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Income Realization Concept for Sustaining Fish Balance: An Eco-Ethnomethodology of Fisherman *Kawruh Jati*

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Abstract

This qualitative eco-ethnomethodological research on kawruh jati fishermen aims to reveal the determination of fish balances. Balance sheet for determining fish potential with the reality of haul as a balance of fishermen's income. This reality creates real potential between haul and availability of fish. Therefore, the potential of fish haul using kawruh jati eco-ethnomethodology becomes an analysis tool. Data was collected through interviews and direct observation. The research results show that the reality of the haul is the main condition for income balance. Therefore, fish availability is the main value of fishing capacity that determines the amount of income realized in fishermen's exchange rate calculations. The realization of this exchange rate is based on the process of collecting one's income after sales. Conditions that make the preservation and continuity of marine resources or ecology a relationship that cannot be separated from intention or will. This situation means recording fish balances is realizing the fishermen's self-willed income and haul. This reality continues to bind or become necessary until that necessity is maintained as self-awareness for kawruh jati fishermen. This awareness means that fishing activities maximize fishing effort and availability of the fish itself. This realized balance can be used as a continuation of research to use an ethnographic approach based on participant observation as a complete source and an eliciting photography approach.

Keywords: *Fish balance, kawruh jati, income realization, fishermen's exchange rate, sustainability.*

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INTRODUCTION

> Committed to protecting and managing marine resources with a focus on building seafood sovereignty through developing the fishing industry by placing fishermen as the main pillar (Second Pillar Realizing Indonesia as a World Maritime Axis)

Trends in marine resource use provide a positive picture from 2017 to 2023. However, the reality of increasingly exploring the nation's maritime potential does not necessarily make fishermen more prosperous. As stated by Prasetyo (2022; 2020), that the sea area breadth provides opportunities to increase welfare for exploiting the marine potential for fishermen, but this potential has not been utilized to increase welfare for fishermen. Potentially related to the marine environment sustainability as a source of life for fish. This characteristic is adapted to fisheries production behavior, which differs from other commodities because fish resources are open-access and collectively owned. Nature means that every fisherman is free to participate in the fishing process as long as they still provide fish, and the limits of each fisherman's personal responsibility for controlling or managing the haul are unclear. This is because every fisherman tends to wait or is a free rider and prioritizes collective action more than individual action (Triyanto, 2017; Susilowati et.al, 2020).

Given the nature of such resources and because bionomic balance must be considered, the pattern of fishing functions in fisheries activities follows a cycle of supporting marine sustainability. According to et al. (2018) and Carmine et al., this attention is because marine fisheries resources have the criteria of free entry for fishermen and the fish they haul. Conditions that create unlimited entry into competition can lead to overfishing or overexploitation and inefficient use of resources. Therefore, fishermen cannot maximize their profits according to their fishing efforts. According to Anita (2015), Prasetyo (2020; 2022), and Hidayah, Nuzula & Wiyanto (2020), this is because fishermen in open-access fisheries will survive as long as the average cost is the same as the average income. In revenue terms, this means that an open-access equilibrium is achieved where total costs equal total revenues. This income behavior does not mean individual fishermen do not experience profits.

Individually, each fisherman involved in the industry tries to maximize haul. However, due to sufficient fishing capacity (fish) as a reality of income and competition between fishermen due to the open access implementation, some fishermen do not achieve normal income, or as stated by McGilliard et.al (2015), Susilowati et.al (2020) Kroeker et.al (2020), Carmine et.al (2020), Virdin et.al (2021), and Ferguson et.al (2022). They state that behavior maximizes income through reduced haul. The haul is calculated based on the sales activity stage. The realization of this income is more related to sales than to the stages of getting fish process. In other words, fishermen's income collection only occurs during sales. According to Suwardjono (2016)Conditions like this are referred to as the income realization concept, which occurs or is formed when an agreement is reached with the buyer to pay the results and hand them over.

Based on the importance of preserving fish resources in relation to fishing businesses, the definition of the realization of fishermen's income in fisheries is the measurability of fishing results collected through the number-determining process of fish caught. Based on this reality, fishermen are not able to maximize their income in accordance with the fishing effort carried out, according to Anita (2015), Triyanto (2017) and Prasetyo (2022) is because fishermen in free open fisheries will still choose to stay in the fisheries sector as long as average cost is equal to average revenue. This is contrary to the maximizing income behavior from a producer (firm), where the producer tries to equalize marginal revenue and marginal costs. This fact implies that the fish caught amount is largely determined by the fishing effort process and costs. Therefore, the fisherman's self-aspect influences the income realization concept received as an income collection that occurs only at the sales stage as a contribution to income.

