

## **Integrated Marine Postdoc Network (IMAP) – Strategy paper 2014: Integration of IMAP and its aims into KAIMS**

### **1 Setting the Scene**

Postdocs are an important part of the German research capability. They are typically well trained, highly motivated and dedicated to the research enterprise. However, with increasing years after PhD their employment situation becomes increasingly precarious unless they manage to shift tracks into a tenured professor track or similar opportunities at a private company.

Thus the German academic system is facing a particular structural issue, which is related to the distribution of positions between senior and junior postdoctoral staff and the perspectives and career development options related to it.

The lack of an attractive perspective as a project scientist has also implications on research in Germany in the sense that it compromises the attractiveness and competitiveness of German Universities worldwide.

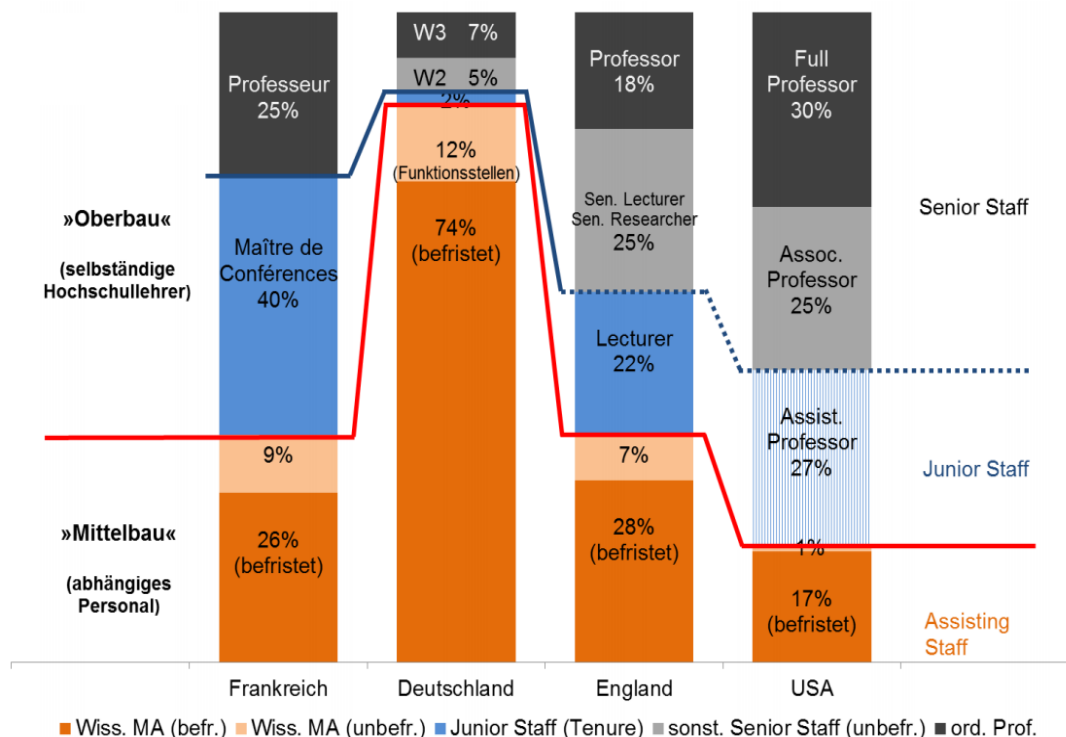
To improve this situation IMAP has identified two main actions, i) forcing a strategic discussion on structural changes within the academic system in Germany and ii) enhancing the competitiveness of postdocs, junior and senior researchers in marine sciences in Kiel.

While the first requires the involvement and engagement of many key players in the German research landscape the second could be addressed in Kiel. The current activities of the Cluster and the new Kiel Academy of Integrated Marine Science (KAIMS) are potentially well posed to establish some pilot models that could ultimately serve as a role model for the University and beyond.

