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- [Capacity shortfalls hinder the performance of MPAs globally](#)

Thursday, 20 April 2017 at 1pm US EDT /
10am US PDT / 5pm UTC

- [The SeaSketch Platform: Tools for Decision-Support and Managing Public Processes](#)

Tuesday, 25 April 2017 at 2pm US EDT /
11am US PDT / 6pm UTC

- [Using the Ocean Health Index as an Integrated Tool for Implementing EBM and Coastal Management Approaches Globally](#)

Tuesday, 2 May 2017 at 1pm US EDT /
10am US PDT / 5pm UTC

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If you have any questions or suggestions for MPA News, or if you just want to say hello, please contact me any time at mpanews@u.washington.edu. Best wishes for your work!



John Davis, Editor, MPA News

New study finds MPA effectiveness is greatest where there is adequate staff and funding

A new study by a global team of researchers has determined that MPA effectiveness — as measured by higher fish biomass compared to non-MPA sites — is generally greatest in MPAs that have adequate staff and budget to carry out their management duties.

For MPA managers reading this, that might not seem much of a surprise. After all, without adequate staff and funds, it becomes more difficult for MPA managers to do their work. Indeed, one might expect understaffed and underfunded sites to have poorer ecological results.

But the finding varies from that of a landmark study on MPA effectiveness in 2014. That study, led by Graham Edgar of the University of Tasmania, found that effectiveness [correlated best with a set of five criteria](#): the most effective sites were no-take, well-enforced, more than 10 years old, large in area (>100 km²), and isolated from fished areas. These became known as the NEOLI criteria (for No-take, Enforced, Old, Large, and Isolated).

The new study does account for the NEOLI criteria but finds, for its sample of MPAs, that the criteria do not correlate as strongly with effectiveness as having adequate staff and

funding. (As covered below, the two studies were structured differently and had different data sets, explaining some of the apparent divergence in findings.) The finding suggests that even MPAs that do not meet the NEOLI criteria — such as small, inshore, and multiple-use sites — may still achieve ecological success if staffed and funded sufficiently.

Increases in biomass were three times greater

David Gill, a post-doctoral fellow supported by the [National Environmental Synthesis Center \(SESYNC\)](#) and the [Luc Hoffmann Institute](#), led the new study, which [appears in the journal Nature](#). “We set out to understand how well marine protected areas are performing and why some perform better than others,” he says. “What we found was that while most MPAs increased fish populations, including MPAs that allow some fishing activity, these increases were far greater in MPAs with adequate staff and budget.”

Gill's team analyzed a set of 433 MPAs with management data, 218 MPAs with ecological data, and 62 MPAs with both. The management data were gathered

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from three families of MPA management self-assessment tools: the Management Effectiveness Tracking Tool (METT), the World Bank MPA Score Card, and the NOAA Coral Reef Conservation Program's MPA Management Assessment Checklist. (Under METT, for example, respondents rate the adequacy of staff capacity on a three-tier scale — from “There are no staff” to “Staff numbers are inadequate” to “Staff numbers are adequate.” For more details on defining *adequate* in the study, see the study's [supplementary information](#).) The fish biomass data were gathered from various marine researchers and a recent meta-analysis of scientific literature, and compared biomass inside each MPA to non-MPA sites (outside the MPA and/or before MPA establishment).

Fish biomass increased in 71% of the sites with ecological data. In the 62 MPAs with both ecological and management data, the level of biomass increase correlated strongly with the sites' management. Where there was adequate staffing, increases in biomass were nearly three times greater than those without adequate staffing.

Unfortunately, only 35% of MPAs reported having enough funding for management activities. Just 9% reported adequate staff to manage the MPA.

The findings suggest that effective MPAs are not just dependent on environmental conditions or MPA features but are also heavily dependent on available capacity. “These results highlight the potential for an infusion of resources and staff at MPAs to enhance MPA management and ensure that MPAs realize their full potential,” said Helen Fox of the National Geographic Society, who was a co-author on the study. “The good news is that this is a solvable problem. MPAs perform better when they have enough staff and an adequate budget.”

