ANGLING TRUST

MARINE RECREATIONAL FISHERIES: SOCIO-ECONOMIC VALUE & CHALLENGES

BACKGROUND

Marine recreational fisheries (MRF) are defined as "fishing of aquatic animals (mainly fish) that do not constitute the individual's primary resource to meet basic nutritional needs and are not generally sold or otherwise traded on export, domestic or black markets." (FAO, 2012). This report will focus on recreational sea angling and intends to provide an overview of its socio-economic value through specific case studies rather than being a comprehensive review of all the available evidence.

Marine recreational fisheries have been demonstrated to be a high-value activity whereby individuals within the sport spend significantly (Roberts et al., 2017), such as on fishing tackle, boats, licenses, travel, and accommodation (Pita et al., 2018). Between 2012-2013, the average angler spend on trips and major items alone was nearly £1500 a year (Roberts et al., 2017). Estimating the economic contribution of the sport to the broader economy is essential for proportional representation within sustainable fisheries management of inshore fish stocks and other policy matters such as tourism management and economic development (Roberts et al., 2017). The socio-economic value of marine recreational fisheries must be established to successfully integrate the sector into fisheries management plans and other areas such as tourism and coastal infrastructure strategies (Williams et al., 2020)

As a result of the Fisheries Act and the inclusion of the recreational sea angling sector as a fully recognised legitimate stakeholder in UK fisheries management, we are at a landmark moment in the sport's history, both in terms of increasing the already high socio-economic value of the sport but also in mitigating against a range of threats that could impact upon the value it delivers. This report will highlight the importance of recreational sea angling and the challenges facing its future, alongside presenting potential steps to overcome these challenges.

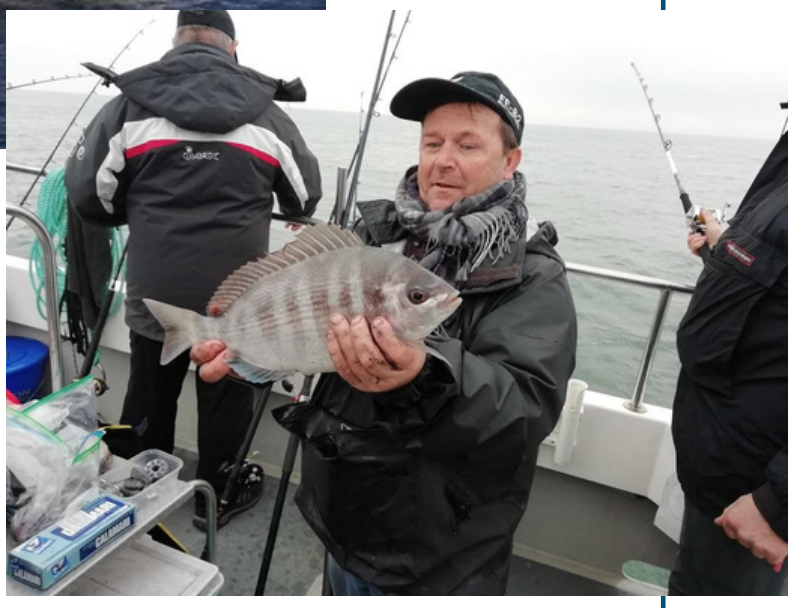
ECONOMIC BENEFITS OF RECREATIONAL SEA ANGLING

In the United Kingdom, recreational sea angling is both economically and socially significant. Data shows that resident sea anglers expend £1.32 billion on the sport annually, resulting in an £847 million direct spend (excluding tax and imports), and supporting 16,300 full-time equivalent jobs and almost £388million gross value added (GVA) (Hyder et al., 2020). Approximately 1.8% of all adults in the United Kingdom, around a million people, participate in recreational sea angling every year (Hyder et al., 2018), with an average of 6.8 million days of sea angling annually recorded in 2015-2017 (Arkenford, 2017). Shore fishing was the most common form of recreational sea angling, but more fish were caught from boats (Armstrong et al., 2013) during the same period.

There is a growing abundance of evidence to support the idea that recreational sea angling is a high-value sector that warrants government support and development. Indeed, in its 2007 long-term vision for fisheries, the government stated, "Economic returns are optimised. In most cases, fish stocks and access to use them, either commercially or recreationally, are managed to maximise the long-term economic return to society." And goes on to say "- - some of the resources are used to deliver wider social benefits and for recreational purposes." (Defra, 2007). A 2014 study by MRAG on behalf of the Blue Marine Foundation that analysed the bass fisheries in Sussex showed recreational bass angling produced a final economic output at least 40 times that of commercial fishing per tonne of harvested bass and at least 39 times the level of employment (MRAG, 2014).

