12

Recruiting staff and procuring equipment

It had taken 18 months to get the donors to sign up for the programme, but once they signed, they were very prompt with their payments. They had clearly all been prepared to pay once one of them showed some initiative, as New Zealand had done. Being mindful of the administrative load of handling the finances, the recruitment of the necessary staff and the procurement of the variety of equipment that would be needed, including the research vessel, the most urgent need was to get myself a secretary (yes, people who took shorthand and performed all of the duties of a personal assistant, or office manager, were still called secretaries in 1977).

I had had plenty of time to develop a well-reviewed list of urgent issues. I now had to address them in priority order. Finding the right boat to charter was high on my list. Making sure I had 10,000 tags immediately and more to follow was also close to the top. Getting staff with excellent analytical capabilities was perhaps less urgent, but certainly no less important. But first, I needed a secretary to help me get the pursuit of all these components underway and then well managed. I had a lot of administrative work ahead of me; I certainly needed help.

In anticipation of this event, for the previous few months, I had been assessing the work of the numerous clerical workers in the commission's typing pool. I had been carefully noting the quality of the work each one did for me and taking the opportunity to have a friendly chat with each of them about their work at coffee breaks. I had made my choice. But I now needed to find a way to convince her to work for me, and for me to get the commission to allow this to happen. It was, after all, the commission's

typing pool I was about to selectively pilfer. I thought I needed to first make sure I could simply offer her a job. I was not going to the director of programmes to seek approval, so I went to have a chat with the finance officer, Ivan Boyd.

I was most pleased with my discussion with Ivan. In fact, I was amazed. The commission had not contributed one cent towards my salary over the last year and a half, even when I had been desperate, but Ivan's response when I told him that I wanted to appoint one of the typists from the pool as my secretary, on salary from Skipjack Programme funds, showed no lack of support. He simply said, 'No problem. Just ask her to come and see me, and I will change her duty statement and adjust her salary'. Then our discussion became even more surreal: he said that he thought it was not unreasonable that her salary should continue to be paid by the commission. And he would arrange for that to happen. I was speechless. He knew I had more than enough money to pay her salary out of Skipjack Programme funds.

I was never certain that I understood the full reason for this sudden attack of generosity, but I did have a strong feeling that it could only have been a personal decision by the secretary general. I assumed to make amends, once he realised how badly he had been misled by his director of programmes, over the move to advertise my position. He had been made abundantly aware that the donors to the Skipjack Programme were not at all amused by this proposed action. And they were the same donors providing the bulk of the funding for the commission's core budget. I believed that he felt an urgent need to mend some bridges. I had always liked Macu Salato and had previously thought we had a good relationship. I hoped that paying my secretary's salary might also have been his way of attempting to get that relationship back on track.

Beginning in the next couple of months, I experienced a progressive warming in the commission's attitude toward the Skipjack Programme. This attitude took a huge step forward when the incumbent director of programmes, who had clearly been at least a major part of the commission's problems, left. His replacement quickly improved the feeling throughout the organisation. Then, when Young Vivian took over as secretary general, the Skipjack Programme effectively became 'the flavour of the month'. Young was a very strong promoter of it, as depicted in the photograph of him presenting a Skipjack Programme t-shirt (normally reserved for individuals who returned recaptured tags) to the prime minister of Aotearoa New Zealand (Figure 2).

The change in attitude to me as programme coordinator progressed over the term of the programme and was perhaps most obviously confirmed, in the longer term, by the South Pacific Conference creating a special classification of my position above that of other SPC programme staff. Perhaps I had even become 'somebody really good'? (see Chapter 11).

Immediately after my seminal meeting with Ivan Boyd, I went straight to the typing pool and asked Carol Moulin if she would accompany me to my office to discuss the possibility that she might work for me on a full-time basis. She promptly agreed.

Back in my office, I told her that, subject to one condition, I would like to offer her a job as my secretary. In our brief discussions at coffee breaks, I had already confirmed that she took shorthand, but I never had the opportunity to assess it, and my offer was conditional on her shorthand being of an acceptable standard. She agreed to a quick test, which was all that was necessary to very comprehensively confirm that her shorthand was excellent. She had another attribute that was particularly important to me; her English and French were both excellent – she was English, and her husband was French. Her excellent French was particularly important to me, as mine was, for all intents and purposes, non-existent. Carol seemed very pleased to accept the offer. She left my office and went straight to see Ivan Boyd. She started work for me the next Monday. Carol was to give wonderful service for the whole of the Skipjack Programme and for at least as long as I stayed with the Tuna and Billfish Programme.

