°19'1"	119°25'30"

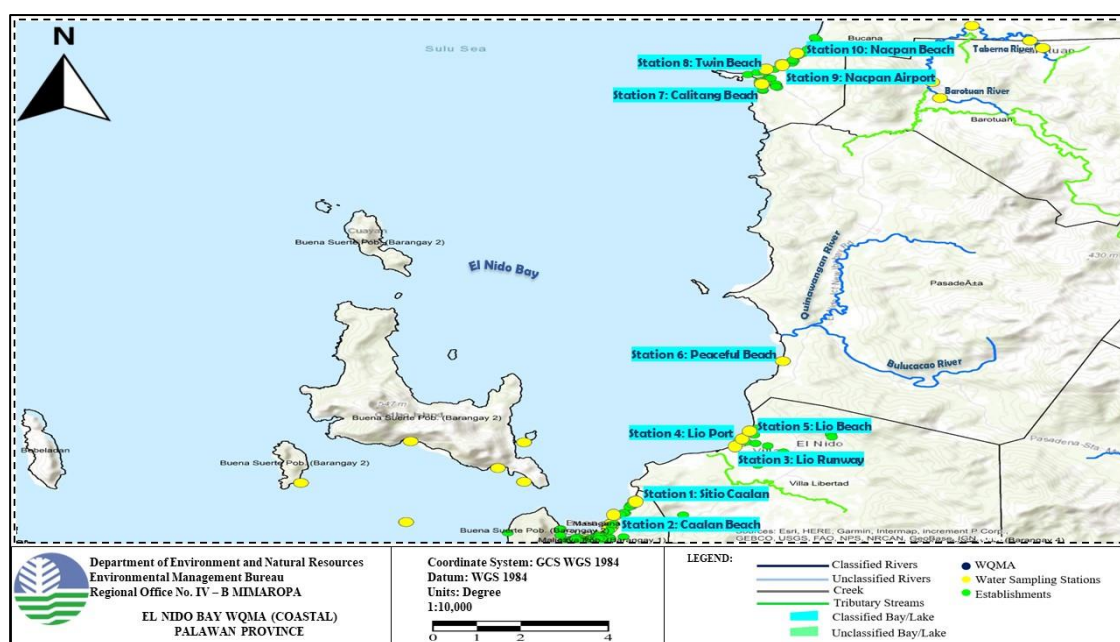


Figure 5. Location of El Nido Bay Water Quality Monitoring Stations

Results of CY 2022 Water Quality Monitoring

There are ten (10) stations identified for coastal monitoring, five (5) stations for outfalls and twenty (20) stations for tourist attractions for water quality monitoring of Bacuit Bay while there are ten (10) stations for El Nido Bay. The corresponding measurements of different water quality parameters measured at these stations are shown in the tables below.

Data Gathered for Bacuit Bay Coastal Area

Table 5. Results of Bacuit Bay Coastal Area in terms of *Fecal coliform*, MPN/100mL

Station Identification	Feb-15	Mar-21	Apr-19	May-16	Jun-7	Jun-22	Jul-12	Aug-2	Aug-16	Sept-6	Oct-4	Oct-18	Nov-8
Masagana	no data	<180	1400	63	34,658	<18	350	350	<1.8	>1600	540	23	240
Maligaya	no data	20	45	68	1,112	20	33	49	4	11	33	27	4.5
Buena Suerte	no data	<18	460	490	1,024	<18	240	23	46	240	11	49	14
Lugadya	no data	20	2400	230	82	230	79	4.5	110	2	2	4.5	23
Maramegmeg III	<1.8	<18	540	220	<10	<18	<1	4.5	6.8	4.5	240	2	23
Maramegmeg II	40	<18	>1600	140	1,071	230	30.5	23	350	130	<1.8	17	4.5
Maramegmeg I	2	1.8	920	130	160	20	8.6	79	240	7.8	4	130	31
Corong-Corong Cove III	13	13	7.8	1300	160	230	32	49	540	<1.8	<1.8	540	33
Corong-Corong Cove II	7.8	20	49	1100	631	78	45	33	49	9.2	2	>1600	<1.8
Corong-Corong Cove I	4.5	20	33	790	309	17	25.6	11	110	2	<1.8	<1.8	33
Overall	6	18	242	272	416	45	50	28	47	16	8	32	16

Table 6. Results of Bacuit Bay Coastal Area in terms of Dissolved Oxygen, mg/L

Station Identification	Feb-15	Mar-21	Apr-19	May-16	Jun-7	Jun-22	Jul-12	Aug-2	Aug-16	Sept-6	Oct-4	Oct-18	Nov-8
Masagana	n/a	5.57	7.81	7.88	7.88	7.04	7.80	7.65	5.82	6.34	8.60	6.39	5.72
Maligaya	n/a	5.66	7.52	7.40	7.40	6.92	7.57	7.06	5.86	6.78	6.90	6.61	6.02
Buena Suerte	n/a	5.70	7.64	7.40	7.42	6.26	7.70	7.00	6.05	6.62	7.00	6.21	6.19
Lugadya	n/a	5.98	7.10	7.22	7.20	6.91	7.10	8.39	6.88	8.73	10.9	6.47	6.15
Maramegmeg III	3.77	7.49	6.96	5.04	7.30	6.60	6.80	7.81	7.17	8.92	8.90	7.05	5.92
Maramegmeg II	6.51	6.12	6.42	7.05	6.70	6.69	7.28	8.07	6.37	6.60	6.50	6.39	7.87
Maramegmeg I	6.29	6.88	6.06	7.24	7.80	6.27	7.40	8.57	6.61	6.94	7.00	6.26	8.73
Corong-Corong Cove III	5.56	6.65	6.55	5.84	6.90	6.18	6.50	8.39	7.40	9.67	8.10	6.89	7.41
Corong-Corong Cove II	4.89	6.40	6.88	5.13	7.30	7.19	7.40	8.43	7.48	8.67	8.40	6.59	7.48
Corong-Corong Cove I	5.54	6.80	7.36	6.48	7.10	6.91	7.28	8.28	6.93	8.57	9.20	6.59	6.15
Overall	5.43	6.33	7.03	6.67	7.30	6.70	7.28	7.97	6.66	7.78	8.15	6.55	6.76

Table 7. Results of Bacuit Bay Coastal Area in terms of pH

Station Identification	Feb-15	Mar-21	Apr-19	May-16	Jun-7	Jun-22	Jul-12	Aug-2	Aug-16	Sept-6	Oct-4	Oct-18	Nov-8
Masagana	n/a	8.00	8.22	8.28	no data	no data	no data	no data	5.40	no data	8.47	8.32	8.04
Maligaya	n/a	8.24	8.26	8.22	no data	no data	no data	no data	5.67	no data	8.33	8.35	8.09
Buena Suerte	n/a	8.24	8.2	8.18	no data	no data	no data	no data	5.76	no data	8.37	8.25	8.1
Lugadya	n/a	8.18	8.21	8.12	no data	no data	no data	no data	8.02	no data	8.67	8.25	8.02
Maramegmeg III	7.77	8.06	8.18	7.81	no data	no data	no data	no data	7.94	no data	8.54	8.19	6.38
Maramegmeg II	8.14	8.06	8.14	8.04	no data	no data	no data	no data	8.10	no data	8.37	8.22	8.12
Maramegmeg I	8.15	8.14	8.18	8.1	no data	no data	no data	no data	8.09	no data	8.34	8.14	8.23
Corong-Corong Cove III	8.02	8.10	8.12	7.97	no data	no data	no data	no data	7.99	no data	8.5	8.23	8.15
Corong-Corong Cove II	7.88	8.02	8.1	7.92	no data	no data	no data	no data	8.08	no data	8.51	8.26	8.09
Corong-Corong Cove I	7.98	8.15	8.23	8.06	no data	no data	no data	no data	8.00	no data	8.59	8.35	8.02
Overall	7.99	8.12	8.18	8.07	no data	no data	no data	no data	7.31	no data	8.45	8.25	7.92

Table 8. Results of Bacuit Bay Coastal Area in terms of Phosphates, mg/L

Station Identification	Feb-15	Mar-21	Apr-19	May-16	Jun-7	Jun-22	Jul-12	Aug-2	Aug-16	Sept-6	Oct-4	Oct-18	Nov-8
Masagana	no data	no data	<0.02	no data	no data	<0.02	<0.02	0.02	<0.02	0.15	0.04	0.03	0.04
Maligaya	no data	no data	0.04	no data	no data	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.02
Buena Suerte	no data	no data	<0.02	no data	no data	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.5
Lugadya	no data	no data	<0.02	no data	no data	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.5
Overall	no data	no data	0.02	no data	no data	<0.02	0.02	0.02	<0.02	0.05	0.03	0.02	0.26

Table 9. Results of Bacuit Bay Coastal Area in terms of Nitrates, mg/L

Station Identification	Feb-15	Mar-21	Apr-19	May-16	Jun-7	Jun-22	Jul-12	Aug-2	Aug-16	Sept-6	Oct-4	Oct-18	Nov-8
Masagana	no data	no data	saline	no data	no data	<0.5	<0.5	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05
Maligaya	no data	no data	saline	no data	no data	<0.5	<0.5	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05
Buena Suerte	no data	no data	saline	no data	no data	<0.5	<0.5	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05
Lugadya	no data	no data	saline	no data	no data	<0.5	<0.5	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05
Overall	no data	no data	Saline	no data	no data	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Table 10. Results of Bacuit Bay in terms of Total Suspended Solids, mg/L

Station Identification	Feb-15	Mar-21	Apr-19	May-16	Jun-7	Jun-22	Jul-12	Aug-2	Aug-16	Sept-6	Oct-4	Oct-18	Nov-8
Masagana	no data	no data	60	13	98	20	24	20	16	338	17	274	184
Maligaya	no data	no data	64	39	16	11	24	12	17	17	80	128	125
Buena Suerte	no data	no data	70	27	12	11	26	11	48	15	275	36	47
Lugadya	no data	no data	25	10	12	22	49	52	17	14	63	166	25
Overall	no data	no data	55	22	35	16	31	24	25	96	109	151	85

Data Gathered for Outfalls in Bacuit Bay

Table 11. Results of Outfalls in Bacuit Bay in terms of *Fecal coliform*, MPN/100mL

Station Identification	Mar-21	Apr-19	May-16	Jun-7	Jun-22	Jul-12	Aug-2	Aug-16	Sept-6	Sept-28	Oct-4	Oct-18	Nov-8
Corong Corong Outfall	<180	78	1,100	432	330	1,700	5,400	680	no data	780	17,000	94,000	23,000
El Nido Estero Outfall	920,000	130,000	*sealed outfall	>241961	>160,000	350,000	330,000	33,000	no data	35,000	92,000	49,000	130,000
Masagana Outfall I	680	*no longer visible	17,000	n/a	17,000	16001	54,000	13,000	no data	23,000	17,000	7,800	<1,800
Cabugao Outfall	*no water discharge	130	*sealed outfall	n/a	no data	9,200	16,000	23,000	no data	7,900	35,000	13,000	<1,800
Masagana Outfall II	*no longer visible	16,000	5,400	>48399	no data	16001	16001	160,000	no data	7,900	160,000	49,000	49,000
Overall	4,820	2,143	4,657	17,167	9,646	16,956	30,082	16,075	no data	8,291	43,110	29,642	9,918

Table 12. Results of Outfalls in Bacuit Bay in terms of Dissolved Oxygen mg/L

Station Identification	Mar-21	Apr-19	May-16	Jun-7	Jun-22	Jul-12	Aug-2	Aug-16	Sept-6	Sept-28	Oct-4	Oct-18	Nov-8
Corong Corong Outfall	7.19	7.34	4.14	7.5	6.14	4.42	4.18	4.91	3.49	no data	4	3.63	5.68
El Nido Estero Outfall	1.33	1.4	*sealed outfall	0	0.28	1.42	0.72	3.43	1.89	no data	2.7	3.16	7.84
Masagana Outfall I	5.88	*no longer visible	2.42	n/a	5.1	1.72	0.66	2.96	6.02	no data	6.9	5.87	5.92
Cabugao Outfall	n/a	7.2	*sealed outfall	n/a	*	3.4	5.29	5.3	5.53	no data	6.2	4.93	5.19
Masagana Outfall II	n/a	4.45	5.1	3.2	*	0.74	4.54	5.72	3.5	no data	2.3	2.99	1.76
Overall	4.80	5.10	3.89	3.57	3.84	2.34	3.08	4.46	4.09	no data	4.42	4.40	5.28

Table 13. Results of Outfalls in Bacuit Bay in terms of pH

Station Identification	Mar-21	Apr-19	May-16	Jun-7	Jun-22	Jul-12	Aug-2	Aug-16	Sept-6	Sept-28	Oct-4	Oct-18	Nov-8
Corong Corong Outfall	8.00	8.22	7.55	no data	no data	no data	no data	7.90	no data	no data	7.73	7.39	7.69
El Nido Estero Outfall	7.68	7.47	*sealed outfall	no data	no data	no data	no data	7.35	no data	no data	7.69	7.43	7.32
Masagana Outfall I	7.70	*no longer visible	7.64	no data	no data	no data	no data	4.88	no data	no data	7.31	7.10	6.67
Cabugao Outfall	n/a	8.06	*sealed outfall	no data	*	no data	no data	4.86	no data	no data	7.99	7.64	7.74
Masagana Outfall II	n/a	7.57	7.62	no data	*	no data	no data	1.05	no data	no data	7.43	7.20	6.80
Overall	7.79	7.83	7.60	no data	no data	no data	no data	5.21	no data	no data	7.63	7.35	7.24

Data Gathered for Tourist Destinations in Bacuit Bay

Table 14. Results of Tourist Destinations in Bacuit Bay in terms of *Fecal coliform*, MPN/100mL

Station Identification	March 28, 2022	August 1, 2022	September 5, 2022	November 9, 2022
Pinagbuyutan Island	4.5	1	4.5	<1
Cathedral Cave	23	<1	<1	<1
Snake Island	4.5	12.1	3	<1
Codugnun Island	17	3	7.3	<1
Entalula Island	33	1	5.2	1
Shimizu Island	4.5	5	6.3	<1
Big Lagoon	13	<1	2	4.1
Small Lagoon	23	<1	1	<1
Seven Commando Island	17	1	8.4	<1
Helicopter Island	4.5	18.5	<1	<1
Pasandigan Beach	7.8	<1	<1	9.6
Paradise Island	<1.8	<1	1	<1
Bukal Beach	<1.8	<1	2	<1
Cadlao Lagoon	4.5	3	2	<1
Hidden Beach	<1.8	<1	<1	1
Matinloc Shrine	<1.8	<1	<1	<1
Talisay Beach	33	2	<1	<1
Secret Beach	<1.8	<1	<1	5.2
Secret Lagoon	13	143.9	13.5	7.5
Papaya Beach	23	11.3	3.1	<1
Overall	7	2	2	1

Table 15. Results of Tourist Destinations in Bacuit Bay in terms of Dissolved Oxygen, mg/L

Station Identification	March 28, 2022	August 1, 2022	September 5, 2022	November 9, 2022
Pinagbuyutan Island	6.17	6.49	7.65	6.99
Cathedral Cave	5.88	6.73	9.07	7.61
Snake Island	6.75	6.65	7.98	6.4
Codugnun Island	6.82	6.76	9.62	7.95
Entalula Island	6.86	7.29	9.77	6.56
Shimizu Island	6.56	7.18	10.89	7.79
Big Lagoon	6.4	5.74	7.15	8.21
Small Lagoon	5.72	4.31	6.7	7.88

Seven Commando Island	7.56	6.32	7.3	7.83
Helicopter Island	6.38	6.38	7.89	6.39
Pasandigan Beach	4.7	6.85	10.06	7.75
Paradise Island	5.74	6.16	11.71	6.47
Bukal Beach	6.28	6.98	9.13	7.04
Cadlao Lagoon	5.62	5.81	8.86	7.92
Hidden Beach	7.31	7.51	10.58	7.49
Matinloc Shrine	7.48	6.57	7.79	7.36
Talisay Beach	7.52	6.95	14.13	7.29
Secret Beach	7.36	6.11	8.19	7.79
Secret Lagoon	6.23	7	6.62	8.76
Papaya Beach	7.48	7.09	9.36	8.68
Overall	6.54	6.54	9.02	7.51

Table 16. Results of Tourist Destinations in Bacuit Bay in terms of pH

Station Identification	March 28, 2022	August 1, 2022	September 5, 2022	November 9, 2022
Pinagbuyutan Island	8.40	8.19	8.68	8.15
Cathedral Cave	8.17	8.17	8.23	8.1
Snake Island	8.16	8.24	8.68	8.04
Codugnun Island	8.36	8.18	8.25	8.22
Entalula Island	8.32	8.29	8.47	8.13
Shimizu Island	8.24	8.25	8.13	8.66
Big Lagoon	8.16	8.06	8.23	8.17
Small Lagoon	8.12	8.01	8.19	8.62
Seven Commando Island	8.38	8.11	7.87	7.24
Helicopter Island	8.33	8.13	8.12	8.2
Pasandigan Beach	7.92	8.12	8.09	8.67
Paradise Island	7.97	8.13	8.08	8.15
Bukal Beach	8.02	8.14	8.06	8.45
Cadlao Lagoon	7.88	8.08	8.05	6.35
Hidden Beach	8.18	8.29	8.11	8.74
Matinloc Shrine	8.24	8.27	8.18	8.21
Talisay Beach	8.20	8.21	8.23	8.27
Secret Beach	8.24	8.19	8.17	8.2
Secret Lagoon	8.23	8.22	8.14	9.09
Papaya Beach	8.29	8.11	7.73	8.39
Overall	8.19	8.17	8.18	8.20

Data Gathered for Ambient Stations in Bacuit Bay

Table 18. Results of Ambient Stations in Bacuit Bay in terms of Oil and Grease, mg/L

Station Identification	June 27, 2022	August 1, 2022
Masagana	62	32
Maligaya	53	45
Buena Suerte	70	38
Corong Corong	72	63
Overall	64.25	44.5

Table 18. Results of Ambient Stations in Bacuit Bay in terms of Temperature, °C

Station Identification	June 27, 2022	August 1, 2022
Masagana	30.04	30.18
Maligaya	30.31	30.02
Buena Suerte	30.22	29.97
Corong Corong	30.05	29.93
Overall	30.16	30.03

Table 19. Results of Ambient Stations in Bacuit Bay in terms of Dissolved Oxygen, mg/L

Station Identification	June 27, 2022	August 1, 2022
Masagana	5.18	5.18
Maligaya	4.90	4.9
Buena Suerte	5.52	5.52
Corong Corong	5.58	5.58
Overall	5.30	5.30

Table 20. Results of Ambient Stations in Bacuit Bay in terms of pH

Station Identification	June 27, 2022	August 1, 2022
Masagana	8.85	8.11
Maligaya	8.61	8.09
Buena Suerte	8.45	8.12
Corong Corong	7.73	7.81
Overall	8.41	8.03

Data Gathered for El Nido Bay

Table 21. Results of El Nido Bay in terms of *Fecal coliform*, MPN/100mL

Station Identification	Mar-21	Apr-19	May-16	Jun-7	Jun-22	Jul-12	Aug-2	Aug-17	Sept-6	Oct-5	Oct-18	Nov-8
Sitio Caalaan	2	920	79	7.4	110	235.9	1.7	13	6.8	<1.8	<1.8	<1.8
Caalan Beach	2	920	350	4.1	<1.8	4.1	79.0	7.8	2	<1.8	<1.8	<1.8
Lio Runaway	1.8	7.8	<1.8	26.2	21	17.3	17.0	1.8	13	49	7.8	2
Lio Port	2	2	2	365.4	<1.8	32.4	14.0	<1.8	79	4.5	17	<1.8
Lio Beach	<1.8	<1.8	<1.8	4.1	<1.8	11.9	<1.8	2	11	2	13	<1.8
Lamuro	<1.8	<1.8	23	2	<1.8	4.1	<1.8	<1.8	33	2	23	7.8
Calitang Beach	78	4	350	7.3	2	13.1	2.0	13	540	110	49	<1.8
Twin Beach	2	2	4.5	6.3	2	7.3	4.5	2	<1.8	2	7.8	<1.8
Nacpan Port	4.5	<1.8	33	<1	33	6.3	13.0	<1.8	7.8	<1.8	<1.8	4.5
Nacpan Beach	<1.8	540	11	<1	<1.8	8.3	17.0	<1.8	4.5	<1.8	2	<1.8
Overall	3	14	17	6	5	13	7	3	13	4	7	2

Table 22. Results of El Nido Bay in terms of Dissolved Oxygen, mg/L

Station Identification	Mar-21	Apr-19	May-16	Jun-7	Jun-22	Jul-12	Aug-2	Aug-17	Sept-6	Oct-5	Oct-18	Nov-8
Sitio Caalaan	6.79	5.76	7.04	9.20	8.02	8.16	8.63	9.10	7.07	7.15	6.29	8.20
Caalan Beach	6.12	6.00	6.83	8.70	8.08	8.74	9.65	7.20	7.70	8.46	6.01	7.30
Lio Runaway	6.24	6.42	6.46	7.50	6.40	7.30	6.29	7.70	6.62	7.02	5.90	8.70
Lio Port	5.91	6.48	6.31	7.20	6.62	7.21	6.19	7.20	6.80	5.73	6.22	8.30
Lio Beach	6.13	6.59	6.16	7.10	6.44	7.28	7.26	7.30	6.38	7.52	5.98	8.32
Lamuro	6.72	6.39	6.07	7.10	6.72	7.54	6.81	7.50	6.46	7.10	6.10	8.29
Calitang Beach	6.68	6.04	6.09	7.20	6.84	7.20	6.83	7.50	6.67	7.85	6.04	6.90
Twin Beach	6.60	6.80	6.15	7.20	7.28	7.12	6.59	7.30	6.45	7.65	6.22	9.20
Nacpan Port	6.66	6.60	5.94	7.10	6.38	7.24	13.00	7.30	6.46	6.40	6.12	7.10
Nacpan Beach	5.88	6.91	6.09	6.90	6.62	7.93	17.00	7.50	6.36	7.36	6.28	2.80
Overall	6.37	6.40	6.31	7.52	6.94	7.57	8.83	7.56	6.70	7.22	6.12	7.51

Table 23. Results of El Nido Bay in terms of Total Suspended Solids, mg/L

Station Identification	Mar-21	Apr-19	May-16	Jun-7	Jun-22	Jul-12	Aug-2	Aug-17	Sept-6	Oct-5	Oct-18	Nov-8
Sitio Caalaan	no data	17	<2	<2	10	14	11	10	7	15	8	22
Caalan Beach	no data	19	<2	3	11	15	9	9	9	59	84	21
Lio Runaway	no data	95	19	<2	15	50	16	20	114	41	571	50
Lio Port	no data	38	21	<2	15	58	13	46	25	36	785	117
Lio Beach	no data	150	37	10	13	35	12	59	18	21	1249	90
Lamuro	no data	58	28	6	12	247	6	52	109	44	1401	128
Calitang Beach	no data	20	13	24	15	74	19	22	82	12	34	25
Twin Beach	no data	54	17	29	12	41	8	9	38	13	937	38
Nacpan Port	no data	176	19	13	15	59	9	17	57	11	282	21
Nacpan Beach	no data	19	13	14	28	27	7	16	71	13	638	27
Overall	no data	65	21	14	15	62	11	26	53	30	599	54

Table 24. Results of El Nido Bay in terms of Phosphates, mg/L

Station Identification	Mar-21	Apr-19	May-16	Jun-7	Jun-22	Jul-12	Aug-2	Aug-17	Sept-6	Oct-5	Oct-18	Nov-8
Sitio Caalaan	no data	<0.02	no data	no data	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Caalan Beach	no data	<0.02	no data	no data	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Lio Runaway	no data	<0.02	no data	no data	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Lio Port	no data	<0.02	no data	no data	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Lio Beach	no data	<0.02	no data	no data	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Lamuro	no data	<0.02	no data	no data	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	<0.02
Calitang Beach	no data	<0.02	no data	no data	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Twin Beach	no data	<0.02	no data	no data	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Nacpan Port	no data	<0.02	no data	no data	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Nacpan Beach	no data	<0.02	no data	no data	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Overall	no data	<0.02	no data	no data	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02

Table 25. Results of El Nido Bay in terms of Nitrates, mg/L

Station Identification	Mar-21	Apr-19	May-16	Jun-7	Jun-22	Jul-12	Aug-2	Aug-17	Sept-6	Oct-5	Oct-18	Nov-8
Sitio Caalaan	no data	no data	no data	no data	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Caalan Beach	no data	no data	no data	no data	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Lio Runaway	no data	no data	no data	no data	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Lio Port	no data	no data	no data	no data	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Lio Beach	no data	no data	no data	no data	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Lamuro	no data	no data	no data	no data	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Calitang Beach	no data	no data	no data	no data	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Twin Beach	no data	no data	no data	no data	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Nacpan Port	no data	no data	no data	no data	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Nacpan Beach	no data	no data	no data	no data	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Overall	no data	no data	no data	no data	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Table 26. Results of El Nido Bay in terms of pH

Station Identification	Mar-21	Apr-19	May-16	Jun-7	Jun-22	Jul-12	Aug-2	Aug-17	Sept-6	Oct-5	Oct-18	Nov-8
Sitio Caalaan	8.14	8.08	7.96	no data	no data	no data	no data	no data	no data	8.56	8.49	8.38
Caalan Beach	8.20	8.04	8.06	no data	no data	no data	no data	no data	no data	8.32	8.42	8.39
Lio Runaway	8.06	8.27	8.21	no data	no data	no data	no data	no data	no data	7.98	8.25	8.35
Lio Port	8.18	8.10	8.16	no data	no data	no data	no data	no data	no data	7.97	8.19	8.30
Lio Beach	8.12	8.10	8.17	no data	no data	no data	no data	no data	no data	7.71	8.29	8.32
Lamuro	8.02	8.24	8.34	no data	no data	no data	no data	no data	no data	8.13	8.27	8.29
Calitang Beach	8.12	8.14	8.27	no data	no data	no data	no data	no data	no data	7.43	8.15	8.35
Twin Beach	8.18	8.22	8.15	no data	no data	no data	no data	no data	no data	8.19	8.27	8.37
Nacpan Port	8.16	8.20	8.26	no data	no data	no data	no data	no data	no data	8.16	8.22	8.39
Nacpan Beach	8.24	8.31	7.89	no data	no data	no data	no data	no data	no data	5.89	8.27	8.36
Overall	8.14	8.17	8.15	no data	no data	no data	no data	no data	no data	7.83	8.29	8.35

B.1 Graphical Representation of Results of Bacuit Bay Coastal Area

The graphs presented below are the summary of the results obtained from different water quality parameters measured for Bacuit Bay Coastal Area for CY 2022. Indicated are the average values and geometric mean of the sampling episodes from July to December of CY 2022.