A 2020 study by Williams et al. assessed the economic contribution of charter boat sea angling for four ports in Dorset (Poole, Swanage, Weymouth and Portland) to estimate a cumulative economic impact to Dorset of £2.4 million in gross output as a result of recreational angling charter boat activity. The total estimated financial contribution was £3.6 million with over £1.3 million of Gross Value Added (GVA) (Williams et al., 2020). The New Economics Foundation identified that the recreational charter fleet in Poole Harbour is significantly greater in economic contribution than either the commercial fishing or aquacultural sectors in the same harbour (Williams and Davies, 2018).

Other parts of the world are more advanced in recognising recreational angling development opportunities. In the USA, Southwick Associates, on behalf of the Theodore Roosevelt Partnership, carried out research to compare economic data of recreational and commercial marine fisheries (Southwick Associates 2013). Table 6 of the Executive Summary shows how across all States, in terms of Sales Impacts, Income and Jobs, the impacts of commercial exploitation are just 28.54% of those produced from recreational exploitation (Southwick Associates, 2013). In Europe, Ireland is unique in recognising the potential returns from recreational sea angling and utilising their sea bass resource to drive domestic economic returns and tourism-related sea angling activity (National Strategy for Angling Development, 2015). Sea bass alone generates expenditure by anglers of 52.3 million euros (Table 13) and a net contribution of 71.2 million euros (Table 14) (National Strategy for Angling Development, 2015).



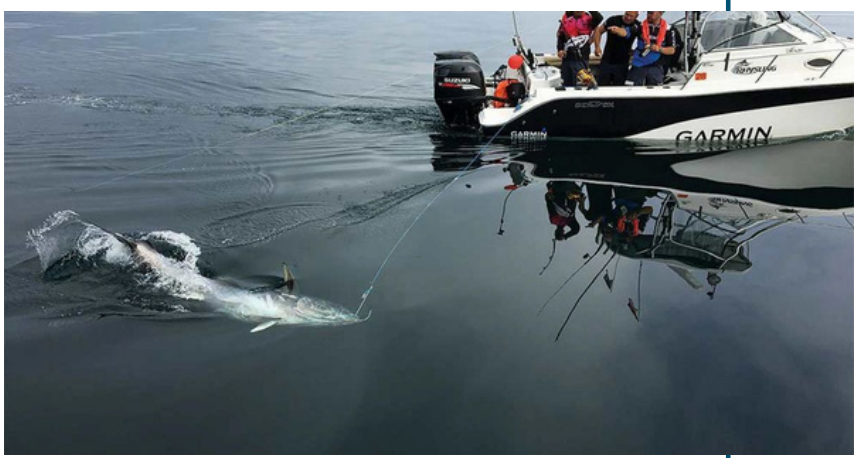
UK CHART: Atlantic Bluefin Tuna

In 2021, following a relentless lobbying campaign by Bluefin Tuna UK and the Angling Trust and an extensive nine-month consultation process, we successfully created a CHART (catch-and-release tagging) program in partnership with DEFRA and CEFAS. This consisted of 15 specifically authorised and trained vessels and crews operated over three months after a comprehensive selection and training process. In total, over 1,000 anglers took part in the science-led project.

The small-scale CHART program that ran from August to November 2021 showed how successful a catch and release bluefin tuna fishery could be, making a significant contribution to our knowledge of the species and why they are in UK waters, and even at a small scale, contributing an estimated £650,000 to £750,000 to the local economy, including extending the season for the charter boats involved beyond the end of the summer. CHART exceeded all the targets set for it by Defra and CEFAS.

- Around 700 Atlantic Bluefin Tuna were safely caught, tagged and released. (Versus pre-operation estimates of 250/300)
- The catch rates for this large Atlantic Bluefin are genuinely world-class and reflect the potential of this fishery, averaging 1.7 Fish per trip.
- Welfare metrics markedly better than estimated were in evidence (meagre mortality rates, low 'lost fish' ratios, short fight times etc.)
- More trips and anglers are participating than estimated, generating significant revenue (additional, out of season) for many ports.

The recreational fishing sector has shown that we have a world-class Atlantic Bluefin Tuna fishery on our doorstep. A fishery that can deliver incredible angling experiences, significant economic benefits, and world-class science, and do so in a sustainable manner.



Fishing for Food

For many sea anglers, catching fish for personal consumption is a crucially important attribute of the sport. Anglers value captured fish that are retained to eat more highly than those they return (Barnaby Andrews et al., 2021). The harvest of fish for personal consumption by recreational fishers has contributed and will continue to contribute to, human nutrition by providing an accessible, affordable and generally highly sustainable food source (Cooke et al., 2017), notwithstanding food safety concerns and possible overfishing.