Once the programme became fully operational and data was accumulated at great speed, it became apparent that more office help was necessary. By May 1978, the need was such that I recruited a research/administrative assistant, Veronica van Kouwen, who not only was very efficient with manipulating piles of data and had excellent English and French but also took excellent shorthand and was thus of great help to Carol with secretarial duties. Veronica also stayed for the full length of the programme, and to this day, she, Carol and I remain close friends.

As soon as the charter arrangements were formally agreed, the next urgent personnel management issue was to recruit the person I needed to send to Japan to supervise the modifications to the research vessel I was about to charter alongside a potpourri of scientific equipment (see Chapter 13). I had already spoken to Tony Lewis about filling this role and him then staying on for at least the first month or so of fishing to help train the new

recruits in tagging, biological sampling of tuna, and baitfish identification and analysis. Tony and I had already worked together for four years in Papua New Guinea, and I had extreme confidence in his abilities and the relevance of his experience. The only other person I knew of anywhere who had similar appropriate tagging experience and tropical baitfish knowledge was my other Papua New Guinea partner, Barney Smith. If neither of my two Papua New Guinea colleagues were available, I would need to consider taking one of the 'yet to be recruited' staff to Japan and staying with him for a week or two to purchase the right equipment. This I did not want to do, as I did not have two weeks to spare at this critical stage of the programme. I admit that I was already somewhat overcommitted. My enthusiasm to finally get some skipjack tagged had clouded my judgement a little.

The good news was that Tony was most enthusiastic about the job, and he would be available by late August. He accepted a three-month contract in the first instance, but he made it clear that he would not be available for much longer than that; he had accepted a senior job in Fiji that he needed to get to.

Even though, after my very positive meeting with Ivan Boyd, I felt that my standing in the commission may be about to improve, my earlier episodes with the acting secretary general and the director of programmes, who were both still in power, had left me injured. I felt that I needed to have some people I could trust around me. People who truly believed in what the Skipjack Programme represented and wanted to help me get it done would have a big impact on my outlook on life. People with Bob Gillett's attitude would be a big help.

The next day, I rang Bob Gillett and offered him a job, I think initially as a fisheries experimental officer. He took less than five seconds to accept the offer, even before I told him what the salary would be. I asked him to take up the position as soon as possible. He was happy to pay his own airfare to Noumea and be reimbursed for it on arrival. He arrived in early August, as the first staff member, after me, to be employed on the programme's own budget.

Tony Lewis arrived in Noumea within a few days of Bob, and he departed for Japan a week later with a long shopping list and a generous budget. I was not going to skimp on essential equipment, and I trusted Tony's judgement

completely. He needed to have spare money and the authority to spend it on things that we had not thought of, but that he would see in Japan as he perused the stores that had the equipment we had anticipated.

I then recruited Jean Pierre Hallier, the fisheries officer, from New Hebrides (soon to become Vanuatu) in the middle of September. He was slated to be one of the scientists who spent a lot of time, approximately five months a year, at sea. He would also be a special assistant to me in arranging visits of the *Hatsutori Maru* to French territories. He and Bob Gillett were to evolve into being alternate cruise leaders for the whole of the sea-time when I was not on the vessel, which, after the first couple of months, was most of the time. They both did a wonderful job of it. They had different styles in dealing with people and issues, but both were very effective. We did not have a significant dispute on the research vessel during the whole three years of the programme.

The search for suitably qualified senior analysts, not surprisingly, took longer than finding more junior scientists who could be trained at sea. I spent several months making enquiries of people I knew in appropriate universities and fisheries institutions around the world. One very important such contact was Dr Peter Larkin, who was the dean of graduate studies at the University of British Columbia. He very strongly recommended Dr Pierre Kleiber. Jim Joseph made some follow-up enquiries on my behalf, such that I was able, with great confidence, to offer Pierre a position as senior fisheries analyst. He arrived in Noumea in late May 1978.

The standard of the staff we had in many quite varied jobs in the Skipjack Programme was wonderful, but Pierre's contribution was exceptional, even in a highly qualified field. The computing, data processing and analytical skills he demonstrated by turning a big pile of tag release and recapture data and catch returns from vessels of many types and nationalities into succinct assessments of the status of skipjack stocks underpinned the success of the whole programme. The pioneering analyses he and Sandy Argue developed and used completely erased the concerns I had held since I first conceived the idea of a huge-scale tagging experiment. Using techniques that they developed, it was possible to confirm that, yes, the tags were sufficiently widely and evenly spread at the time of release, and the recaptures were sufficiently numerous, well spread and well documented to use as the basis of assessment of the size of the skipjack population in the whole of the central and western Pacific. And yes, in combination with our growing

compendium of catch and effort data, they were adequate to assess the inter-relationships between fisheries in different parts of the total area (see Chapter 19).