Comparison to the NEOLI results

Although the new Gill study and 2014 Edgar study both examined MPA effectiveness, they were structured quite differently. The Edgar study, with a sample size of 87 MPAs, focused on five aspects: (1) degree of fishing permitted within MPAs; (2) level of enforcement; (3) MPA age; (4) MPA size; and (5) presence of continuous habitat allowing unconstrained movement of fish across MPA boundaries.

Gill's study, in contrast, looked more closely at management, subdividing it into 10 indicators of effectiveness and equity. These included whether each site had adequate staff capacity, adequate budget capacity, acceptable enforcement capacity, appropriate regulations in place, and clearly defined boundaries, among other measures. “For our sample of MPAs, there were other factors that were more important [than the NEOLI criteria] when we disentangled ‘management’ into various components,” says Gill.

The study represents a fresh look into what makes some MPAs more effective than others. “Gill *et al.* provide a new perspective by focusing squarely on the role of people in MPA effectiveness,” writes Boris Worm of Dalhousie University [in a commentary](#) that accompanies the study in *Nature*. “[The study] provides a timely warning that rapid expansion of protected areas by itself will not provide desired outcomes if there are large shortfalls in our capacity to manage, monitor, and finance those areas.”

The study “Capacity shortfalls hinder the performance of marine protected areas globally” by Gill *et al.* is available at <http://rdcu.be/qi2N>. 

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To comment on this article:

<https://www.openchannels.org/node/17175>

Webinar, 20 April: Capacity shortfalls hinder the performance of MPAs globally

Time: 1pm US EDT / 10am US PDT / 5pm UTC

In this webinar, David Gill of Conservation International will present his *Nature* study findings that are described in the adjoining article. The webinar is co-sponsored by MPA News, the NOAA National MPA Center, and the EBM Tools Network. To register, [click here](#).

Takeaways from the Gill *et al.* study

- Most MPAs are delivering increases in fish biomass.
- The magnitude of that delivery is highly dependent on staff and budget.
- There are few MPAs with adequate staff and budget.
- There is an opportunity to boost MPA performance with investments in staff and budget capacity. Conversely, there is risk of diluting MPA performance if the MPA field continues to expand without necessary investments in capacity.

Perspective: What does Brexit mean for UK MPAs?

By Jean-Luc Solandt, Bryce Stewart, and Alice Puritz

Brexit may be the single biggest constitutional change that will happen to the UK in its history. The UK government and civil service are still coming to terms with the process of change, the complexity of developing new laws, and the new political horizon of working with our European partners once the UK exits the EU.

The environment and MPAs are also in line for change. Indeed, what will become of the UK's MPA network when over 50% of our sites were set up under EU laws? Designation of the UK's first large, significant MPAs started because of EU laws drawn from the Bern Convention, an international treaty on protecting wildlife. These EU laws resulted in Special Areas of Conservation (SACs) for fauna and flora in the UK under the [EU Habitats Directive](#), and Special Protection Areas (SPAs) for birds under the [EU Birds Directive](#). In the marine area, these SACs and SPAs are known collectively as European Marine Sites, or EMSs.

How might Brexit affect the UK's MPAs?

Two things the UK could do with its EMSs are de-designation (ending the sites' status as protected areas) or re-designation (changing them to another type of MPA).

Civil servants in the marine program of the UK's Department for Environment, Food and Rural Affairs (Defra) have said in public fora that they do not want to de-designate sites set up under EU laws. These individuals want to ensure this key element of the MPA network remains in place. European Marine Sites currently cover over 12% of UK seas, so losing these sites would be catastrophic for our country's MPA network. These MPAs are also designated in areas of the most important habitats and species for European biodiversity and wildlife, which are also nationally important. So we believe their continued protection should be given the highest priority going forward.

The UK government has designated 50 Marine Conservation Zones (MCZs) since 2013 under the *Marine and Coastal Access Act* to protect additional nationally important species and habitats not already protected by European sites. However, the laws governing MCZs are weaker than those for EMSs. EMS legislation, for example, places protected areas where there are the most outstanding examples of EU importance, regardless of the presence of current or potential business interests. MCZs do not have that same siting requirement. And regulations to protect EMSs from damaging activities — including that developers, fishers, and heavy industries need to show their activities will not have adverse effects on the sites before being allowed to proceed — are more restrictive than those for MCZs. (Indeed, there is pressure from some commercial groups now to repeal or amend the UK law that transposes key EU environmental legislation into UK domestic legisla-

tion — which could weaken the relatively strong protections for the UK's EMS sites.)