The income contribution is fish sales transactions, so according to Suwardjono (2016) that before the transaction occurs, income has not occurred or been formed. With the transaction approach, the income occurrence is more related to the sales activity stage rather than the production process stage. Therefore, the realization process is a confirmation of the income collection process. Income collection that cannot be stated to exist and is recognized before actual sales occur. Focus on sales as a Fisherman's Exchange Rate (FER) determinant. The exchange rate is a proxy for calculating increased welfare for fishermen. The explanation of this value refers to Prasetyo (2022) that FER is a way to increase the welfare of fishermen at the ability level to exchange the goods (products) produced for goods or services needed for household consumption and requirements in the capture fisheries production process. FER's main focus is to increase fishermen's haul. This result is directly proportional to the haul and fish price. Therefore, the factor that determines the increase in FER is the economic consequence benefits of preserving marine life. Attention to environmental conservation factors is the central point of fish availability.

Conservation of resources as a condition for fish life, according to Prasetyo (2020; 2022), is an implication of the active role of fishermen's awareness in recognizing the importance of the sea as a source of income realization. The importance of this behavior is that it fosters the utilization of marine resource allocation according to the various desires of fishermen, meaning that there are two main things, namely desires and resources. These two aspects show the fishermen's passion for the real situation of hauling at sea. A fisherman's passion cannot be limited by anything because it is in a fisherman's mind. Managing personal desires shows the intentions or wishes that fishermen want to achieve. Achievement is to find out the way or way to achieve what is hoped for. This managing process is a basis for *kawruh jati*, which is about achieving desires based on the results obtained (Zharifa et al., 2023). The results show that the fishing process is based on the fact that marine fisheries resources are free-to-enter resources for everyone, where users can enter unlimitedly to compete, so efforts must be directed towards maintaining the sustainability of fish production in the sea. Sustainability as a value of fishermen's self-confidence that fish resources are open access and belong to the community.

Fishermen's self-desire beliefs about the conditions of marine fisheries haul with the nature of resources like this, and because they have to consider bionomic balance, the process of income realization as a production function pattern in fishing activities has the concept of Maximum Sustainable Yield (MSY). This fact underlies the research question.

RQ: How can fish be balanced as a realization of income based on fishermen's exchange rate at maximum sustainable yields (*Kawruh Jati* fishermen's eco-ethnomethodology approach)?

These formulations and objectives are based on fishermen's activities, which depend on the availability of fish in the sea, and are a "reflection" of the realization of the income received. Realization related to efforts to find out how or how to achieve results depends on self-acceptance.

This relationship shows the natural curve of fish populations as open-access resources in marine fisheries. This characteristic implies that the basis for developing fishermen's fish haul is the same as preserving biodiversity areas due to the formulation of the FER in relation to the fishermen themselves. Therefore, the identity of fishermen influences their awareness (intention) in balancing the fish balance. The balance is the relationship between fish population balance and sustained yield as a balance for achieving FER. The basis for formulating the study of the fish balance concept is based on the fact that the realization of fishermen's income is the economic consequence result of maintaining marine biodiversity, influenced by the availability and quantity of haul (Anita, 2015; Prasetia, 2016; Solihuddin, 2014; Sulistiyono & Yety, 2013; Carmine at.al, 2020; Ferguson et.al, 2022). So the formula formulated by Prasetyo (2020) and Kroeker et.al (2020) needs to be added with the conservation factor of ecosystems that support biodiversity, such as coral reefs, seagrass beds, mangrove forests, estuaries, and wetlands. This ecosystem factor is in line with Prasetyo (2022) that awareness of marine life is a factor that must be maintained to increase marine fish production. Marine damage means damage to the haul. Therefore, the solution to the problem of marine fishing capacity is to state the sustainability of the marine environment as the absolute value of sustainable fish resources within the actors, namely fishermen.

Although several studies have discussed the relationship between fishing activities and the sustainability of fish stocks and their impact on fishermen's income, most studies still use quantitative or purely economic-based approaches. This research has not considered socio-cultural aspects and traditional knowledge of fishing communities. Eco-ethnomethodology studies in fisheries are still very limited, especially those exploring the role of local knowledge as an important element in achieving a balance between ecological sustainability and the economic welfare of fishermen. Thus, the novelty of this research lies in integrating an eco-ethnomethodology approach with the *kawruh jati* concept, which has not been widely applied in fisheries studies. This creates a unique approach to understanding the relationship between fishermen's income and the balance of marine ecosystems through a socio-cultural lens. This study adds contributions by enriching the literature on eco-ethnomethodology in natural resource management, especially in fisheries. It also adds a local perspective to academic discussions about sustainability by highlighting the concept of *kawruh jati* as an ethical basis for fisheries income practices to maintain fish balance in Indonesian seas.

