Strengthening of local marine protected area (MPA) in local autonomy era: Case of Bontang City East Kalimantan Province, Indonesia

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Abstract. Marine protected area (MPA) plays important roles to achieve biodiversity conservation and fisheries management goals, and as the main tool for ecosystem approach to fisheries management (EAFM). However, the goals of the local MPA in Indonesia is faced with the legal problems due to the enactment of Law No. 23/2014 on Local Government, regulate that the district or municipality government is no longer has authority to manage shoreline area within four miles as well as local MPA. The new law implies mismanagement of the MPA due to lack of capacity provincial government to manage the additional area of authority. There is no responsible institution focus to manage the MPA yet. This study aims to analyze the deregulation of Bontang City authority to manage the MPA. This research was conducted from January to April 2019 using normative juridical methods on the legal basis of MPA management. The results of this study suggested that based on Law No. 23/2014, actually the Bontang City Government still has opportunity to manage the MPA even though this area within the authority of Provincial Government. The authority of the Bontang City is still imbedded in several local government agencies, such as the Environment Agency, Community and Village Empowerment Service, and Fisheries Service. The institutional strengthening of the local MPA Bontang is proposed in two stages, in the short term through establishment of a Working Group involving the government of East Kalimantan Provinces and the City of Bontang, while in the long term to establish a new institution of the Technical Implementation Unit is under the Provincial Marine and Fisheries Agency.

Keywords: local MPA; fisheries management; local government autonomy.
1. Introduction
World fisheries have experienced a supply shortage since 1990, which is caused by the rate of increase in the world fish consumption that is not matched by the increased production [1, 2]. The increase in the fish supply deficit is partly due to the rapid development of the fishing gears technology.

Increasing the need for fish protein is an opportunity for the fish development itself. However, excessive fish exploitation will only accelerate the rate of fish scarcity [3]. The threat of scarcity of fisheries is a necessity that must be a common concern for all stakeholders. Based on this, the waters conservation is one of the efforts to overcome the problem of the potential threat of the fish scarcity. The waters conservation is one way to realize sustainable fisheries management [4, 5]. According to the Government Regulation (PP) No. 60 of 2007 concerning the Conservation of Fish Resources which explains that the conservation of fish resources is an effort to protect, preserve, and utilize the fish resources, including ecosystems, species and genetics to ensure their existence, availability and sustainability while maintaining and improving the quality and diversity of the fish resources.

However, the efforts to realize the sustainability the fisheries management in Indonesia are faced with a political constellation of the regional autonomy law. Since the reformation era, the district/city government has been given the authority in managing four nautical miles of the sea by Law No. 22 of 1999 concerning the Regional Government. According to Rudyanto [6], the coastal management and other natural resources have changed from the central government to the regional governments, and the legislative field is considered to have a more significant role in drafting and overseeing the legislation. In other words, the granting of authority to the district/city is an answer to the failure of the fisheries management in the new order era that is centralized as a legal consequence of an authoritarian regime (centralized government management/CGM).

The failure of the CGM regime in managing the fisheries is due to the active state hegemony (central government) in the Indonesian government system in the new order era which has a very large share in creating the damage to coastal and marine areas, characterized by three main characteristics, namely: (1) based on the doctrine of shared property (common property), (2) centralistic (the process of production and its substance), and (3) ignoring anti pluralism of the law [7].

Thus, in realizing the sustainability of the fish resources, the policy makers must pay attention to the implementation of the government systems that favour the interests of the local communities. This is in order to bring the government closer to the people, to provide more significant opportunities for the people in the process of administering the state, and to provide opportunities for the people to “take back” some political, social and economic functions, including the functions of controlling and managing the natural resources that should not need to be run by the state [8].

Dahuri [9] mentions that there are two important economic and political considerations in the implementation of the regional autonomy and decentralization in the marine and fisheries sectors, namely: First, that the regional autonomy is expected to be an essential approach in efforts to improve the socio-economic well-being of the community as well as to solve the problem of inequality both between regions and community groups. Second, with the regional autonomy, the democratization will also be increasingly encouraged given the closer of the social distance between the state space (state sphere) and the community space (civil sphere).