So what would this mean for EMSs? One possibility is that they would *all* be changed into UK sites (MCZs). Given the weaker protections for MCZs, we would be strongly opposed to this approach. On the contrary, we recommend that once the UK leaves the EU, we not only keep EMSs as protected areas under UK law but also enhance the current legal protections for MCZs — making them equivalent to the legal protections currently afforded to EMSs. This would favour environmental protection.

What would losing EU MPAs mean for stakeholders?

The most significant recent progress in UK MPAs has been the ['revised approach'](#) to fisheries management in EMSs, initiated in 2012. This significant policy change, and subsequent development of management measures, has resulted in over 40 local laws in England and Scotland to ban or restrict trawling and dredging from a large number of coastal EMSs (over 45 sites; about 6000 km² of our seas).

These measures could be under threat for two reasons when we leave the EU: (1) as mentioned above, some commercial stakeholders are calling for the UK legislation that implements EU law to be repealed or amended; and (2) if this happens, the work that has been invested by regulators, fishers, environmentalists, and central government since 2012 to develop these MPA management measures, and the local laws that implement them, could also be lost. This would be a tragedy for UK marine conservation and well-managed inshore fisheries.

If the government wanted to get rid of EMSs, what challenge could be made by civil society?

With the UK as an EU Member State, protection of key conservation features within EMSs has so far been upheld by the powerful 'stick' of the EU court of justice (ECJ). ECJ fines Member States that have allowed sites to be damaged. Fines of 10s of thousands of pounds *per day* have been enough to result in rapid protection measures for places like Strangford Lough in Northern Ireland. The ECJ has also previously ruled on failings by the UK and other Member States to both designate EMSs and enact adequate protection measures for them. Such fines tend to focus minds of regulators and governments.

After the UK's formal exit from the EU (likely to be April 2019), there will be no recourse to an EU court for matters regarding failure of the UK to protect our European MPAs. These cases have often been initiated by civil society groups (e.g., NGOs) informing the European Commission

Editor's note:

Last year, MPA News published [a brief article](#) on how the UK's Brexit vote in June 2016 — in which citizens chose for the country to exit the European Union — might impact the country's marine protected areas. The perspective piece below offers deeper insights on the potential future for UK MPAs. It also demonstrates how change in national governance can cause an array of follow-on impacts on protected areas.

[Jean-Luc Solandt](#) is Principal Specialist, MPAs, for the UK Marine Conservation Society. [Bryce Stewart](#) is a Lecturer in the Environment Department at the University of York (UK). [Alice Puritz](#) is a lawyer with ClientEarth, an NGO that applies legal expertise to conservation issues.

of breaches to protection measures within sites. Subsequent threats of legal action and large fines have pushed the designation of sites and management measures.

How is the full network of UK MPAs progressing?

There has been a delay in designating a third and final tranche of domestic MCZs in UK waters (of up to a further 50 sites) whilst the UK Government absorbs the implications of Brexit. Defra is one of the smallest UK government departments yet has the most legislation to consider for keeping or changing under Brexit. So there is a great deal of pressure on the civil service to come up with a Brexit plan whilst also including consideration of a further round of MCZs. UK government will develop a 'Great Repeal Bill' that should immediately transfer and retain UK laws derived from EU legislation when we leave in April 2019, including EU-derived MPA legislation. Fisheries are a much bigger political and constitutional headache for Defra in terms of agreeing to future sharing of quotas, and access of foreign fleets to the UK EEZ.

Given past access of foreign fishers to UK offshore waters, what will happen to MPAs beyond territorial waters but within the UK EEZ?

A negotiation will need to be undertaken — not only with the EU as an entity but with other Member States individually. In theory, all options are on the table. The UK could potentially exclude all EU boats from our offshore MPAs or

even from the UK EEZ altogether. However, such a move seems unlikely given it would threaten trading arrangements with the EU, which are vital to the UK economy. In contrast, there appears to be a stronger chance of foreign fishers being excluded from the UK 6-12nm zone, where they have had historical access rights under the [London Convention](#) (a fisheries agreement that pre-dates the EU). In some cases, this has led to huge trawlers fishing in the same grounds as small (<10 m) UK inshore fishing boats.