RESEARCH METHOD

This research is a qualitative eco-ethnomethodological research of *kawruh jati* fishermen. An approach to understanding one's intentions or will as an effort to find out the way or path to the results obtained (Chodjim, 2022; Zharifa et.al, 2023). The manifestation is based on the noble value of *satuhu diri wus sumediya ambabar jatining kawruh kang winastanan kaluhuran sejati* [the self truly intends to open the essence of knowledge called true nobility]. It is called *kawruh jati*; self-confidence used to achieve anything noble in nature. Namely, self-sacrifice, is issued as an embodiment of the results obtained. The embodiment is truly presented by the *Tambakrejo* fishermen group, Wonotirto District, Blitar Regency, East Java.

Research was carried out using two methods, namely interviews to reveal the actual conditions of the object and direct observation (Prasetyo, 2022). Both methods reveal fishermen's noble attitude of intention (will or desire) in showing the realization of income based on the balance of catches. The determination of informants in this study must have knowledge or experience related to fishermen's income and the balance of catches. The informant in this study was Ahmad Suraidi, a fisherman and also the head of the *Tambakrejo* fishermen group, who has broad insight into the conditions of Tambakrejo fishermen and can provide information about group policies, challenges faced, and the reality of income. The second informant was Soejono, a fisherman and also a figure in the *Tambakrejo* fishermen community for eleven months, namely from February 9, 2023, to January 20, 2024, who can provide insight into cultural values, customs, and social dynamics that influence the lives of *Tambakrejo* fishermen.

Direct observation was carried out by involving researchers in fishing activities and rituals which aimed to obtain a picture of the real situation and experiences of fishermen in *Tambakrejo* through careful observation and their financial strategies. This involvement fosters a close relationship, allowing informants to provide more honest and natural responses during interviews. Observations allow researchers to explore the fishermen's commendable attitudes, the harmony of their catches, and the cultural values that shape their lives, resulting in more comprehensive and contextual data. Researchers also conducted interviews via telephone (video call), to reveal the value of *kawruh jati* in the reality of the fish catch balance. The activity of calculating fishermen's income that creates an atmosphere of familiarity and spontaneous responses is a manifestation of the value of "typical humility", which has an important meaning for this study.

RESULTS AND DISCUSSION

The procedure for calculating transaction costs is the main focus of this research finding. Because of this procedure, the catch is the main determinant of fishermen's income. In this case, fishermen's expenses are calculated directly using their income. According to FER, which is the process of allocating costs at the level of substitution of goods (products) created by fishermen with goods needed to achieve income realization, this realization relationship describes the balance of fish welfare.

Fishermen's Exchange Value makes awareness and belief that is realized through intention or will as *kawruh jati* activities to maintain the fish supply. *Kawruh jati* is a discussion of the manifestation of fishermen's self-confidence in recognizing that fishermen's income depends on God's intention or will for the sea as a place for growing fish. This achievement is a manifestation of the formation of a fish balance as a reality for fishermen's income, as explained below.

Results

> Fish in the sea provide awareness about our dependence on the availability of fish as a haul which is a balance of the income we have to receive (Ahmad Suraidi, 10 February 2023, 10.16 WIB)

These findings indicate the calculation income of fishermen depends on the catch. The result is related to the number of fish available in the sea. This main aspect explains that fish growth is highly dependent on the availability of fish as a surplus. This condition makes the price of fish commodities caught by fishermen always fluctuate, because of three things: fluctuations (up and downs) of catches, fluctuations in buyers' choices, and pricing trials by fishermen and buyers. This results in determining costs and revenues adjusted to the needs of fishermen and buyers without a definite price. The explanation shows that fishermen's income and expenses have two close relationships. These needs are related to efforts to preserve the marine environment and facilities that support fishing activities at sea. Thus, the fees they charge are based on the estimates that have been agreed upon by the fishermen in advance compared to the income they will receive. When calculating cost allocation, costs incurred have been taken into account and a certain amount of rupiah has been added as their income. This calculation is included in the transaction fee, as stated by Soejono:

> *Yen sadurunge, hubungan kuwi minangka asil saka biaya sing dibayar dening pembeli. Kita dudu sing nemtokake rega, nanging kuwi wis dadi bagian saka kegiatan jual beli sing ditmpa. Transaksi kuwi pancen lumaku kaya ngono suwene iki*
> [Previously, the relationship was the result of the costs paid by the buyer. We are not the ones who determine the price, but it has become part of the accepted buying and selling activity. The transaction has indeed been going on like that all this time].

