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**Subject: Contribution to 50<sup>th</sup> Anniversary of NSCMB**

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Dear Ms Viktoriya Tsoy,

On the occasion of the 50<sup>th</sup> anniversary of the AV Zhirmunsky National Scientific Center of Marine Biology (NSCMB), I am pleased to write a few words about the extremely fruitful cooperation that me and my German colleagues from the Biologische Anstalt Helgoland (BAH) and the Alfred-Wegener-Institute (AWI) had together with Prof. Edouard Titlyanov and Dr. Tamara Titlyanova – meanwhile retired from NSCMB since many years but nevertheless scientifically very active.

I first met this highly motivated science couple after my PhD thesis when I was a young PostDoc in the laboratory of Prof. Klaus Lüning. From the very beginning Eduard and Tamara brought a special touch and atmosphere into the lab. Besides their expertise in physiology and tropical marine algae, their attitude towards work with a never ending motivation for the subjects and expansive discussions on science (and the world), they always brought a huge load of humanity and wisdom to us and we all profited from their friendship and became introduced into far-eastern philosophy.

During the 1990's, the starting cooperation work in the laboratory of Prof. Lüning at the Hamburg Central Station of the BAH dealt with day and night rhythms of growth and cell division in green and red marine macroalgae. As a pleasant worksharing, Petra Kadel, the technical assistant of Prof. Lüning, pre-cultivated the algal material and ran the devices for automatic growth measurement by image analysis, while Edouard and Tamara took over the cell division work. This meant harvesting, staining and microscoping the algal samples at fixed

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intervals, during endless working shifts during day and night. The good thing was that nobody had done such research on macroalgal growth and cell division rhythms with this intensity before, so the results published were to a large extent new to science.

After the cooperation with Prof. Lüning which resulted in three publications on the circadian rhythmicity of intertidal macroalgae and later on applied aspects of macroalgal cultivation (2 publications), the subject of cooperation changed to the taxonomy of tropical marine algae from Hainan (China) when cooperation with myself started. Background was that I had participated in a German Chinese expedition to Hainan in 1990/1992 which resulted in a huge load of herbarium material, but I needed experts to hoist the inherited treasure. Thus AWI invited Edouard and Tamara on six occasions between 2007 and 2013 where they normally spent 6-8 weeks in my laboratory 'overwintering' in rather mild but grey and rainy northern Germany. We worked intensively on the Hainan herbarium material which was completed with material from their own expeditions which took place from 2008 /2009 onwards. This material formed the basis to demonstrate that obvious and deleterious changes have taken place at the island of Hainan during the transition of pristine conditions in 1935 (early collections of Prof C.K. Tseng) to an urbanized coastline. In addition to this ecological view-point on change, which was especially fostered by Edouard, Tamara painstakingly compiled all relevant information on macroalgal taxa of the island of Hainan and published a series of papers dealing with many new records completing the knowledge on distribution and presence of tropical marine macroalgae for the SE-Asian region. In total this fruitful cooperation resulted in five mutual papers.

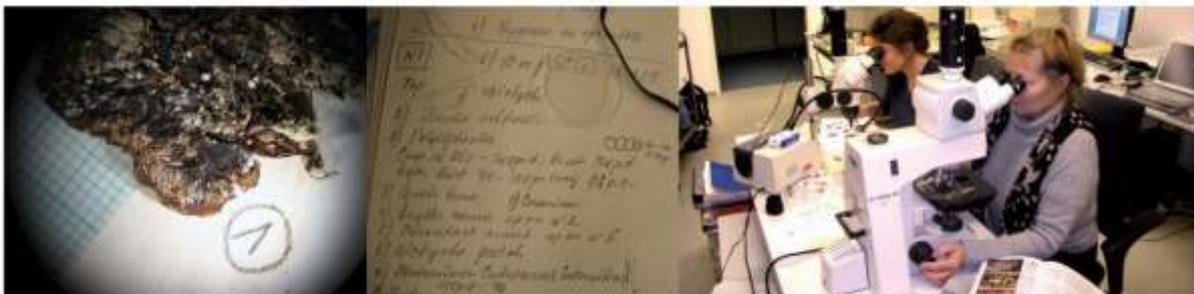
During that time at AWI, Anna Fricke, a PhD student in cooperation with the University of Bremen (Prof. Kai Bischof), worked on juvenile macroalgal stages of the tropical island Curaçao which were very difficult to address taxonomically. It just came at the right time that Anna met Tamara and, together and with the considerable help of Tamara, they solved the problems. Guided by Tamaras experience and patience, Anna not only get trained in this difficult field but also became even more inspired. Driven by the positive and motivating working spirit Tamara and Anna decided to get more out of the herbarium backup material Anna brought back from the field. An effort which resulted in two more publications on macroalgal epiphytes and strongly supported the Thesis of Anna.