1. *Fecal coliform*

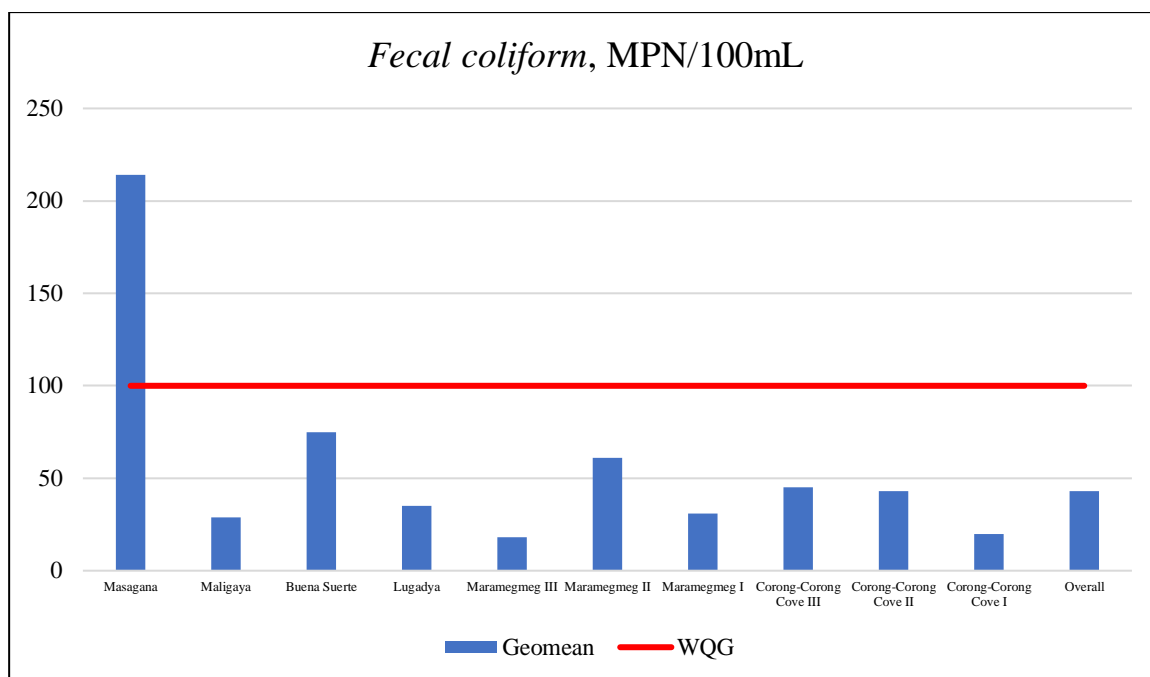


Figure 6. Geomean results in Bacuit Bay Coastal Area in terms of *Fecal coliform*

Table 28. Summary of Laboratory Results for C.Y. 2022 in terms of *Fecal coliform*, MPN/100mL

Station Identification	Minimum	Maximum	Geomean	Water Quality Guidelines (DAO 2021-19)
Masagana	<1.8	34,658	214	100
Maligaya	4	1,112	29	100
Buena Suerte	11	1,024	75	100
Lugadya	2	2,400	35	100
Maramegmeg III	<1.8	540	18	100
Maramegmeg II	<1.8	>1600	61	100
Maramegmeg I	1.8	920	31	100
Corong-Corong Cove III	<1.8	1,300	45	100
Corong-Corong Cove II	<1.8	>1600	43	100
Corong-Corong Cove I	<1.8	790	20	100
Overall			43	100

Based on the graph, the coastal area of Bacuit Bay shows that station Masagana has the high concentration which exceeds the water quality guidelines in terms of *fecal coliform*. Other stations are within the accepted value for *fecal coliform*.

2. Dissolved Oxygen

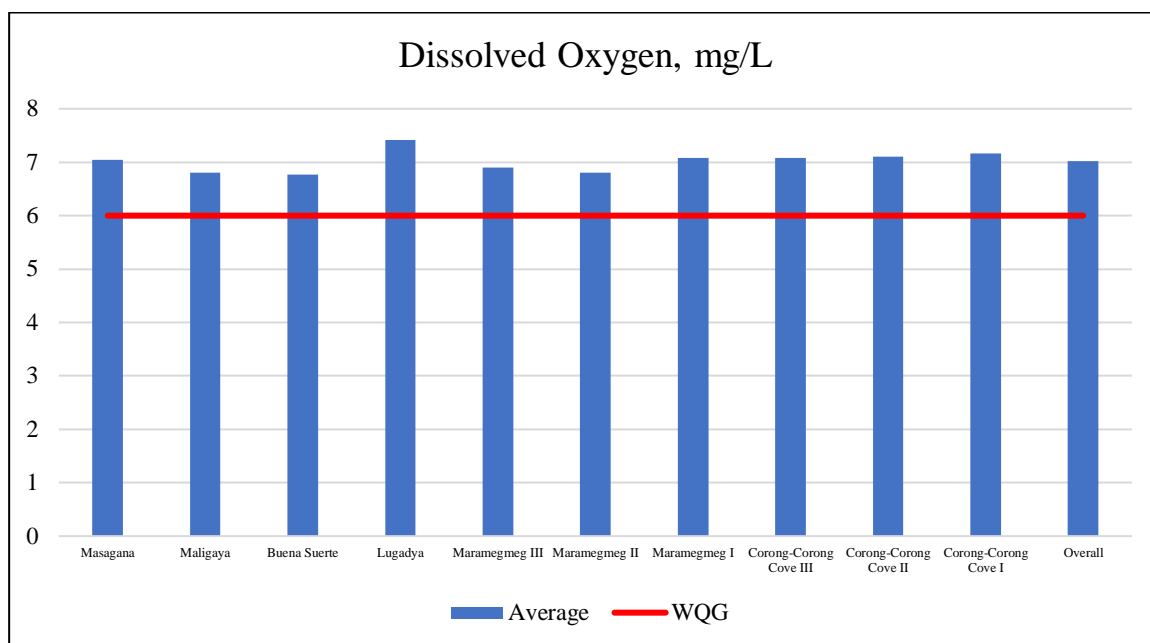


Figure 7. Average results in Bacuit Bay Coastal Area in terms of Dissolved Oxygen

Table 29. Summary of Laboratory Results for C.Y. 2022 in terms of Dissolved Oxygen, mg/L

Station Identification	Minimum	Maximum	Average	Water Quality Guidelines (DAO 2016-08)
Masagana	5.57	8.60	7.04	6
Maligaya	5.66	7.57	6.81	6
Buena Suerte	5.70	7.70	6.77	6
Lugadya	5.98	10.90	7.42	6
Maramegmeg III	3.77	8.92	6.90	6
Maramegmeg II	6.12	8.07	6.81	6
Maramegmeg I	6.06	8.73	7.08	6
Corong-Corong Cove III	5.56	9.67	7.08	6
Corong-Corong Cove II	4.89	8.67	7.10	6
Corong-Corong Cove I	5.54	9.20	7.17	6
Overall			7.02	6

Dissolved oxygen is an essential parameter in monitoring water quality and a key indicator of healthy aquatic ecosystems. However, too much oxygen in water can cause supersaturated oxygen which is harmful to aquatic life. For this semester Bacuit bay coastal has a good DO measurement all the stations passed the water quality guidelines.

3. pH

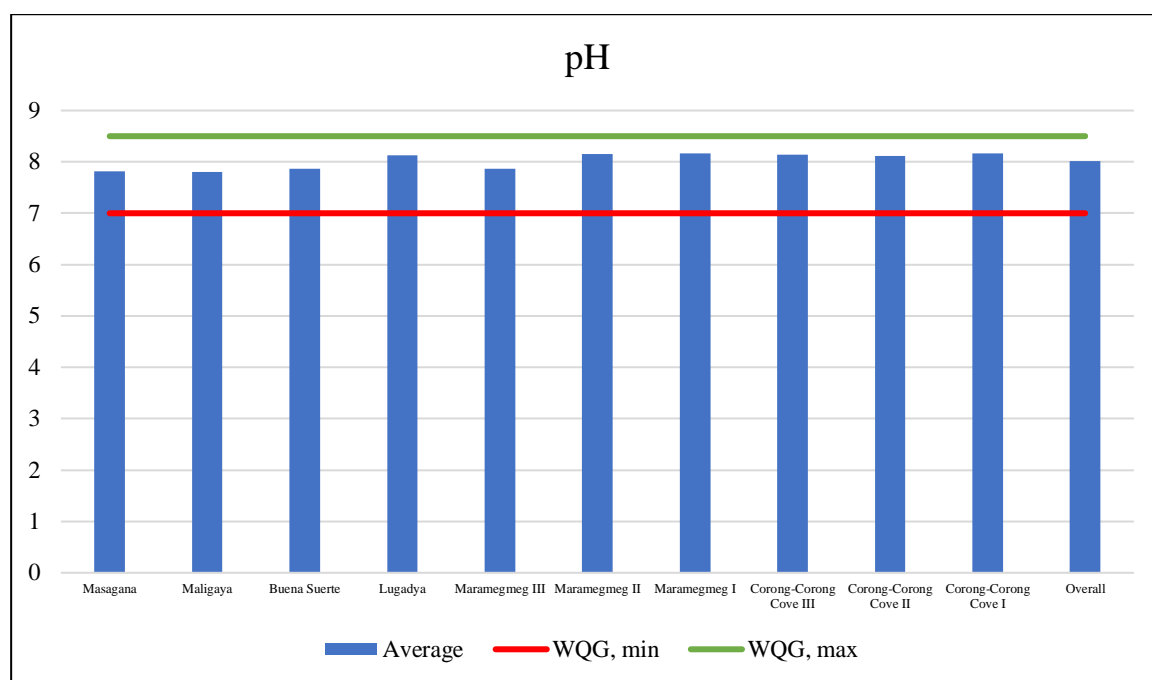


Figure 8. Average results in Bacuit Bay Coastal Area in terms of pH

Table 30. Summary of Laboratory Results for C.Y. 2022 in terms of pH

Station Identification	Minimum	Maximum	Average	Water Quality Guidelines (DAO 2016-08)
Masagana	5.40	8.47	7.82	7 – 8.5
Maligaya	5.67	8.33	7.80	7 – 8.5
Buena Suerte	5.76	8.37	7.87	7 – 8.5
Lugadya	8.02	8.25	8.13	7 – 8.5
Maramegmeg III	6.38	8.54	7.86	7 – 8.5
Maramegmeg II	8.04	8.37	8.15	7 – 8.5
Maramegmeg I	8.09	8.34	8.17	7 – 8.5
Corong-Corong Cove III	7.97	8.50	8.14	7 – 8.5
Corong-Corong Cove II	7.88	8.51	8.11	7 – 8.5
Corong-Corong Cove I	7.98	8.59	8.17	7 – 8.5
Overall			8.02	7 – 8.5

The pH of water is a measurement of acidity and alkalinity of water. This year the average of all the stations is still within the range of water quality guidelines for class SB waters.

4. Phosphates

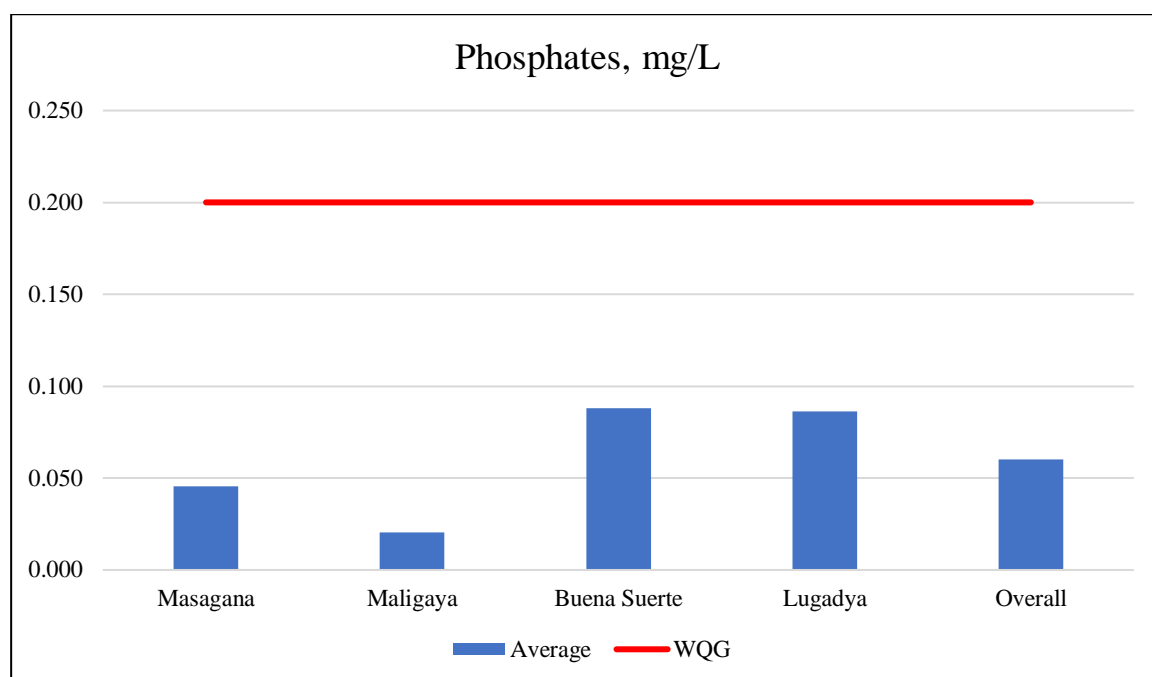


Figure 9. Average results in Bacuit Bay Coastal Area in terms of Phosphates

Table 31. Summary of Laboratory Results for C.Y. 2022 in terms of Phosphates

Station Identification	Minimum	Maximum	Average	Water Quality Guidelines (DAO 2021-19)
Masagana	<0.02	0.15	0.05	0.2
Maligaya	<0.02	0.04	0.02	0.2
Buena Suerte	<0.02	<0.50	0.09	0.2
Lugadya	<0.02	<0.50	0.09	0.2
Overall			0.06	0.2

For this year, the highest value recorded in terms of Phosphates is in Buena Suerte and Lugadya station with <0.50 mg/L while the lowest value recorded was in Maligaya Station with 0.04 mg/L. Overall, the average concentration of phosphates in Bacuit Bay Coastal Area did not exceed for Class SB waterbody.

5. Nitrates

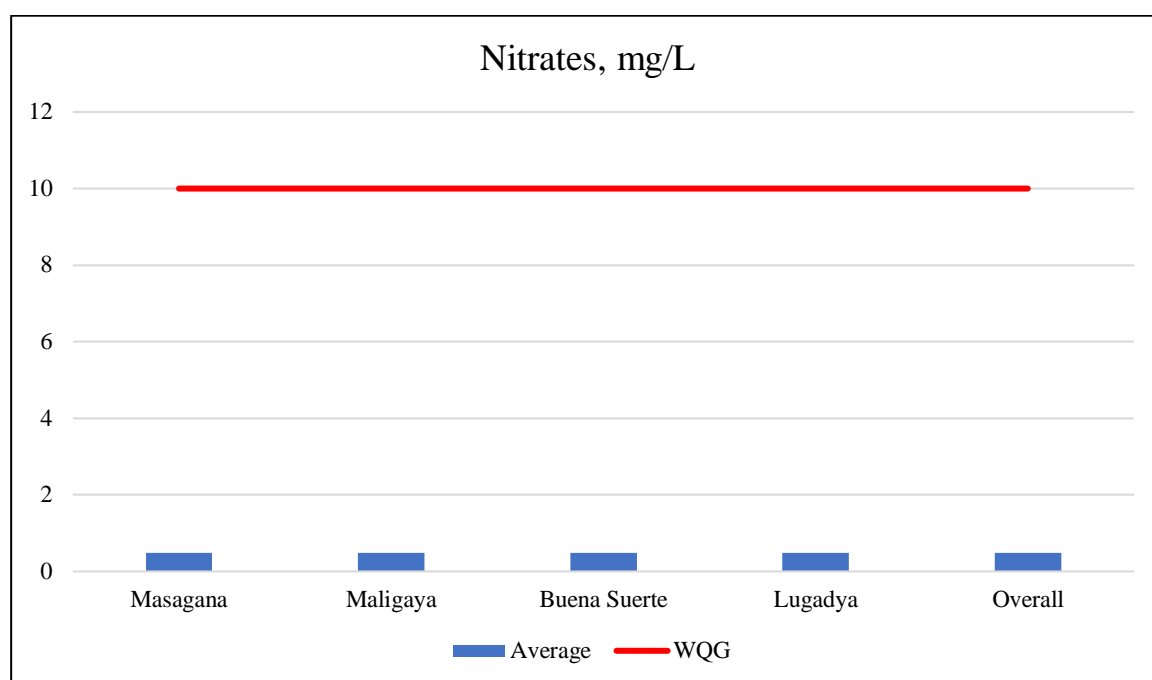


Figure 10. Average results in Bacuit Bay Coastal Area in terms of Nitrates

Table 32. Summary of Laboratory Results for C.Y. 2022 in terms of Nitrates

Station Identification	Minimum	Maximum	Average	Water Quality Guidelines (DAO 2016-08)
Masagana	<0.50	<0.50	<0.50	10
Maligaya	<0.50	<0.50	<0.50	10
Buena Suerte	<0.50	<0.50	<0.50	10
Lugadya	<0.50	<0.50	<0.50	10
Overall			<0.50	10

Based on the data collected for second semester, Nitrates results of the whole bay is still below the water quality guidelines for class SB waters.

6. Total Suspended Solids

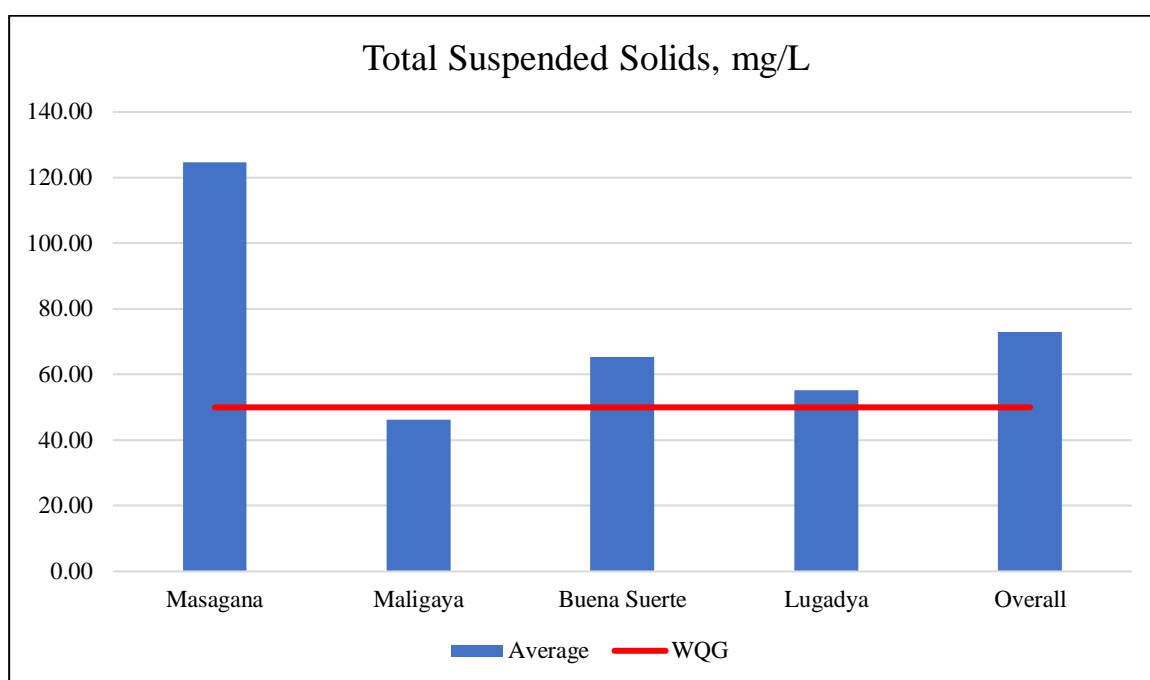


Figure 11. Average results in Bacuit Bay Coastal Area in terms of Total Suspended Solids

Table 33. Summary of Laboratory Results for C.Y. 2022 in terms of Total Suspended Solids, mg/L

Station Identification	Minimum	Maximum	Average	Water Quality Guidelines (DAO 2016-08)
Masagana	13	338	97	50
Maligaya	11	128	41	50
Buena Suerte	11	275	53	50
Lugadya	10	166	41	50
Overall			58	50

Masagana and Buena Suerte are the stations with high total suspended solids for this year. The average of the two stations are higher than the set standards for the water quality guidelines of class SB. Overall, four (4) stations in Bacuit Bay failed to meet the WQG for Total Suspended Solids.

B.2 Graphical Representation of Results of Outfalls in Bacuit Bay

The graphs presented below are the summary of the results obtained from different water quality parameters measured for Outfalls in Bacuit Bay for CY 2022. Indicated are the average values and geometric mean of the sampling episodes from January to December of CY 2022.

1. *Fecal coliform*

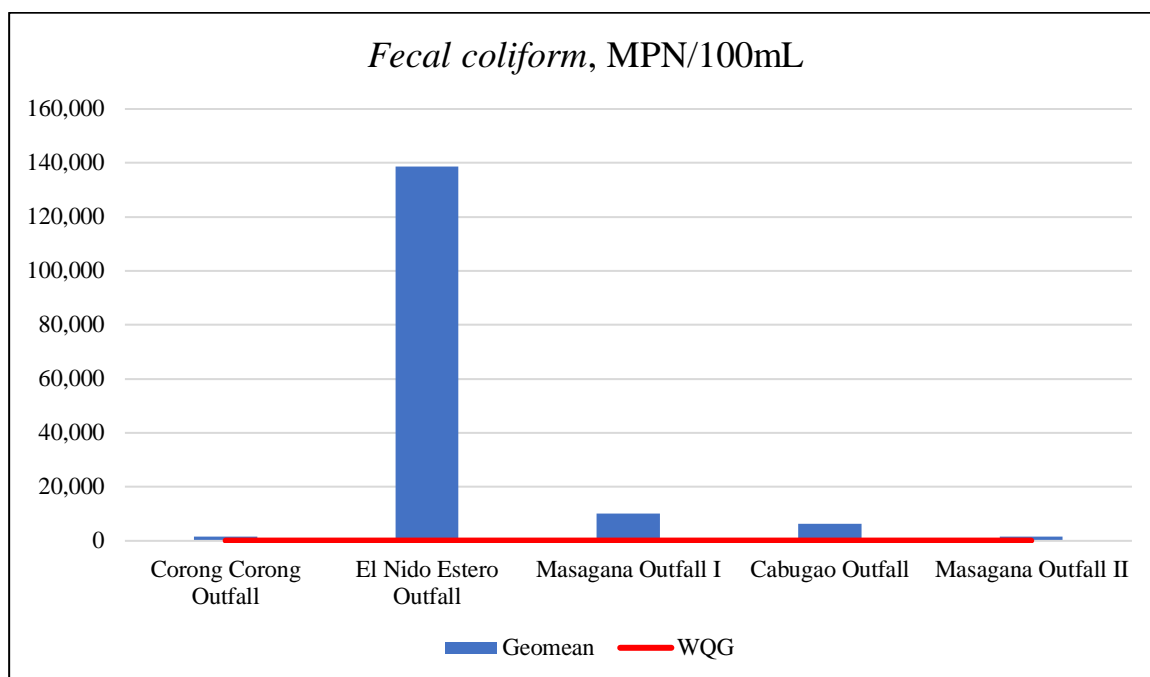


Figure 12. Geomean results in Outfalls in Bacuit Bay in terms of *Fecal coliform*

Table 34. Summary of Laboratory Results for C.Y. 2022 in terms of *Fecal coliform*, MPN/100mL

Station Identification	Minimum	Maximum	Geomean	Water Quality Guidelines (DAO 2021-10)
Corong Corong Outfall	78	94,000	1,645	100
El Nido Estero Outfall	33,000	920,000	138,580	100
Masagana Outfall I	680	54,000	10,193	100
Cabugao Outfall	130	35,000	6,409	100
Masagana Outfall II	5,400	160,000	1,645	100
Overall			28,009	100

Five outfalls in Bacuit Bay were monitored for *fecal coliform* and all of the stations have high concentrations which greatly exceeds the water quality guidelines for Class SB waters. The primary sources of *fecal coliform* bacteria are failed discharges from wastewater treatment plant,

failing septic systems, and animal waste. Domestic pets from manure, leaking sanitary sewers, stormwater runoffs and misplaced sewer pipes are common explanations for the high levels.