Satria et al. [10] argues the same thing, that the management of the fisheries and the marine resources in the era of the regional autonomy has several positive aspects, namely: First, the effectiveness of the arrangement. At the local level, the decentralization is expected to be able to have a positive impact on the restoration of the traditional ownership rights, which are not well developed in a centralized system. Second, economic efficiency. With the existence of the regional authority, the regional government has full authority to rationalize, for example by limiting the entry (limited entry) so that the inefficiency can be reduced or eliminated and the over-exploitation of the natural resources can be reduced. Third, the equitable of the distribution. The regional autonomy will provide an incentive for regions that have so far been disadvantaged in terms of the natural resource management to better manage the natural resources for the welfare of their communities.
Based on the urgency of fisheries management autonomy, the fisheries management should be given to the district/city government. However, at the end of 2014, the Government issues the Law No. 23 of 2014 concerning the Regional Government that revokes the Law No. 32 of 2004. Based on Law No. 23 of 2014, the district/city authority over the sea areas is revoked. This is under the Article 27 paragraph (1) of the Law No. 23 of 2014, which states that the Provincial Region is given the authority to manage the marine resources in its territory. That is, this article stipulates that only provinces have the right to manage marine resources. This is different from the previous regulation that an area that has the sea area is given the authority to manage the resources in the sea area (Article 18 paragraph 1 of the Law No. 32 of 2004). The regions in this article are the Provinces and Districts/Cities. Thus, the Article 27 paragraph (1) of the Law No. 23 of 2014 is a strong foundation in revoking the authority of the district/city.

The policy implication of revocation the authority is faced with effectiveness problem of regional management waters conservation area (Local MPA). Some problems faced are the distance between provincial government centre and the Local MPA far enough so that it makes management efforts more expensive and the limited human resources (HR) manager of the Local MPA. These limitations have an impact on the absence of the managing agency in each Local MPA. Based on this description, there are two problems in this paper: (1) what is the status of the management of Bontang City Local MPA after the transfer of authority from Bontang City to East Kalimantan Province; and (2) how to recommend the institutional strengthening of Bontang Local MPA.

2. Methodology
This research is an analytical descriptive study, research that seeks data or images as accurately as possible about the object of the problem [11]. The description is in the form of facts about institutional issues in the management of Bontang Local MPA and analysed objectively according to the applicable laws and regulations related to the conservation and institutions in the regions. This research uses a normative juridical approach. The method of normative juridical approach means that this research emphasizes the science of law and focuses on collecting the secondary data, which are primary, secondary and tertiary legal materials [12].

3. Results and discussion
3.1. Management status of Bontang Local MPA
Revocation of the authority of district/city government by the Provincial Government in the marine management, including the administration of the regional waters conservation issues, raises the management effectiveness issues. Based on the analysis of the institutional legislation in the area, Solihin et al. [13] mention that there are three institutional options that can be made by the Provincial Government, namely, the service, the service branch (the service branch office/KCD), and the regional technical implementation unit (UPTD).

Until now, the institutional selection of Local MPA managers in each region has been determined based on the wishes of the head of the Provincial Marine and Fisheries Agency, there are no guidelines or measurements regarding the institution chosen. The absence of these guidelines has delays in the management agency until now, the Local MPA has been managing by Provincial Marine and Fisheries Agency which is a long distance from the location of the Local MPA in the district/city.

Based on the results of the legal analysis and the agreement of the parties (academics, government, and NGO), then an assessment of the effectiveness of the implementation of the Local MPA affairs will be determined by the institutions at the same level as the Provincial Marine and Fisheries Agency. The results of the performance evaluation of the organization of the waters conservation affairs by the Provincial Marine and Fisheries Agency in Bontang Local MPA are 1.24 with less status (Table 1), meaning that the Provincial Marine and Fisheries Agency does not conduct the conservation agency in Bontang KKPD. This condition is very worrying because Bontang KKPD is the guardian of the sustainability of the fish stocks in East Kalimantan. The assessment format is presented in Table 2.
**Figure 1.** Options for institutional management of the KKPD.

**Table 1.** Performance assessment results of Bontang KKPD.

| Performance Index        | Value | Status |
|--------------------------|-------|--------|
| Governance               | 1.20  | Less   |
| Resource Management      | 1.47  | Enough |
| Rehabilitation           | 1.00  | Less   |
| Community Involvement    | 1.32  | Enough |
| Total Index              | 1.24  | Less   |