I think at AWI we seldom had cooperation partners that were so active over such a long time period and contributed so much to the field. It always was

a pleasure to have Eduard and Tamara with us and besides science, the good hours in friendship are non-forgettable.

We all wish you a happy anniversary of your renown institute!  
Sincerely,

Inka Bartsch



**Fig 1.** Tamara Titlyanova and Anna Fricke working on tropical macroalgae (right picture taken from Titlyanov et al. 2012, page 29, Marine plants of the Asian Pacific region countries, their use and cultivation)



**Fig. 2.** Christmas party in December 2007 at AWI Bremerhaven: Eduard Titlyanov giving an Introduction into the Life in far eastern Russia

**Publications from cooperation with Prof. K. Lüning:**

- Titlyanov, E. A., Titlyanova, T. & Lüning, K. (1996) Diurnal and circadian periodicity of mitosis and growth in marine macroalgae. II. The green alga *Ulva pseudocurvata*. Eur. J. Phycol. 31: 181-188.
- Lüning, K., Titlyanov, E. A. & Titlyanova, T. (1997) Diurnal and circadian periodicity of mitosis and growth in marine macroalgae. III. The red alga *Porphyra umbilicalis*. Eur. J. Phycol. 32: 167-173.
- Schubert, H., Gerbersdorf, S., Titlyanov, E., Titlyanova, T., Granbom, M., Pape, C. and Lüning, K. (2004) Circadian rhythm of photosynthesis in *Kappaphycus alvarezii* (Rhodophyta): independence of the cell cycle and possible photosynthetic clock targets. European Journal of Phycology 39: 423-430.
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- Titlyanov, E., Titlyanova, T. V., Kadel, P. and Lüning, K. (2006) Obtaining plantlets from apical meristem of the red alga *Gelidium* sp. Journal of applied Phycology 18: 167-174.

**Publications from cooperation with Dr. I. Bartsch:**

- Titlyanov, E., Titlyanova, T. V., Xia, B. and Bartsch, I.  (2011) Checklist of marine benthic green algae (Chlorophyta) at the subtropical island of Hainan (China): A comparison between the 1930s and 1990-2009 reveals environmental changes. Botanica Marina 45: 523-536.
- Titlyanova, T. V., Titlyanov, E. A., Xia, B. and Bartsch, I.  (2012) New records of benthic marine green algae (Chlorophyta) for the island of Hainan (China). Nova Hedwigia 94: 441-470.
- Titlyanov, E., Titlyanova, T. V., Xia, B. and Bartsch, I.  (2016) Retrospective analysis of diversity and species composition of marine macroalgae of Hainan Island (China). Ocean Science Journal 51: 1-22.
- Titlyanov, E., Titlyanova, T. V., Xiubao, L., Bartsch, I.  and Xia, B. (2017) The significance of new records of benthic red algae (Rhodophyta) for Hainan Island (and China) between 1990 and 2016. Diversity 9: 1-13.
- Titlyanova, T. V., Titlyanov, E. A., Xiubao, L., Xia, B. and Bartsch, I.  (2018) New records of benthic brown algae (Ochrophyta) from Hainan Island (1990-2016). Coastal Ecosystems 5: 102-129.

**Publications from cooperations with Dr. A. Fricke:**

- Fricke, A., Titlyanova, T.V., Nugues, M.M., Bischof, K. (2011) Depth-related variation in epiphytic communities growing on the brown alga *Lobophora variegata* in a Caribbean coral reef. Coral Reefs 30: 967-973.
- Fricke, A., Titlyanova, T.V., Nugues, M., Bischof, K. (2013). *Neosiphonia howei* (Ceramiales: Rhodomelaceae)—a common epiphyte of the spreading coral reef alga *Lobophora variegata* (Dictyotales: Dictyotaceae). Marine Biodiversity Records 6, E3.
- Fricke, A., Titlyanova, T. V., Teichberg, M., Nugues, M. M., & Bischof, K. (2018). The Chlorophytes of Curaçao (Caribbean): a revised checklist for the south-west coast. Botanica Marina 61: 33-46.