By the middle of September, I had recruited enough scientific staff to make up a full complement to board the *Hatsutori Maru No. 1* on October 5 when it arrived in Kavieng, Papua New Guinea, to commence fishing the next day. Tony Lewis, Dr Masakazu Yao and the representative of the Japan Fisheries Agency would have boarded the vessel in Japan. The two Japanese scientists would prove most valuable in facilitating the early establishment of an excellent and enduring relationship between the scientific staff and the Japanese crew. The 13 Japanese crew were the responsibility of Hokuku Marine, as were the 15 Fijian crew, 12 of whom were always on board.

Once the frenzy of recruitment that occurred in the first few months had settled down, I was able to manage staff numbers and positions rather comfortably for the remainder of the programme. It took a little longer than anticipated to get the frenzy of procuring all of the necessary equipment under control.

I knew that I had set a very tight schedule for myself in getting the programme operational. I couldn't wait to get started on the real work – tagging skipjack – so I may have been a little optimistic. Finding a vessel and getting it chartered was essential, but so also was the procurement of the tags that were an absolute necessity for any tagging program. Without them, there was no point in having a research vessel.

The process of chartering the boat is discussed in Chapter 13, but even before a charter agreement had been signed, I had realised that the procurement of tags was not going to be as straightforward as it had been in Papua New Guinea. The supplier of the excellent tags we used in Papua New Guinea, Arthur King, had, unbeknownst to me, retired and closed his business in Newtown, Australia. I had been trying for several days to reach him by phone before I made contact; he only came into the office a day or so a week to tidy up paperwork. No, he did not have any capability to make tags for me or anybody else, for that matter. The only bit of good news was that he had given the mould for the nylon barbs, or sold it at an acorn price, to CSIRO. He also told me that Kevin Williams had bought a million barbs for CSIRO, so he might be prepared to part with 100,000 or so, at least as

a short-term contribution to solving my problem. What I now needed to do was to urgently find somebody who would make and print the streamers that were the substantive component of tuna tags.

From the time I realised the problem with the supply of tags and the commencement of the charter, I had little more than two months. It really was time for an emergency response. To say I was somewhat concerned is an understatement.

The first thing I did was call Bill Bayliff at the Inter-American Tropical Tuna Commission (IATTC).

The IATTC also had spare barb heads, but the only company of which either of us was aware that at that time made tuna tags was Floy Tag and Manufacturing. They were based in Seattle, Washington. I had had some dealings with Floy while I was in Papua New Guinea and had not been particularly impressed. But I had Arthur King as an alternative then. Things were different now. So, I called Floy.

I explained my predicament, and hence the urgency. The person to whom I spoke sounded very accommodating and said yes, they would be prepared to give priority to a run of 10,000 tags under the condition that if this first lot of tags were satisfactory, I would give Floy the business for the rest of our tag needs, which were anticipated to be at least 100,000. We then discussed the specifications that I stressed were essential. The list they accepted included that the streamer material was resistant to temperatures down to –40 degrees. This requirement was now necessary because Susume Kume, of the Japanese Far Seas Fisheries Research Laboratory, had discovered that numerous broken vinyl tags had been found in the holds of tuna boats with very cold refrigeration. The rest of the conditions I stressed were standard for all acceptable tuna tags, such as the internal and external diameter of the streamer and the quality of printing, including the numbering. Floy's condition of securing the rest of our business seemed fair to me, as it could only be invoked if the tags met my specifications and were therefore the product we wanted anyway. Surely not a lot could go wrong with the manufacture of a product that had only two parts, a vinyl streamer of 11 centimetres and a nylon barb head, neither of which was a 'movable' component.

How wrong could I be?