**Table 2.** Format of performance assessment of Bontang KKPD.

| No | Index                      | Strategic Parameter (SP)                                      | Indicator                              | Score |
|----|---------------------------|-------------------------------------------------------------|----------------------------------------|-------|
| 1  | Governance                | 1.1 Increased competence in the field of the conservation of human resources | Yes, every year                        | 3     |
|    |                            |                                                             | Yes, in the past 3 years               | 2     |
|    |                            |                                                             | Not                                     | 1     |
|    |                            | 1.2 Institutional management                                | Yes, every year                        | 3     |
|    |                            |                                                             | Yes, in the past 3 years               | 2     |
|    |                            |                                                             | Not                                     | 1     |
|    |                            | 1.3 Conservation planning                                  | Yes, every year                        | 3     |
|    |                            |                                                             | Yes, in the past 3 years               | 2     |
|    |                            |                                                             | Not                                     | 1     |
|    |                            | 1.4 Development of infrastructure                          | Yes, every year                        | 3     |
|    |                            |                                                             | Yes, in the past 3 years               | 2     |
|    |                            |                                                             | Not                                     | 1     |
|    |                            | 1.5 Development KKPD Networking                            | Yes, every year                        | 3     |
|    |                            |                                                             | Yes, in the past 3 years               | 2     |
|    |                            |                                                             | Not                                     | 1     |
|    |                            | 1.6 Development of a sustainable funding system            | Yes, every year                        | 3     |
|    |                            |                                                             | Yes, in the past 3 years               | 2     |
|    |                            |                                                             | Not                                     | 1     |
| 2  | Resource Management       | 2.1 Protection of fish habitat and population               | Yes, every year                        | 3     |
|    |                            |                                                             | Yes, in the past 3 years               | 2     |
|    |                            |                                                             | Not                                     | 1     |
| No | Index         | Strategic Parameter (SP)                                           | Indicator                              | Score |
|----|---------------|---------------------------------------------------------------------|----------------------------------------|-------|
|    |               | 2.2 Mapping and protecting SDI migration flows                      | Yes, every year                        | 3     |
|    |               |                                                                     | Yes, in the past 3 years               | 2     |
|    |               |                                                                     | Not                                     | 1     |
|    |               | 2.3 Protection of unique coastal ecosystem                           | Yes, every year                        | 3     |
|    |               |                                                                     | Yes, in the past 3 years               | 2     |
|    |               |                                                                     | Not                                     | 1     |
|    |               | 2.4 Monitoring resources and habitats for data and information       | Yes, every year                        | 3     |
|    |               | purposes (physical, biological, and socio-economic)                 | Yes, in the past 3 years               | 2     |
|    |               |                                                                     | Not                                     | 1     |
|    |               | 2.5 Monitoring of utilization of the marine environmental service   | Yes, every year                        | 3     |
|    |               |                                                                     | Yes, in the past 3 years               | 2     |
|    |               |                                                                     | Not                                     | 1     |
|    |               | 2.6 Sustainable fisheries management                                 | Yes, every year                        | 3     |
|    |               |                                                                     | Yes, in the past 3 years               | 2     |
|    |               |                                                                     | Not                                     | 1     |
|    |               | 2.7 Supervision and control (patrol and low Eporment)               | Yes, every year                        | 3     |
|    |               |                                                                     | Yes, in the past 3 years               | 2     |
|    |               |                                                                     | Not                                     | 1     |
|    |               | 2.8 Utilization of fish resources                                    | Yes, every year                        | 3     |
|    |               |                                                                     | Yes, in the past 3 years               | 2     |
|    |               |                                                                     | Not                                     | 1     |
|    |               | 2.9 Natural tourism and environmental service                       | Yes, every year                        | 3     |
|    |               |                                                                     | Yes, in the past 3 years               | 2     |
|    |               |                                                                     | Not                                     | 1     |
| 3  | Rehabilitation| 3.1 Restoration and rehabilitation of fish habitat and population    | Yes, every year                        | 3     |
|    |               |                                                                     | Yes, in the past 3 years               | 2     |
|    |               |                                                                     | Not                                     | 1     |
|    |               | 3.2 Transplantation                                                 | Yes, every year                        | 3     |
|    |               |                                                                     | Yes, in the past 3 years               | 2     |
|    |               |                                                                     | Not                                     | 1     |
|    |               | 3.3 Restocking of SDI                                               | Yes, every year                        | 3     |
|    |               |                                                                     | Yes, in the past 3 years               | 2     |
|    |               |                                                                     | Not                                     | 1     |
| 4  | Community Involvement| 4.1 Community empowerment                                           | Yes, every year                        | 3     |
|    |               |                                                                     | Yes, in the past 3 years               | 2     |
|    |               |                                                                     | Not                                     | 1     |
|    |               | 4.2 Increased awareness of the community surrounding the KKPDP      | Yes, every year                        | 3     |
|    |               |                                                                     | Yes, in the past 3 years               | 2     |
|    |               |                                                                     | Not                                     | 1     |
|    |               | 4.3 Development of the community socio-economic                     | Yes, every year                        | 3     |
|    |               |                                                                     | Yes, in the past 3 years               | 2     |
|    |               |                                                                     | Not                                     | 1     |
|    |               | 4.4 Preservation of customs and                                     | Yes, every year                        | 3     |
### 3.2. Institutional Strengthening of Bontang Local MPA