The capacity for recreational fishing to contribute to food security is extensive, given that the world's surface is over 70% water (CIA, 2016). Recreational fishing is highly accessible to people of varying economic statuses (Milon, 2000) as there are various tools recreational fishers can use (Cooke et al., 2017). Generally, recreational fishing is a means of food gathering where cost does not limit access, but economic boundaries to recreational fisheries do exist (Cooke et al., 2017). Attempts to better quantify the role of fish harvested by recreational fishers and the relative contribution to overall food security and personal nutrition will provide resource managers and policymakers with the information needed to guide management activities and policy development (Cooke et al., 2017).

Traceability and freshness of self-caught fish are unsurpassed, and impacts on the environment are negligible in comparison to commercial fisheries as within the recreational angling sector unwanted fish, should they be the wrong species or undersize, can be returned with high survival prospects. Recreational fisheries are highly selective in terms of retention which cannot be said for most forms of commercial fishing.

Recreational anglers often take pride in providing self-caught food for family and friends (Burger, 2013; Prosser, 1997), leading to less food waste, and improving the sector's sustainability. Aside from the cultural and traditional values associated with catch-and-harvest, increasing the proportion of fish in an individual's diet can also provide numerous positive health benefits (Cooke et al., 2017) due to its nutritional composition. Self-sufficiency is recognised as providing angler satisfaction and can be seen across the subsistence food cultivation sector, e.g. growing your vegetables, with a heightened sense of achievement, self-esteem and self-confidence experienced by participations.

Regarding terrestrial foraging, it would appear that those who wish to avail themselves of some wild food for personal use have a special right over those who want to access those same public resources for commercial use. That is a crucially important principle and immediately begs the question: Given wild marine fishery resources are public societal assets, shouldn't public access to societal fishery resources be prioritised over access for commercial use?

If applied, such a principle would not necessarily exclude commercial access, but in determining the allocation of scientifically approved sustainable levels of harvest between users, such a principle would ensure the end of anathemas like that of 2018 when the public (recreational anglers) were unable to take even a solitary bass to eat whilst commercial landings of bass continued.

In many parts of the world, public access to societal fishery resources is prioritised over commercial access. In an interview on UK Radio, the Minister of Fisheries in New Zealand, Doug Kidd, explained how scientifically allowed catches of a popular species called snapper were allocated amongst the three user groups, recreational, indigenous and commercial. The recreational portion was prioritised, followed by the Maoris, and then, if there was a tonnage still available, it was given to commercial fishers. In the USA, recreational anglers enjoy the more significant share of scientifically permitted catches of several species, including tautog, bluefish, striped bass and black sea bass.

SOCIAL BENEFITS OF RECREATIONAL SEA ANGLING

There are many social benefits of recreational sea angling, such as experiencing nature, spending time with family and friends, improved health and wellbeing, and environmental conservation (Hyder et al., 2020). Sea angling is also a focal point within many vulnerable and marginalised communities within the UK, providing access for socio-economically deprived groups to the multitude of benefits that sea angling brings. These social benefits deliver impacts on personal and community development, tourism and education, benefitting local and national economies and are relevant to the government's Levelling Up strategy. Beardmore et al. (2011) pursued research in Germany, finding that context-specific angler motivations could be grouped into five motivational types: trophy-seeking anglers (not necessarily practising catch-and-release), challenge-seeking anglers (that did not seek trophies but placed great importance on achievement-orientation catch motivations), nature-orientated anglers, social anglers and consumption anglers.

Physical Activity and Wellbeing

Angling is a means by which people – often relatively inactive individuals – can become more active and is the only form of physical activity for some individuals. Sea angling offers some of the most active forms of the sport – over 60% rated it as moderate activity and nearly 20% as high intensity (Brown, Djohari and Stolk 2012). Research has shown that exercise in natural environments can have additional health benefits (Pretty et al. 2007) and that the duration of sessions means that even moderate activity levels can lead to relatively high-calorie burn (Pretty et al. 2016), with 72% of anglers reporting that it was a way to keep them healthy (Brown, A. 2019a). Given the demographic of angling has a skew toward older generations, sea angling delivers an accessible avenue for older people to improve their physical health and wellbeing.

Mental Wellbeing

Recreation in natural environments is widely recognised to benefit wellbeing (McNally et al., 2015; Eigenschenk et al., 2019). Angling is an important way to connect with nature (Hunt, Richardson, and Hamlin, forthcoming, 2022). 69% of sea anglers have said it is an important way to experience nature and wildlife (Armstrong et al. 2013), and sea anglers rate access to a healthy and beautiful environment as a critical motivating factor (Brown et al. 2019b). Sea angling enables participants to access the numerous benefits associated with a blue mind and blue health through spending time by the ocean, with 70% of anglers saying it helps them deal with stress (Brown 2019a), for example. Angler satisfaction, the psychological reward an angler receives from their experience and affects how anglers behave, should be an essential consideration for recreational fisheries managers (Birdsong et al., 2021).