### **2 Background**

The situation of the academic staff in Germany, and -directly linked to that- options for an academic career, are very much determined by the specifics of the German academic system. Compared to other countries such as the UK or the US, the German system has only a very low number of junior (tenure [track]) staff positions (blue on Fig. 1) on offer, and the percentage of professors is significantly smaller. In 2010, 86 % of the full-time academic positions at German Universities were below

the professorship level (orange) which is very high in the international comparison (Fig. 1). Almost 90 % of the respective contracts were temporary (dark orange) and offered no tenure option. 42.5 % of these temporary contracts were financed by third-party funding (BuWiN Report, 2013). In 2012 approx. 65,000 PhD candidates and 100,000 postdocs were employed in Germany (BuWiN Report, 2013).



**Figure 1: Career paths in international comparison (from BuWin Report 2013)**

Explanation of the academic system in Deutschland (Germany) as shown in the graph:

- The Assisting Staff or so-called 'Mittelbau' is comprised of
  - 'Wiss. MA (betr.)' = short-term/temporary Ph.D. and postdoc positions, funding from different sources possible, no tenure (dark orange)
  - 'Wiss. MA (unbetr.)' = permanent research positions, mostly after completing PhD, very limited in number and often still supporting a professor in research, teaching and administration (light orange)
- Junior Staff (Tenure): Juniorprofessor positions were initiated in 2002 to promote earlier career paths towards a professor position; a limited number actually goes with a tenure offer (blue)
- Professor positions: There are two levels of positions, W2 and W3 (grey/black, difference in pay grade)

**Points to note:**

The numbers given in Fig. 1 are suitable to shed light on the situation of academic staff in Germany and elsewhere but the following facts should be considered:

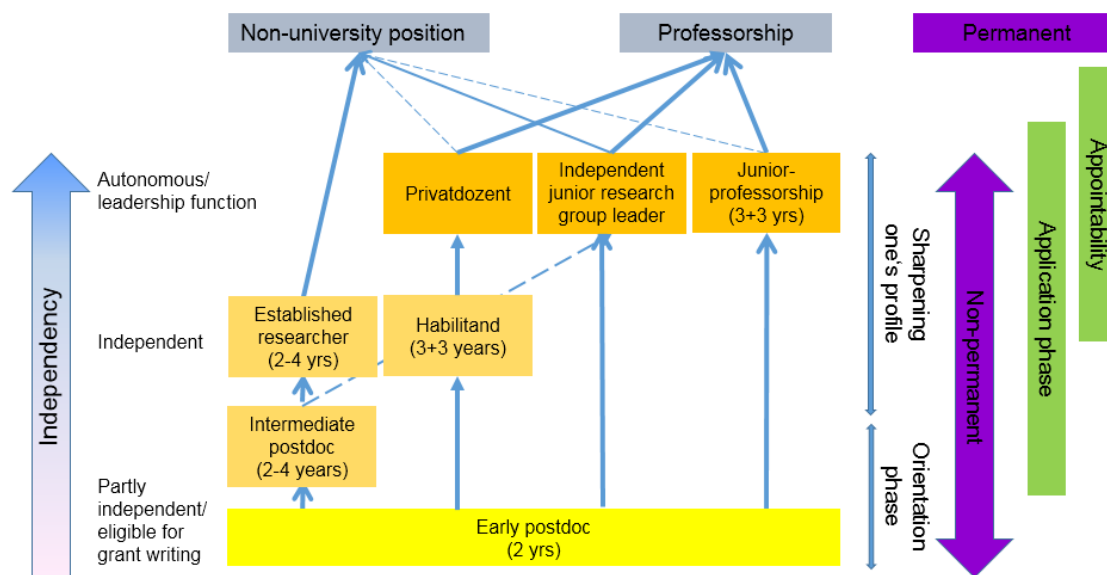
- absolute numbers of people employed in academia may differ significantly between countries
- in Germany only university staff was considered; the data basis for France, England, and the US is not clear
- the nomenclature varies between countries, e.g. while PhD students in the US are considered as students, they are considered as assisting staff on fix-term contracts in Germany; whereas in the US postdocs are usually only scientists within the first few years after PhD who then advance to Assistant Professor, in Germany a postdoc (or assisting staff holding a PhD) could be anyone on a temporary contract irrespective of the state of career advancement.
- In the junior staff category, the German system has only the so-called Juniorprofessor positions (with and without tenure) and a similarly limited number of junior research group leaders (non-permanent, mostly no tenure; see Figure 2), while France, England and especially the US have different levels and more positions for postdocs to advance earlier in their career (Maître de Conférence, Lecturer or Assistant Professor)