Fishermen's transaction costs refer to the explanations of McGilliard et.al (2015), Venegas-Li et.al (2018), Kroeker et.al (2020) and Susilowati et.al (2020) that when a transaction takes place, expenses arise. When fish items are transferred directly from fishermen to consumers, transactions take place, and the cost of delivering the catch plays an important role in influencing fishermen's income. This scenario involves a direct comparison between fishermen's expenses and the income they earn. Therefore, Triyanto (2017) and Hidayah, Nuzula & Wiyanto (2020) explained that transactional ties lead fishermen to obtain profitable results based on the quantity of their catch. This relationship indicates the amount of wealth, as determined by the Fishermen's Exchange Rate

(FER). The cost allocation process that occurs when fishermen exchange their catch for goods or services needed to generate income is known as FER.

The realization of individual fishermen's income aims to increase their catch as a manifestation of their own income certainty. A process based on the influence of fishing efforts with the balance of marine bionomic (Venegas-Li et.al, 2018; Prasetyo, 2020; 2022; Carmine et.al, 2020; Ferguson et.al, 2022). The balance of fishing effort as referred to in Ahmad Suraidi's statement regarding the relationship between self and fish availability is as follows:

> *Kalau dalam diri mengakui apapun yang ditangkap adalah hasil yang disediakan laut. Kesediaan inilah yang selalu menjadi kontrak diri ketika berangkat bahwa aktivitas yang selalu tergantung dari pemberian laut untuk menyakini bahwa penghasilan ya...tentang hasil tangkap yang diperoleh.*
>
> [If you personally admit that whatever you haul is a product provided by the sea. This willingness is what always becomes the self-contract when setting out that activities always depend on the provision of the sea to ensure that the income is... about the haul obtained]

The catch referred to above is the result of the calculation of the fishing business based on objectively measured income. This measurement, as stated by Suwardjono (2016), regarding the concept of revenue realization, which tends to be more related to objective aspects and is more of a recognition than a meaning of income. The concept of realization or transaction approach emphasizes more events that can mark revenue recognition. The event of the catch is a measurable certainty of income collected through the income formation process.

This reality has an impact that fishermen's income can only be recognized after the catch is received by the buyer. Buyer acceptance depends on the quantity (weight) and size of fish products as real sales. Referring to the explanation to Suwardjono (2016) that the recognition of an amount of rupiah in accounting should be based on the principle of measurability and reliability of the recorded value of money. The results recorded as fishermen's income are from fish catches that have been agreed upon with buyers. Cost calculation, which has become routine, makes the allocation the basis for the cost-income linkage (income). This is as stated by Vassallo et al. (2017) and Rees et al. (2018) that fishermen can never predict for sure how much income they will get because everything is only based on estimates and uncertain. Referring to the explanations stated by Vachon & Hajmohammad (2016), Triyanto (2017), Cox et.al (2019), Meaza, Toyoda & Wise-Sr (2021), and Ferguson et al. (2022) and Prasetyo (2022) explained the connection between efforts to protect the marine environment and the related infrastructure is highlighted by a sense of uncertainty.

Therefore, fishermen's income depends on fishing or occurs when there is an agreement with the buyer to pay for the catch. This explanation is in line with Suwardjono (2016) who stated that revenue is generated when the product is finished and sold directly or when it is sold. The situation is happening during a direct sales transaction. Sales transactions are based on the availability and quantity of fish catches. The results of research by Rees et.al (2018), Kroeker et.al (2020) and Virdin et.al (2021) that the fisherman's income economy is formed as an economic consequence of maintaining the number of catches as real value with the support of biodiversity as a guarantee of income itself. The realization of fishermen's income is formed from the certainty of the number

of fish produced. The value of the result as a certainty of price changes becomes the actual transaction process. According to Suwardjono (2016) this value is called the realization concept or income recognition transaction approach. Further recognition strengthens the overall cost. The income-cost relationship should result in a reduction in income.