Personal Development

Sea angling is a route to volunteering and environmental improvement for participants. Around 25% of sea anglers participate in volunteering – most often cleaning up coasts – each year (Armstrong et al., 2013), which reflects findings elsewhere in the world (McManus et al., 2011; Griffiths et al., 2017) and showcases anglers ability to support environmental improvement projects too. In a survey of 36,000 anglers in England and Wales in 2018, 57% had been involved in some form of volunteering, 25% of whom fished in the sea (Brown 2019a). Sea anglers are also committed to being 'citizen scientists, with 75% saying they would contribute to data collection (Brown, 2019b). This has been demonstrated through the Sea Angling Diary Project, Atlantic Bluefin Tuna CHART programme and Shark Hub UK, amongst other highly successful programmes. Anglers and skippers possess a wealth of anecdotal knowledge from time spent by the coast and on the sea, which can be hugely valuable to fisheries managers and scientists for informing fisheries management and plugging data gaps, especially on data-poor species.

Community Development

Recreational sea angling is an integral part of socialisation and making friends – around 80% of sea anglers fish with someone else (Armstrong et al. 2013) - reducing isolation, which can be particularly important for older people. 64% of sea anglers visit coast communities more often because they go sea angling (Armstrong 2013), and 23% visit coastal areas they otherwise would not have seen at all if they did not fish in the sea (Brown 2019a), highlighting the value sea angling can have in contributing to local and national economies through supporting local businesses and livelihoods. This is a significant consideration for angling tourism.

Youth Inclusion and Education

Sea angling is an important way of engaging young people and can be part of broader angling education that allows experienced-based learning (Djohari et al. 2016). It can also help vulnerable young people escape stressful lives (Djohari et al., 2018) and engage some of those most disadvantaged (Baatz et al., 2021). This again feeds into the Levelling Up strategy for investing in socio-economically deprived coastal communities. Participants can use angling to improve ocean literacy and health and wellbeing that can last a lifetime. There are opportunities for youth engagement which tie into the national science curriculum, for example.

CHALLENGES TO MARINE RECREATIONAL FISHERIES

Governance

Worldwide recreational marine fisheries governance has historically had limited effectiveness, with only a handful of countries delivering good governance that enables sustainable recreational fisheries (Potts et al., 2019). One of the barriers to good recreational fisheries governance is the lack of representation of the sector within the marine management and policy process (Hyder et al., 2020). Following the UK's exit from the European Union, we are entering a new era of fisheries management whereby the recreational fishing sector is recognised as a legitimate stakeholder. Therefore, governance must reflect this.

For recreational fisheries governance to be effective, it needs to have:

- ·Explicit acknowledgement of recreational fisheries with a clear legal definition within policy
- A well-developed vision statement
- Extensive co-management processes
- Transparent communications
- ·Defined biological, economic and social monitoring structures
- High-quality social science

(Potts et al., 2019)

As we have already mentioned, the recreational fishing sector receives significantly lower attention than the commercial fishing sector (Abbott et al., 2018). Restrictions such as seasonal closures and bag limits imposed upon recreational anglers to conserve fish stocks -damaged mainly by commercial overfishing - can lead to significant socio-economic losses (Abbott et al., 2018). A study looking at the recreational red snapper fishery in the US Gulf of Mexico uncovered a policy whereby vessels with certain rights to a portion of annual catch could offer their clients year-round fishing in exchange for lower per-angler retention and increased fees, therefore improving the average angler's welfare by $139 per annum (Abbot et al., 2018). These findings suggest that the current status-quo management of the recreational fishing sector may be depriving both anglers and the local coastal economy of billions of dollars of the lost economic value per year (Abbot et al., 2018).

In our view, successful governance of recreational sea angling requires an internal cultural shift by fisheries managers in terms of policy formulation and delivery across all government bodies - the IFCAs, MMO, Defra - and at the ministerial level. The vast majority of recreational sea angling activity occurs within the six nautical mile limit of the UK coastline, an area the IFCAs are primarily responsible for management.

Fish Stock Decline – Reduced Abundance and Size of Individual Fish.

The Government's goal for developing World Class Fisheries management is very welcome, but such ambition requires management's historical failures to be recognised and confronted. Sea anglers in the UK target many species, with the most frequently caught being Atlantic cod, Atlantic mackerel, lesser spotted dogfish, European sea bass and whiting (Armstrong et al., 2013). Moving forward, recreational fisheries must have equal and proportionate fishing opportunities that reflect their stock interests and socio-economic value.