If Scotland leaves the UK but stays in the EU, what would this mean for UK MPAs?

The Scottish First Minister, Nicola Sturgeon, has indicated her desire for a second referendum on Scottish independence, largely so that Scotland can stay in the EU. Should this come to pass then Scotland would obviously retain its EMSs and continue to implement its national MPA network, in which fishing is being increasingly well managed. While this situation may appear to therefore consolidate the UK MPA network overall, it would leave the rest of the UK increasingly isolated in negotiations with Europe over fisheries and access to offshore MPAs. 

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To comment on this article:

<https://www.openchannels.org/node/17176>

Planning an MPA system in Myanmar: Interview with Phil Dearden

The Southeast Asian nation of Myanmar officially emerged from military rule and geopolitical isolation in 2011. A civilian government now holds power, and the nation — home to more than 100 ethnic groups — is reopening itself to the world. Part of this reopening is in the realm of marine conservation: the government is partnering with international NGOs and experts to plan a system of MPAs in the nation's Myeik Archipelago.

Phil Dearden is involved in the planning effort. Dearden leads the Marine Protected Areas Research Group at the University of Victoria (Canada) and has conducted extensive research in SE Asia, primarily Thailand. MPA News spoke with him about the Myanmar planning process and the array of challenges facing the nation as it builds an MPA system.

MPA News: You have been working on MPAs in Thailand for many years. What made you switch attention to Myanmar?

Phil Dearden: Although I had dived in Myanmar in the 1990s — when there were so many sharks in its waters — my recent interest in the nation crystalized following extensive coral bleaching on the Andaman coast in neighboring Thailand in 2010. One of my Ph.D. students, Petch Manopawitr, was looking at creating more resilient MPA networks in Thailand and found that much of the recovery process depended upon re-colonization from reefs farther north in Myanmar. He began documenting some of these stepping-stones and also invited me to join an IUCN-sponsored research cruise up through the Myeik Archipelago (MA), off Myanmar's far south coast.

On that cruise I was both amazed and shocked at what I saw. There was a complete absence of sharks and almost all large fish, lots of illegal fishing damage, and unsustainable fishing practices. Yet there were still some standout features — reefs, mangroves, seagrass — in a thinly populated and very undeveloped area. The MA contains some 800 islands, the vast majority of which are unpopulated,

absolutely outstanding places, but with very rapid deterioration taking place from overfishing and illegal fishing.

What is being done about the deteriorated marine environment in the area?

Dearden: Three locally managed marine areas (LMMAs) — each of them multiple-use with community-sanctioned no-take zones — have just been established in the MA under the guidance of Fauna & Flora International (FFI), an NGO. Furthermore we are working toward the designation of an MPA network, an ecosystem-based fisheries regime, and improved co-operation with the Myanmar navy on enforcement. The Government is very keen on this and several NGOs are assisting, especially FFI. Funding for the planning by NGOs is coming from multiple sources, including the EU and private foundations.

Myanmar is a very different country than it was five years ago when it first changed governments. It is much more accepting of outside advice now. The Government realizes the need for improved conservation. In fact nearly everyone does, ranging from individual fishing communities through to the Myanmar Fisheries Federation and the Navy. There is also a new air of consultation and community involvement. FFI, for example, undertook extensive community consultation for the LMMA establishment. That consultation is now being expanded to examine the potential MPA development.

What are the main challenges so far?

Dearden: There are many, including limited enforcement capabilities, outdated legislation, and an absence of policy. There were very few spatial data available on marine ecosystems. FFI has trained a Myanmar dive team to undertake reef monitoring and has sponsored field studies, including inventories of coral, fish, seagrass, and birds. These studies have helped significantly: we can now identify and map priority areas for conservation. We have found these maps to be a tremendous help in community consultations, where villagers readily volunteer additional information.

What about the social environment?