The first batch of tags from Floy met the timeline for delivery but failed to meet the agreed specifications on 13 separate issues, many of which were fatal:

1. The spelling of Noumea was incorrect (a critical factor, as a lot of skipjack fishermen did not know where Noumea was, even when spelled correctly).
2. The duplicate numbers were not at each end of the streamer but together near the middle.
3. The numbers and letters were not permanent; some rubbed off far too easily.
4. The outside diameter of the streamer was outside the specification to the extent that the tags would not fit the applicators.
5. The internal diameter of the streamer was outside the specifications to the extent that the barbs, already purchased, could not be made to fit.
6. The streamers were not resistant to –40 degrees.
7. The supplied barbs were too soft.
8. Bubbles of glue were common between the streamer and the barb, such that the tags could not fit into the applicators.
9. The streamer itself was too stiff and would not lie flat along the side of the fish.
10. The sealant used on the streamer did not set properly, with the result that the tags stuck together.
11. With time, the glue used to fix the barb to the streamer became brittle, making it easier for the barbs to become detached.
12. The sequential numbering was not perfect, with some numbers missing and, even worse, some numbers duplicated.
13. The alphabetic character that described each batch of tags was often so far removed from the numbers that it was difficult to tell if it was part of the number or not.

Floy immediately offered to replace this first batch of tags, but I cannot be sure that we tried again for some time. I do know that I immediately activated Emergency Plan B. I called Barney Smith, who by this time had been promoted to my earlier position of 'principal biologist' in the Papua New Guinea Department of Agriculture, Stock and Fisheries (DASF). He was now in charge of skipjack tagging. On bended knee, I asked if I could please borrow 10,000 tags, knowing that they would be Arthur

King's streamers and barb heads. Being the great friend that he was, his response was immediate: 'If we have that many, you certainly can have them'. It later transpired that the first 6,015 tagged skipjack released by the Skipjack Programme carried Papua New Guinea tags: 4,593 yellow ones and 1,422 blue ones. Regional cooperation at its best. Of course, using tags with DASF Port Moresby as the return address created some extra administrative issues, but these were nothing compared to the problem of not having any suitable tags. There may even have been a slight advantage in using Papua New Guinea tags in the early days of the programme; the tuna canneries and many tuna fishermen had experience with them from our Papua New Guinea tagging program, so they knew where to send returns. We could relatively easily retrieve them from Port Moresby.

After lengthy discussions with Bill Bayliff, we formed the opinion that the only way I was going to obtain more than 100,000 quality tags was to buy the basic ingredients and have programme staff put them together. But this would not be straightforward.

It turned out to be impossible to find extruded vinyl tubing that met the temperature specification of –40 degrees. We would have to buy bulk vinyl and have it extruded. Even this step turned out to be extremely difficult. Bill did the searching on my behalf, and he concluded that the only chemical company that manufactured yellow vinyl that met our requirements was Dow Chemicals. They were prepared to guarantee that their product in bulk form was temperature resistant to –65 degrees Celsius. But when extruded, this specification could be expected to drop to –40 tolerance. Resistance to a temperature of –40 degrees was adequate. But then there was the issue that the minimum purchase of the bulk vinyl was 1 ton.

Before we could go ahead with the purchase, we had to first find a company that was prepared to extrude this product into tubing that met our specifications for both internal and external dimensions. Bill did this in the form of Anjac Plastics Incorporated of El Monte, California. This still left the issue of having the tubing cut and printed, including the sequential numbering.

I am not sure how many miles of tubing a ton of vinyl made, but I do remember we had several spare rolls of more than a metre in diameter left over in the programme's storeroom after we finished our three years of tagging. I also know that we released 17,600 metres of plastic in the form of tags in the backs of skipjack and yellowfin tuna.

The records show that the process of purchasing bulk vinyl and having it extruded to our specifications added $19,000 to our expenses. We still had to have the tubing cut and printed. It turned out we had no choice but to get Floy Tag and Manufacturing to do both the cutting and printing.

Whether or not Floy was chastened by my revelations after their first attempt to make tags for us, I am not sure, but the first batch of printed individual numbered pieces of tubing was very good. And it continued to get even better as the batches progressed. The last 30,000 tags that were cut and numbered by Floy two years later from the Dow Chemical bulk vinyl extruded by Anjac, and with Arthur King's nylon barb heads fitted by our staff, were as good as any I had ever worked with.

The rest of the tagging equipment was relatively straightforward. Tony Lewis was getting on very well in Japan. He had the expected few problems with finding all the science bits and pieces, but in our frequent discussions, he demonstrated that he had mastered the art of working in Japan, when you do not speak the language, much faster than his boss had. He was confident that all would be ready by the time the *Hatsutori Maru* was scheduled to depart Japan for Kavieng. He was confident that the metal frames of the tagging cradles, a step up on the wooden ones we had in Papua New Guinea, would be ready to have the vinyl covers fitted and adjusted during the first days of the cruise. The metal frames were to be proven to give the tagger and the tagging assistants extra security and stability when tagging in rougher seas. The microscopes had cost more than we had anticipated, but were still within the total budget for the outfitting of the vessel.