### 3 Stepping stones on the German academic career track

In Germany, many research institutions do not have a well-developed career track for postdocs except for the path into the limited number of professorships.

After completing a PhD typically early career scientist are expected to gain several years of postdoctoral experience (Fig. 2). On the academic side the track to a professor position is either via a so-called 3+3 year 'W1 Juniorprofessor' position, which is similar to an Assistant Professorship in the US but normally without tenure option. In parallel there still exists the traditional path via a 'Habilitation', which requires usually about 5 years of independent research and teaching, the writing of a thesis and the proof of teaching ability followed by an application period of unpredictable duration for the rare professor positions available.

Alternatively, a position as an independent junior research group leader offered on a competitive basis either by non-university research institutions such as the Helmholtz Gemeinschaft, or upon application from third parties (German Research Foundation DFG: Emmy Noether; European Union: Marie Curie). These positions are equivalent to the W1 Juniorprofessorship.



**Figure 2: Career paths after PhD in Germany (adopted from German University Association of Advanced Graduate Training (GUAT), Working Group ‘Qualification as a task for the postdoctoral stage’, Kiel University is member, G. Braker representative in the working group. International mobility is not considered here.**

It is not uncommon that early career scientist spend more than ten years after their PhD before obtaining a tenured professorship position. They often work their way through a series of short-term project funded positions, a situation that can be disadvantageous in order to develop a consistent and high impact research portfolio at a high level.

In addition to the uncertainty of third party funded projects all German states have rules that limit temporary employment using University base funding. After 12 years post the master degree (the exact rules vary across Germany), employment either has to be either permanent (tenure at the University) or based on third party projects.

This situation typically leads to a high level of job insecurity which also affects personal issues as this long phase of non-tenured employment often conflicts with the need for some stability during the early family phase.

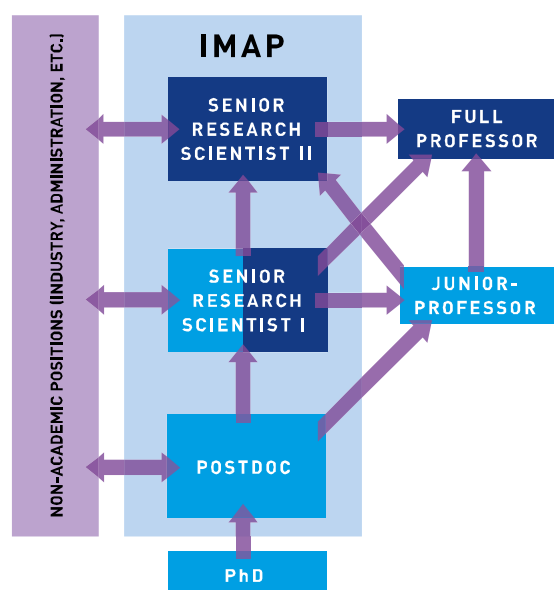
#### 4 Structural discussion

At Kiel University, IMAP has helped to initiate a discussion on long-term career opportunities for researchers on temporary positions among the University authorities. We are in the process of collecting data on the current employment situation of research staff in Kiel including aspects of e.g. gender and nationality.