2. Dissolved Oxygen

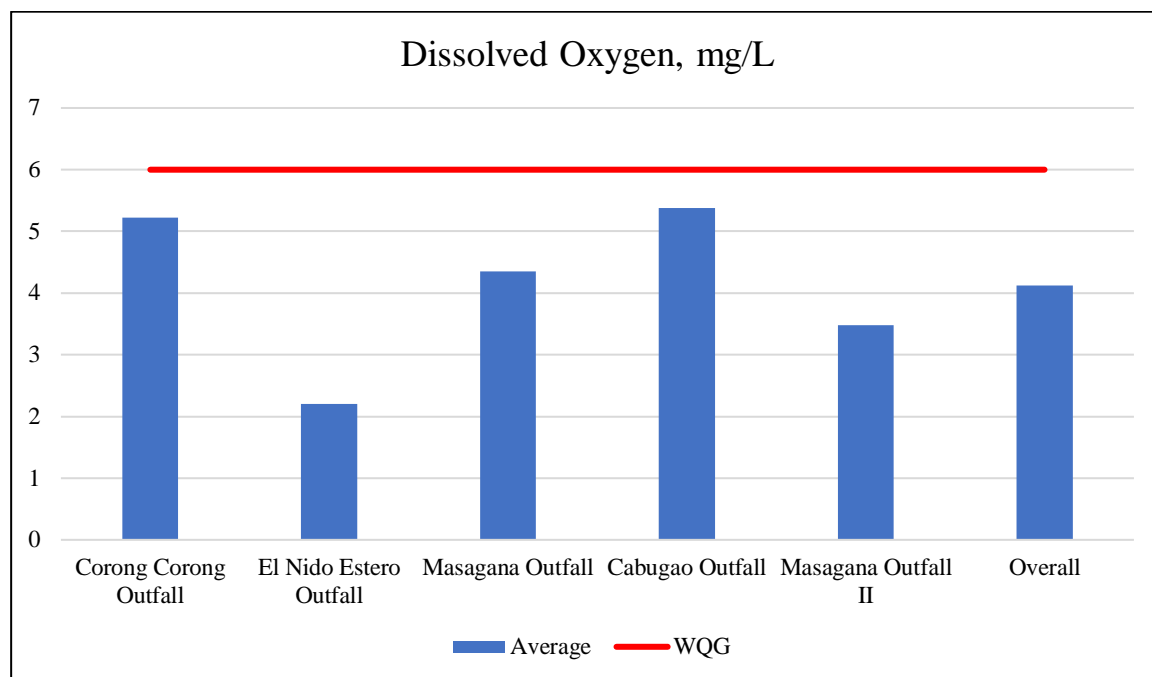


Figure 13. Average results in Outfalls in Bacuit Bay in terms of Dissolved Oxygen

Table 35. Summary of Laboratory Results for C.Y. 2022 in terms of Dissolved Oxygen, mg/L

Station Identification	Minimum	Maximum	Average	Water Quality Guidelines (DAO 2016-08)
Corong Corong Outfall	3.49	7.50	5.22	6
El Nido Estero Outfall	0.00	7.84	2.20	6
Masagana Outfall I	0.66	6.90	4.35	6
Cabugao Outfall	3.40	7.20	5.38	6
Masagana Outfall II	0.74	5.72	3.48	6
Overall			4.12	6

For CY 2022, station in Cabugao Outfall has the highest value recorded with 5.38 mg/L while El Nido Estero Outfall station has the lowest value recorded with 2.20 mg/L. Overall, the outfalls in Bacuit Bay failed to meet the water guidelines for Class SB in terms of DO.

3. pH

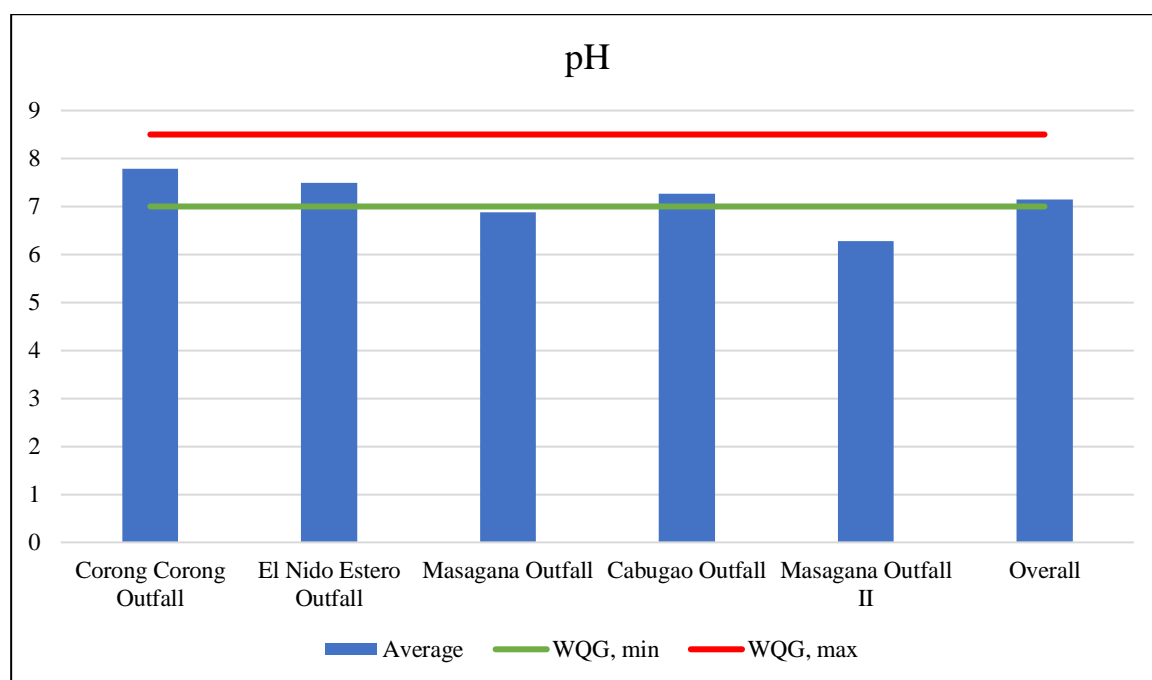


Figure 14. Average results in Outfalls in Bacuit Bay in terms of pH

Table 36. Summary of Laboratory Results for C.Y. 2022 in terms of pH

Station Identification	Minimum	Maximum	Average	Water Quality Guidelines (DAO 2016-08)
Corong Corong Outfall	7.39	8.22	7.78	7.0 – 8.5
El Nido Estero Outfall	7.32	7.69	7.49	7.0 – 8.5
Masagana Outfall I	4.88	7.70	6.88	7.0 – 8.5
Cabugao Outfall	4.86	8.06	7.26	7.0 – 8.5
Masagana Outfall II	1.05	7.62	6.28	7.0 – 8.5
Overall			7.14	7.0 – 8.5

Based on the above graph, Masagana outfalls I and II average pH results this year are below 7 which is acidic. Overall, the average pH value is within the allowable range as stated at the water quality guidelines for Class SB waterbody.

B.3. Graphical Representation of Results of Tourist Destinations in Bacuit Bay

The graphs presented below are the summary of the results obtained from different water quality parameters measured for Tourist Destinations in Bacuit Bay this CY 2022. Indicated are the average values and geometric mean of this year's sampling periods.

1. *Fecal coliform*

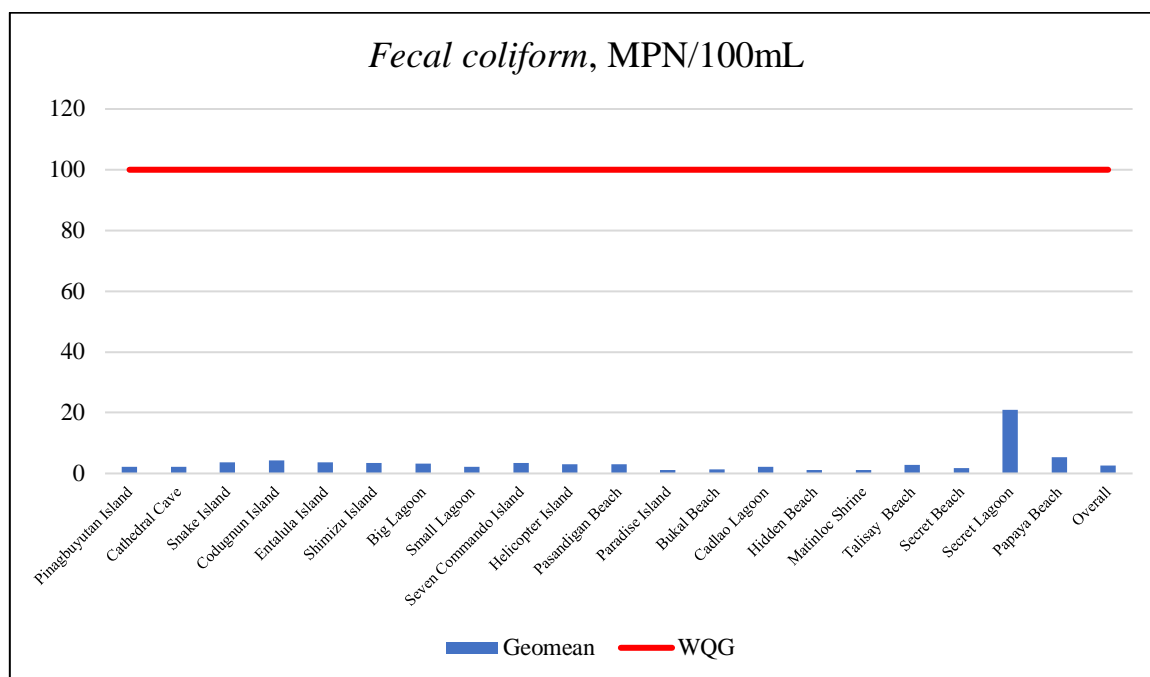


Figure 15. Geomean results in Tourist Destinations in Bacuit Bay in terms of *Fecal coliform*

Table 37. Summary of Laboratory Results for C.Y. 2022 in terms of *Fecal coliform*, MPN/100mL

Station Identification	Minimum	Maximum	Geomean	Water Quality Guidelines (DAO 2021-19)
Pinagbuyutan Island	<1	4.50	2.12	100
Cathedral Cave	<1	23.00	2.17	100
Snake Island	<1	12.10	3.57	100
Codugnun Island	<1	17.00	4.38	100
Entalula Island	1	33.00	3.62	100
Shimizu Island	<1	6.30	3.44	100
Big Lagoon	<1	13.00	3.21	100
Small Lagoon	<1	23.00	2.18	100
Seven Commando Island	<1	17.00	3.45	100
Helicopter Island	<1	18.50	3.01	100
Pasandigan Beach	<1	9.60	2.93	100

Paradise Island	<1	<1.8	1.14	100
Bukal Beach	<1	2.00	1.35	100
Cadlao Lagoon	<1	4.50	2.27	100
Hidden Beach	<1	<1.8	1.14	100
Matinloc Shrine	<1	<1.8	1.13	100
Talisay Beach	<1	33.00	2.84	100
Secret Beach	<1	5.20	1.72	100
Secret Lagoon	7.5	143.90	20.86	100
Papaya Beach	<1	23.00	5.31	100
Overall			2.71	100

Twenty stations for tourist attractions of Bacuit Bay were monitored for its fecal coliform. Results shows that all of the stations passed the standards and still not contaminated with bacteria.

2. Dissolved Oxygen

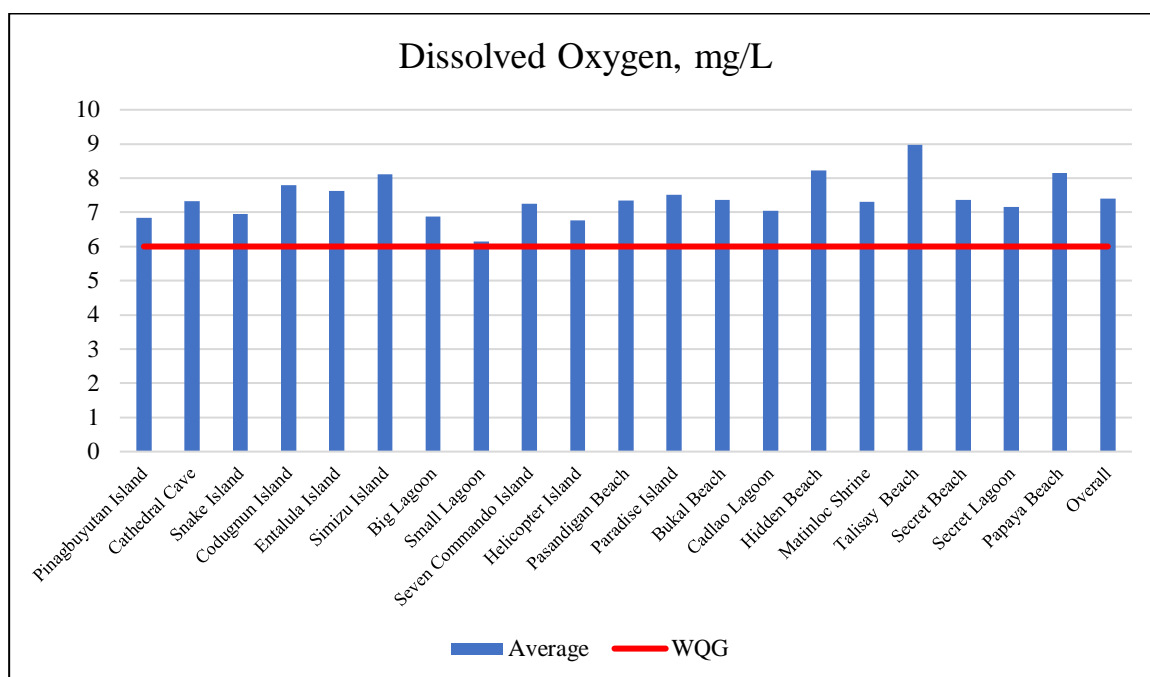


Figure 16. Average results in Tourist Destinations in Bacuit Bay in terms of Dissolved Oxygen

Table 38. Summary of Laboratory Results for C.Y. 2022 in terms of Dissolved Oxygen, mg/L

Station Identification	Minimum	Maximum	Average	Water Quality Guidelines (DAO 2016-08)
Pinagbuyutan Island	6.17	7.65	6.83	6
Cathedral Cave	5.88	9.07	7.32	6
Snake Island	6.40	7.98	6.95	6
Codugnun Island	6.76	9.62	7.79	6

Entalula Island	6.56	9.77	7.62	6
Shimizu Island	6.56	10.89	8.11	6
Big Lagoon	5.74	8.21	6.88	6
Small Lagoon	4.31	7.88	6.15	6
Seven Commando Island	6.32	7.83	7.25	6
Helicopter Island	6.38	7.89	6.76	6
Pasandigan Beach	4.70	10.06	7.34	6
Paradise Island	5.74	11.71	7.52	6
Bukal Beach	6.28	9.13	7.36	6
Cadlao Lagoon	5.62	8.86	7.05	6
Hidden Beach	7.31	10.58	8.22	6
Matinloc Shrine	6.57	7.79	7.30	6
Talisay Beach	6.95	14.13	8.97	6
Secret Beach	6.11	8.19	7.36	6
Secret Lagoon	6.23	8.76	7.15	6
Papaya Beach	7.09	9.36	8.15	6
Overall			7.40	6

Based on the collected data, all stations passed on the required value in terms of Dissolved Oxygen. Results are greater than the water quality guideline value for Class SB waters.

3. pH

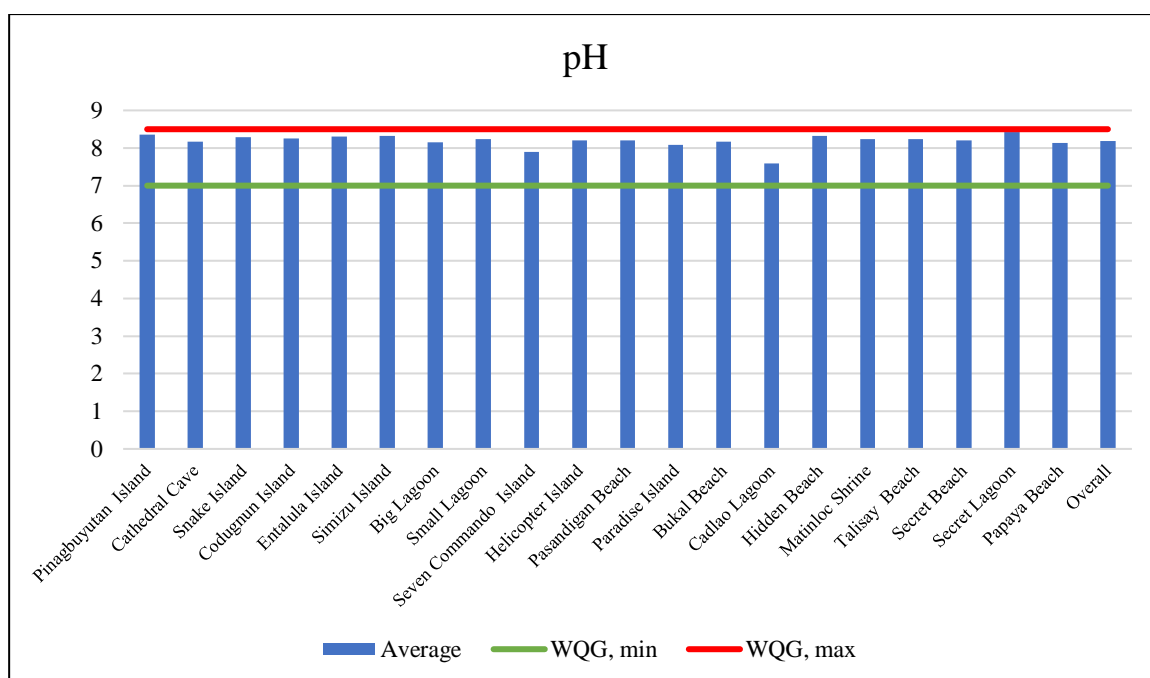


Figure 17. Average results in Tourist Destinations in Bacuit Bay in terms of pH

Table 39. Summary of Laboratory Results for C.Y. 2022 in terms of pH

Station Identification	Minimum	Maximum	Average	Water Quality Guidelines (DAO 2016-08)
Pinagbuyutan Island	8.15	8.68	8.36	7.0 – 8.5
Cathedral Cave	8.10	8.23	8.17	7.0 – 8.5
Snake Island	8.04	8.68	8.28	7.0 – 8.5
Codugnun Island	8.18	8.36	8.25	7.0 – 8.5
Entalula Island	8.13	8.47	8.30	7.0 – 8.5
Shimizu Island	8.13	8.66	8.32	7.0 – 8.5
Big Lagoon	8.06	8.23	8.16	7.0 – 8.5
Small Lagoon	8.01	8.62	8.24	7.0 – 8.5
Seven Commando Island	7.24	8.38	7.90	7.0 – 8.5
Helicopter Island	8.12	8.33	8.20	7.0 – 8.5
Pasandigan Beach	7.92	8.67	8.20	7.0 – 8.5
Paradise Island	7.97	8.15	8.08	7.0 – 8.5
Bukal Beach	8.02	8.45	8.17	7.0 – 8.5
Cadlao Lagoon	6.35	8.08	7.59	7.0 – 8.5
Hidden Beach	8.11	8.74	8.33	7.0 – 8.5
Matinloc Shrine	8.18	8.27	8.23	7.0 – 8.5
Talisay Beach	8.20	8.27	8.23	7.0 – 8.5
Secret Beach	8.17	8.24	8.20	7.0 – 8.5
Secret Lagoon	8.14	9.09	8.42	7.0 – 8.5
Papaya Beach	7.73	8.39	8.13	7.0 – 8.5
Overall			8.19	7.0 – 8.5

For CY 2022, all stations at the Tourist Destinations in Bacuit Bay in terms of pH are within the range of the water quality standard.

B.4. Graphical Representation of Results of Ambient Stations in Bacuit Bay

The graphs presented below are the summary of the results obtained from different water quality parameters measured for Ambient Stations in Bacuit Bay this CY 2022. Indicated are the average values and geometric mean of this year's sampling periods.

1. Oil and Grease

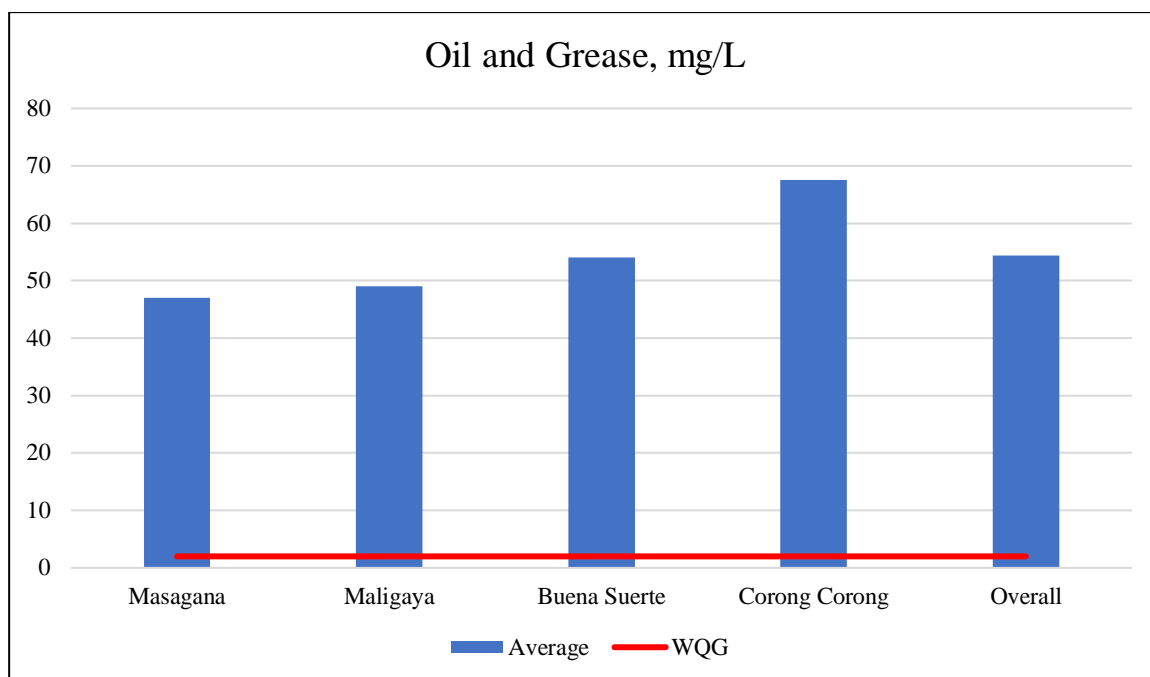


Figure 19. Average results in Ambient Station in Bacuit Bay in terms of Oil and Grease

Due to presence of oil sheen on water due to the incident happened last June 21, 2022, a follow-up sampling was conducted dated August 1, 2022 to check the presence of Oil and Grease. Based on the conducted sampling, it shows that all collected sampling stations failed to meet the standard for Oil and Grease for Class SB waterbody.

2. Temperature

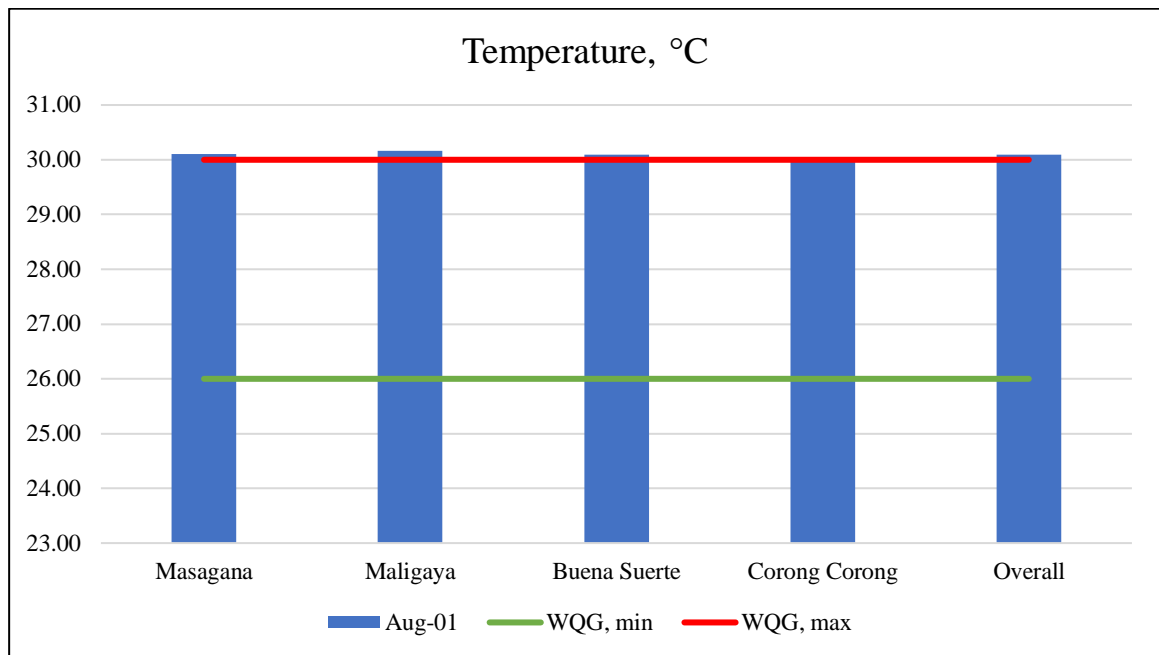


Figure 20. Average results in Ambient Station in Bacuit Bay in terms of Temperature

Based on the above graph, the Ambient Stations in Bacuit Bay exceeds the allowable range in terms of Temperature for Class SB waterbody.

3. Dissolved Oxygen

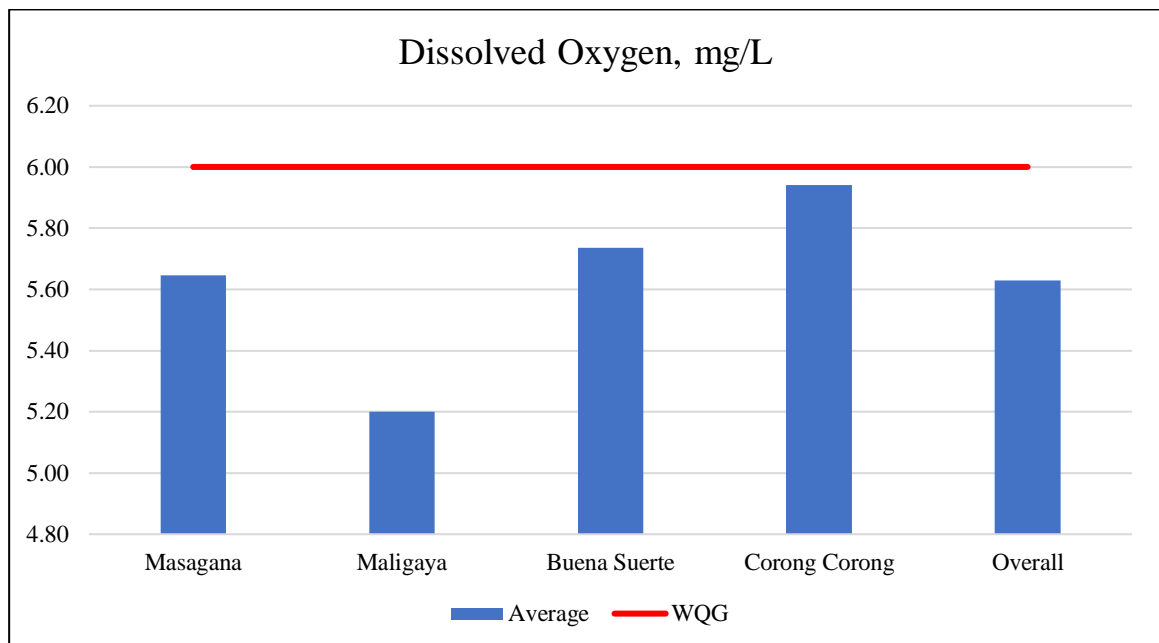


Figure 21. Average results in Ambient Station in Bacuit Bay in terms of Dissolved Oxygen

Two (2) sampling monitoring shows that all stations are below the prescribed concentration of Dissolved Oxygen for Class SB waterbody.