Here is a sample of official Government landings data (in tonnes) for England to illustrate the catastrophic outcome of MAFF/Defra's conduct over the last 40+ years. Will the current assurances for World-Class Fisheries Management ensure our seas are once again full of fish?

	Year		Average	Year		Average	
Species	1975	1976	1975-76	2015	2016	2015-16	Reduction (%)
Cod	194595	161659	178127	1102	1871	1486	99.2
Conger	365	377	371	78	102	90	76
Dabs	1402	834	1118	59	58	58	95
Dogfish	7514	6761	71375	931	1164	1047	98.5
Flounder	202	208	205	81	57	69	66.3
Haddock	39603	36549	38071	741	523	632	98.2
Ling	1706	2098	1902	191	216	203	89.3
Plaice	23657	27704	25680	1653	2276	1964	92.4
Coalfish	16806	19292	18049	130	79	104	99.4
Skates and Rays	2944	2953	2948	1010	1070	1040	64.8
Whiting	6576	6747	6661	1370	1317	1345	80

Source:
https://webarchive.nationalarchives.gov.uk/20140508035001/http://www.marinemanagement.org.uk/fisheries/statistics/documents/ukseafish/archive/1975.pdf

https://webarchive.nationalarchives.gov.uk/20140508034954/http://www.marinemanagement.org.uk/fisheries/statistics/documents/ukseafish/archive/1976.pdf

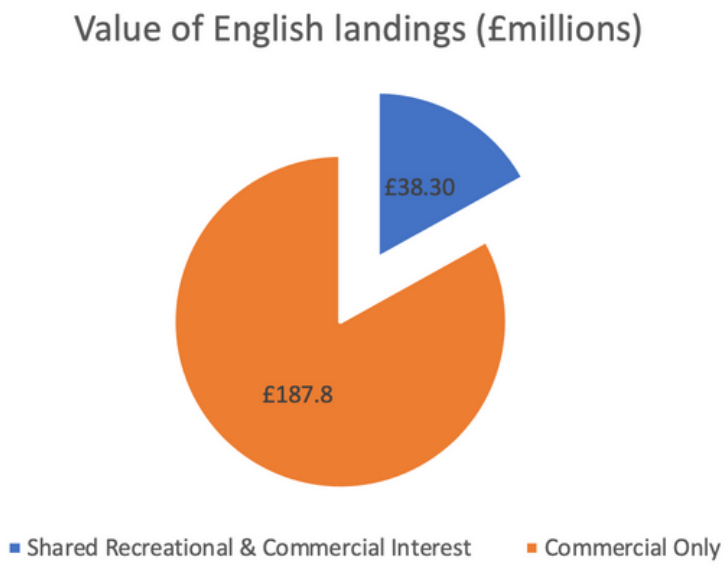
https://www.gov.uk/government/statistics/uk-sea-fisheries-annual-statistics-report-2015
https://www.gov.uk/government/statistics/uk-sea-fisheries-annual-statistics-report-2016

Research on Ireland's recreational sea bass fishery highlighted how abundance is critical to driving additional effort and economic impacts (Grilli et al., 2018). Within the Overview, on page 1, this report states, "Higher catch rates also encourage more fishing trips, on average in a 2:1 ratio. These two findings underpin the importance of sea bass stock conservation. Management policies should aim to increase the size of fish and the number of fish caught, as this has a significant impact on the angling experience (Nautilus Consultants, 2015). A vibrant and sustainable fishery leads to higher angler catches, which in turn leads to higher numbers of angling trips that contribute to the local economy." (Grilli et al., 2018). The rebuilding of striped bass stocks resulted in exponential increases in participation and economic impacts that directly corresponded to improved abundance. (Atlantic States Marine Fisheries Commission, USA).

Conflict between Recreational and Commercial Fishers

In those parts of the world where recognition of the legitimacy of Recreational Fisheries is further advanced, various levels of conflict have materialised. Superficially, all users of fishery resources should desire more fish, bigger fish, and sustainable supplies of fish. However, the drivers and motivations for recreational fishers are profoundly different from those of commercial fishers. Recreational anglers are primarily rewarded from the experience of fishing (that may include retention of some catches for personal consumption), whilst commercial fishers are rewarded by the weight of fish they can catch and sell. Within Europe, marine fisheries management under the Common Fisheries Policy (CFP) has only officially recognised commercial exploitation and aquaculture. As a result of commercial fishing representation, the CFP has resolutely refused to adopt responsibility for the development of recreational fisheries (Malcolm Gilbert, personal attendance at 2002 & 2012 CFP Reform public hearings)

Some fisheries managers are apprehensive about integrating recreational exploitation management into fisheries management that historically has been the exclusive domain of commercial exploitation. Further polarisation between recreational and commercial fishers in the UK has primarily materialised due to attempts by recreational anglers to achieve a more conservation approach to the management of sea bass over many decades that has been thwarted by commercial fishers who fear short term loss of earnings. Over the years, the conflict between the two sectors, as portrayed by Fishing News, has exaggerated the degree of competition. The actual data paints a quite different picture. English commercial landings of all species in 2019 were around £216 m. Roughly 80% of this value derives from species of no direct interest to recreational sea angling whatsoever. Recreational sea angling in England relies upon a limited number of species that provide just £38m (17%) worth of commercial landings at first-sale value. Only £10.7m derives from the 10 metres and under fleet.