The research Barney, Tony and I had done in Papua New Guinea had resulted in great improvements in the design of tagging cradles. Barney has advised me that much of the effort we put into developing special cradles for skipjack was a flow on from my PhD research on the comparative physiology of fish and how that related to their activity levels. Skipjack are not big tuna, but they have evolved for sustained high speed. In terms of body lengths per unit of time, they are as fast as any. Their blood and muscle chemistry reveals incredibly high levels of the respiratory pigments haemoglobin and myoglobin that give them the ability to maintain extremely high speeds for extended periods of time (see Chapter 20). But with these elevated abilities comes a vulnerability to bruise easily and to bleed at the slightest provocation. Because of their incredibly high levels of oxygen consumption, they also cannot withstand extended time out of the water. The result from a tagging perspective is that they must be handled much more gently yet

more quickly than other fish, even other tunas. We quickly learnt how much more delicate they were than even yellowfin tuna and how much more quickly they must be returned to the water. We concluded that during the tagging process, bumps and bruises must be avoided at all costs; fish with any visible damage should not be tagged, and if skipjack were out of the water for more than 10 seconds in the tagging process, they should not be returned to the water and regarded as a legitimate tagged fish.

The tagging cradles we designed and developed in Papua New Guinea were very good, but Tony Lewis and I were convinced that we could refine the design even further. One immediate change we were able to make on the *Hatsutori Maru* was to have the side of the cradles overhang the side of the boat so that tagged fish could be released by simply sliding them over the side of the cradle on the very slippery vinyl that lined all our cradles. Full details, photos and diagrams of the tagging cradles are given in Kearney and Gillett (1982).

Careful examination of the tape recordings by our scientists when tagging demonstrated that with training and practice, our scientists and the Fijian tagging assistants who handled the lines on which the fish were swung towards the cradles, individual Skipjack Programme taggers could tag and release up to 30 fish a minute when fishing was optimal.

Another astounding benefit of the tape recordings was that the exact time between the release of a tagged fish and its recapture, if it were recaptured in the same session of tagging and detected by the same tagger, could be measured to the nearest second. We had numerous skipjack recorded as recaptured six seconds after they had been released. The first time this happened, I really struggled to believe it. The explanation included that when skipjack are in a serious feeding frenzy, their behaviour becomes completely dominated by feeding. So much so that their physical attributes change. Individual fish develop temporary vertical bands that are as prominent as their horizontal stripes. Under good fishing and tagging conditions, it is very common to tag and release fish on which these bands have not begun to fade. We concluded that when such fish hit the water after being released, they are still in a frenzy and prone to grab the next food item, or lure, they see. At least one was reported to be recaptured three seconds after its timed release, but I was not certain that human error could be ruled out completely in such cases. As the lures are very close to where tagged fish re-enter the water, virtually instantaneous recaptures were common. Quite a few were recaptured within five seconds of release. This provided

further confirmation that our tagging methods, in the main, cause very little discomfort to skipjack. There is little doubt that the Skipjack Programme took the science of tuna tagging to a new level.

Speaking of the tape recorders that were a critical part of the tagging process, I digress to tell of an interesting episode. Tape recorders in the 1970s were not what they are today. The microphones on the only recorders we could get that were small enough to be worn around the neck of the taggers were about 10 centimetres long and 2 centimetres thick. I called a staff meeting to discuss how we could best make these waterproof. The best solution we could come up with was to put a condom on each one with a rubber band around the base. We knew that there would be considerable turnover in condoms, as they would frequently get damaged and punctured, including by the hooks on the jigs we used to catch the skipjack. We agreed that we would need to buy about 100 at a time to ensure that we did not run out. Sandy Argue had the responsibility of buying one batch. On his return from one of the tagging cruises, he had time to shop. He had been at sea for almost two months, so he bought presents for his three children plus 100 condoms, all of which he put in his suitcase.

On his arrival home, he gave his kids their presents and left his suitcase open on the lounge in the living room while he quickly went to his office to collect his mail. The outcome was probably inevitable. His daughter went to her mother and asked, 'Mummy, why does daddy have 100 condoms in his suitcase?' Of course, Margaret had no idea what her husband was doing with 100 condoms. A couple would be bad enough, but 100? What had been going on during these tagging cruises? Fortunately, the truth came to the rescue, and a good laugh was had by all. (I have Margaret Argue's approval to publicise this episode. In her enthusiastic response to my request, she said, 'I still find it hilarious'.)

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