4. pH

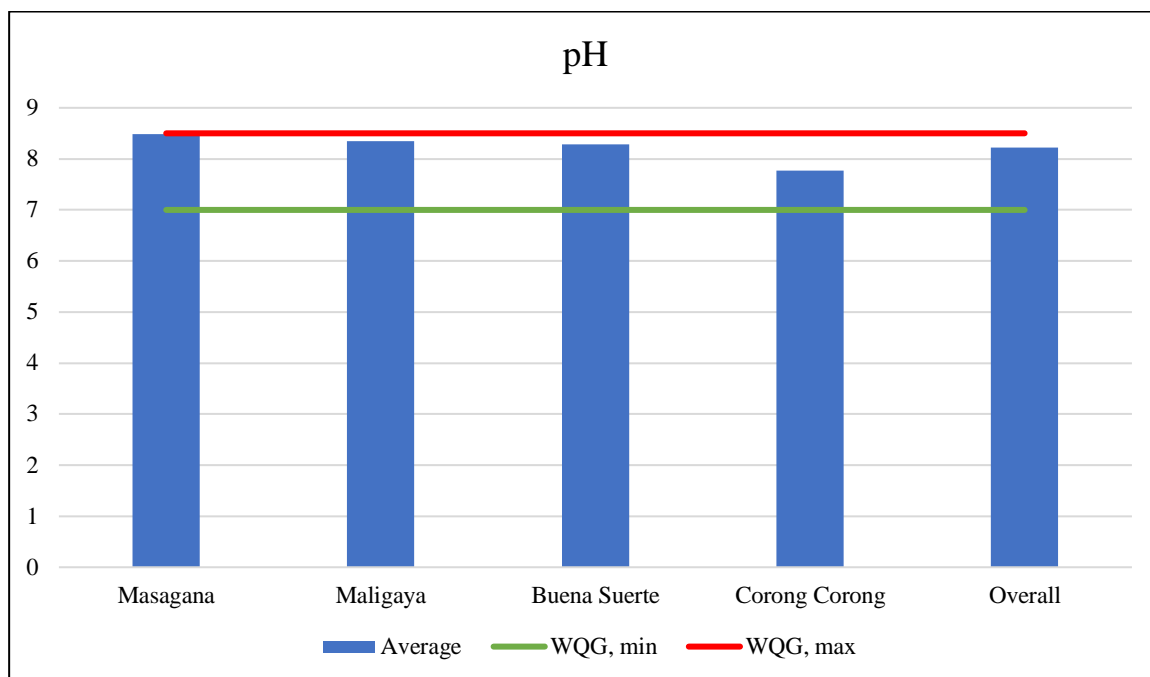


Figure 22. Average results in Ambient Station in Bacuit Bay in terms of pH

For CY 2022, all stations are within the allowable concentration of pH for Class SB with 8.22.

B.1 Graphical Representation of Results of El Nido Bay

The graphs presented below are the summary of the results obtained from different water quality parameters measured for El Nido Bay for CY 2022. Indicated are the average values and geometric mean of this year's sampling periods.

1. *Fecal coliform*

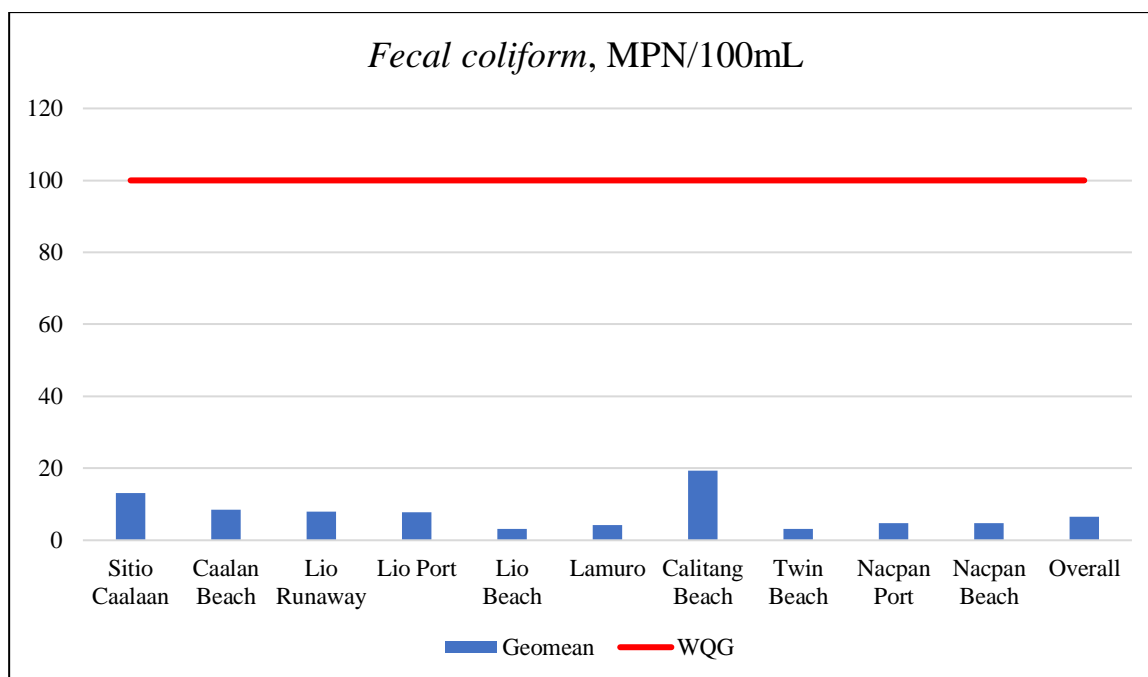


Figure 23. Geomean results in El Nido Bay in terms of *Fecal coliform*

Table 41. Summary of Laboratory Results for C.Y. 2022 in terms of *Fecal coliform*, MPN/100mL

Station Identification	Minimum	Maximum	Geomean	Water Quality Guidelines (DAO 2021-19)
Sitio Caalaan	<1.8	920.0	13.09	100
Caalan Beach	<1.8	920.0	8.47	100
Lio Runaway	<1.8	49.0	8.04	100
Lio Port	<1.8	365.4	7.74	100
Lio Beach	<1.8	13.0	3.14	100
Lamuro	<1.8	33.0	4.31	100
Calitang Beach	<1.8	540.0	19.39	100
Twin Beach	<1.8	7.8	3.07	100
Nacpan Port	<1	33.0	4.76	100
Nacpan Beach	<1	540.0	4.77	100
Overall			6.46	100

Based on the above figure, Calaan Beach Stations has the highest recorded value with 19.39 MPN/100mL while the Lio Beach station with the lowest average value recorded was on 3.07 MPN/100mL. Overall, El Nido Bay passed the limit in terms of *fecal coliform* for Class SB waterbody.

2. Dissolved Oxygen

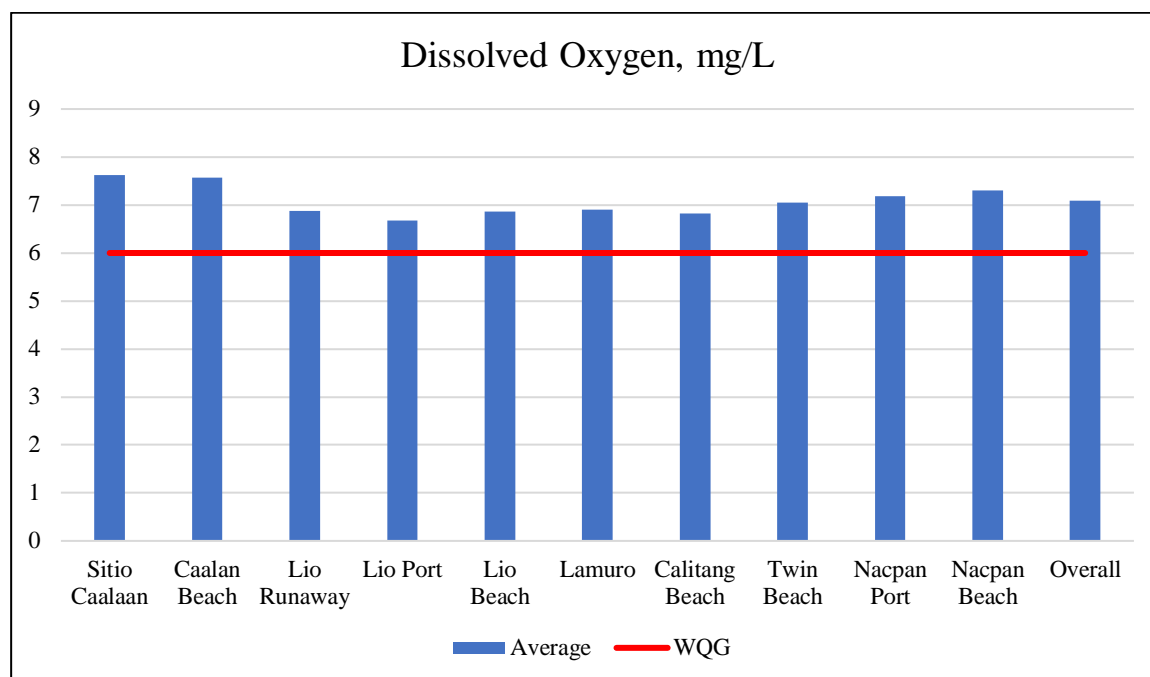


Figure 24. Average results in El Nido Bay in terms of Dissolved Oxygen

Table 42. Summary of Laboratory Results for C.Y. 2022 in terms of Dissolved Oxygen, mg/L

Station Identification	Minimum	Maximum	Average	Water Quality Guidelines (DAO 2016-08)
Sitio Caalaan	5.76	9.20	7.62	6
Calaan Beach	6.00	9.65	7.57	6
Lio Runaway	5.90	8.70	6.88	6
Lio Port	5.73	8.30	6.68	6
Lio Beach	5.98	8.32	6.87	6
Lamuro	6.07	8.29	6.90	6
Calitang Beach	6.04	7.85	6.82	6
Twin Beach	6.15	9.20	7.05	6
Nacpan Port	5.94	13.00	7.19	6
Nacpan Beach	2.80	17.00	7.30	6
Overall			7.09	6

The dissolved oxygen of the bay exceeded that minimum value set at WQG. All the stations have a value above six which shows a passing result in terms of dissolved oxygen.

3. Total Suspended Solids

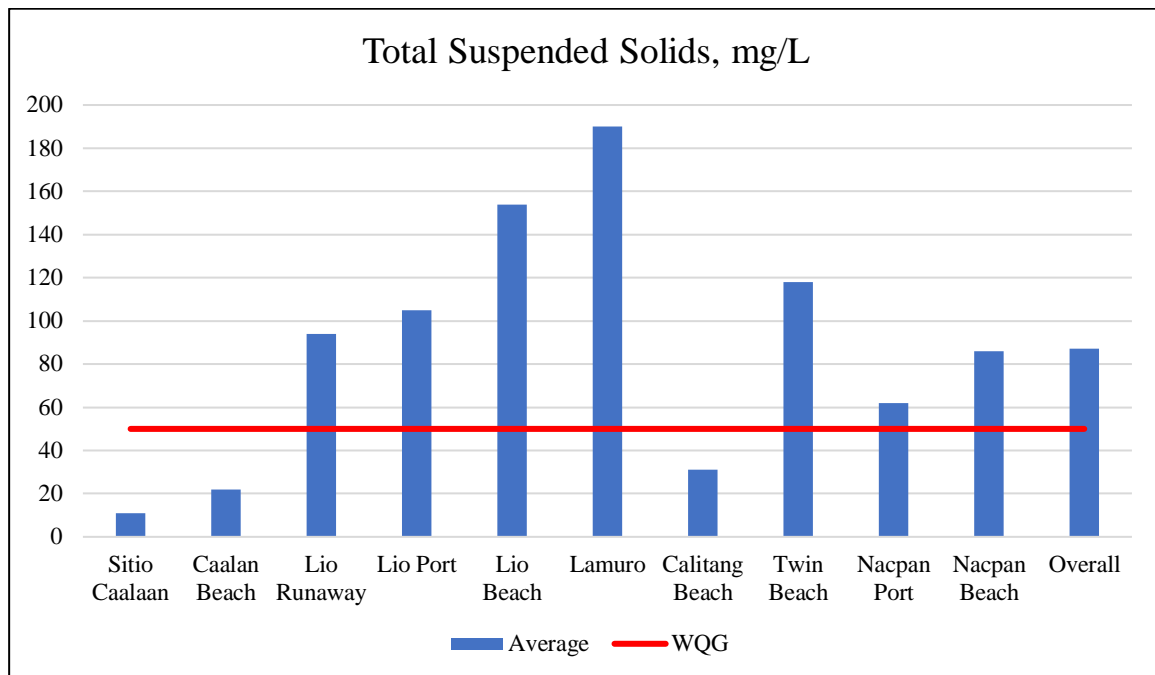


Figure 25. Average results in El Nido Bay in terms of Total Suspended Solids

Table 43. Summary of Laboratory Results for C.Y. 2022 in terms of Total Suspended Solids, mg/L

Station Identification	Minimum	Maximum	Average	Water Quality Guidelines (DAO 2016-08)
Sitio Caalaan	<2	22	11	50
Caalan Beach	<2	84	22	50
Lio Runaway	<2	571	94	50
Lio Port	<2	785	105	50
Lio Beach	10	1,249	154	50
Lamuro	6	1,401	190	50
Calitang Beach	12	82	31	50
Twin Beach	8	937	118	50
Nacpan Port	9	282	62	50
Nacpan Beach	7	638	86	50
Overall			87	50

Total Suspended Solids (TSS) are particles that are larger than 2 microns found in a water sample that either floats on the surface of or are in suspension in any type of water, and which are largely removable by laboratory filtering. Anything smaller than 2 microns is considered a dissolved solid. The TSS of the bay is highest than the water quality guideline value for Class SB waterbody.

4. Phosphates

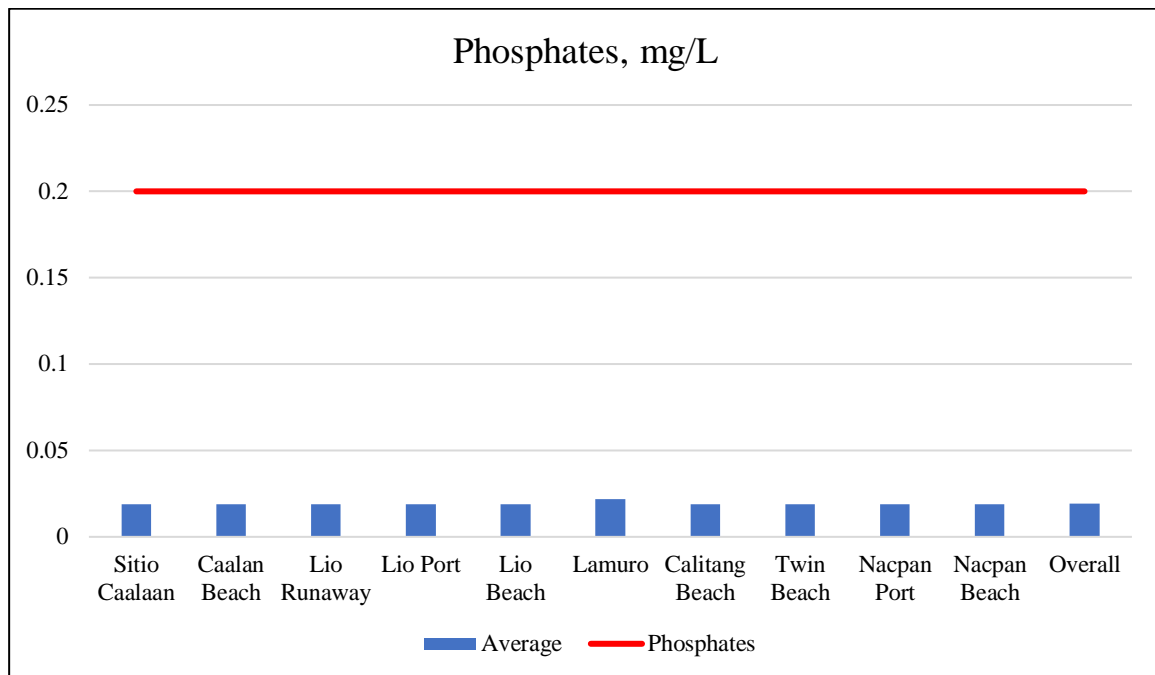


Figure 26. Average results in El Nido Bay in terms of Phosphates

Table 44. Summary of Laboratory Results for C.Y. 2022 in terms of Phosphates, mg/L

Station Identification	Minimum	Maximum	Average	Water Quality Guidelines (DAO 2021-19)
Sitio Caalaan	<0.02	<0.02	<0.02	0.2
Caalan Beach	<0.02	<0.02	<0.02	0.2
Lio Runaway	<0.02	<0.02	<0.02	0.2
Lio Port	<0.02	<0.02	<0.02	0.2
Lio Beach	<0.02	<0.02	<0.02	0.2
Lamuro	<0.02	0.04	0.022	0.2
Calitang Beach	<0.02	<0.02	<0.02	0.2
Twin Beach	<0.02	<0.02	<0.02	0.2
Nacpan Port	<0.02	<0.02	<0.02	0.2
Nacpan Beach	<0.02	<0.02	<0.02	0.2
Overall			0.02	0.2

For CY 2022, the highest value recorded in terms of Phosphates is in Lamuro Station with 0.02 mg/L while the other of the stations has the same value with <0.02 mg/L. Overall, the average concentration of phosphates in El Nido Bay did not exceed the allowable standard for Class SB waterbody.

5. Nitrates

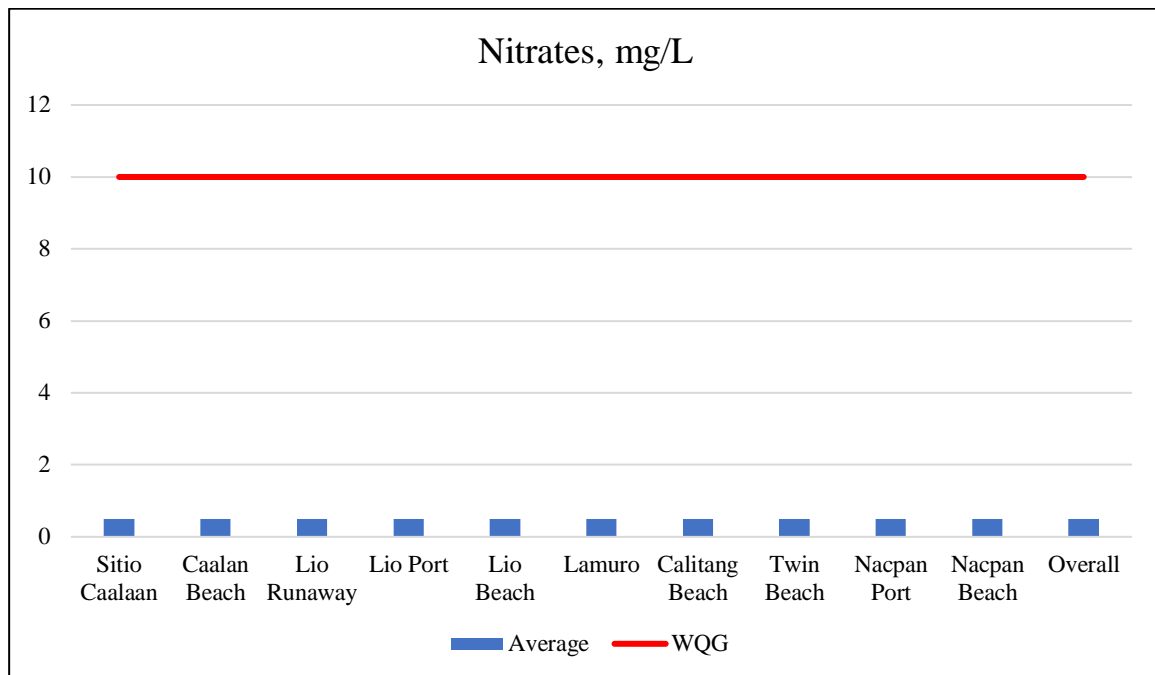


Figure 27. Average results in El Nido Bay in terms of Nitrates

Table 45. Summary of Laboratory Results for C.Y. 2022 in terms of Nitrates, mg/L

Station Identification	Minimum	Maximum	Average	Water Quality Guidelines (DAO 2016-08)
Sitio Caalaan	<0.5	<0.5	<0.5	10
Caalan Beach	<0.5	<0.5	<0.5	10
Lio Runaway	<0.5	<0.5	<0.5	10
Lio Port	<0.5	<0.5	<0.5	10
Lio Beach	<0.5	<0.5	<0.5	10
Lamuro	<0.5	<0.5	<0.5	10
Calitang Beach	<0.5	<0.5	<0.5	10
Twin Beach	<0.5	<0.5	<0.5	10
Nacpan Port	<0.5	<0.5	<0.5	10
Nacpan Beach	<0.5	<0.5	<0.5	10
Overall			<0.5	10

Based on the data collected for second semester, Nitrates results of the whole bay is still below the water quality guidelines for class SB waters.

6. pH

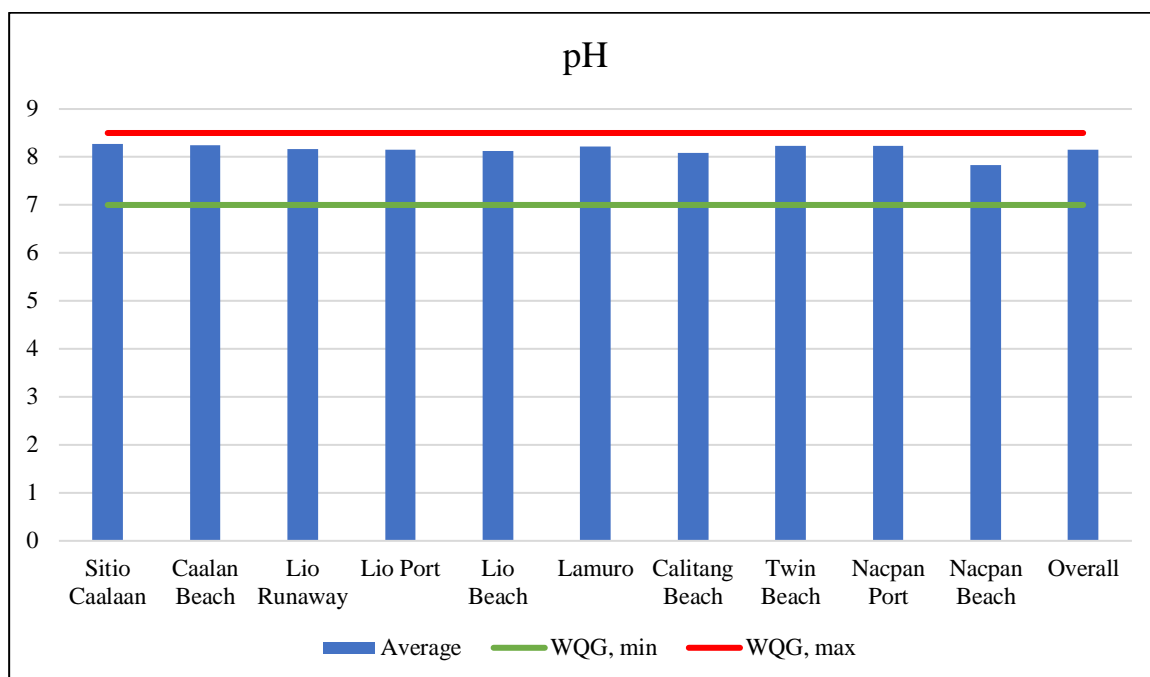


Figure 27. Average results in El Nido Bay in terms of pH

Table 45. Summary of Laboratory Results for C.Y. 2022 in terms of pH

Station Identification	Minimum	Maximum	Average	Water Quality Guidelines (DAO 2016-08)
Sitio Caalaan	7.96	8.56	8.27	7.0 – 8.5
Caalan Beach	8.04	8.42	8.24	7.0 – 8.5
Lio Runaway	7.98	8.35	8.17	7.0 – 8.5
Lio Port	7.97	8.30	8.15	7.0 – 8.5
Lio Beach	7.71	8.32	8.12	7.0 – 8.5
Lamuro	8.02	8.34	8.22	7.0 – 8.5
Calitang Beach	7.43	8.35	8.08	7.0 – 8.5
Twin Beach	8.15	8.37	8.23	7.0 – 8.5
Nacpan Port	8.16	8.39	8.23	7.0 – 8.5
Nacpan Beach	5.89	8.36	7.83	7.0 – 8.5
Overall			8.15	7.0 – 8.5

Based on the data collected for this year, pH of the whole El Nido bay is still within the range of set water quality guidelines.