The performance appraisal of the implementation of functions which is at 1.21 (less) as presented in Table 1, illustrates that the management of Bontang Local MPA is not running effectively and optimally. This is because the management of Bontang Local MPA is hampered by three main problems as occurs in other KKPD in Indonesia, namely the control range (distance) that is too far between the Provincial Maritime Affairs and Fisheries Service in the provincial capital and the Local MPA that is far in the district/city [13]. In addition, Solihin et al. [13] also, add that Local MPA management problems in the era of regional autonomy are caused by limited human resources (quantity and quality) and budget constraints.

**Table 3. Assessment of Local MPA management institution options in East Kalimantan Province.**

| Index | Strategic Parameter (SP) | Indicator | Score | Weight | Option | Value |
|-------|--------------------------|-----------|-------|--------|--------|-------|
| Region | 1.1 Area (Total Province) | > 500,000 ha | 3 | 20 | 3.4. | 0 |
|       |                         | 100,000 – 500,000 ha | 2 | 3.3. | 5.121 ha (Bontang); 285.266 (Berau) | 40 |
|       |                         | < 100,000 ha | 1 | 3.5. | | 0 |
| 1.2 Distribution | Spread | In groups | 2 | 3.6. | Local MPA of Bontang; Local MPA of Berau | 60 |
|       | | One area | 1 | | | 0 |
| 1.3 Distance | > 200 km | 3 | 3.7. | | | 0 |
|       | 100 - 200 km | 2 | 121.8 km | | | 40 |
|       | < 100 km | 1 | 3.8. | | | 0 |
| 1.4 Accessibility | 1 Mode | 3 | 3.10. | Land, Air | | 40 |
|       | 2 Modes | 2 | 3.9. | | | 0 |
|       | 3 Modes | 1 | | | | 0 |
| Conservation Target | 2.1 Number of Conservation Target | > 3 Categories | 3 | 3.11. | Coral Reef, Seagrass, Economically Important | 60 |
|       | 2-3 Categories | 2 | | | | 0 |
|       | < 2 Categories | 1 | | | | 0 |
| Total | | | 3.12. | | 240 |
| Choice | | | 3.14. | | UPTD | |
Based on the performance evaluation of the implementation of Bontang Local MPA, where the Provincial marine Affairs and Fisheries Agency is not optimal and effective, then an analysis of institutional choices is carried out as Figure 1. The results of the institutional selection analysis of Bontang Local MPA are presented in Table 3. The assessment of Local MPA institutional choices uses a format according to the agreement of the Government, Academics, and NGO. The institutional choice assessment format uses two primary indices, namely First, the regional index which covers the area (entire province), the distribution, the distance (the provincial capital to the location of Local MPA), and the accessibility. Second, the index of the conservation target, with the strategic parameter, is the number of conservation target. The results of the assessment reveal that the chosen institutional score is the regional technical implementation unit (UPTD) (Table 3). The results of this analysis are in line with the research of Solihin et al. [13] which uses different parameters in determining the institutional choices.

4. Remark
Revocation of the authority of the district/city government over the sea area, including the administration of the regional waters conservation affairs as far as 12 nautical miles, is not running optimally, with the total index score is 1.24, or lacking or poor. Therefore, it is necessary to strengthen the institutional management of the Local MPA, which is initially managed by the Service, so the management of the UPTD institution needs to be improved. This is in accordance to the institutional assessment value, i.e. 240.

Marine and Fisheries Agency of East Kalimantan Province needs to immediately compile the Academic Manuscript for the formation of the UPTD institution of Bontang Local MPA by referring to the Regulation of the Minister of Internal Affairs No. 12 of 2017 concerning the Guidelines for the Establishment and Classification of Branch Office and Regional Technical Implementing Unit. The formation of the UPTD institution is an important thing that must be done by the Government of the East Kalimantan Province to preserve the fish resources in the region.

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