Landings by UK vessels into England 2019.
https://www.gov.uk/government/statistics/uk-sea-fisheries-annual-statistics-report-2019

Of the £226.1 million English landings, only £38.3 million (less than 17%) comprises species targeted by recreational sea anglers. The remaining £187.8 million (~83%) is of little interest to recreational sea angling. The £38.3 million worth of commercial landings comprises the identical resources upon which the English Recreational Sea Angling sector is also entirely dependent.

These figures illustrate that the impact from recreational harvest for many species jointly targeted by both sectors is negligible. Still, in the case of pollack, flounder and bass, the recreational harvest is relevant for management. Commercial landings of flounder may be understated as frequently catches used as pot bait and may not be traded, therefore not recorded under Buyers & Sellers.

	2016		2017		2018		2019		Averaged over four years		%
Species	Commercial Catches (t)	Recreational Catches (t)	Commercial Catches (t)	Recreational Catches (t)	Commercial Catches (t)	Recreational Catches (t)	Commercial Catches (t)	Recreational Catches (t)	Commercial Catches (t)	Recreational Catches (t)	
Bass	560	246	443	272	432	146	415	343	463	252	35
Cod	23979	1631	26843	1591	25472	1419	20848	1227	24286	1371	5
Flounder	47	24	82	50	78	45	70	40	86	40	32
Mackerel	228237	2405	240106	2498	205088	2209	163242	2060	209168	2293	1
Pollack	2044	1220	1666	1754	1567	1249	1395	915	1668	1285	44
Plaice	20635	252	17087	203	12068	216	9733	137	14881	202	1.3
Dab	440	60	437	57	448	43	455	44	445	51	10.3
Coalfish	16560	208	15338	164	21858	170	18619	165	18094	177	0.9
Dover Sole	2481	29	2219	42	2266	31	2807	33	2443	34	1.4
Whiting	10690	448	10167	515	11339	368	12819	325	11254	414	3.5

Social Responsibility

It is essential to recognise that recreational fisheries do not operate within a vacuum. The number of participants in recreational angling is numerous and widespread, such that if their actions are responsible, they have the potential to be a critical voice for conservation and serve as a significant force for good in the Anthropocene (Cooke et al., 2019).

In the recreational sector, the notion of responsibility includes all actions that contribute to supporting and promoting the sector. The FAO (2012) states that users of living aquatic resources should conserve aquatic ecosystems and that the right to fish carries with it the obligation to do so in a responsible manner to ensure effective conservation and management of the living aquatic resources. Albeit, the notion of responsibility extends well beyond the actual act of fishing but includes the collective actions of individuals (anglers, industry, decision-makers).

For anglers, this can mean increasing personal awareness and environmental conscience about when, where and how to fish and, more broadly, how to support healthy aquatic ecosystems and the continued provision of ecosystem services (Arlinghaus et al., 2017; Danylchuk et al., 2017, 2018). Human behaviour is a crucial source of uncertainty in fisheries management (Fulton et al., 2011). Outreach and education on fish welfare, for example, would support the sector's social responsibility. A unifying characteristic of responsible actions is that they contribute to sustainability. Social responsibility would serve the recreational fishing sector well if we could collectively work towards sustainable recreational fisheries through the individual's responsibility.

Environmental Influences

Climate change is projected to affect the marine and coastal environment through rising sea levels, increased sea temperatures, changes in salinity, pH and oxygen, and changes in the frequency and magnitude of wind, rainfall, waves, storms and currents, with subsequent changes in turbidity levels (IPCC, 2013). As a result, climate change is anticipated to affect recreational fishing in many ways, creating opportunities and challenges (Townhill et al., 2019).

Rising temperatures or changes in storms and waves are expected to impact the availability of fish to recreational fishers through changes in recruitment, growth and survival (Townhill et al., 2019). Shifts in distribution are also expected, affecting the location anglers can catch the target species. Climate change also threatens the safety of fishing. The effects of climate change on recreational fishing are only starting to be considered, despite the Intergovernmental Panel on Climate Change (IPCC) recognising as early as 1997 that climate change could impact this activity (IPCC, 1997).