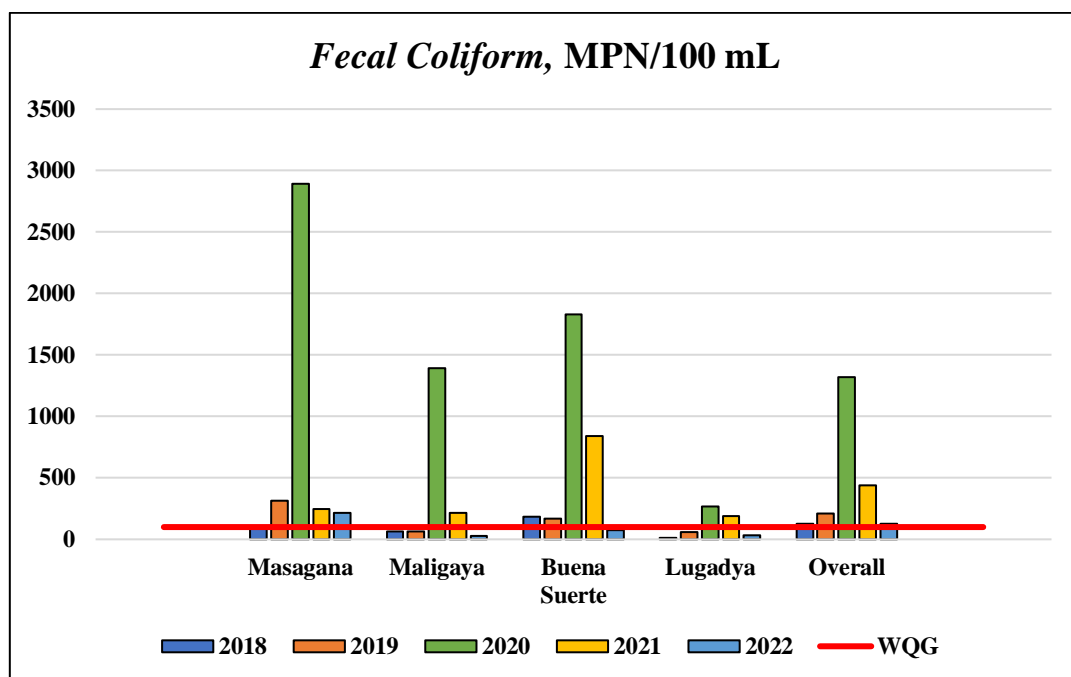
COMPARATIVE RESULTS OF BACUIT BAY FROM CY 2018 TO CY 2022

The tables and graphs below are the five-year trend results of Bacuit Bay (Coastal, Outfalls, and Tourist Destinations from CY 2018 - CY 2022.

1. Five-Year Trend of Bacuit Bay Coastal Area

Table 23. Five-year Trend of Fecal Coliform Bacuit Bay Coastal

Stn	Station Identification	2018	2019	2020	2021	2022	WQG
1	Masagana	104	315	2,890	246	214	100
2	Maligaya	65	62	1,390	214	29	100
3	Buena Suerte	182	166	1,829	841	75	100
4	Lugadya	14	60	267	187	35	100
Overall Geomean		128	208	1317	441	127	100

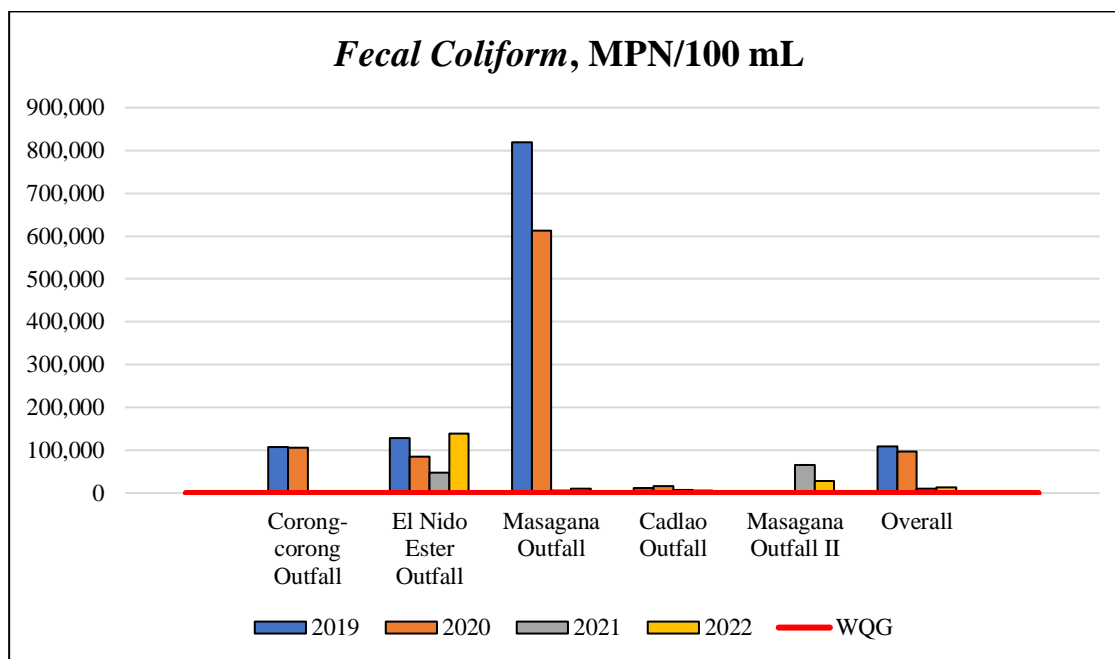


Coliform bacteria have been widely used as water quality indicators and have historically resulted in the concept of public health safeguard. The indicator bacteria levels in swimming water have been found in the coastal area of Bacuit Bay.

2. Five-Year Trend Bacuit Bay Outfalls

Table 24. Trend of Fecal Coliform Bacuit Bay Outfalls

Stn	Station Identification	2019	2020	2021	2022	WQG
1	Corong-corong Outfall	107,934	106,098	908	1645	100
2	El Nido Estero Outfall	128,651	85,616	46,882	138,580	100
3	Masagana Outfall	819,808	613,071	5,073	10,193	100
4	Cadlao Outfall	12,159	15,580	6,854	6,409	100
5	Masagana Outfall II	no data	no data	64,805	28,009	100
Overall Geomean		108466	96513	9917	13306	100

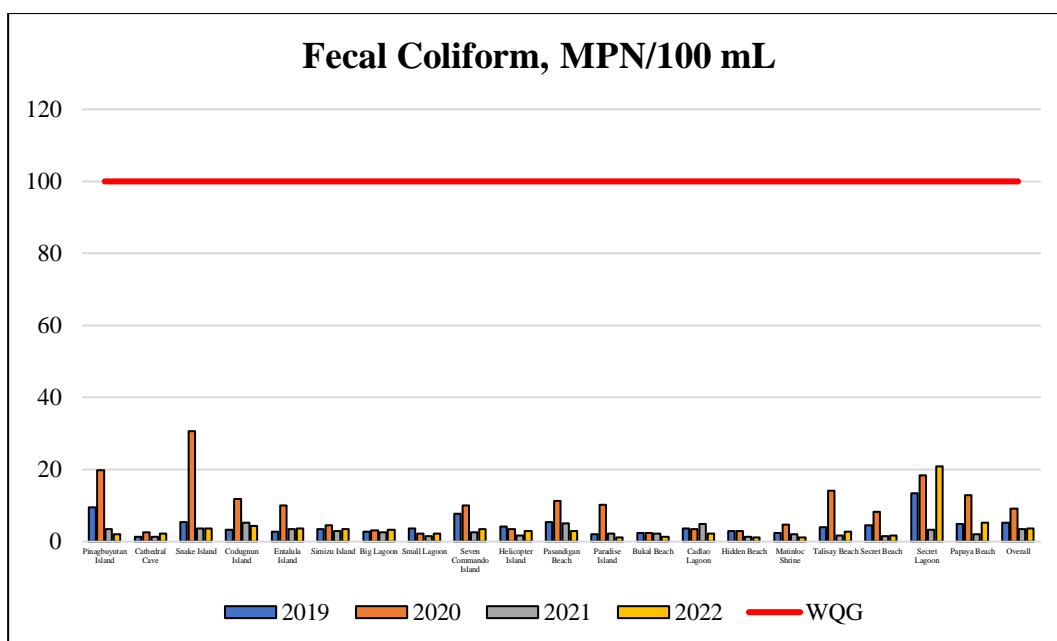


Fecal coliform of outfalls of Bacuit bay has been monitored since 2019 and the results showed that the coliform count is still high on all the stations. The results on all the stations persistently greater than the set water quality guidelines every year.

3. Five-Year Trend Bacuit Bay Tourist Destinations

Table 25. Trend of Fecal Coliform Bacuit Bay Tourist Destinations

Stn	Station Identification	2019	2020	2021	2022	WQG
1	Pinagbuyutan Island	9.45	19.79	3.46	2.12	100
2	Cathedral Cave	1.28	2.6	1.42	2.17	100
3	Snake Island	5.37	30.71	3.58	3.57	100
4	Codugnun Island	3.24	11.9	5.21	4.38	100
5	Entalula Island	2.84	10.01	3.41	3.62	100
6	Simizu Island	3.43	4.52	3.02	3.44	100
7	Big Lagoon	2.77	3.08	2.55	3.21	100
8	Small Lagoon	3.57	2.17	1.56	2.18	100
9	Seven Commando Island	7.8	9.98	2.51	3.45	100
10	Helicopter Island	4.13	3.44	1.73	3.01	100
11	Pasandigan Beach	5.51	11.3	5.06	2.93	100
12	Paradise Island	2.06	10.23	2.3	1.14	100
13	Bukal Beach	2.39	2.4	2.28	1.35	100
14	Cadlao Lagoon	3.71	3.46	4.85	2.27	100
15	Hidden Beach	2.9	2.9	1.4	1.14	100
16	Matinloc Shrine	2.36	4.7	2.1	1.13	100
17	Talisay Beach	3.98	14.22	1.66	2.84	100
18	Secret Beach	4.6	8.3	1.52	1.72	100
19	Secret Lagoon	13.34	18.35	3.3	20.86	100
20	Papaya Beach	4.97	12.96	2.13	5.31	100
Overall Geomean		5.20	9.12	3.47	3.72	100



Twenty tourist destinations were monitored for fecal coliform and all the identified stations are still below the water quality guidelines, which shows that the water is still safe for swimming.

SUMMARY AND RECOMMENDATIONS

Hereunder are the summary of the water quality data gathered as a result of the monitoring conducted at Bacuit Bay Costal, Outfalls in Bacuit Bay, Tourist Destinations in Bacuit Bay, Ambient Station in Bacuit Bay, and El Nido Bay during CY 2022 and its comparison with the DENR water quality guidelines for its present classification of Class SB water, to wit:

Table 46. Summary of Water Quality of Bacuit Bay Coastal Area

Parameter, unit	Average	DENR WQG (Class SB)	Remarks
Dissolved Oxygen (DO), mg/L	7.02	6	Passed
pH	8.02	7.0 – 8.5	Passed
Total Suspended Solis (TSS), mg/L	58	50	Failed
Fecal coliform, MPN/100mL	43	100**	Passed
Nitrates, mg/L	<0.50	10	Passed
Phosphates, mg/L	0.06	0.2**	Passed

**Based on DAO 2021-19 "Updated Water Quality Guidelines (WQG) and General Effluent Standards (GES) for selected parameters

The coastal area of Bacuit Bay is monitored with ten monitoring stations established. Above table shows the summary of the results in geomean and average of all the sampling

periods at the sampling stations. Overall, aside from **Total Suspended Solids**, shows that all the parameters monitored in Bacuit Bay Costal are within the standard for Class SB waterbody for CY 2022.

Table 47. Summary of Water Quality of Outfalls in Bacuit Bay

Parameter, unit	Average	DENR WQG (Class SB)	Remarks
Dissolved Oxygen (DO), mg/L	4.12	6	Failed
pH	7.14	7.0 – 8.5	Passed
<i>Fecal coliform</i> , MPN/100mL	28,009	100**	Failed

**Based on DAO 2021-19 “Updated Water Quality Guidelines (WQG) and General Effluent Standards (GES) for selected parameters

There are five outfalls being monitored in Bacuit Bay and the overall geomean of the *fecal coliform* for CY 2022 is excessive which also results in low dissolved oxygen. pH is the only parameter that passed the water quality guidelines.

Table 48. Summary of Water Quality of Tourist Destinations in Bacuit Bay

Parameter, unit	Average	DENR WQG (Class SB)	Remarks
Dissolved Oxygen (DO), mg/L	7.4	6	Passed
pH	8.19	7.0 – 8.5	Passed
<i>Fecal coliform</i> , MPN/100mL	2.71	100**	Passed

**Based on DAO 2021-19 “Updated Water Quality Guidelines (WQG) and General Effluent Standards (GES) for selected parameters

Tourist Destinations in Bacuit Bay was monitored only twice this CY 2022. There are twenty frequently visited islands in Bacuit Bay that are being monitored, to wit: *fecal coliform*, dissolved oxygen, and pH. All parameters tested passed the water quality guidelines which indicates that the water on those islands is still safe and good.

Table 49. Summary of Water Quality of Ambient Stations in Bacuit Bay

Parameter, unit	Average	DENR WQG (Class SB)	Remarks
Dissolved Oxygen (DO), mg/L	5.63	6	Failed
pH	8.22	7.0 – 8.5	Passed
Temperature, °C	30.09	26 – 30	Failed
Oil and Grease, mg/L	54	2	Failed

Ambient Stations in Bacuit Bay was monitored twice this year. There are four sampling stations established and monitored in terms of DO, pH, Temperature, and Oil and Grease.

Sampling shows that **DO, Temperature, and Oil and Grease** failed to meet the standard set for Class SB waterbody.

Table 50. Summary of Water Quality in El Nido Bay

Parameter, unit	Average	DENR WQG (Class SB)	Remarks
Dissolved Oxygen (DO), mg/L	7.09	6	Passed
Total Suspended Solids, mg/L	87	50	Failed
<i>Fecal coliform</i> , MPN/100mL	6.46	100**	Passed
Phosphates, mg/L	0.02	0.2**	Passed
Nitrates, mg/L	<0.50	10	Passed
pH	8.15	7.0 – 8.5	Passed

**Based on DAO 2021-19 "Updated Water Quality Guidelines (WQG) and General Effluent Standards (GES) for selected parameters

El Nido Bay was monitored monthly this CY 2022. There are ten sampling stations established and monitored in terms of DO, *fecal coliform*, TSS, phosphates, nitrates and pH. Sampling shows that **Total Suspended Solids** failed to meet the water quality guidelines for Class SB waterbody.

Relative thereto, the following actions are hereby recommended in line with the results and assessment of the water quality monitoring at Bacuit Bay and El Nido Bay during CY 2022:

1. Advise every residential establishment to construct adequate water-tight septic tanks and STP for commercial establishments. Connect all commercial establishment in the centralized STP of El Nido. Moreover, encourage establishments who cannot build their own STP to connect to the centralized STP.
2. Expedite the connection of all the outfalls to the centralized STP since all the outfalls failed the water quality guidelines.
3. Continuous water quality monitoring in Bacuit Bay and El Nido Bay in coordination with concerned NGAs, LGUs and private sectors.
4. Conduct of Information, Education, and Communication (IEC) Campaign to the community and concerned agencies regarding the status of water quality of Bacuit Bay and El Nido Bay and its threat to the human health.


5. Collaborate with the LGU of El Nido to encourage the citizens to establish water-tight septic tanks for each household to prevent contamination or pollution loading of Bacuit Bay and El Nido Bay.
6. Recommend to all member agencies of the governing board for a holistic approach on the rehabilitation of all water resources within the WQMA
7. Elevate all water quality concerns to the concerned Provincial and Municipal Local Government Units for the most appropriate and immediate action to preserve and protect the waters of El Nido

ANNEXES:

1. List of approved Discharge Permits in El Nido
2. Resolution No. 2022-01 (Creation of the Interim Technical Secretariat and Sector Representatives of the Bacuit – El Nido Bay Water Quality Management Area (BENB WQMA) Governing Board
3. Orientation Meeting for the Creation of the Governing Board of Bacuit – El Nido Bay WQMA on June 14-15, 2022
4. Creation of the Governing Board Members of Bacuit – El Nido Bay (BENB) Water Quality Management Area on August 23, 2022
5. 4th Quarter Governing Board Meeting of Bacuit – El Nido Bay Water Quality Management Area (BENB WQMA) on October 12, 2022
6. Bacuit – El Nido Bay WQMA (BENB WQMA) Special Meeting on October 13, 2022
7. 4th Quarter Governing Board Meeting of Bacuit - El Nido Bay Water Quality Management Area (BENB WQMA) on December 5, 2022

Prepared By:


ADZ HAZEN M. DIMAPILIS
Technical Staff, AMTSS


JANE T. DUMENDEN
Unit Head of Ambient Water Monitoring

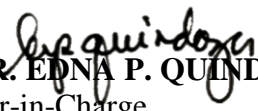
Reviewed By:


MAEVELYN KATHRYN D. TUPASI
OIC, AMTSS

Attested By:


ENGR. PABLITO M. ESTORQUE, JR.
Chief, Environmental Monitoring and Enforcement Division

Noted By:


ENGR. EDNA P. QUINDOZA
Officer-in-Charge
Office of the Regional Director



R4B-2023-001915

ANNEX

List of approved Discharge Permit within Bacuit – El Nido Bay WQMA for CY 2022

Firm	Address	Permit Type	Permit/Renewal No	Permit Date	Valid Date
PALAWAN DIVERS BRANCH 1	Masagana Pob. (Barangay 3) EL NIDO (BACUIT) PALAWAN	New	DP-R4B-22-00021	03-Jan-22	03-Jan-23
EL NIDO BOUTIQUE ARTCAFE INC.	Sirena St. Buena Suerte, El Nido, Palawan	New	DP-R4B-22-00880	03-Feb-22	03-Feb-23
INNSCAPE RESORTS AND SUITES INCORPORATED "AMAKAN"	BGY MALIGAYA, EL NIDO, PALAWAN	New	DP-R4B-22-01194	15-Feb-22	15-Feb-23
SHELL PHILIPPINES EXPLORATION BV	EL NIDO (BACUIT) PALAWAN	Renewal	DP-R4B-22-01815	08-Mar-22	08-Mar-23
SASI LIO AIRPORT	Villa Libertad EL NIDO (BACUIT) PALAWAN	Renewal	DP-R4B-22-02644	04-Apr-22	04-Apr-23
SASI LIO AIRPORT/LIO AIRPORT CONTROL TOWER	Lio estate compound, Lio Airport Brgy. Villa Libertad El Nido Palawan	New	DP-R4B-22-02194	21-Apr-22	21-Apr-23
EASTWIND BEACH CLUB INC.	BRGY. SAN FERNANDO, EL NIDO, PALAWAN	New	DP-R4B-22-03635	09-Jun-22	08-Jun-23
HWAN DYNASTY SUITE PROJECT	Barangay Corong-corong Pob. (Barangay 4) EL NIDO (BACUIT) Palawan	Renewal	DP-R4B-22-06090	11-Aug-22	11-Aug-23

Resolution No. 2022-01 (Creation of the Interim Technical Secretariat and Sector Representatives of the Bacuit – El Nido Bay Water Quality Management Area (BENB WQMA) Governing Board

**BACUIT – EL NIDO BAY WATER QUALITY MANAGEMENT AREA
GOVERNING BOARD
El Nido, Palawan**

RESOLUTION NO. 2022-01

CREATION OF THE INTERIM TECHNICAL SECRETARIAT AND SECTOR REPRESENTATIVES OF THE BACUIT – EL NIDO BAY WATER QUALITY MANAGEMENT AREA (BENB WQMA) GOVERNING BOARD

WHEREAS, the Governing Board of the Bacuit-El Nido Bay Water Quality Management Area (BENB WQMA) should be created pursuant to Section 5 of the Implementing Rules and Regulations (IRR) of the Republic Act 9275 (Philippine Clean Water Act of 2004) and Section 4 of DENR Administrative Order (DAO) No. 2021-44 (Designation of Bacuit – El Nido Bay Water Quality Management Area and Creation of Its Governing Board);

WHEREAS, a technical secretariat of the BENB WQMA should be created to provide technical support to the Governing Board;

WHEREAS, the members of the BENB WQMA Governing Board submitted their permanent and alternate representatives through reply letter and Microsoft Forms;

WHEREAS, the technical secretariat is an important component of the BENB WQMA Governing Board, the composition of which possesses strict minimum qualifications;

WHEREAS, there is a need for the BENB WQMA Governing Board to convene its first meeting in order to start its programs and activities for the benefit of Bacuit Bay, El Nido Bay and its tributaries;

NOW, THEREFORE, for and in consideration of the foregoing, the BENB WQMA Governing Board hereby RESOLVES as it is hereby RESOLVED to create for the initial operationalization of the BENB WQMA Governing Board, as follows:

1. An interim Technical Secretariat of the BENB WQMA Governing Board shall be created to be composed of concerned technical personnel from the Environmental Monitoring and Enforcement Division and Legal Unit of the Environmental Management Bureau – MIMAROPA Region and shall serve as such until such time that the Board officially designates the technical secretariat possessing the necessary minimum qualifications.
2. Interim representatives of the BENB WQMA Governing Board members shall be created and incorporated within the Governing Board to be composed of

Orientation Meeting for the Creation of the Governing Board of Bacuit – El Nido Bay WQMA on June 14-15, 2022

**BACUIT-EL NIDO BAY WATER QUALITY MANAGEMENT AREA ACCOMPLISHMENT REPORT
ANNUAL, CY 2022**



1 ORIENTATION MEETING FOR THE CREATION OF THE GOVERNING BOARD
2 OF BACUIT – EL NIDO BAY WQMA

3 Minutes of Meeting

4 Date: 14-15 June 2022

5 Time Started: 10:00 am

6 Venue: DENR ENTMRPA Conference Room

7 Attendees:

Representative/s from the following
sectors:

- | | |
|---------------|--------------------------------|
| - DILG | - LGU – MAO |
| - DPWH | - LGU – MMO |
| - NEDA | - DENR CENRO Taytay |
| - DOST | - ENTMRPA – PAMO |
| - DOH | - El Nido Foundation Inc. |
| - DEPED | - El Nido Chamber of Commerce |
| - DHSUD | - Malampaya Foundation Inc. |
| - LGU – MEEDO | - Zoological Society of London |

8

9 AGENDA: “*Creation of the Governing Board of Bacuit – El Nido Bay WQMA*”

10 DAY 1: June 14, 2022 – 10:00 am to 4:00 pm

- 11 I.** Registration of Attendance of Participants
- 12 II.** The Opening Prayer was led by Mr. Karl Alexander Dammay, Technical Staff of
- 13 EMB, and the Opening Remarks were led by Ms. Edna Velasco, PEMU Palawan.**
- 14 III.** Acknowledging the presence of the attendees
- 15 IV.** Orientation of the Creation of the Bacuit – El Nido Bay as a Water Quality
- 16 Management Area**
- 17 •** Designation/Operationalization of the Bacuit – El Nido Bay as a Water
 - 18 Quality Management Area (WQMA)**
 - 19 •** Brief Discussion of Section 5, Article I of Chapter of the Water Quality
 - 20 Management System mandated under the Republic Act 9275 also known as**
 - 21 the “Philippine Clean Water Act of 2004”**
 - 22 •** Presentation of the Coverage and Conditions of WQMA Designation
 - 23 •** Procedures in the Designation of the WQMA
 - 24 •** Current WQMA in the MIMAROPA Region
 - 25 •** Demonstration of the Action Planning for WQMA and its Processes
 - 26 •** Introduction of the Initial 10-year WQMA Action Plans
 - 27 •** Processes and Legal Basis for the Creation of Multi-Sectoral Group under
 - 28 WQMA**
 - 29 •** Expounding on the definition and objectives of Area Cooperation
 - 30 Arrangement**
 - 31**



- 32 V. Discussion on the Current Water Quality Status of Bacuit – El Nido Bay
33 • Introduction to the Water Quality Monitoring Stations established in Bacuit
34 Bay and El Nido Bay
35 • Operationalization Status of the Bacuit-El Nido Bay WQMA
36 • Presentation of the Trend Data of the parameters (dissolved oxygen, total
37 suspended solids, phosphates, color, pH, temperature, and fecal coliform)
38 from the year 2017 to 2021.
39 • Illustration of the tourist arrivals in El Nido, Palawan in the year 1997 and
40 from 2013 to 2019.
- 41 VI. Open Forum/Discussion
42 - Bulalacao Falls was identified as another source of water supply.
43 - Concerns regarding the water quality of the water supply of the establishments
44 located in El Nido were addressed.
45 - During the forum, it was conceived that some of the establishments rely on
46 deep wells for their water supply, whereas others are connected to MEEDO,
47 which is the water service provider in El Nido.
48 - In relation to this, EMB requested for the list of establishments connected to
49 MEEDO. According to Mr. Conrado David, President of El Nido Chamber of
50 Commerce, Inc., they are willing to connect to MEEDO however, due to the
51 high price, they were unable to.
52 - It was recommended that the LGU, business sectors, and the service provider
53 meet separately by the EMB and as a whole then after.
54 - Another issue determined is the lack of a source of water supply in El Nido as
55 its main resource is the timberland.
56 - Clarification regarding the names of some of the beaches where the sampling
57 stations are located.
58 **Vanilla Cove Beach – Maramegmeg and Peaceful Beach – Lamuro*
59 - It was also brought up that there was no permit on the reclaimed part of the
60 Estero.
61 - Requesting clarification on the roles of the LGU and other sectors as members
62 of the BENB WQMA Governing Board.
63 - Imploration on expanding the scope of the BENB WQMA in terms of land
64 area.
- 65 VII. Excursion on the established sampling stations along El Nido Bay and Bacuit Bay
66 - Nacpan Beach
67 - Calitang Beach
68 - Corong Corong Pier
69 - Corong Corong Cove
70 - Vanilla Beach
- 71 VIII. Meeting Adjourned
72
73
74



75 **DAY 2: June 15, 2022**

- 76 I. Arrival and registration of participants in DENR ENTMRPA Conference Room in
77 El Nido, Palawan
- 78 II. Brief discussion on the safety in the boating excursion of sampling stations
79 established on the islets of the Bacuit – El Nido, Palawan
- 80 - Big Lagoon
81 - Seven Commando
82 - Secret Lagoon
83 - Shimizu
84 - Payong payong Reef
- 85 III. Meeting Adjourned

86

87 Prepared by:

88 
89 Ma Kimberly B. Evora
90 **EMED Staff**

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Department of Environment and Natural Resources
Environmental Management Bureau
MIMAROPA Region