These data will then be used as a basis for developing and costing models to estimate how the university's employment system would react to creating permanent positions and which time frames would matter until all positions opening up would be filled permanently. These models may then be used to discuss future employment models in a nation-wide context. The intention is not to find solutions that fit to Kiel University only, but to interconnect with similar structures at other institutions and to arrive at a nationwide solution which will then improve the situation of individuals but also affect the German academic system as a whole. To promote this discussion we are in the process of applying for a grant by the highly reputed Volkswagen-Foundation to host an international symposium on this topic in Hannover Herrenhausen in 2015. We plan to involve high-ranking representatives of German and non-German universities, politics and international postdoc organizations. A draft concept submitted to the Foundation was evaluated very positive and a full proposal is in preparation.

## 5 A possible model for a tenure track for postdoctoral researchers

IMAP has made some first steps towards the development of a range of conceptual models that would establish alternative career paths for postdoctoral researchers. One such model parallels the academic track towards a professorship (Fig.3) and will be presented as an example here. It involves successive steps where funding is partitioned between third party and institutional base funding. The fraction of base funding should increase with time, finally ending up in tenured base-funded ideally independent research position.



**Figure 3. Conceptual model of possible academic career paths. Light blue depicts temporary positions, dark blue permanent positions or tenure.**

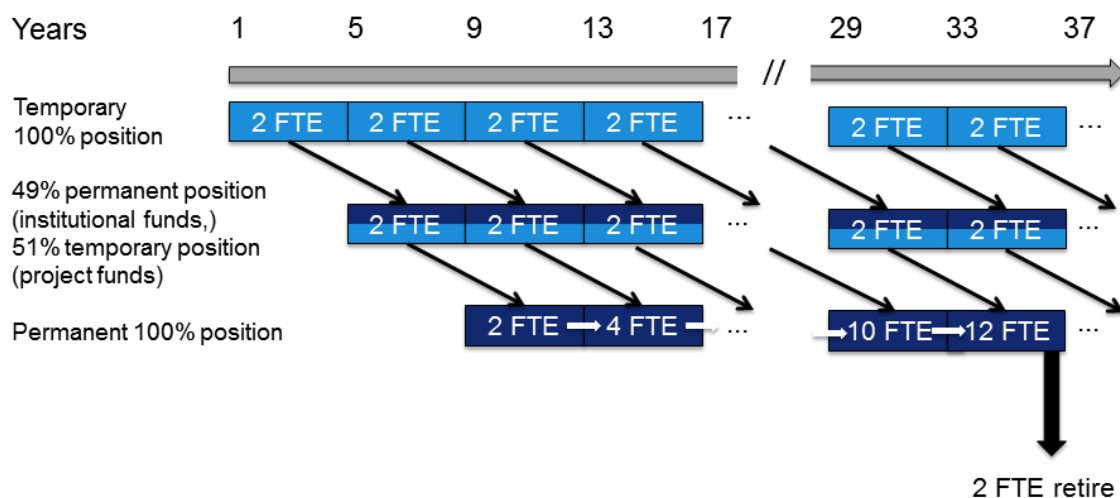
The track should be competitive, performance based. In return the increased level of security allows for a strategic career planning while avoiding a too rigid and maybe too early full tenure option.

This particular proposal is focused on a career track for postdoctoral researchers with clear tenure options and a high level of independence – which could be called the ‘KAIMS Research Associates’ (Fig. 4). However, the exact formalities of funding and employment and the role of the hosting institutions need to be worked out. The ‘KAIMS Research Associates’ should be affiliated primarily with KAIMS and commit themselves to represent and advance the interdisciplinary research agenda of KAIMS (Fig. 5).