Therefore, fishermen's activities represent efforts, while the catches produced are achievements. The product's exchange rate, determining income, should exceed the total cost of fish production, combining all expenses. So, according to Davis et.al (2015), Susilowati et.al (2020) dan Virdin, et.al (2021) All costs associated with fishing activities have generated direct revenue from those costs. The stated by Soejono as follows:

> *Inggih kolauwau, wis terumpan ucap, yèn kita iki nelayan nyadari yèn iwak ing laut, saengga perjalanan menyang kono dadi gantinipun hasil sing kita tampi. Nyadari yèn laku urip iki mung pasrah, ngelaut mung maringi hasil marang kita kanthi tangkapan sing dipikolehi.*
>
> [Yes, as previously stated, we fishermen realize that fish are in the sea, so the journey there is a substitute for the results we receive. Realizing that this life activity is only surrender, going to sea only gives us results with the catch obtained].

The explanation explained that the income from fishing is proportional to the expected amount of catch. In other words, once the cost is taken into account (following physical activities at sea), direct income has begun to be created. On the other hand, if fishermen have not carried out any activities, then income has not been formed. This approach is like Suwardjono (2016). As income is generated, it follows the principle that each cost incurred holds equal significance in contributing to revenue, thus creating a harmonious relationship of expense and earnings within the process.

That is, paying attention to the cost rather than the availability of fish or vice versa is important. The availability of fish is prioritized, while the cost of catching is considered not too significant to the catch or vice versa. Indeed, as referring to the explanation of Suwardjono (2016:364) that it is clear that different costs cannot be ignored, but the income benefits are Following the expenses that were accrued. The connection can also be identified in the research outcomes of Triyanto (2017), Susilowati et al. (2020), Kroeker et.al (2020) and Pellowe & Leslie (2021) that the expenses associated with fishing activities increase in line with the abundance of fish. Hence, when some expenses are accounted for, the fishermen have successfully generated or received the anticipated income, reflecting the balance between income and costs. The explanation is identical to Soejono's:

> *Ngitung ya mung kawruh iki dhewe, nanging ngitunge ora rinci amarga cocog karo hasil sing mung dadi pengarep-arep utama awujud dedonga lan niat. Dadi kepasrahan apa iwak ya sing ditampa apa lestari laut minangka pemberian Gusti sadar upaya kabeh lelaku ritual jati ing diri nelayan sing taat dilakoni minangka bentuk ya awujud syukur kita*
>
> [Count yes only this science itself, but the calculation is not detailed because it is in accordance with the results that only the main hope in the form of prayer and intention

to submit what is received namely fish. What is sustainable in the sea as a gift from God, aware of the efforts of all true ritual activities in the obedience of fishermen carried out as a form, yes, as an expression of our gratitude].

True knowledge (*kawruh jati*) of income among fishermen is positively correlated with fish availability. This condition makes fishermen carry out their activities with awareness and belief that the sea provides these fish (Sawiji, Mauludiyah & Munir, 2017; Rees et.al, 2018; Hidayah, Nuzula & Wiyanto, 2020). Awareness and belief are manifested through intention or will as *kawruh jati* activities to maintain fish availability. Why is that? As referring to Chodjim (2022) and Zharifa et.al (2023) explain that self-confidence is a guide to accepting the results of activities carried out with awareness as an embodiment of the reality of gratitude. Achieving an atmosphere within fishermen to recognize that fishermen's income depends on the intention or will of God of the universe for the sea as a place for fish to grow. The relationship is in line with the research results of Prasetyo (2020, 2022) and Ferguson, et.al (2022) that by making the public more aware of the sustainability of fish resources in relation to fishing by focusing on the surplus of fish production rather than the number of fish caught, thereby linking the importance of fish to marine biodiversity(biological balance).

Discussion

Kawruh Jati: Fish Balance as the Reality of Fishermen's Income

The informant statement shows that fishermen's self-awareness of fish populations is a manifestation of the balance of growth rate with catch and results. The relationship, according to Montero-Serra et al. (2018), shows that fishing is a crucial factor in the increase in fish populations. According to Anita (2015), Triyanto (2017), and Sawiji, Mauludiyah & Munir (2017) fishermen provide special maintenance in maintaining catch resources by carrying out fish population routines. This activity makes the true knowledge (knowledge of the sea) Fishermen are aligned with the sea, viewing their fishing income as a blessing from the sea that should be cherished and upheld by the community.

> *Jiwa untuk menerima hasil tangkapan ikan menjadi aktivitas harmoni kesadaran diri kami tentang nilai keseimbangan tangkapan dan penjualan. Keseimbangan untuk mensyukuri hasil tangkapan sebagai perolehan kami, menuju kesadaran terjaganya laut terjaga pula penghasilan kami.*
> [The spirit of receiving fish haul becomes a harmonious activity of our self-awareness about the balance value of catch and sale. The balance is to be grateful for the catch as our income, towards awareness that the sea is protected and our income is maintained (Ahmad Suraidi, 23 April 2023)].