Dearden: Our greatest challenge, I think. Although there is widespread acceptance of the need for improved conservation, there is a very diverse population (much of it newly emigrated to take advantage of the resources on the Islands), widespread poverty, and virtually no enforcement.

A particular challenge is incorporation of the views and interests of the indigenous Moken (or Sea Gypsy) population. Traditional hunter-gatherers of the Andaman coast, the Moken have different outlooks on life than other cultures, and much lower literacy rates, socio-economic status, and interest in getting involved in marine use decision-making, including MPAs. However, their culture is in the process of changing — going from a boat-based, mobile culture less than 20 years ago to some permanent settlements and increased inter-marriage with other ethnic groups. There are some things that cannot be rushed, and building good

and respectful relations with the Moken to get them “inside” rather than “outside” the conservation tent is one of them.

There are also several Karen communities — another ethnic group — on the MA islands, who moved there from highland areas having grown disenchanted with continual warfare with the central government since 1948. They are very capable and adaptable people. Unfortunately they have adapted to reef compressor fishing and are taking a terrific toll on parrotfish, which are so necessary for maintaining healthy reefs.

What can be done to address these various social challenges?

Dearden: Helping develop sustainable livelihoods is a high priority, and the sooner the better. In addition to seeking more sustainable and value-added fisheries, and developing sustainable aquaculture, tourism is the word on many people’s lips. Across the border in Thailand, millions of visitors flock to the MPAs on the Andaman coast each year, generating the equivalent of millions of dollars for the Thai Government, businesses, and some local communities. In my opinion, the Myanmar coast is equally if not more spectacular than the Thai coast.

Tourism to Myanmar is still just a small fraction of Thailand’s tourism but is expected to continue to grow. Can you build that consideration into MPA planning in Myanmar?

Dearden: The Thai parks are full and many are highly impacted by tourism. Ideally Myanmar will manage tourism development that reaps benefits for local communities and conservation without suffering the negative impacts seen in Thailand. This will take very careful planning, implementation, and management in a country where resources, experience, and capacities are limited. The NGOs are assisting the Government in its efforts in this regard. To some extent it is a race against time. We are seeking to reverse the current destructive marine trends, build sustainable livelihoods, empower communities, and enact good management systems before the additional pressures of large-scale tourism come. Only time will tell. 

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Notes & News

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Deadline for IMPAC4 submissions has been extended to 15 May (amended)

The [Fourth International Marine Protected Areas Congress](#) (IMPAC4) will be held 4-8 September 2017 in La Serena-Coquimbo, Chile. The deadline for all submissions is 15 May. This includes submissions of presentations, symposia, workshops, and knowledge cafes. So if you are planning to present at the conference or host an event, get your submissions in soon. (**Note:** When this news brief was first published in mid-April, the submissions deadline was 20 April. That deadline has since been extended to 15 May. The text above has been amended accordingly.)

MPA Science Corner

Recent open-access articles on MPA-related science and policy

• **Article:** "[An adaptable toolkit to assess commercial fishery costs and benefits related to marine protected area network design](#)", *F1000Research* 4, 1234, Version 2 (2017)

Finding: In modeling MPA networks as a fisheries management tool, the networks that both protected the habitat of the target species (Atlantic cod) and were spatially optimized to improve population connectivity were the most profitable for the fishing industry. The higher profits were achieved primarily by reducing the distance travelled for fishing and reducing the probability of a moratorium event (i.e., a fishery closure triggered when fish populations become too low).

• **Article:** "[Navigating the seascape of ocean management: waypoints on the voyage toward sustainable use](#)", *OpenChannels* (2017)

Finding: This 56-page paper provides a history of ocean management, its conceptual foundation, frameworks for modern management, and examples of its application at different scales, including the important role of MPAs.

• **Article:** "[Size, age, and habitat determine effectiveness of Palau's Marine Protected Areas](#)", *PLOS ONE* 12, e0174787 (2017)

Finding: This study of Palau's MPA network found no-take MPAs had, on average, nearly twice the biomass of target fishes — and five-fold greater biomass of piscivorous (fish-eating) fishes — compared to nearby unprotected areas. The most important determinants of no-take MPA success in increasing fish biomass were MPA size and years of protection.