Key elements for this career track include:

- opened regularly to allow a flexible entry; be filled on a competitive basis,
- promote independent research and free choice of a host institution in KAIMS,
- offer a successive track into a permanent position according to the model outlined in Fig.3, (depending on the discussions of implementation for tenure of positions within the University of Kiel, GEOMAR or other partners)
- include evaluations that are based on agreed targets and independent reviews after e.g. 4 and 8 years
- status equivalent to a junior research group leader (incl. 2 teaching hours per week, permission to supervise PhD students) after positive review

KAIMS could benefit from establishing these independent researcher positions by promoting the establishment of interdisciplinary groups across the disciplinary landscape of institutions on a long-term basis.



**Figure 4: Scheme illustrating a future employment model of ‘KAIMS Research Associates’ with 2 tenure positions opened every 4 years and the respective funding needs from the start towards a steady state situation.**

In Fig. 4, we illustrate ONE possible scheme of tenured ‘Research Associates’ from non-permanent to permanent positions. This scheme assumes that new positions will be opened every 4 years, and shows on a timeline how positions could advance from temporary over half permanent into full permanent positions after positive evaluations. According to this scheme, approx. 13 full-time equivalent (FTE) positions per 2 entries would have to be funded once the steady state is reached, which would be 33 – 37 years after implementing the scheme.

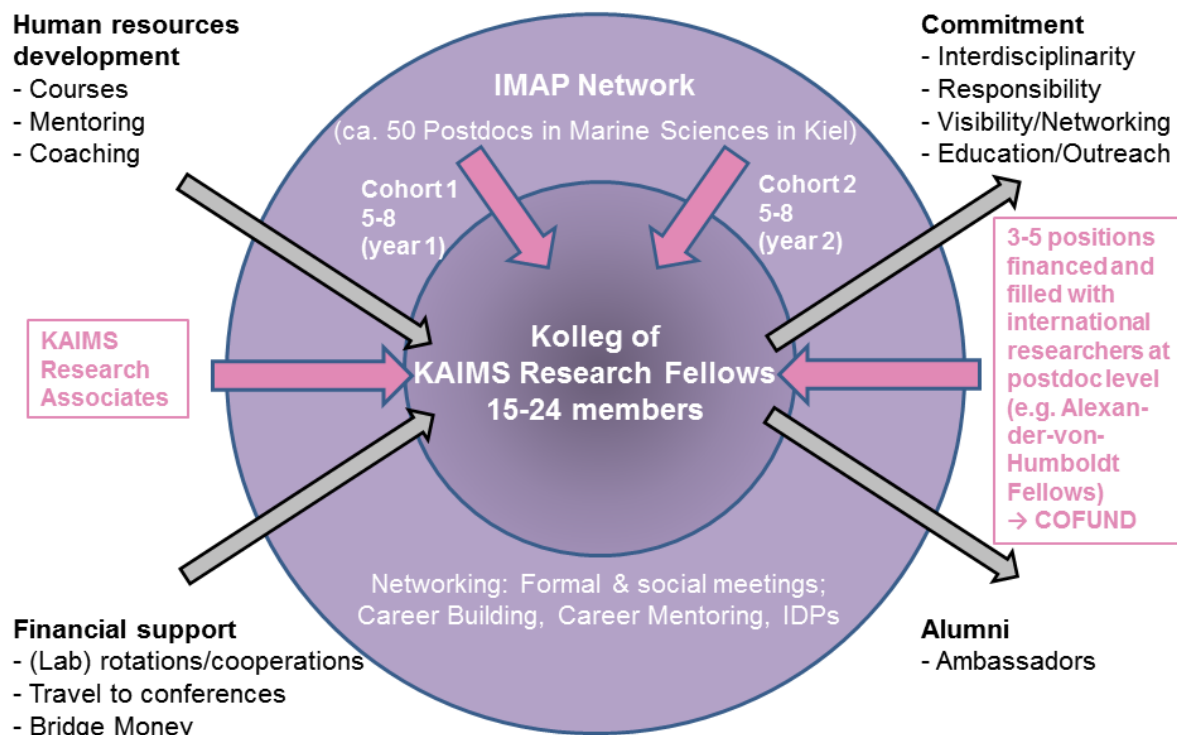
## 6 Development of IMAP as a structural element of KAIMS