The relationship between the calculation of costs and income from fishing is shaped by the fish population. This inner unity activity guides us in appreciating each catch as a blessing from the Creator of the Universe, helping to safeguard the fish population. This condition always gives rise to an act of respect, namely by having the intention or desire to take care of the growth of fish.

Based on the importance of fish conservation in relation to fishing businesses, the definition of business is tied to each other with the actions of the fishermen themselves. This relationship is related to fishing, which isolates the excess growth of fish. The abundant availability of fish benefits the fishing industry and supports the sustainability of the sea, making it a sustainable source of income. This relationship is realized in the activity of calculating the surplus growth of fish rather than harvesting fish populations. Thus, the aim of fishing is to realize the fishermen's desire to haul maximize. Conditions for achieving exchange rate balance while maintaining maximum sustainable yield from marine fisheries. The balance, as stated by Prasetyo (2020), is that fishing interests are related to the sustainability of fish resources in connection with the fishing industry, so the definition of business is tied to one another, namely fish population and production.

This aligns with the insights provided of Suwardjono (2016), Venegas-Li et.al (2018), Montero-Serra et.al (2018) and Susilowati dkk (2020)that the formation or collection of income is in line with the expenditure of expenses when a number of activity costs are incurred. The significance of income and spending reflects the hard work of fishermen, while the fish they catch is a humble offering to God. This explanation is as stated by Anita (2015), Triyanto (2017), Fauziah & Bustomi (2019), Yuliamalia (2019), Hidayah, Nuzula & Wiyanto (2020) and Sulistyorini (2020). They stated that understanding the outcomes is where the expenses of carrying out fishing activities lie.

The fishermen's self-awareness forms a balanced relationship between fish production and fishing efforts and the biological sustainability of fish. This was also emphasized by Virdin et.al (2021) and Carmine et.al (2020) that fish commodity availability shows the growth and sustainability of the bionomic environment for fish development as an equilibrium relationship. This balance forms a relationship as stated by Ahmad Suraidi, namely

> *...kalau produksi...bukan mas..lha ikan disini diambil dalam kelimpahan yang tersedia yang tanpa pemeliharan dengan hanya menjaga keseimbangan tempat berkembangnya. Ini hubungan keseimbangan yang harus dijaga yang tidak bisa dipisahkan identitas kesadaran diri nelayan seperti kami.*
>
> [...if it's production...it's not Son...then the fish here are taken in the abundance available without maintenance by just maintaining the balance in the place where they grow. This is an equilibrium relationship that must be maintained, which cannot be separated from the self-conscious identity of fishermen like us.]

This relationship also makes marine products pay attention to the characteristics of fish for growth and development. Conditions that make fish stocks and fishermen's fishing efforts become one unit that influences each other (Prasetyo, 2022; Ferguson et.al, 2022). Progress is made through the fundamental idea of marine sustainability endeavors, focusing on the outcomes and sustainability of fishermen. The accomplishments highlighted by Prasetyo (2020), are a way of showing appreciation for preserving the sea's marine life to support fish production is:

Conservation of fish biomass xxx

Fisherman's Exchange Rate xxx

This journal indicates that there is a rising allocation of economic resources towards safeguarding ecosystems that are crucial for biodiversity, corresponding to the catches acquired by fishermen. Efforts to preserve the fish ecosystem mechanisms are being upheld and enhanced to ensure the sustainable availability of tuna, shrimp, and other fish resources. Enhancing the sustainability of fish resources can lead to increased production and enhance the availability of valuable fish nutrients.

The realization of fishermen's income is related to the fish's natural growth as a fish production function. This shows that fish in the sea are a population function with logistical growth, namely fish biomass population and environmental carrying capacity as formulated: (Prasetyo, 2020)

$$\text{Fish Natural Growth} = G_{xt} = r\ Xt\ (1 - Xt/k) \quad \ldots\ldots 1$$

Where:
G_{xt} : Fish Natural Growth
r : Growth rate of live fish
Xt : Fish biomass population
K : Environmental carrying capacity

This equation formulation shows that the growth rate is the same as the haul rate, which is in line with the fish biomass balance results. The relationship shows the fish biological balance, so the fishing effort is to haul surplus fish growth, not haul fish populations. Thus, the aim fishing to maximize the realization of fishermen's income while maintaining maximum sustainable yield.