For a free, weekly list of the latest publications on ocean planning and management, including MPAs, [subscribe to the OpenChannels Literature Update here](#).

Survey on economic benefits of MPAs to the blue economy

An EU-funded project is conducting a survey of MPA practitioners and maritime industries (fisheries, tourism, offshore energy, etc.) to examine the economic benefits or challenges of MPAs to the blue economy. If you would like to participate, [please click here](#) – it should take no more than 15 minutes to complete. Plymouth Marine Laboratory is conducting the survey. If you have any questions or would like to find out more about this survey and its outcomes, please contact Stefanie Broszeit at stbr@pml.ac.uk.

Cook Islands bans commercial fishing in 50-nm zones around islands

In March, the South Pacific nation of the Cook Islands [officially designated](#) a 50-nm buffer zone around its islands in which all commercial fishing is now off-limits. All together, the buffer zones total an area of more than 300,000 km². Prior to the move, longline fishing had been allowed in waters beyond 12 nm of the islands, and purse seining had been allowed in waters beyond 24 nm. Prime Minister Henry Puna said the expanded no-commercial-fishing zone would help ensure food security and reduce conflicts between fishing boats and whales. The Cook Islands Cabinet agreed to the 50-nm buffer zone [back in 2014](#) but the Ministry of Marine Resources did not put it into effect until this year.

The buffer zone will eventually be part of Marae Moana, a proposed multiple-use MPA that has been under planning since 2012. When officially designated, Marae Moana will [cover the entire 1.9 million-km² EEZ of the Cook Islands](#).

Report identifies significant marine sites in Arctic, calls for protection

A new report states the Arctic Ocean needs protection as rapidly melting sea ice is opening up previously inaccessible areas to shipping, trawling, and oil exploration. Produced by IUCN, the UNESCO World Heritage Centre, and the Natural Resources Defense Council, the report identifies seven globally significant marine sites in the Arctic region that warrant protection and could potentially qualify for World Heritage status. Currently there are five World Heritage sites within the Arctic Circle, but only one is listed for its marine values – Russia's Natural System of Wrangel Island Reserve. The report *Natural Marine World Heritage in the Arctic Ocean: Report of an expert workshop and review process* [is available here](#).

New guidelines on adapting protected areas to climate change

IUCN has released guidelines to help protected area practitioners adapt their sites to climate change. The guidance features five steps: (1) building a strong foundation of informed, flexible management; (2) assessing vulnerability and risk; (3) identifying and selecting adaptation options; (4) implementation; and (5) monitoring and adjustment. It also features 14 case studies and an array of best practices. The 152-page report *Adapting to Climate Change* is available [here](#).

Paper: Ross Sea is not technically an MPA

In October 2016, the member states of the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) agreed to [designate a 1.55 million-km² MPA in the remote Ross Sea](#) following [years of intergovernmental negotiations](#). Taking effect on 1 December 2017, the Ross Sea MPA will automatically expire in 35 years (the year 2052) at which point it will be up for renegotiation.

A new paper states that in accordance with [IUCN's guidelines for applying protected area categories to MPAs](#), the Ross Sea area – due to its temporary protected status – should not technically be considered an MPA. The IUCN guidelines consider protected areas to be sites managed “to achieve the long-term conservation of nature” – in other words, protected in perpetuity rather than as a short-term or temporary management strategy. The paper “[Correct application of the IUCN protected area management categories to the CCAMLR Convention Area](#)” was co-authored by Rob Nicoll of the Antarctic and Southern Ocean Coalition and Jon Day of the ARC Centre of Excellence for Coral Reef Studies at James Cook University. 

From the MPA News vault: Features and news items from yesteryear

Five years ago: [March-April 2012](#)

- The MPA Math: How to Reach the 10% Target for Global MPA Coverage
- MPA Perspective: Key Lessons Learned in the Management of MPAs and Marine Natural Resources

Ten years ago: [April 2007](#)

- UK Launches Proposals to Plan Nation's Waters, Create Network of MPAs
- MPA Perspective: Developing Capacity-Building Programs to Meet the Needs of Regional MPAs

Fifteen years ago: [April 2002](#)

- Stretching Your MPA Budget: How to Do More with Less Funding
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