**ORIENTATION MEETING FOR THE CREATION OF THE GOVERNING BOARD
OF BACUIT – EL NIDO BAY WQMA**

14-15 June 2022 held at DENR ENTMRPA Conference Room, El Nido, Palawan



Jun 14, 2022 09:57:44
11.1801773N 119.3901895E
Altitude: 55.9m



Jun 14, 2022 10:26:51
11.1802137N 119.3901895E
Altitude: 55.9m

Designation/Operationalization of the Bacuit – El Nido Bay as a Water Quality Management Area (WQMA) Discussion Proper



Open Forum/Discussion



Jun 14, 2022 11:49:49
11.1802192N 119.3902E
Altitude:55.9m



Jun 14, 2022 11:54:12
11.1802223N 119.3902021E
Altitude:55.9m

Presentation of the scope area of the BENB WQMA



Excursion on the Corong Corong Pier



Excursion on the Calitang Beach



Excursion on the Nacpan Beach



Excursion on the Corong Corong Cove



Excursion on the Vanilla Beach

Creation of the Governing Board Members of Bacuit – El Nido Bay (BENB) Water Quality Management Area on August 23, 2022



Department of Environment and Natural Resources
Environmental Management Bureau
MIMAROPA Region



CREATION OF THE GOVERNING BOARD MEMBERS OF BACUIT – EL NIDO BAY (BENB) WATER QUALITY MANAGEMENT AREA

Minutes of Meeting

Date: 23 August 2022

Time Started: 1400H

Venue: Virtual Meeting via Microsoft Teams

Attendees:

1. RD Beviene G. Malateo	Department of Tourism (DOT) / Regional Director
2. Faye Angeli A. Reyes	Department of Tourism (DOT)
3. Michael Casto II Ras	Department of Interior and Local Government (DILG)
4. Melissa Magbanua	Department of Interior and Local Government (DILG)
5. Atty. Shirley Garcia	Department of Public Works and Highways (DPWH)
6. Nilette F. Fidel	Department of Health (DOH)
7. Pamela L. De Torres	National Economic and Development Authority (NEDA)
8. Christian Jay Cojamco	Palawan Provincial Information Office (Palawan PIO)
9. Daryl Licero	Palawan Council for Sustainable Development (PCSDS)
10. Rodel Lampines	Palawan Council for Sustainable Development (PCSDS)
11. Theo Lagrada	LGU – El Nido
12. Allan Valle	DENR – CENRO El Nido
13. Engr. Eduardo Orquista	Municipal Economic Enterprise and Development (MEEDO)
14. Brian Abin	Municipal Economic Enterprise and Development (MEEDO)
15. Rogelio Manlavi (FARMC)	Fisheries and Aquatic Resources Management Council
16. Charity Apale	Zoological Society of London (ZSL)
17. Mildred Suza	ENTMRPA PAMO
18. Steven John B. Andao	ENTMRPA PAMO
19. RD Joe Amil M. Salino	EMB MIMAROPA / Regional Director
20. Engr. Pablito Estorque Jr.	EMB MIMAROPA / OIC, EMED
21. Edna S. Velasco	EMB MIMAROPA / PEMU Palawan
22. Maevelyn Kathryn D. Tupasi	EMB MIMAROPA / BENB WQMA Secretariat
23. Jane T. Dumenden	EMB MIMAROPA / BENB WQMA Secretariat
24. Adz Hazen M. Dimapilis	EMB MIMAROPA / BENB WQMA Secretariat
25. Nicaith Trisha Enrile	EMB MIMAROPA / BENB WQMA Secretariat
26. Ma. Kimberly B. Evora	EMB MIMAROPA / BENB WQMA Secretariat
27. Rio Reyes	EMB MIMAROPA / BENB WQMA Secretariat
28. Sharmaine G. Maniego	EMB MIMAROPA / BENB WQMA Secretariat

BENB WQMA Members : 22 members

Number of Members Present : 14 members

Number of Members Absent : 08 members

Representatives from the following agency/office members were unable to attend the meeting:

1. Department of Trade and Industry (DTI)
2. Department of Science and Technology (DOST)
3. Department of Human Settlements and Urban Development (DHSUD)
4. National Water Resources Board (NWRB)
5. Bureau of Fisheries and Aquatic Resources (BFAR)
6. El Nido Chamber of Commerce and Industry (ENCCI)



53 7. Association of Barangay Captains (ABC)

54 8. Academe / DepED Division of Palawan

55

56 **PROCEEDINGS:**

57

58 **A. Call To Order**

59 The governing board meeting officially started at about 1400H. The meeting started with an opening
60 prayer led by Ms. Ma. Kimberly B. Evora, Technical Staff of EMB MIMAROPA. Ms. Jane T.
61 Dumenden, Senior Environmental Management Specialist acknowledged the presence of the attendees
62 of the meeting.

63 The quorum was achieved in the middle of the meeting since the creation of the governing board was
64 formally designated, with a total of fourteen (14) governing board members present.

65

66 **B. Presentation of the Minutes of the Previous Meeting**

67 The minutes of the previous meeting were presented by the BENB Secretariat. However, due to no
68 official designation of the governing board members of BENB WQMA. The approval of the minutes was
69 put on hold since the governing board members have not yet been formally established.

70 The BENB WQMA Secretariat further explained the findings on the on-site fieldwork conducted
71 with the governing board members in the established stations. The concerns raised from the previous
72 meeting were elaborated by the BENB WQMA Secretariat.

73

74 **C. Matters arising from the Minutes**

75 No inquiries or remarks were raised from the presented minutes and the meeting proceeded to discuss
76 the provisional agenda.

77

78 **D. Presentation of the Provisional Agenda**

- 79 1. Presentation of the minutes of the first orientation meeting last 14-15 June 2022
80 2. Presentation of the submitted names as Permanent and Alternate Representatives of each Member
81 Agency
82 3. Formal Creation of Board through Board Resolution
83 4. Presentation of the Draft Work and Financial Plan for 2024 and Approval through a Board
84 Resolution
85 5. Way Forward: Draft Governing Rules and Draft an Action Plan
86 6. Other Matters: Water Quality Status

87

88 The BENB WQMA Secretariat proceeded with the presentation of the above-stated agenda.

89

90 **E. Presentation on the Members of the Governing Board of BENB WQMA**

91 The BENB WQMA Secretariat presented first Section 4 of DENR Administrative Order No.
92 2021-44 (DAO 2021-44): the Creation of the BENB WQMA Governing Board, which the Regional
93 Director of EMB MIMAROPA shall chair the governing board, with the representatives from the
94 different sectors and agencies. The BENB WQMA Secretariat added that there was a total of three
95 (3) identified NGOs namely: El Nido Foundation Inc., Zoological Society of London, and
96 Malampaya Foundation Inc., which focused on the environmental protection, however, the
97 Malampaya Foundation Inc. were unable to proceed to its membership as a governing board member
98 due to lack of personnel.

99 The BENB WQMA Secretariat added the other members that could participate on the Governing
100 Board Meeting by invitation, however, they will be unable to approve and veto in the meeting. The
101 BENB WQMA Secretariat proceeded in the presentation of the Permanent Representative and
102 Alternative Representative/s.

103 The BENB WQMA Secretariat also discussed Section 5: Functions of the Governing Board,
104 Section 8: Technical Working Group and Technical Secretariat (introduced the interim Technical



105 Secretariat of BENB WQMA), and Section 9: Multi-Sectoral Group of DAO 2021-44. The BENB
106 WQMA Secretariat also presented the Proposed Composition of the Multi-Sectoral Committee and
107 Election of Officers, in which the Composition of the Executive Committee was also illustrated.
108 The BENB WQMA Secretariat also introduced the Proposed Composition of the Governing
109 Board Committees and illustrated the Proposed Organizational Structure of BENB WQMA.
110 The BENB WQMA Secretariat finished the presentation by asking the members for their
111 comments.
112

CONCERNS/INQUIRIES	RESPONSE
Engr. Pablito Estorque Jr., OIC of the Environmental Monitoring and Enforcement Division (EMED) of EMB MIMAROPA inquired about the total number of the board members.	Ms. Tupasi responded that there was a total of 22 members.
Engr. Estorque Jr., further asked if it is amenable for the board to set the quorum as 50% + 1 to the governing board members (12 members)	RD Beviene G. Malateo from DOT agreed in the comment section to follow the 50% + 1 for purposes of determining the quorum. RD Joe Amil M. Salino from EMB MIMAROPA also agreed to the given proposition.
Mr. Michael Casto II Ras, from the DILG, clarified that the meeting was not in quorum as there were only 11 members present.	Ms. Tupasi replied that the governing board members were still not officially created, hence, the meeting still proceeded.
Engr. Estorque Jr. inquired that there are some members that were able to participate in the middle of the meeting.	Ms. Dumenden, acknowledges the presence of these attendees.
Mr. Ras clarified that some overlapping of members in the committee presented and added that the governing board members also function as officers. He also concludes that there is a multi-representation of the members, which he finds an issue since the members have multiple positions.	Ms. Tupasi clarified that the Composition of the Board Committees is only proposed, and it can be revised accordingly. Engr. Estorque Jr. further discussed the Organizational Structure of the BENB WQMA and suggested revising the Proposed Composition of Board Committees. Ms. Tupasi proceeded in revising the Proposed Composition of Board Committees accordingly to the member's suggestions.
RD Salino requested acknowledgment of the new attendees.	Ms. Dumenden proceeded in acknowledging the presence of the new attendees.
RD Salino also inquired about the duly representatives of the committee.	Ms. Tupasi responded that there were only three (3) members of the board to provide their representatives from the circulated letter.
RD Salino requested the present attendees, to provide their Permanent Representative and Alternate Representative.	Ms. Tupasi proceeded to implore the members their permanent and alternate representatives.
Engr. Estorque Jr. confirmed that there were 14 members on board.	

113



F. Presentation the BENB WQMA Resolution No. 2022-01: Creation of the Interim Technical Secretariat and Sector Representatives of BENB WQMA Governing Board

The BENB WQMA Board Resolution No. 2022-01 was presented by the BENB WQMA Secretariat. Based on the counted attendees, there were a total of fourteen (14) members on board in the meeting.

The Board Resolution No. 2022-01 was approved unanimously and seconded by the members of the board.

G. Presentation of the Draft Work and Financial Plan for 2024 and Approval through a Board Resolution

The BENB WQMA Secretariat presented the BENB WQMA Work and Financial Plan for 2024. Accordingly, the Secretariat disclosed that the BENB WQMA has already acquired accrued funds with an estimated total of Php 254,899.98. The said fund was accumulated from the collected wastewater discharge fees from the business establishments and will be utilized in purchasing the portable water checker, and dye tracers. The BENB WQMA Secretariat further stated that the elected officers especially the Treasurer, together with the Finance Committee will be handling the Work and Financial Plan. The approval of the Work and Financial Plan for 2024 will be moved once there are elected officers and the governing rules have been fully established.

H. Way Forward: Draft Governing Rules and Draft Action Plan

The Governing Rules and Action Plan have already been drafted according to BENB WQMA Secretariat, however, due to lack of time, the drafted documents will be sent out through email for further review by the Governing Board Members. The approval for the Governing Rules and Action Plan will be moved to a face-to-face meeting.

I. Presentation of Water Quality Status

The BENB WQMA Secretariat illustrated the updated maps of the established monitoring stations within the coverage of the BENB WQMA.

The BENB WQMA Secretariat also presented the Water Quality Status of Bacuit Bay including the Fecal Coliform which some monitoring stations failed to comply with the Water Quality Guidelines (WQG). The physio-chemical properties such as Dissolved Oxygen (DO) were also presented. The high concentration of DO is due to the waves and occurrence of rains and as the temperature rises, the lower the DO levels are. There was no concern regarding the levels of pH and phosphates. In terms of Total Suspended Solids, it has an increasing level of concentration especially in the station of Masagana, as there were two (2) outfalls discharging in the station.

The BENB WQMA Secretariat also presented the laboratory results for Bacuit Bay outfalls with the following parameters: Fecal Coliform, Dissolved Oxygen, pH, and Total Suspended Solids. The Water Quality for the Tourist Destinations for the First Semester was also illustrated.

The CY 2022 Water Quality of El Nido Bay was also presented, and in terms of Fecal Coliform, the station of Caalan Beach and Calitang Beach has the highest concentration especially since Calitang Beach is near the Fisher's Village where the area served as a docking place for fishing boats. It was also stated that the Lio Port is connected on the Lio River, which is one of the tributaries in the area. It was also observed that there is also an increase in the Fecal Coliform concentration in Nacpan Beach due to the rise of the establishments near the beach.

The Bacuit Bay Trend Data (Offshore, Coastal, Outfalls, and Tourist Destinations) from the year 2017 to 2021 was also illustrated with the addition of the El Nido Bay Trend Data from the year 2020 to 2021.




J. Agreements/Approved/Proposals Made during the Meeting

Governing Board	The following were approved during the meeting: - BENB WQMA Board Resolution No. 2022-01: <i>Creation of the Interim Technical Secretariat and Sector Representatives of BENB WQMA Governing Board</i> (The Board Resolution No. 2022-01 was unanimously approved and seconded by the members of the board.)
	Circulation of the following documents: - Signed BENB WQMA Board Resolution No. 2022-01 - Work and Financial Plan for CY 2024 - Drafted Governing Rules and Action Plan - Updated Water Quality Monitoring Report
	The approval for the Governing Rules and Action Plan will be moved to a face-to-face meeting.
	The approval of the Work and Financial Plan for 2024 will be moved once there are elected officers and the governing rules have been fully established.


K. Closing Remarks

The closing remarks were led by RD Salino. The tentative agreed date for the next BENB WQMA Governing Board Meeting was October 12, 2022, and the meeting adjourned at 1640H.

Prepared by:


ENGR. MA. KIMBERLY B. EVORA
BENB WQMA Secretariat
EMED Technical Staff

Reviewed by:


JANE T. DUMENDEN
BENB WQMA Secretariat
Head, Ambient Water

Attested by:


MAEVELYN KATHRYN D. TUPASI
BENB WQMA Secretariat
OIC, AMTSS

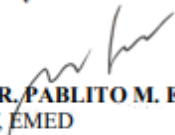


Department of Environment and Natural Resources
Environmental Management Bureau
MIMAROPA Region



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Noted by:


ENGR. PABLITO M. ESTORQUE JR.
Chief, EMED

4th Quarter Governing Board Meeting of Bacuit – El Nido Bay Water Quality Management Area (BENB WQMA) on October 12, 2022



Department of Environment and Natural Resources
Environmental Management Bureau
MIMAROPA Region



4TH QUARTER GOVERNING BOARD MEETING OF BACUIT – EL NIDO BAY WATER QUALITY MANAGEMENT AREA (BENB WQMA)

Minutes of Meeting

Date: 12 October 2022
Time Started: 9:00 AM
Venue: Virtual Meeting via Microsoft Teams

Attendees:

1. RD Beviene G. Malateo	Department of Tourism (DOT) / Regional Director
2. Faye Angeli A. Reyes	Department of Tourism (DOT)
3. Michael Casto II Ras	Department of Interior and Local Government (DILG)
4. Virgilio L. Tagle	Department of Interior and Local Government (DILG)
5. Melissa Magbanua	Department of Interior and Local Government (DILG)
6. Engr. Archimedes Pineda	Department of Public Works and Highways (DPWH)
7. Engr Wylene Valencia	Department of Public Works and Highways (DPWH)
8. Joel Lorenzo C. Guevarra	Department of Trade and Industry (DTI)
9. Pamela L. De Torres	National Economic and Development Authority (NEDA)
10. Daryl Licero	Palawan Council for Sustainable Development (PCSDS)
11. Rhoda Bontogon Roque	Palawan Council for Sustainable Development (PCSDS)
12. Kiem Mabaquiao	Municipal Environment and Natural Resources (MENRO)
13. Allan Valle	DENR – CENRO Taytay
14. Prince Mark R. Buefano	Municipal Economic Enterprise and Development (MEEDO)
15. Ivy Joan Cananea	Department of Human Settlement & Urban Development (DHSUD)
16. Marione Deanna T. Comboy	Department of Human Settlement & Urban Development (DHSUD)
17. Niescee Eiscene C. Talamaan	Department of Science and Technology (DOST)
18. Noel Samudio	Department of Science and Technology (DOST)
19. Rogelio Manlavi	Fisheries and Aquatic Resources Management Council (FARMC)
20. Conrado N. David	El Nido Chamber of Commerce, Inc. (ENCCI)
21. Jose Alferes	El Nido Foundation, Inc. (ENFI)
22. Steven John B. Andao	ENTMRPA PAMO
23. Jenuel Casel	ENTMRPA PAMO
24. RD Joe Amil M. Salino	EMB MIMAROPA / Regional Director
25. Engr. Pablito Estorque Jr.	EMB MIMAROPA / OIC, EMED
26. Atty. Alessa May V. Ismael-Habal	EMB MIMAROPA / Chief, Legal Unit
27. Edna S. Velasco	EMB MIMAROPA / PEMU Palawan
28. Nicaith Trisha Enrile	EMB MIMAROPA / Chief EMS - Taytay
29. Rio Reyes	EMB MIMAROPA / EnMO
30. Maevelyn Kathryn D. Tupasi	EMB MIMAROPA / BENB WQMA Secretariat
31. Jane T. Dumenden	EMB MIMAROPA / BENB WQMA Secretariat
32. Adz Hazen M. Dimapilis	EMB MIMAROPA / BENB WQMA Secretariat
33. Engr. Ma. Kimberly B. Evora	EMB MIMAROPA / BENB WQMA Secretariat

BENB WQMA Members : 22 members
Number of Members Present : 16 members
Number of Members Absent : 06 members

Representatives from the following agency/office members were unable to attend the meeting:

1. Provincial Government of Palawan
2. National Water Resources Board (NWRB)
3. Bureau of Fisheries and Aquatic Resources (BFAR)



4. Department of Health (DOH)
5. Association of Barangay Captains (ABC)
6. Local Academe / DepED Division of Palawan

PROCEEDINGS:

A. Call To Order

The BENB WQMA Governing Board Meeting officially started at 9:00 AM. The meeting started with an opening prayer led by Ms. Ma. Kimberly B. Evora, BENB WQMA Secretariat. The presence of the attendees of the meeting was acknowledged by Mr. Adz Hazen M. Dimapilis, BENB WQMA Secretariat.

The quorum was achieved by having a total of sixteen (16) governing board members present during the meeting.

B. Presentation of the Provisional Agenda

Engr. Pablito Estorque Jr. presented the following Provisional Agenda of the meeting:

1. Presentation / Approval of the Minutes from the Previous Meeting
2. Matters Arising from the Previous Meeting
3. Presentation of the Proposed Committees and Organizational Chart of the BENB WQMA
4. Presentation of the Draft Governing Rules
5. Presentation of the 3rd Quarter Water Quality Status of Bacuit and El Nido Bays
6. Other Matters: Current Water Quality Issues of El Nido – Oil Scum in Bacuit Bay and the Potability of Groundwater

There were no comments or suggestions made during the presentation of the provisional agenda. However, Engr. Estorque suggested to RD Joe Amil Salino and the members of the board to invite the Philippine Coast Guard as a special guest for the next meeting to discuss the presence of an oil spill in Bacuit Bay. RD Salino inquired about the comments from the members regarding the request, Mr. Conrado N. David from the El Nido Chamber of Commerce agreed to the given proposition. RD Beviene G. Malateo moved the approval of the agenda and was seconded.

C. Presentation of the Minutes of the Previous Meeting

Ms. Evora proceeded with the presentation of the minutes of the previous meeting. There were minor corrections made within the minutes which includes:

1. Changing the name of Engr. Eduardo Orquista from Orguisita.
2. Changing the term used from “anonymously” to “unanimously”.
3. Removal of the term PASu and changing of PAMB to PAMO, accordingly.

D. Matters Arising from the Previous Meeting

Mr. David emphasized the Line 146 of the Minutes of the Previous Meeting which stated, the high concentration of Fecal Coliform in the stations of Caalan Beach and Calitang Beach. According to Mr. David, the business establishments already have a concern regarding the cluster tanks made by El Nido Sewerage and Treatment Plant (STP) which was said to be left unfinished and neglected, which he inferred that it might be one of the reasons on the increasing levels of the Fecal Coliform on the stations. Mr. David requested to visit the cluster tanks in Caalan Beach and near Gawad Kalinga. Ms. Tupasi asked Mr. Conrado if the cluster tanks were operational, and Mr. David replied that there is already an ordinance from the Local Government that the STP is already operational. Mr. Conrado remarked that they have pictures regarding the concerned issue. Ms. Tupasi added that concern will be implored in the special meeting with the El Nido STP on the following day. Mr. David requested to verify all the cluster tanks of the El Nido STP. RD Salino agreed to validate the said cluster



tanks by the EMB Personnel, which PEMU Edna S. Velasco concurred with and indicated that Ms. Nicaith Trisha Enrile, Chief EMS of Taytay, will validate these cluster tanks after the meeting. The monitoring report regarding the cluster tanks will be presented to the board at the next meeting.

RD Salino asked if there are comments from the LGU of El Nido regarding the stated matter, to which Mr. Prince Mark R. Buefano responded and gave an update regarding the hauling of the wastewater as well as the issue on the adjacent pipeline of the sewerage and water distribution line. Mr. Buefano emphasized that there could be possible contamination if there is an occurrence on the sewerage line and in the event of power interruption, there could be vacuum repercussions on the potable water line. Ms. Tupasi asked which pipeline layout was first, to which Mr. Buefano responded that the water distribution was laid out first. Mr. Buefano remarked that the issue was already raised with the El Nido STP, however, the pipe laying for the sewerage line still continues. Ms. Tupasi agreed to also discuss it in the following special meeting with the El Nido STP.

RD Salino asked if MENRO was present, and Ms. Tupasi replied that only a representative of MENRO, Mr. Kiem Mabaquiao was present in the meeting. RD Salino asked for the name of the MENRO, and he indicated that there should be a formal representative from the MENRO. Ms. Tupasi replied that the name of the MENRO was Mr. Raul Maximo and asked Mr. Mabaquiao if he was the duly representative of MENRO which Mr. Mabaquiao replied that he was. Ms. Tupasi inquired about Mr. Mabaquiao on his opinion regarding the issue raised regarding the pipelines of the sewerage and water distribution line, however, Mr. Mabaquiao was not able to give his opinion.

E. Presentation on the Organizational Chart of BENB WQMA

The BENB Secretariat presented the Organizational Chart of the BENB WQMA, which based on the agreement from the previous meeting, the interim technical secretariat will be from the EMB MIMAROPA Personnel which the governing board members can also be a member of the technical secretariat. The Governing Board was divided into two (2) groups, namely: the Technical Working Group and the Multi-Sectoral Surveillance Group. The Technical Working Group was formerly revised based on the previous meeting. The function of the Multi-Sectoral Surveillance Group includes conducting ambient monitoring inspection and inspection of business establishments.

	CONCERNS/INQUIRIES	RESPONSE
1	Mr. Daryl Licero, from Palawan Council for Sustainable Development (PCSD), suggested changing the Chair of the Environmental and Health Committee from PCSD to LGU El Nido.	Ms. Tupasi acceded in changing the members of the committee based on the suggestions given by the members accordingly.
2	Mr. David suggested being part of the Fund Committee while still being part of the Community Affairs and Development Committee.	
3	Ms. Rhoda Roque also from PCSD also requested to move the El Nido Foundation Inc. (ENFI) to the Environment and Health Committee.	
4	Mr. Rogelio Manlavi from the Fisheries and Aquatic Resources Management Council (FARMC) asked if the Sangguniang Bayan can be part of the Fund Committee as they could provide financial assistance.	Ms. Tupasi clarified that the Sangguniang Bayan and other branches of the local government are already covered under the LGU El Nido, which was indicated within DAO 2021-44.
5	Mr. Michael Casto II Ras from the Department of Interior and Local Government (DILG) asked if there are definitions and functions of the presented committees.	Ms. Tupasi replied that it has been discussed in the previous meeting and presented again the definitions and functions of the committees.



6	Mr. Ras also commented that if the definition and functions of the committee are uniform from the other WQMA's.	Ms. Tupasi replied that it is uniform as it was templated however, the members of each committee differ accordingly to the preference of the members
7	Mr. Ras asked if the committee can also hold meetings separately.	<p>Ms. Tupasi responded they can meet as needed and it is ideal for the committee to meet to discuss and update the action plan if it has been implemented or completed.</p> <p>Ms. Tupasi also added that ideally, the committee prepares the action plan. However, due to the pressing issue of El Nido, the technical secretariat has already drafted the action plan, for the comments of the committees.</p> <p>Ms. Tupasi also encouraged the governing board members if they have existing programs aligned with the objectives of the WQMA which can be collaborated with and can be incorporated into the action plan.</p>
8	Mr. Ras asked if the committees will be focused solely on their specified committee.	<p>Ms. Tupasi clarified that the creation of the committee indicates only that there are some specific members that will be focused on the identified problem area but do not necessarily mean that they cannot comment on the matters of the other committees.</p> <p>RD Beviene G. Malateo of the Department of Tourism (DOT) commented in the chat box of Microsoft Teams that being within the committee will not preclude the member from adding their inputs during the Governing Board Meeting.</p>
9	<p>RD Salino also added that all the outputs of all committees will still be presented to the board for approval.</p> <p>Mr. David agreed to the given proposition however, the governing board meeting can only meet up quarterly and the decision will be delayed.</p>	Ms. Tupasi stated that according to DAO 2021-44, it was specified that the governing board can meet quarterly but it can also be frequent as needed.
10	Ms. Tupasi remarked that after the review of the governing rules, the members of the Multi-Sectoral Surveillance Group can be then constructed.	

F. Presentation of the BENB WQMA Governing Rules

The BENB WQMA Secretariat proceeded to present the BENB WQMA Governing Rules. The following are the issues/concerns determined during the discussion.

	CONCERNS/INQUIRIES	RESPONSE
11	Mr. David inquired if the term "AQWMF" can be changed into "WQMAF" in order to be remembered easily.	Ms. Tupasi replied that under the law, it has been referred to as "AQWMF".