This comprehension becomes the awareness of *Tambakrejo* fishermen to carry out equilibrium balance of fish populations with maximum sustainable results. An explanation that refers to the dialogue that states the following equilibrium relationship:

Ahmad Suraidi :...*ya...ini harus diakui bahwa penghasilan kami ini hubungan yang berkaitan langsung dengan berkah laut*
[...yes...it must be admitted that our income is directly related to the blessings of the sea]

Whedy Prasetyo : *berkah laut...sebagai kesadaran...bagaimana gih pak ahmad?*
[blessings of the sea...as the awareness...how do you do, Mr. Ahmad?]

Ahmad Suraidi : *hubungan...mas...hasil tangkapan yang kesejatian yang diberikan laut...olehnya kita disini menyadari secara tulus bahwa ikan dan laut bukan dengan kami...ini membuat nelayan sebagai pemanfaatan saja...ada keseimbangan...ya...seimbang antara keadaan laut dengan hasil bukan kami. Hubungan yang menyadarkan penghasilan kami adalah pendapatan yang menjadi hubungan biaya yang dikeluarkan sebagai akibat kegiatan melaut*
[relations...son...the haul that the sea provides...because of this we here sincerely realize that the fish and the sea are not with us...this makes

fishermen just for use...there is equilibrium...yes...equilibrium between the state of the sea and our results. The relationship that makes our income aware is income which is a relationship to costs incurred as a result of fishing activities]

Awareness is recognized as an equilibrium between income and costs connected and the income-cost equation of fishermen. This relationship makes the amount and rupiah follow each other, as connected in the Figure 1.

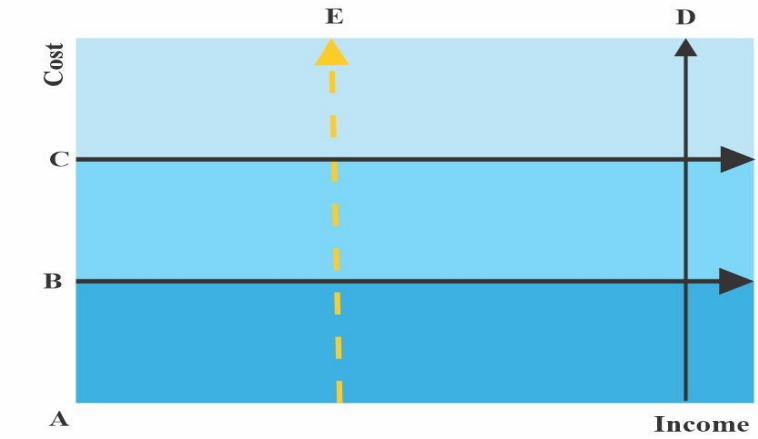

Figure 1. Fishermen's Income-Cost Relationship

This assumption (Figure 1), according to Prasetyo (2022), states that each straight line represents the economic source of fishermen's activities that try to catch fish along the dotted line (point E). This relationship describes each expense incurred (points A, B, and C) that then generates revenue. Therefore, revenue is created for each line of costs incurred. If costs have been incurred for the activity, then it is certain that income has also been earned until all efforts to generate revenue are settled at point D.

That way, average output price, and cost become comparable and can be considered an income result without using average cost data. The blessings found in various elements of the marine food chain are valuable blessings from God (Yuliamalia, 2019; Sawiji, Mauludiyah & Munir, 2017). What might be the reason? As stated by Anita (2015), Triyanto (2017) and Rees et.al (2018) that marine biodiversity is an important factor in fishing, which is influenced by the activities of local fishermen. This activity greatly affects the availability of freely accessible resources. The quantity of fish left following the fishing activity of fishermen corresponds to the combined effort of each business unit's reduction in the share of fish habitat. This equation indicates that the ocean sustainability payment ensures fishers receive a guaranteed income. The same thing is explained by Kroeker et.al (2020), Carmine, et al (2020), Virdin, et al (2021)

and Ferguson, et al (2022) The emphasis is on how fish catch is affected not only by fish stocks and fishing efforts but also by the interplay of ocean sustainability and businesses, illustrated through fish stocks classified by business.