Members in the postdoc network IMAP in the Cluster of Excellence ‘The Future Ocean’ mirror the diversity of experience below the professor level in Germany. Their level of experience ranges from early postdocs immediately after completion of their PhD, to senior scientists (10 or more years after PhD). Therefore, inherent to the level of experience, their needs for support are different: While individual career development measures, career orientation and the formation of professional networks are most important for early postdocs, experienced researchers need to gather independence to sharpen their individual profiles and to gain visibility in the scientific community. The employment situation for scientists in Germany and the resulting competition for the rare positions available demand outstanding and recognized qualifications in soft skills and the field of marine sciences to succeed on the track to a leadership position in academia as well as on non-academic career tracks.

We therefore suggest for the post-Cluster phase the implementation of a structure called ‘Kolleg of KAIMS Research Fellows’ which is based on the current characteristics of the IMAP network but with a sharpened profile, as outlined in Fig. 5. The proven successful IMAP structure should be maintained as a multidisciplinary network of young scientists in marine sciences in Kiel to be integrated in KAIMS – including professional coordination.

However, in the future a cohort of postdocs from the network and dedicated to the track into a leadership position will - upon application - be selected for a status as fellows in the Kolleg. Further, the Kolleg might include ‘KAIMS Research Associates’. In addition, the Kolleg will be open to internationally outstanding scientists (e.g. Alexander-von-Humboldt-Fellows), and to fellows funded by EU (COFUND) or other funding bodies.





**Figure 5: Model of a Kolleg of research fellows to be integrated into KAIMS**

Measures of support specifically provided to the KAIMS Research Fellows will include a mentoring scheme/individual coaching and a curriculum of courses to be repeated for every new cohort of fellows entering the Kolleg (Tab. 1). Since the number of fellows involved will be limited, we suggest for the measures of support establishing cooperation with the other Excellence initiatives at Kiel University (Inflammation at Interfaces, Human Development in Landscapes). Only joint forces will enable the follow-up structures of the Excellence initiative to maintain the broad spectrum of supporting measures necessary to allow awarding a prestigious certificate after participation in the training scheme. Financial support strategies available to all KAIMS Research Fellows will include scientific exchange, travel to conferences and bridging of funding gaps.

In a second line of support the Kolleg will provide the fellows with a platform to create a community committed to strengthen the interdisciplinary thematic foci of marine sciences in Kiel by highlighting their showcase projects and initiatives. Fellows will be asked to

- meet for a bi-weekly seminar series in which each fellow presents her or his ongoing research. Visiting speakers can be invited as well. The informal meetings may also be used to initiate group projects. The structure is thought to



foster interdisciplinary and problem-solving discussions among the fellows and with KAIMS,

- design two Academy nights per year to open up a discourse among the partners in KAIMS and with the educated public on topics related to future sustainable developments of the oceans.

This structure is meant for all researchers on temporary positions, irrespective of their individual development level to increase their personal portfolio and to strengthen inter- and transdisciplinary research in marine sciences in Kiel.

**Table 1. Curriculum of courses (Examples – topics will be adjusted after finishing the discussions within the UniWiND working group)**

Year 1	Year 2
<ul style="list-style-type: none"> <li>• Leadership 1/Working in teams</li> <li>• Career planning</li> <li>• Time and self-management</li> <li>• Acquisition of funding/Grant writing</li> <li>• Didactics</li> </ul>	<ul style="list-style-type: none"> <li>• Leadership 2</li> <li>• Project management</li> <li>• Committee work/Networking</li> <li>• Gender-Diversity-Awareness</li> <li>• Media training</li> </ul>
→ <b>Certificate: KAIMS Leadership training</b>	

written by the IMAP-Team (IMAP-Coordinator, IMAP-Co speakers, IMAP-Advisory Panel) within 'The Future Ocean'