12	<p>Atty. Alessa May V. Ismael-Habal, Chief, Legal Unit of EMB MIMAROPA highlighted in <i>Section 6.2</i> of the Governing Rule: <i>In case of a change of alternate representative, the principal of the concerned sector shall inform the secretariat in writing of the such change.</i></p> <p>She then asked how long the concerned sector must send their letter or the necessary document to inform the board regarding such change.</p>	<p>Ms. Tupasi answered that supposedly it will be sent immediately for the purpose of future communication.</p>
13	<p>Ms. Tupasi also asked if there are any inclusions to be stated accordingly in the said Section.</p>	<p>Atty. Ismael-Habal suggested adding a subsection regarding the change from the sectors' representative.</p> <p>RD Malateo also commented thru the comment section that <i>'In cases where changes in the representative, the agencies shall inform such fact to the Secretariat at least seven (7) days before the scheduled Governing Board Meeting.'</i></p> <p>Ms. Tupasi then proceeded in adding a subsection under <i>Section 6.2</i>, accordingly.</p>
14	<p>Mr. David inquired that the composition of the Governing Board must be twenty-three (23), as the El Nido Chamber of Commerce, Inc. (ENCCI) and Cottages, Restaurants, Resorts Association of El Nido (CRRAEN) are two different entities.</p>	<p>Ms. Tupasi answered that the two entities both represent the Business Sectors, so their count will be one (1) and so is their vote.</p>
15	<p>Mr. David remarked that there could be possible differences in the opinions between ENCCI and CRRAEN. He then suggested that there should be one (1) representative from the Business Sectors and asked if it is amenable to the board.</p> <p>Mr. David also suggested that they could also take turns as governing board member with CRRAEN.</p>	<p>RD Salino responded that it should be decided as a board, then asked for further clarification on the organizational structure for the business sectors.</p> <p>Ms. Tupasi explained that there were two (2) groups for the Business Sectors namely the CRRAEN and ENCCI, in which Mr. David was a representative of ENCCI.</p> <p>Ms. Tupasi further explained that during the conceptualization of the designation of Bacuit-El Nido Bay as WQMA, CRRAEN was able to attend initially, however, as for the following meeting until the designation of BENB WQMA, CRRAEN was not able to signify.</p> <p>Ms. Tupasi also added the board can also take consideration on the suggestion of Mr. David, to signify ENCCI as the only representative of the Business Sectors, considering that the term of the membership in the governing board is three (3) years and if they have an agreement to take turns or to retain the membership, there will be no</p>



		problem regarding that, as long as there is a representative from the business sectors.
16	RD Salino asked if there is a representative from the CRRAEN.	Ms. Dumenden replied that according to the attendance, there was no representative from CRRAEN.
17	RD Salino asked if the CRRAEN has been actively participating since the creation of the board.	Ms. Dumenden replied that CRRAEN was not attending.
18	RD Salino asked if the suggestion of Mr. David is amenable to the board.	Mr. Ras agreed with the suggestion, considering that based on the records and attendance, the CRRAEN were not actively participating.
19	RD Salino asked if CRRAEN have been invited.	Ms. Tupasi replied that since for designation phase of BENB WQMA, they have been invited, however, they were not frequently attending.
20	Atty. Ismael-Habal clarified that since there was no statement enclosed in the governing rules as well as in DAO regarding the process of the termination of the members. Atty. Ismael-Habal also suggested including it in the governing rules, which include how many absences in the meetings the members must have their membership to be automatically terminated. Atty. Ismael-Habal added to provide a written notice regarding to the members' exclusion from the governing board.	
21	RD Malateo added on the comment section if there is a business sector that was recognized by the LGU.	Mr. David replied that every three (3) years, LGU processes accreditation, which was under the memorandum circular of DILG. He also added that there are only fifteen (15) Civil Society Organizations (CSOs) accredited.
22	RD Salino inquired if CRRAEN was accredited by the LGU.	Mr. David responded that the CRRAEN was not on the list of accredited CSOs, and they were still processing their accreditation.
23	RD Salino asked for the LGU regarding the concern of the accredited CSOs.	Ms. Tupasi replied that the Secretariat will contact the LGU regarding the concern.
24	RD Salino suggested providing a letter to the LGU to provide their representative for the BENB WQMA Governing Board.	Ms. Tupasi agreed to notify the LGU.
25	Mr. David asked for the final verdict regarding his concern about membership in the Business Sector.	Ms. Tupasi explained that the comment of the LGU regarding the matter is still needed and it will be addressed after the meeting.
26	Mr. David commented on <i>Section 7. Terms of Membership of the Governing Board</i> , there should be grounds for the termination.	RD Salino responded that the Secretariat together with Atty. Ismael-Habal would draft Internal Rules regarding the termination of the members that would be presented to the governing board.
27	Mr. David also asked regarding the process of the re-nomination of non-government members under <i>Section 7 (b)</i> .	Ms. Tupasi replied that the internal rule will be formulated accordingly.



28	Ms. Tupasi presented to the board the list of accredited CSOs which was provided by Ms. Melissa Magbanua from DILG El Nido. Ms. Tupasi then asked the governing board regarding the removal of CRRAEN as a representative of the Business Sectors as they are not within the list of accredited CSOs.	
29	Mr. David further clarified if CRRAEN could be an additional member as a separate entity.	Ms. Tupasi responded that if there would be an additional member, it will result to the redesignation of the WQMA and it will undergo another process and new administrative order will be approved.
30	RD Malateo also gave additional comments on <i>Section 7 (b) and (d)</i> thru the comment section.	

The BENB WQMA Secretariat asked for the governing board to continue the meeting after the lunch break at 1:00 PM, which was moved and approved by the members.

The meeting proceeded in discussing *Section 8. Functions of the Governing Board*, which include Policy Functions, Administrative and Coordination Functions, Monitoring, and Other Functions.

	CONCERNS/INQUIRIES	RESPONSE
31	Mr. Ras asked if the cost of travel of the members during the inspection can be acquired from the EMB Fund.	<p>Ms. Tupasi replied that it is within the WQMA Fund. However, the provision for the travel fees of the governing board members from their respective locations to the inspection site is still not approved by the DENR Central Office.</p> <p>Ms. Tupasi continued that it will be asked of the Central Office again, as there will be two (2) funds that will operationalize for the WQMA.</p> <p>Ms. Tupasi further clarified that there were no guidelines provided regarding the concern and clarified that the WQMA Fund can only be utilized during the conduct of the activity.</p>

The BENB WQMA Secretariat explained that the concerned LGU within the WQMA plays a significant role, and the role of the board is to guide the LGU for their compliance. After the approval of the Action Plan, the LGU will draft a compliance scheme regarding how they will be able to comply and achieve the targeted objectives of the approved Action Plan.

	CONCERNS/INQUIRIES	RESPONSE
32	Mr. David inquired about <i>Section 8. Functions of the Governing Board</i> , does the governing board is authorized to set fees and charges or it is governed by the DAO.	Ms. Tupasi explained that if it is regarding the mandates of the EMB, the governing board can only elevate the related concerns to the EMB in which the EMB will impose the penalty, this can also be done to the other agencies which have correlated mandates in relation to the water quality management issues.



33	RD Salino asked Mr. David to give an example of what fees and charges in relation to water quality management can he recommends.	Mr. David answered that there could be a chance to determine such fees and charges during the implementation. Mr. David further explained that he cannot give specific charges and fees as of now however, it can be anticipated in the future scenarios
34	RD Salino explained that they would look into it on the existing policy. RD Salino also stated that Atty. Ismael-Habal will kindly review the suggestion raised by Mr. David.	Atty. Ismael-Habal stated that as stipulated under <i>Section 5. Functions of the Governing Board of DAO 2021-44 (f)</i> , which indicates that strategies can be formulated accordingly, and under the same section, <i>(k)</i> which discussed the solicitation of support, finance, and non-finance from the other parties, it can be concluded that the said suggestion could be implemented, however, it is limited only to project basis and not on the penalty area, such as fundraising however, as for penalty we don't have such power under DAO.
35	RD Salino asked Ms. Tupasi for additional input regarding the concern, based on the practices of the other was.	Ms. Tupasi replied that given an example if the Multi-Sectoral Surveillance Group have been operationalized and if they identified a non-compliant establishment which was based on the experience on the Calapan River WQMA, the concerned issue was elevated on the EMB, and a resolution was made and there was an issuance of Cease-and-Desist Order on the said establishment. Ms. Tupasi further explained that the concerned issue can only be elevated through a resolution in which the business permit of such an establishment was canceled through the LGU as well as permits from the EMB. As per the penalties, the EMB will handle such a function. Ms. Tupasi also stated as a rejoinder to the given statement of Atty. Ismael-Habal, the governing board can avail grants however, in terms of implementation of penalties, there were already stipulated mandates correspondingly to each agency.
36	RD Salino further asked if there is an implemented project and the people are utilizing the said project, should there be any charges and fees for its maintenance he also added that, as per the given example, does the governing board have the authority to collect such fees.	Ms. Tupasi replied that concern will be reviewed in the Implementing Rules and Regulations of the WQMA. Ms. Tupasi also added that all the activities of the governing board will be anchored to the approved Action Plan, and if a project was launched and was not indicated in the action plan, and certain fees are collected under such project, it will not be approved.
37	Mr. Ras also commented thru the comment section in the Microsoft Teams, that to follow what was stipulated on RA 9275, in reference to the section for WQMA.	Ms. Tupasi agreed and for fairness and equality, the rules will also be reviewed.



38	Mr. Ras inquired that the formulation of the plan of the committee was not in line with the presented functions of the board.	Ms. Tupasi answered that the functions of the committee were shortened due to the presentation purposes, and it will be elaborated on in the governing rules.
39	Mr. Ras further asked that if the role of the EMB is to formulate the action plan, then it should not be part of the function of the governing board (<i>Section 8</i>).	Ms. Tupasi clarified that the formulation of the action plan will be made by the governing board, and the EMB will draft the action plan which is still for review and comments of the board.
40	Mr. Ras added that should it be the EMB who will formulate the action plan and only the policy direction will be the role of the board.	Ms. Tupasi responded that the formulation will be made by the governing board and the EMB will serve as the Secretariat since they were able to identify the issues and problems on the declared WQMA, which became the basis for drafting the action plan. The drafted action plan made by the EMB will be served as its backbone and the details will be discussed in the governing board meetings. Ms. Tupasi added that the LGU will implement the action plan and the compliance will be monitor by the board. Ms. Tupasi also added that the working document will be circulated online for further comments from the board.
41	Mr. David added that based on his experience the board is only an approval body and agreed that the EMB shall provide the guidelines. He also added the governing board shall be focused on the decision-making.	Mr. Tupasi replied that the governing rules will be polished accordingly.
42	RD Salino suggested giving a copy of the governing rules to the board to give them ample time to review them.	Ms. Tupasi agreed to circulate the drafted rules.

The BENB WQMA Secretariat proceeded with the presentation of the Governing Rules per rule as suggested by RD Salino and Mr. Ras.

Mr. David suggested in *Section 9.4.4*, the periodic report of the treasurer should be at least monthly or quarterly and in *Section 9.4.5* the audit should be conducted quarterly, in which the BENB WQMA Secretariat replied that it will be reviewed with Atty. Ismael-Habal. The BENB WQMA Secretariat stated due to the pressing issues of El Nido, the meeting will be conducted monthly instead of quarterly, in which the treasurer will report accordingly to the frequency of the meeting. The BENB WQMA Secretariat further added that the reporting does not necessarily mean that it will be limited only to the stated frequency of quarterly. The BENB WQMA Secretariat also added that there are financial reports that are submitted to the Central Office, however, as the AQWMAF is still not withdrawn, reporting of such have not yet been submitted.

	CONCERNS/INQUIRIES	RESPONSE
43	Mr. David requested to itemize the actual and necessary expenses which were stated in <i>Section 16.1</i> .	Ms. Tupasi took note of the said proposition.
44	Mr. Joel Lorenzo C. Guevarra from the Department of Trade and Industry (DTI), reiterated <i>Section 6. Membership of the Governing Board</i> , is the	Ms. Tupasi replied that based on the DAO, the permanent representative will be the regional directors of the national agencies, however, it was



	membership of the governing board solely on the Regional Director/Head of the Agency or the ARD positions, or will it be the designated representative chosen by the head of the agency?	also stated in the DAO that they can also appoint their permanent and alternate representative, which he/she shall be able to make decisions on behalf of their regional director.
45	Mr. Ras also asked for clarification on the Technical Secretariat if they are permanent positions.	Ms. Tupasi replied that the composition of the Technical Secretariat is in accordance with RA 9275. She also added that the assigned in the positions are the permanent personnel of the EMB.
46	Mr. David stated that his concern regarding the members from the non-governmental agencies does not have the capability to reimburse the cost of travel from their respective location to the meeting/inspection site.	Ms. Tupasi answered that the members of the board are based on the DAO in which most local members are residents of El Nido and the members that would only travel by airplane are from national agencies. Ms. Tupasi also added that there will be justification if the proposed members of the board are not within the area.

The BENB WQMA Secretariat is discussed within *Section 17. Information Dissemination*, the Local Academe will handle most of the Information, Education, and Communication (IEC) campaigns to the public, concerned stakeholders, as well as the visiting tourist as they are also the chair of the Information Committee.

The BENB WQMA Secretariat is discussed under *Section 20. Headquarters of the Bacuit-El Nido Bay WQMA Governing Board*, that the satellite office of the EMB is located within the office of ENTMRPA. During the discussion, Mr. David stated that he volunteers to donate a titled land in Lio, El Nido for the headquarters for the BENB WQMA.

Mr. David clarified on the signatory of the Governing Body, that there were two (2) separate entities under one signatory. The BENB WQMA Secretariat answered that it has been based on the DAO. The BENB WQMA Secretariat also gave an example that for an instance, under the water utility representative, if the MEEDO have already given their signature, and the El Nido Sewage and Solid Waste Treatment Plant have not yet given theirs, it will be already counted as one.

Mr. David also asked regarding the representation of the PAMB and the Regional Executive Director (RED) if they have different representations. Atty. Ismael-Habal answered that according to *Section 4, of DAO 2021-44*, the representation of the ENTMRPA PAMB/PASu is different from the representation of the DENR.

Mr. David further explained that the authority of PAMB is RED and if it is referring to the PASu, instead of ENTMRPA PAMB, it should be the Protected Area Management Office (PAMO). The BENB WQMA Secretariat will coordinate with the Central Office regarding the concerned matter of Mr. David.

G. Presentation of the Water Quality Status

The BENB WQMA Secretariat presented the Water Quality Status of Bacuit Bay. There was a total of ten (10) stations monitored for the parameters of Fecal Coliform, Dissolved Oxygen, and pH.

Based on the illustrated concentration of Fecal Coliform, the stations of Masagana and Buena Suerte were unable to comply with the Water Quality Guidelines (WQG). The physio-chemical properties such as Dissolved Oxygen (DO) of all the monitored stations were able to pass the WQG, however, in terms of Ph, the station of Masagana, Maligaya and Buena Suerte failed to comply with the WQG.



The BENB WQMA Secretariat also mentioned in the presentation, the changing of the station name of Vanilla Beach Cove to Maramegmeg courtesy of the previous meeting. The BENB WQMA Secretariat remarked that there were only four (4) stations monitored for the parameters of phosphate and total suspended solids. In terms of phosphate, all the monitored stations were also able to pass the WQG, however, the station of Masagana was not able to pass the standard for the total suspended solids.

The outfalls in Bacuit Bay were also monitored namely, the Corong-corong Outfall, El Nido Estero Outfall, Masagana Outfall, Cabugao Outfall, and Masagana Outfall II. The general concentration of the fecal coliform of all outfalls failed to comply with the WQG while the DO levels of the outfalls fluctuated. In terms of pH, in the month of August, the station of Masagana Outfall, Cabugao Outfall, and Masagana Outfall II was not within the range of the set standard of the WQG.

For the Tourist Destinations, there were twenty (20) stations monitored. All the stations were able to pass in terms of fecal coliform, dissolved oxygen, and pH.

The BENB WQMA Secretariat also presented the Water Quality Status of El Nido Bay. In the month of September, the station of Calitang Beach exceeds the WQG in terms of fecal coliform. However, the DO levels of all stations passed the set standard. The stations of Lio Runway, Lamuro, and Calitang Beach for the month of September also exceed the WQG for total suspended solids while all stations were able to pass the WQG for phosphate and nitrates.

Mr. Ras asked if there were no data for the groundwater to which the BENB WQMA Secretariat replied that the data for groundwater is still incomplete, as the checking of the groundwater was conducted randomly and there were still no reports from the Department of Health (DOH). Mr. Ras also stated that the monitoring of the groundwater should be included in the mandate of water quality management. The BENB WQMA Secretariat replied that it is within the WQMA, however, the DOH is more focused on groundwater monitoring. The BENB WQMA Secretariat also remarked that they will request the data (*groundwater and tap water*) from the DOH.

Mr. Noel Samudio, from the Department of Science and Technology (DOST), also requested to present the data in a graphical form in order to fully visualize the trend of the data. The BENB WQMA Secretariat proceeded to show the graphical presentation of the trend of Fecal Coliform for Bacuit Bay.

H. Other Matters: Diarrhea Cases of Locals and Tourists in El Nido

The BENB WQMA Secretariat elaborated on the diarrheal cases in El Nido, in which according to the report of DOH as of June 11, there were a total of 396 cases of diarrhea. However, the issue cannot be fully addressed as the action taken by the DOH is still undefined, and that only random groundwater monitoring was conducted. There was also no feedback from the National Water Resources Board (NWRB), pertaining to their issued permits regarding the groundwater wells.

I. Other Matters: Oil Spill Incident from Tourist Boat within Bacuit Bay (June 21 Social Media Post by Mr. Tani Distal)

There was an oil spill or oil scum incident that was observed and posted on social media on June 21, and in response to this, a water sampling was conducted on June 2. The BENB WQMA Secretariat presented the oil and grease results from the conducted sampling on June 27 and August 1, 2022. The stations of Masagana, Maligaya, Buena Suerte, and Corong-corong were monitored and the oil and grease of the said station exceeded the set standards within the WQG.

To address the issue, Ms. Nicaith Trisha B. Enrile, chief EMS of Taytay interviewed the representative from MENRO, Mr. Jason Paigma. The CG CDR Diomedes P. Bungay, Station Commander of Coast Guard Station of El Nido sent a letter on June 26, 2022, regarding the oil spill issue.



J. Other Matters: Complaints of Ms. Colongon last September 19, 2022

The complaints of Ms. Colongon consist of the wastewater discharge along Barangays Corong-corong beach, the action of the government agencies regarding the pollution of water, and signages that should be present in the areas where water quality fails.

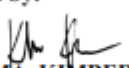
K. Agreements/Approved/Proposals Made during the Meeting

	Concerned BENB WQMA Governing Board Member	Agreements/Proposals
47	BENB WQMA Secretariat	Invite the Philippine Coast Guard as a special guest for the next governing board meeting.
48	EMB MIMAROPA	Verification of the cluster tanks of El Nido STP.
49	BENB WQMA Secretariat	Send a notification letter to the LGU for their representative.
		Circulation of working document of the Governing Rules to the Governing Board Members.
		Request data on the monitored groundwater and tap water in El Nido from the DOH.

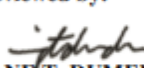
L. Closing Remarks

The closing remarks were led by RD Salino and the meeting adjourned at 3:00 PM.

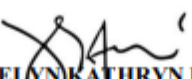
Prepared by:


ENGR. MA. KIMBERLY B. EVORA
BENB WQMA Secretariat
EMED Technical Staff


Reviewed by:


JANE T. DUMENDEN
BENB WQMA Secretariat
Head, Ambient Water

Attested by:


MAEVELYN KATHRYN D. TUPASI
BENB WQMA Secretariat
OIC, AMTSS

Noted by:


ENGR. PABLITO M. ESTORQUE JR.
Chief, EMED

Bacuit – El Nido Bay WQMA (BENB WQMA) Special Meeting on October 13, 2022



Department of Environment and Natural Resources
Environmental Management Bureau
MIMAROPA Region



BACUIT-EL NIDO BAY WQMA (BENB WQMA) SPECIAL MEETING

Minutes of Meeting

Date: 13 October 2022

Time Started: 1:39 PM

Venue: Virtual Meeting via Microsoft Teams

Attendees:

1. Engr. Nysceloida T. Valmoria	El Nido Sewerage and Solid Waste Treatment Plant
2. Engr. John Michael Publico	El Nido Sewerage and Solid Waste Treatment Plant
3. Famie Bacomo	El Nido Sewerage and Solid Waste Treatment Plant
4. Engr. Ann Michelle Y. Cardenas	El Nido Sewerage and Solid Waste Treatment Plant
5. RD Joe Amil M. Salino	EMB MIMAROPA
6. Engr. Pablito M. Estorque Jr.	EMB MIMAROPA
7. For. Edna S. Velasco	EMB MIMAROPA
8. Nicaith Trisha B. Enrile	EMB MIMAROPA
9. Engr. Nunilon R. Tanguilig	EMB MIMAROPA
10. Engr. Czes C. Bongco	EMB MIMAROPA
11. EnP. Nicole Yuri V. Dorado	EMB MIMAROPA
12. Engr. Mark Angelo S. Rogel	EMB MIMAROPA
13. Maevelyn Kathryn D. Tupasi	EMB MIMAROPA
14. Jane T. Dumenden	EMB MIMAROPA
15. Adz Hazen M. Dimapilis	EMB MIMAROPA
16. Engr. Ma. Kimberly B. Evora	EMB MIMAROPA

PROCEEDINGS:

A. Call of Order

The special meeting officially started at 1:39 PM. The meeting started by acknowledging the presence of the attendees by Ms. Maevelyn Kathryn D. Tupasi, Chief of the Ambient Monitoring and Technical Services Section of EMB MIMAROPA. The Special Meeting was conducted to discuss the status of the El Nido Sewerage and Solid Waste Treatment Plant.

B. Presentation of the Topics to Discuss

Ms. Tupasi presented the topics to discuss at the Special Meeting which consists of the following:

1. Status of the Constructed Collecting Tanks to the El Nido STP
2. Action Plan of BENB WQMA in connection with the operation of STP
3. Number of establishments connected to the STP
4. Status of the connection of the outfalls to the STP

C. Presentation of the Results of Ground Validation of the El Nido STP

Engr. Mark Angelo S. Rogel from the Water and Air Quality Monitoring Section of EMB MIMAROPA, presented the compliance inspection report of the El Nido Sewerage and Solid Waste Treatment Plant made



by Ms. Nicaith Trisha B. Enrile, Chief EMS of Taytay. The incorporated laws in the inspection reports are the following: PD 1586 (ECC Conditions), RA 9275 (Discharge Permit), RA 8749 (Permit to Operate), and RA 6969 (Hazardous Wastes Generator's ID).

The El Nido STP has already secured all the above-cited permits except for the Hazardous Wastes Generator's ID. Engr. Rogel presented the summary of the ECC Conditions not complied with by the El Nido STP as well as the conditions of the Discharge Permits of the date of inspection. On the Permit to Operate, the El Nido STP failed to register and include the 10,00 Liters Fuel Tank, Cooling Tower, and Gas Scrubber in their permit.

Engr. Rogel also discussed the inspected constructed structure of El Nido STP on June 7, 2022, and September 8, 2022. There were complaints received regarding the stagnant water caused by the said structure.

D. Presentation of the Inspected Cluster Tanks of El Nido STP

Ms. Tupasi presented the inspected cluster tanks of El Nido STP made by Ms. Enrile. Based on the presented inspection, the Main Tank is located at Brgy. Masagana was operational and there are a total of eight (8) sub-cluster tanks. The sub-cluster tank is located at Caalan, Brgy. Masagana within the Residential, Commercial Area, and Beachfront was the cluster tank raised by Mr. Conrado N. David from El Nido Chamber of Commerce Inc. (ENCCI) in the previous Bacuit-El Nido Bay WQMA (BENB WQMA) Governing Board Meeting, which was upon inspection was not operational as of September 30, 2022.

	Concerns/Inquiries	Response
1	Ms. Tupasi inquired to the representatives of El Nido STP, when will the cluster tanks be fully operational.	Engr. Nysceloida T. Valmoria from El Nido STP, the sub-cluster tank in Corong-corong was not operational due to the trunkline passing to the private property of Mr. Chu which is still in the process of the agreement. Engr. Valmoria also stated that there were three (3) cluster tanks located in the Corong-corong, with one (1) sub-cluster tank under construction which was predicted to be finished this December. Another tank will also be constructed next year along the Real St.
2	Ms. Tupasi asked about the specific sub-clusters that are expected to be finished by December.	Engr. Valmoria answered that the one behind the Barangay Hall, near the Lime Hotel, near Calypso Sunset Hotel, and near the Fishermen Docking are expected to be finished by this year.
3	Ms. Tupasi asked if the said commitments regarding the specific sub-cluster tanks to be finished this year can be put into writing.	Engr. Valmoria agreed to submit the said commitment to the EMB.
4	Ms. Tupasi asked about the status of the sub-cluster tank in the Caalan regarding the concern of Mr. David.	
5	Engr. John Michael Publico from El Nido STP inquired about the specifics of the issue raised by Mr. David.	Ms. Tupasi answered that Mr. David said that there is a need for verification on the sub-cluster tank in Caalan if it is operational or not.



6		Engr. Pablico answered that the said tank will be commissioned by using water instead of wastewater, and the tank had just finished its construction.
7	Ms. Tupasi asked if there were no wastewater being flowed in the said tank.	Engr. Pablico confirmed that no wastewater flowed into the tank.
8	Ms. Tupasi also asked if it is the same tank near the Gawad Kalinga and asked when it will be operational.	Engr. Pablico confirmed that it is the same tank, and it is one of the tanks that is expected to be finished by the end of the year. Engr. Pablico also added that many establishments are already on standby and once the pipelines are commissioned and no leaks were discovered, the establishments will be connected.
9	Ms. Tupasi asked if there is a problem with the leakage in the pipelines.	Engr. Pablico replied that as of the day's meeting, there was no identified leakage as the pump was just recently installed inside the cluster tank.
10	Ms. Tupasi also inquired regarding the issue raised by the MEEDO regarding the adjacent waterline and sewerage line.	Engr. Pablico responded that they already have a meeting with the MEEDO regarding the adjacent water line and sewerage line in Balinsasayaw Road. Engr. Pablico added that they already moved their sewerage line along the Funny Lion Hotel.
11	Engr. Pablito M. Estorque Jr., Chief of Environmental Monitoring and Enforcement Division, if there are prescribed guidelines regarding the distance between the water line and sewerage line.	Engr. Pablico replied that the vertical distance must be 0.3 meters and the horizontal distance is 3 meters. Engr. Pablico also added that at every juncture of the pipelines, cemented compartments were made so that if there an occurrence of the leak, other pipes will not be involved.
12	Engr. Estorque Jr. asked who the approval body of their mitigating measures are.	Engr. Pablico replied that the compartment has been discussed and approved by the LGU.
13	Engr. Estorque Jr. asked if they could give certain documents such as their design and their mitigating measures.	Engr. Pablico agreed to provide the said documents.
14	Engr. Valmoria inquired for assistance regarding the cluster tanks located at Corong-corong. The said tanks were not able to operate due to their trunkline passing through private property.	RD Joe Amil M. Salino, Regional Director of EMB MIMAROPA clarified that the letter sent by El Nido STP has already been endorsed by the Regional Executive Director. RD Salino also added that it will be followed up to the office of RED.