The balance of fish resources is a condition where the fish population in the sea remains at a level that can support sustainable fishing activities. In ecological terms, this involves regulating fishing levels so that they do not exceed the recovery capacity of fish stocks. Overfishing can cause a decline in fish stocks, which ultimately threatens fishermen's income in the long term. A decrease in fish stocks in the sea will have an impact on reducing the catch that fishermen can produce. In the short term, fishermen may increase fishing effort (effort) to maintain their income. However, these efforts could worsen the condition of fish stocks, thereby reducing catches further in the future. Therefore, a balance between fishing efforts and fish stock recovery is very important (FAO, 2020). Fishermen's income is very dependent on the abundance of fish that can be caught. When fish resources are abundant, fishermen will find it easier to get high catches, which means their income will increase. On the other hand, if fish stocks decrease due to uncontrolled fishing, fishermen will face economic difficulties due to low catches.

Table 1. Summary, Concept and Research Findings

Summary	Concept	Research Findings
The relationship of noble self-awareness of fishermen (*kawruh jati*) who contribute or contribute to the creation of income is proportional to the cost	The concept of *kawruh jati* directs the behavior of fishermen in maintaining the sustainability of fish resources.	Research findings in the field show that fishermen's income is highly dependent on catch, which fluctuates according to the availability of fish in the sea.

Source: In-depth interview processed (2023)

An eco-ethnomethodology approach with the integration of fishermen *kawruh jati* can function as a comprehensive framework for local wisdom-based fisheries management. By appreciating and utilizing local knowledge, fishermen can not only improve their economic welfare, but also play a role in preserving marine ecosystems for future generations. Combining eco-ethnomethodology with fishermen *kawruh jati* creates a sustainable fisheries management model. First, utilizing local knowledge to create mutually agreed fishing rules to maintain the balance of fish stocks. Second, *kawruh jati* can be used as an educational basis for the younger generation of fishermen to care more about preserving the marine environment. Third, Eco-ethnomethodology helps explore ways fishermen adapt to extreme weather changes and utilize local knowledge to survive in changing environmental conditions. Reality of income realization activities as a result of the balance between availability of fish, sustainability of fish biomass, and exchange rate of fishermen, which is a guarantee of income when the product is sold directly. The resulting realization of the noble intention or will of the fishermen as *kawruh jati...Rahayu...Rahayu...Rahayu*.

CONCLUSION

Fishermen’s income and costs are in accordance with the culture of marine preserving g (Pellowe & Leslie, 2021; Ferguson et.al, 2022; Prasetyo, 2022).

The claim that the *kawruh jati* activity is present as achieving the goals or noble ideals of *Tambakrejo* fishermen's awareness is in line with the findings of this study. The culture of fishermen shows how the method of obtaining fish balances is formed. A balance that considers how the fishermen's exchange rate is influenced by the sustainability of fish biomass and the income realized. Income is created from the catch sold at the cost incurred, namely the relationship between all costs incurred and income. Awareness of the fish population is related to the act of realizing income. Naturally, the presence or absence of income formation is a determining factor in cost expenditure activities, and this process continues until all income formation activities are completed.

This condition creates a fish balance sheet that promotes awareness of income-cost balance. Thus, a certain amount of costs related to fishing operations is a sign of income received by fishermen. According to this theory, all stages of fishing operations influence fishermen's income. Because everything depends on the fishermen's self-perception (*kawruh jati*), which determines how much money they earn relative to the costs they incur. As a result, if fishing operations generate a certain amount of costs, then a certain amount of income has been generated or collected based on comparing costs and income. The realization of this income gives meaning to welcoming the presence of a fish balance sheet. The balance sheet is formed on the realization of income based on the fishermen's exchange rate at the maximum sustainable results production of the number of fish without the effort to maintain it.

The fact that limits the fish balance to achieving income realization is that sales transactions are formed when fish are sold directly. However, in reality, income occurs due to fishermen's noble awareness to realize that the fish catch is a surplus for fish growth. This awareness means that fishing activities maximize fishing effort and the availability of the fish itself. This realized equilibrium can be used as a continuation of research to use an ethnographic approach based on participant observation as a complete source and an eliciting photography approach.

This study adds value to the theory of marine economics by showing how fishermen’s cultural beliefs, environmental awareness, and fisheries resource management are interrelated. This study enhances our understanding of how cultural values influence economic practices and sustainability. Practically, we can use the results to create training programs that emphasize sustainable fishing methods and improve fishermen’s understanding of the importance of protecting marine resources and can help fishermen improve their financial management. This study can provide a basis for policymakers to create policies that promote sustainable fishing methods and protect the environment collaboration between fishermen and government agencies in marine resource management can improve fishermen’s welfare and maintain marine ecosystems.

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List of Abbreviations
MSY: Maximum Sustainable Yield, FER: Fisherman's Exchange Rate

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