Currently, in the UK, the most species caught by marine recreational fishers by weight are Atlantic cod, Atlantic mackerel, lesser spotted dogfish, European seabass and whiting (Armstrong et al., 2013; Table 1). Climate-induced changes in distribution may impact the potential for recreational fishers to target their traditionally caught species (Townhill et al., 2019; Table 1). Cod is significantly affected. For example, a significant northern shift in North Sea cod stocks has been observed as the temperature has increased in recent decades (Engelhard, Righton and Pinnegar, 2014).

Warm-adapted species may be more available to recreational fishers than in the last century because of recent warming (Townhill et al., 2019). Overall, most of the seas around the UK have a higher abundance of warm-affinity fish with past warming with regional variations (Simpson et al., 2011). If these trends continue, there may be a higher abundance of fish overall for recreational anglers, but not necessarily the traditionally caught species, presenting new socio-economic opportunities and challenges for the sea angling community.

FUTURE RESEARCH ABOUT ECONOMIC IMPACTS OF MARINE RECREATIONAL FISHERIES

Economic and participation evaluations of the recreational sea angling sector have been mainly carried out on a national scale, such as through the biannual Sea Angling Review. However, to maximise the effectiveness of fisheries management, fisheries managers must have an equivalent understanding of recreational exploitation to commercial exploitation. Fisheries management of the UK's inshore waters largely falls within the regional Inshore Fisheries and Conservation Authorities (IFCAs) domain. As this is where the overwhelming majority of recreational sea angling activity takes place, it is essential that in the same way as managers can access commercial data for their regions down to a port-by-port basis, they also have economic and employment data for recreational angling in their districts. Under Section 153 of the Marine and Coastal Access Act, the IFCAs are required to "balance the needs of all stakeholders". To ensure decisions are evidence-based, equivalent evidence is needed in both sectors.

Marine Protected Areas

Changes to fishing site availability have been proven to contribute to angler dissatisfaction (Birdsong et al., 2021). Where local information is absent, fisheries managers need to ensure access is maintained through controlling crowding, improving catch and the size of fish within the stock, and collaborating with the local angling community to avoid issues that may arise from dissatisfied anglers (Birdsong et al., 2021). There is an increased need for high-quality social science throughout the MPA planning, designation and monitoring process to assess the effectiveness of the MPA on multiple stakeholders and to maximise the resultant socio-economic benefits and stakeholder engagement.

Marine protected areas are a proven tool for improving fish stocks and habitat quality by protecting them from damaging activities such as commercial bottom trawling. Recreational angling activities can benefit from the implementation of marine protected areas but site designations should be carefully considered in light of both ecological and socio-economic impact, especially where angling activity is potentially displaced and both mitigation measures and co-management opportunities should be included within governance and management.