E. Discussion of the Number of Establishments Connected to the El Nido STP

Ms. Tupasi asked Engr. Valmoria, on the number of establishments and outfalls that were connected to the El Nido STP. Engr. Valmoria answered that as of October 13, there were already fifty-three (53) establishments connected, twenty-six (26) establishments for connection, and sixteen (16) pending, with a total of ninety-five (95) establishments. These establishments are located in the barangays of Corong-corong,



77 Maligaya, Masagana, and Buena Suerte. There are three (3) establishments connected on the sub-cluster near
78 the Calypso Sunset Hotel, however, as the said cluster is still non-operational, their sludge is being hauled in
79 the meantime. According to Engr. Valmoria, the management of desludging services from MEEDO was
80 transferred to the El Nido STP.

81
82 RD Salino inquired if there is an inventory of the total number of establishments in every location in order
83 to get the percentage of establishments connected to the El Nido STP. Ms. Tupasi replied that there was
84 already a list of the establishments within the Poblacion area during the time of the task force, which will be
85 updated as there are establishments built during the pandemic.

86
87 RD Salino also added if there were differences between the concentration of pollutants before and after
88 the establishment of the El Nido STP and if there was an improvement in the water quality. Ms. Tupasi replied
89 that there are already trends of data in terms of Fecal Coliform, however, since the El Nido STP just started
90 operating early this year, the data acquired is still not conclusive to determine if there were any significant
91 improvements in the water quality.

92
93 Engr. Estorque Jr. also added that the discharge permit of El Nido STP was issued to them in February
94 2022. Engr. Estorque Jr. also asked Engr. Valmoria if there were requirements required for the establishments
95 to connect to El Nido STP. Engr. Valmoria answered that establishments are required to submit their
96 application form, and after the submission of the application, they will inspect their septic tank if it is
97 watertight and sealed. The El Nido STP will also inspect if all their wastewater is being released within the
98 septic tank and if the wastewater is not discharging directly to the septic tank, they will connect directly to
99 the wastewater line. In case of the location of the establishment is in low laying area, and the flow of
100 wastewater is not possible thru gravity, the El Nido STP will discuss the issue with the establishments, and
101 they will install a submersible pump to the last chamber of their septic tank which will be connected on their
102 sanitary line to the cluster tank.

103
104 Engr. Rogel added that he will compile the data resulting from the task force, which includes the number
105 of firms with discharge permits and firms that are connected to the El Nido STP. Engr. Rogel also asked Engr.
106 Valmoria if there was any coordination with the LGU to encourage the stakeholders to connect to the El Nido
107 STP such as ordinance or resolution. Engr. Valmoria replied that there was already an existing Municipal
108 Ordinance in which the establishments are mandated to connect, however, establishments that already have
109 existing and reliable STP, were not mandated to connect to the El Nido STP.

110
111 Engr. Rogel also inquired if the El Nido STP has a target number of establishments to connect to every
112 day or if it depends on the number of willing establishments. Engr. Valmoria responded that one of the
113 requirements for the renewal of the business permit is to connect to El Nido STP.

114
115 RD Salino asked about the rate of the charge fees to connect to the El Nido STP and if they have schemes
116 that could help the establishments to connect. Engr. Valmoria responded that they have offered free
117 connectivity to the establishments as of now. She also added that the rate of charged fees lowered compared
118 to the initial rate. The initial proposal rate was Php 1,200.00 per room per month and was lowered to Php
119 490.00 per room per month and for ten rooms below it has a rate of Php 390.00 per room per month.

120
121 Engr. Nunilon R. Tanguilig, Chief of the Water and Air Quality Monitoring Section, asked Engr.
122 Valmoria if they have programs regarding the residents. Engr. Valmoria answered that the residents are
123 mandated to connect to the El Nido STP since they are the main contributor of wastewater generation. She
124 also added to compel the residents to connect with El Nido STP, they will not be granted any certificates from
125 the barangay. RD Salino asked if there were already ordinances regarding the connection of the residents to



126 the El Nido STP, in which Engr. Valmoria replied that it was already part of the mandated municipal
127 ordinance.

128
129 Engr. Rogel asked about the status of the connection of the outfalls to the El Nido STP. Engr. Valmoria
130 answered that as of now, the El Nido Estero in Cabigsing near the Milan Grace is the only outfall connected.
131 She also added that was already a cluster tank near the Estero, in front of Amadeus Hotel. Engr. Tanguilig
132 added that there were complaints regarding the stagnant water in the mini dam near the said area. Engr.
133 Valmoria responded that in the occurrence of heavy rainfall, the mini dam is being opened. Engr. Tanguilig
134 also asked if the cluster tank near the mini dam is operating, in which Engr. Valmoria replied that it is already
135 operating and that the Estero and two (2) establishments were connected to the said cluster tank.

136
137 For. Edna S. Velasco, PEMU Palawan asked for comments or recommendations to Engr. Valmoria about
138 the complaints in the Estero in which regardless of the occurrence and non-occurrence of rain, there is still
139 flooding in the area. Engr. Valmoria replied that there were many complaints received regarding the said
140 issue, as at that time the gate for the discharge was still small and that they had constructed a larger gate in
141 case of the occurrence of heavy rainfall. For. Velasco also asked if the constructed seawall is the reason for
142 the flooding in the area in which Engr. Valmoria replied that it is also one of the reasons.

143
144 Engr. Rogel stated that there will be a technical conference with the DPWH regarding the Seawall Project
145 of the El Nido which will be conducted on the following day (October 14, 2022). RD inquired who were the
146 attendees for the technical conference. Engr. Rogel stated that only the DPWH was invited, however, he added
147 in the next meeting, the LGU, PASu, and the Engineering Office will be invited.

148
149 Engr. Czes C. Bongco, Chief of the Air and Water Permitting Section added that the Seawall Project still
150 has no PAMB Clearance which they still cannot apply for the CNC. EnP Nicole Yuri V. Dorado, Chief of
151 Permitting Section, added that the seawall is for the protection of storm surges or floods and added the Office
152 is still waiting for their application for further assessment.

153
154 Engr. Bongco inquired to Engr. Valmoria about the list of establishments connected to the El Nido STP
155 as of June 2022 that there were 53 establishments connected, in which Engr. Valmoria stated the list has been
156 updated. Engr. Bongco, then replied that they will request the updated list.

157
158 Engr. Bongco also added in the Certificate of Interconnection, if the El Nido STP can provide a uniform
159 format. Engr. Bongco also added that only one (1) establishment has been approved for the discharge permit
160 and three (3) ongoing applications from the connected establishments, in which she further explained that
161 there might be miscommunication that the connected establishments will not acquire discharge permits
162 anymore.

163
164 For. Velasco asked if the El Nido STP is also the one collecting the solid wastes from the residential and
165 establishments and if the LGU has no participation regarding the collection as the LGU has made a proposed
166 Sanitary Landfill. Engr. Valmoria responded that it was already part of their MOA that the LGU has no part
167 in the collection of biowaste and wastewater.

168
169 Ms. Tupasi also inquired about the participation of the El Nido STP in the Bacuit-El Nido Bay Water
170 Quality Management Area (BENB WQMA) Governing Board Meeting to which Engr. Valmoria agreed.

171
172
173
174



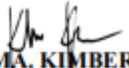
F. Agreements made during the Meeting

El Nido Sewerage and Solid Waste Treatment Plant	Provision of their design and approved mitigating measures.
El Nido Sewerage and Solid Waste Treatment Plant	Provision of the updated list of connected establishments to the El Nido STP.
El Nido Sewerage and Solid Waste Treatment Plant	Participation of El Nido STP to BENB WQMA Governing Board Meeting
EMB Office	Update of the request letter from the El Nido STP regarding the cluster tank passing thru the private property of Mr. Chu.
Engr. Mark Angelo S. Rogel	Compilation of data resulted from the task force, which includes the number of firms with discharge permits and connected to the El Nido STP.
Engr. Mark Angelo S. Rogel	Invitation for meeting with the LGU, PASu, and the DPWH.

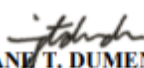
G. Closing Remarks

The closing remarks was led by the RD Salino and the meeting adjourned at 3:10 PM.

Prepared by:


ENGR. MA. KIMBERLY B. EVORA
BENB WQMA Secretariat
EMED Technical Staff


Reviewed by:


JANE T. DUMENDEN
BENB WQMA Secretariat
Head, Ambient Water

Attested by:


MAEVELYN KATHRYN D. TUPASI
BENB WQMA Secretariat
OIC, AMTSS

Noted by:


ENGR. PABLITO M. ESTORQUE JR.
Chief, EMED

4th Quarter Governing Board Meeting of Bacuit - El Nido Bay Water Quality Management Area (BENB WQMA) on December 5, 2022



Department of Environment and Natural Resources
Environmental Management Bureau
MIMAROPA Region



4TH QUARTER GOVERNING BOARD MEETING OF BACUIT – EL NIDO BAY WATER QUALITY MANAGEMENT AREA (BENB WQMA)

Minutes of Meeting

Date: 05 December 2022

Time Started: 9:30 AM

Venue: Virtual Meeting via Microsoft Teams

ATTENDEES

Present

Bacuit – El Nido Bay WQMA Governing Board Members

1. Dir. Seville D. David Jr., CESO III
2. Dir. Niño Rey C. Estoya
3. Dir. Niño Rey C. Estoya
4. Dir. Niño Rey C. Estoya
5. RED Lormelyn E. Claudio
6. RD Beviene G. Malateo
7. RD Karl Ceasar R. Rimando, CESO III
8. RD Gerald A. Pacanan
9. RD Gerald A. Pacanan
10. RD Gerald A. Pacanan
11. RD Ma. Josefina P. Albay
12. RD Ma. Josefina P. Albay
13. RD Ma. Josefina P. Albay
14. RD Agustin C. Mendoza
15. RD Dunstan T. San Vicente
16. RD Dunstan T. San Vicente
17. PASu Mildred A. Suza
18. Gov. Victorino Dennis M. Socrates
19. Hon. Edna G. Lim
20. Belle Florendo
21. Prince Mark Buefano
22. John Michael Publico
23. Nysceloida Valmoria

EMB MIMAROPA Personnel

24. Edna S. Velasco
25. Nicaith Trisha Enrile
26. Rio Reyes
27. Engr. Pablito M. Estorque, Jr.
28. Atty. Alessa May Ismael
29. Maevelyn Kathryn D. Tupasi
30. Jane T. Dumenden
31. Adz Hazen M. Dimapilis
32. Ma. Kimberly B. Evora

Represented by

- Nathan L. Tambobong
Madrone Cabrestante Jr.
Apollo V. Regalo
Luna Mae A. Gemina
Conrado M. Corpuz
Faye Angeli Reyes
Melissa Magbanua
Archimedes P. Pineda
Wylene Valencia
Lydia Lava
Pacifico Sario, III
Katherine Dula
Noel Samudio
Pamela L. De Torres
Ray Guarnes
Louis Frederic Alconcel
Steven John Andao
Leila Dagot
Fransel Oscar Dela Cruz
El Nido Chamber of Commerce
Municipal Economic Enterprise and Development Office
El Nido Sewerage and Solid Waste Treatment Plant
El Nido Sewerage and Solid Waste Treatment Plant



Representatives from the following agency/office members were unable to attend the meeting:

1. Bureau of Fisheries and Aquatic Resources (BFAR)
2. Department of Health (DOH)
3. Department of Trade and Industry (DTI)
4. Fisheries and Aquatic Resources Management Council (FARMC)
5. Association of Barangay Captains (ABC)
6. Local Academe / DepED Division of Palawan
7. Duly registered Non-Government Organization/Local People's Organization/Civil Society involved in Natural Resource Management or Environment Concerns

Guest:

1. CGS ENS Yves Moreno Philippine Coast Guard – El Nido

BENB WQMA Members : 22 members
Number of Members Present : 15 members
Number of Members Absent : 07 members

PROCEEDINGS:

A. Call To Order

The BENB WQMA Governing Board Meeting officially started at 9:30 AM. The meeting started with an opening prayer led by Ms. Ma. Kimberly B. Evora, BENB WQMA Secretariat. The presence of the attendees of the meeting was acknowledged by Mr. Adz Hazen M. Dimapilis, BENB WQMA Secretariat.

The quorum was achieved by having a total of sixteen (15) governing board members present during the meeting.

B. Presentation of the Provisional Agenda

Ms. Maevelyn Kathryn D. Tupasi, BENB WQMA Secretariat presented the following Provisional Agenda of the meeting:

1. Presentation / Approval of the Minutes from the Previous Meeting
2. Updates on the Issues and Concerns Arising During the Previous Meeting
3. Presentation of the Minutes from the Special Meeting with El Nido STP
4. Finalization of the Governing Rules
5. Presentation of the Latest Water Quality Status of Bacuit – El Nido Bays, and other Waterbodies within BENB WQMA
6. Other Matters: Presentation of the Philippine Coast Guard regarding the Oil Spill in Bacuit Bay

The Provisional Agenda for the meeting was moved and seconded by the governing board members.

C. Presentation of the Minutes of the Previous Meeting

Ms. Evora proceeded with the presentation of the minutes of the previous meeting. Engr. Madrono Cabrestante Jr. from Palawan Council for Sustainable Development (PCSD) suggested revising the arrangement of the attendees presented in the minutes. The minutes of the meeting were presented by page. Engr. Cabrestante Jr. inquired why the Philippine Coast Guard was not a formal member of the BENB WQMA GB, as they have an important role in the BENB WQMA. Ms. Tupasi stated that if there is a need for the reconstitution of the governing board members, the board can recommend the amendment of the DAO. Engr. Cabrestante Jr. suggested having the presiding chair be the signatory for the approval of the minutes. He added that RD Joe Amil M. Salino must be reflected as the signatory in the minutes.



105 The approval of the Minutes of the Previous Meeting was moved by Engr. Cabrestante Jr. and seconded by
106 governing board members.

107

108 **D. Updates on the Issues and Concerns Arising during the Previous Meeting**

109

110 Ms. Evora presented the issues and concerns arising during the previous meeting which includes the (1) Cluster
111 Tanks near Caalan Beach and Gawad Kalinga, (2) Adjacent line layout of sewer and water of MEEDO and El
112 Nido STP (3) Designation of ENCCI as the only representative for the Business Sector (4) Revision of Governing
113 Rules (5) Oil Spill Incident in Bacuit Bay.

114

115 **E. Presentation of the Minutes from the Special Meeting with El Nido STP**

116

117 Ms. Evora also presented the Minutes from the Special Meeting with El Nido STP. The Special Meeting was
118 conducted last October 2022 to discuss the updates, issues, and concerns on the El Nido STP. There were minor
119 corrections made as corrected by Engr. John Michael Publico of El Nido Sewerage and Solid Wastes Treatment
120 Plant.

121

122 **F. Finalization of the Governing Rules**

123

124 Ms. Tupasi proceeded in presenting the Governing Rules of the Bacuit – El Nido Bay WQMA. Engr. Cabrestante
125 Jr. raised his concern regarding *Section 4. Coverage*, in which the stated coverage includes the whole
126 municipality of El Nido, Palawan. Engr. Estorque Jr. suggested showing the map of the BENB WQMA. Engr.
127 Cabrestante Jr. stated that based on the map included in the DAO, the BENB WQMA can be seen only on the
128 west coast of El Nido. Ms. Tupasi discussed the boundary control points of the BENB WQMA stipulated in
129 *DENR AO No. 2021-44*.

130

131 Atty. Alessa May Ismael of EMB MIMAROPA suggested indicating only the first sentence in *Section 4* which
132 quotes “...area coverage of BENB WQMA described in *Section 2 of DAO No. 2021-44 issued on December 23,*
133 *2021.*”

134

135 Engr. Cabrestante Jr. asked if the representative from the Local Academe of El Nido was identified. Ms. Tupasi
136 stated that they have already convened with the local academe, however, in spite of the letters sent there was no
137 response given at their end. Ms. Tupasi agreed to Eng. Cabrestante Jr. suggesting about convening the campuses
138 and/or universities within the area if the DepED still remains unresponsive.

139

140 Engr. Cabrestante Jr. also suggested in *Section 8.1. Policy Functions (d)* to have the Provincial Government a
141 copy furnished in the Dissemination of the WQMA Action Plan. Engr. Cabrestante Jr. suggested revising *Section*
142 *9. Termination of Board Membership*. Atty. Ismael-Habal clarified that the Termination indicated in the said
143 section only refers to the authorized representative of the governing board and not the actual
144 agency/organization. It was also clarified that members such as the local academe and the civil society will
145 choose among themselves who will be the representative in the governing board. EnP. Ray Guarnes from the
146 DHSUD MIMAROPA recommended using “*Replacement of Board Membership*” instead of “*Termination of*
147 *Board Membership*”. Engr. Cabrestante Jr. added to indicate the nomination process under *Section 9*, particularly
148 the members stated in (6) and (8) *Section 6.1*. Atty. Ismael-Habal agreed to revise *Section 9* into *Termination*
149 *and Replacement of Board Membership*.

150

151 In addition, Engr. Cabrestante Jr. asked for clarification regarding the Sectoral Committees and indicated utilizing
152 the same terminologies stated in the DAO. The Sectoral Committee stated in *Section 11. The Executive*
153 *Committee* has been revised accordingly.

154

155 The PCSD has signified its interest to be added as a member of *Section 12.2. Infrastructure Development*
156 *Committee*, and *Section 12.3. Community Affairs and Development Committee*.



157 Engr. Cabrestante Jr. requested for the El Nido Chamber of Commerce Inc. (ENNCI) to chair the Community
158 Affairs and Development Committee, as the teachers from the Local Academe are occupied with their own work.
159 The chairman of the said committee was tentatively changed as requested.
160

161 Enp. Guarnes asked for clarification regarding *Section 10. Technical Secretariat*. He asked if there is a basis for
162 adding an Environmental Engineer as one of the Technical Secretariat, or if it was supposed to be Environmental
163 Planner. Ms. Tupasi replied that it was acquired and based on the *RA 9275: Clean Water Act of 2004* which was
164 supported by Atty. Ismael-Habal.
165

166 Engr. Cabrestante Jr. asked if there is a basis for the provision of 15% of the annual AQWFM disbursements to
167 support the EMB MIMAROPA Region activities falling in the *(a) to (f) of Section 14. 3. Uses of the AQWFM*,
168 as the AQWFM might be depleted. Ms. Tupasi clarified that the said provision to the EMB MIMAROPA is
169 limited to the activities stated in *(a) to (f) of Section 14. 3. Uses of the AQWFM*. In addition, there was already a
170 training workshop regarding the utilization of the AQWFM in which the relative document will be provided to
171 the board. Engr. Cabrestante Jr. added if the concerned statement under *Section 14. 3. Uses of the AQWFM* can
172 be revised without making the provision compulsory. Ms. Tupasi stated that she will ascertain first the guidelines
173 for the utilization of the AQWFM before finalizing the revision in the said section.
174

175 Engr. Cabrestante Jr. requested to add the grants referred to in *Section 5. Other Functions of the DAO 2021-44*
176 on the provisions under *Section 18. Support from DENR/EMB, LGU, and Other Stakeholders*.
177

178 **G. Presentation of the Latest Water Quality Status of Bacuit – El Nido Bays, and other Waterbodies**
179 **within BENB WQMA**
180

181 Ms. Jane T. Dumenden, BENB WQMA Secretariat presented the water quality results in the Bacuit and El Nido
182 Bays for CY 2022. In terms of *fecal coliform* concentration in the coastal station of Bacuit Bay, station 1.
183 Masagana failed to meet the Water Quality Guidelines (WQG). Parameters such as dissolved oxygen,
184 phosphates, and nitrates have passed the WQG, however, station 1. Masagana and station 3. Buena Suerte
185 exceeds the WQG in terms of total suspended solids.
186

187 Ms. Dumenden also presented the water quality for the monitored outfalls within the BENB WQMA. All stations
188 of the monitored outfalls failed the WQG for *fecal coliform* and dissolved oxygen. In terms of pH, only station
189 3. Masagana Outfall I and station 5. Masagana Outfall II failed the set WQG.
190

191 The water quality of the tourist destinations was also presented by Ms. Dumenden. The monitored parameters
192 in the tourist destinations were *fecal coliform*, dissolved oxygen, and pH, which all passed the WQG.
193

194 In addition, El Nido Bay was also monitored for its water quality status. In terms of *fecal coliform*, dissolved
195 oxygen, phosphates, nitrates, and pH, all of it passed the WQG.
196

197 However, most monitoring stations of El Nido Bay (Stn. 3 LiO Runway, Stn. 4 LiO Port, Stn. 5 LiO Beach, Stn.
198 6 Lamuro, Stn. 8 Twin Beach, Stn. 9 Nacpan Port, and Stn. 10 Nacpan Beach) failed to meet the WQG in terms
199 of total suspended solids.
200

201 Ambient monitoring regarding the failed Oil and Grease concentration in Bacuit Bay on June 27 and August 1,
202 2022 relative to the filed complaint was also presented to the board.
203

204 As requested by the governing board, maps of the monitoring stations were also presented and discussed by Ms.
205 Tupasi at the governing board meeting.
206

207 Engr. Nysceloida Valmoria from the El Nido Sewerage and Solid Waste Treatment Plant discussed the status of
208 the connectivity in the El Nido STP. She stated that there were already fifty-three (53) establishments connected



and hopefully by January it will be increased as the connectivity to the El Nido STP was already a requirement for the renewal of the business permit. She also stated that they were able to operate in the Caalan, Buena Suerte, and Masagana. Ms. Tupasi clarified if the drainage outfalls are still not able to connect as one of the collecting tanks in the Mangrove Area is still not operational. Engr. Valmoria added that the area of Corong-corong was not able to cater due to the raised problem.

Ms. Belle Florendo from the El Nido Chamber of Commerce (ENCCI) asked Engr. Valmoria on how often they monitor the cluster tanks as there were leaks in the Caalan last November 19. Engr. Valmoria clarified that it was the pipes instead of the cluster tanks that had leaks and that they already reported the incident to the LGU. She also added that they were able to solve the problem within that day and it was working as of the meeting's date. They also added deodorizers to the area to lift the smell caused by the wastewater.

Engr. John Michael Pablico also from the El Nido Sewerage and Solid Waste Treatment Plant added that they already have a monitoring team to monitor their operational cluster collecting tank. Ms. Florendo asked the representative from the El Nido STP if they have that try to convince the business establishment to connect. Engr. Valmoria added that they were already finalizing their letter as of the meeting's date to remind the establishments to connect.

The *fecal coliform* trend from 2017 to 2021 was also presented at the meeting, in which the CY 2020 shows the highest concentration measured, which was concluded to be caused by the residential areas in El Nido, Palawan.

EnP. Guarnes asked if the LGU El Nido already requires the three-chamber septic tank in the building permit. Mr. Steven John Andao from the ENTMRPA PAMO commented they already require it in the PAMB and engineering office of the LGU. Ms. Florendo also added that the DOT also requires the septic tank inspection report from the engineering office.

H. Other Matters: Presentation of the Philippine Coast Guard regarding the Oil Spill in Bacuit Bay

CGS ENS Yves Moreno from the Philippine Coast Guard – El Nido presented the Oil Spill Incident that transpired on 21 June 2022 which was posted by Mr. Tani Distal in the social media. He stated that upon receiving the complaint, the PCG – El Nido immediately deployed their personnel to conduct an inspection to determine the veracity of the complaint. However, upon arrival in the area, the said oil spill left no trace, thus the said verification yielded a negative result due to the non-existence of the said oil spill in the area. The deployment was on about 1300H of the same date, one (1) hour after the photo was posted by the concerned citizen.

The red motorbanka captured from the posted photo near the alleged oil spill incident was requested to give a statement for the possible involvement of their motorbanka, however, the crew denied their motorbanka's involvement and stated that they are aware of the existing policies and guidelines of the proper discharge and disposal of waste fuel.

CGS ENS Moreno also presented their letter to Mr. Benly Lim, the president of the El Nido Pump Boat Owners Association (ENPOA) pertaining to the said incident as well as their reply letter to Ms. Nicaith Enrile, chief EMS of El Nido.

Ms. Florendo clarified that the current president of the ENPOA was Ms. Elizabeth Panganiban. Engr. Cabrestante Jr. clarified if the said oil spill was false. CGS ENS Moreno replied the said complaint based on the photo was real, however, after an hour, it was already dissolved and dispersed.

Engr. Cabrestante Jr. recommended in instances like this, the board can immediately someone from the MSG to take water samples so that the acquired information was backed by scientific data.



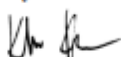
CGS ENS Moreno stated the concern by the Station Commander of El Nido that the gross tonnages were not covered in the PCG Memorandum Circular 06 – 2005 and they are currently working on the revision of the policy in order to endorse it to the LGU in addressing such issue.

I. Agreements/Approved/Proposals Made during the Meeting


Concerned BENB WQMA Governing Board Member	Agreements/Proposals
BENB WQMA Secretariat	Convening the campuses and/or universities within the area for the representative of the Local Academe
	Circulation of the documents/guidelines relative to the utilization of the AQWMF.

The meeting adjourned at 3:20 PM.

Prepared by:


ENGR. MA. KIMBERLY B. EVORA
BENB WQMA Secretariat
EMED Technical Staff


Reviewed by:


JANE T. DUMENDEN
BENB WQMA Secretariat
Head, Ambient Water

Attested by:


MAEVELYN KATHRYN D. TUPASI
BENB WQMA Secretariat
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