Case Study: Lyme Bay MPA

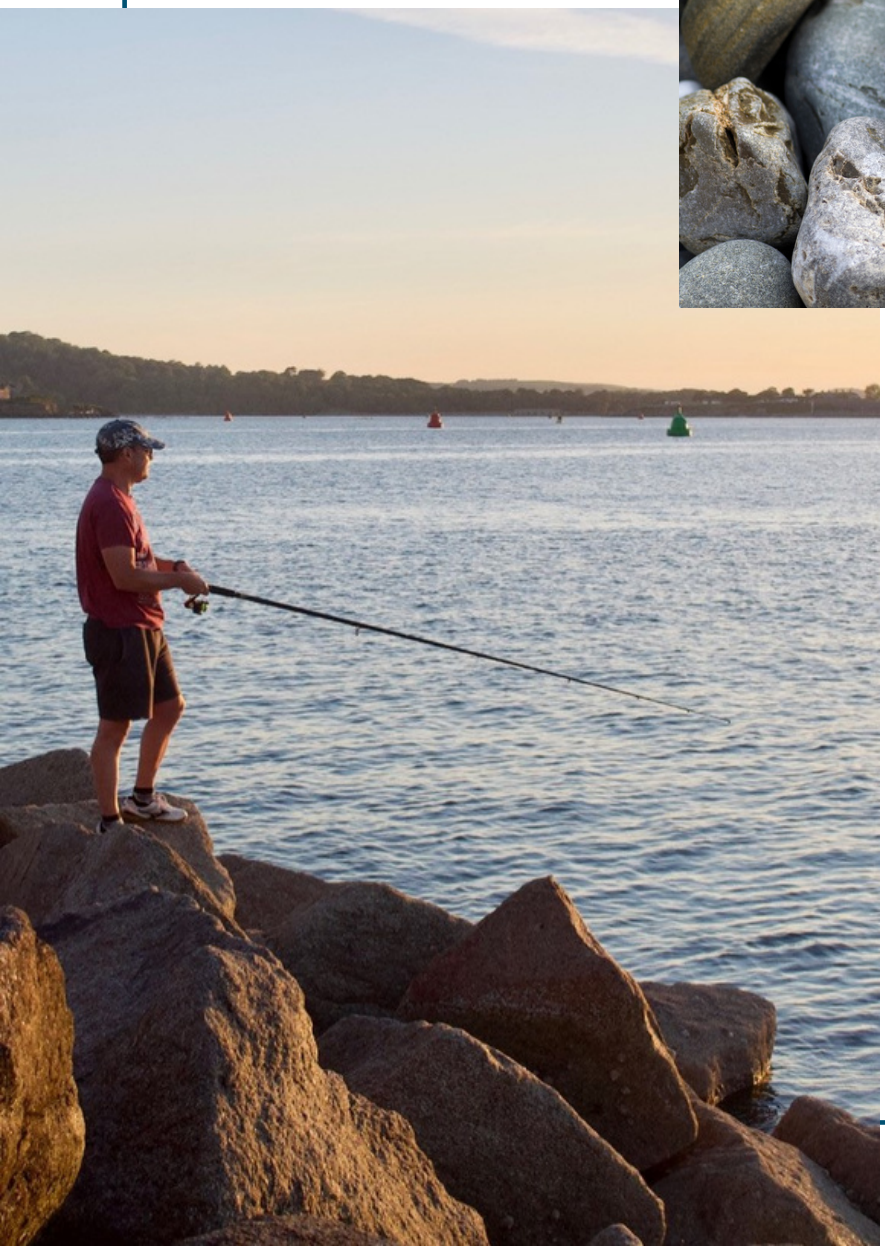
A survey conducted between 2008-2011 on the effectiveness of the designated Lyme Bay MPA in the South-West of England demonstrated a spatial shift in angling activity. Both charter boat operations and sea angling activity declined at sites outside the MPA and increased at locations within the MPA, with charters and angling reporting the presence of the MPA had a positive impact on their business (Rees et al., 2015).

Opportunities for Recreational Sea Angling: Bass

In recent years bass stocks have extended their range, and viable bass angling is now available up and down the east coast for much of the year. The management of bass has led to the sometimes very public acrimony between the commercial and recreational sectors—the minimum landing size debacle over four decades contributed significantly to the polarisation of opinions.

The recreational bass fishery in England has not been valued yet as a standalone sector; however, we can get some impression of the importance of bass to the recreational sector by looking at research into the number of bass anglers during 1990 to 1992, and the more recent work assessing the expenditure of recreational sea anglers. The National Survey of Bass Angling (NSBA) was conducted by Cefas and Cemare in 1987-1992 and found that 300,000 in 1987 bass anglers in England and Wales had increased to 361,000 by 1992.

Sea Angling 2012 estimated expenditure by 840,000 English sea anglers to be £1.23 billion. If just 20% of this expenditure (and it may be considerably more) took place by anglers targeting bass, angler expenditure for bass would be £246 m. In January 2015, Fishing News reported the UK Fisheries Minister as stating the recreational bass fishery was worth £200 m. Ireland valued their recreational bass fishery at £72 m, of which the domestic proportion was £31m. The Irish population (inc. NI) is around 6.8 million, whilst England is 56 million. Proportionally, if expenditure profiles are similar, the English recreational bass fishery would be valued in the order of £240 m.



CONCLUSION

There exists many knowledge gaps surrounding marine recreational fisheries. As legitimate stakeholders in fisheries management under the newly appointed Fisheries Act 2020, and subsequent Joint Fisheries Statement, it is vital that the existing known socio-economic contribution the sector makes to the nation is recognised and steps are put in place to both widen the understanding of its value and mitigate the risks to that value.

Our ambition is that the Government will adopt a series of goals that maximise the long-term socio-economic benefits to UK coastal communities derived from our fisheries. This will include, but not be limited to:

- Improvement of recreationally important fish stocks, including species-specific fisheries management plans and through extensive stock strategies
- ·Recognition of the socio-economic value of recreational sea angling to the national economy and society by Government
- ·Investment into sea angling access and facilities at key sea angling locations, particularly within marginalised and socio-economically deprived coastal communities
- ·Reform of inshore fisheries management such as heightened enforcement and monitoring, and a reorganisation of the IFCAs, to achieve our collective goals
- Increased engagement between Government bodies and the sea angling community to improve the reliability of data collection and political interpretation of sea angling. The value of recreational sea angling socio-economically is often overlooked and undermined by fisheries managers due to interests within the commercial sector. It is paramount that confidence in the recreational angling community and the Government is embraced for robust fisheries management.
- Building the image of sea anglers as environmental stewards and critical stakeholders in improved marine management for healthier seas

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